

## LIST OF REFERENCES Part 1

<b>GENERAL SOURCES OF EVIDENCE .....</b>	<b>8</b>
1. <i>Authoritative Bodies that have approved claims .....</i>	8
2. <i>Reports, Scientific Reviews and Dietary Reference Values from Authoritative and other Scientific Bodies ....</i>	9
3. <i>Text Books .....</i>	9
<b>VITAMIN A and Immune Function .....</b>	<b>11</b>
<b>VITAMIN B1 and Cardiac Function .....</b>	<b>11</b>
<b>VITAMIN B6 and Homocysteine.....</b>	<b>11</b>
<b>VITAMIN B6 and Immune Function .....</b>	<b>13</b>
<b>VITAMIN B9 and Homocysteine Metabolism .....</b>	<b>13</b>
<b>VITAMIN B9 and (Cardio)vascular Health .....</b>	<b>14</b>
<b>VITAMIN B12 and Homocysteine Metabolism .....</b>	<b>16</b>
<b>VITAMIN B12 and Cognitive Function in Ageing .....</b>	<b>17</b>
<b>VITAMIN B12 and Energy Metabolism .....</b>	<b>18</b>
<b>BIOTIN .....</b>	<b>19</b>
<b>VITAMIN K and Bone Integrity .....</b>	<b>19</b>
<b>VITAMIN K 2 and Vascular Health .....</b>	<b>20</b>
<b>VITAMIN C and Antioxidant Action .....</b>	<b>21</b>
<b>VITAMIN C and Connective Tissue .....</b>	<b>21</b>
<b>VITAMIN C and Immune Function .....</b>	<b>24</b>
<b>VITAMIN C and Energy Metabolism .....</b>	<b>28</b>
<b>VITAMIN D and Immune Function .....</b>	<b>28</b>
<b>VITAMIN D and Muscle Growth .....</b>	<b>29</b>
<b>VITAMIN E and Immune Function .....</b>	<b>30</b>
<b>CALCIUM and Bone Health .....</b>	<b>33</b>
<b>CALCIUM and Blood Pressure .....</b>	<b>35</b>
<b>CALCIUM and Weight Management .....</b>	<b>36</b>

<b>CALCIUM and Colorectal Cell Protection .....</b>	<b>40</b>
<b>MAGNESIUM and Bone Health .....</b>	<b>42</b>
<b>IRON .....</b>	<b>43</b>
<b>IODINE and Cognitive Development/Thyroid Function .....</b>	<b>44</b>
<b>SELENIUM and Antioxidant Activity .....</b>	<b>45</b>
<b>SELENIUM and Immune System .....</b>	<b>45</b>
<b>SELENIUM and Thyroid Function.....</b>	<b>46</b>
<b>ZINC and Immune Function .....</b>	<b>46</b>
<b>ZINC and Antioxidant Action .....</b>	<b>47</b>
<b>ZINC and Bone Formation.....</b>	<b>47</b>
<b>MANGANESE and Antioxidant Action .....</b>	<b>49</b>
<b>POTASSIUM and Blood Pressure.....</b>	<b>50</b>
<b>CITRATES (as Na-, K-, Ca-, Mg-salts) and Acid Base/ Bone Health .....</b>	<b>50</b>
<b>PROTEIN and Bone Health.....</b>	<b>52</b>
<b>PROTEIN and Satiety / Weight Management.....</b>	<b>53</b>
<b>CARBOHYDRATES - Low GI - Blood Glucose .....</b>	<b>55</b>
<b>CARBOHYDRATES - Low GI - Cholesterol.....</b>	<b>56</b>
<b>CARBOHYDRATES - Low GI - Satiety .....</b>	<b>57</b>
<b>CARBOHYDRATES with a Low Glycaemic Response .....</b>	<b>59</b>
<b>CARBOHYDRATES with a Reduced Glycemic Response.....</b>	<b>60</b>
<b>CARBOHYDRATES and Physical Endurance .....</b>	<b>61</b>
<b>CARBOHYDRATE/GLUCOSE and Cognitive Performance .....</b>	<b>61</b>
<b>CARBOHYDRATES – Non-Cariogenic / Absence of Fermentable.....</b>	<b>62</b>
<b>ISOMALTULOSE and Low Glycaemic Response.....</b>	<b>66</b>
<b>LACTOSE and Calcium Absorption .....</b>	<b>67</b>
<b>POLYOLS and Remineralisation of Teeth .....</b>	<b>68</b>
<b>POLYOLS and Low Glycaemic Properties .....</b>	<b>69</b>

<b>LIPID 1 – Unsaturates – Blood Cholesterol and Heart Health.....</b>	<b>70</b>
<b>LIPID 2 – LA (Omega 6) and LNA (Omega 3) – Artery / Heart Health .....</b>	<b>71</b>
<b>LIPID 3 – LNA to LA Ratio .....</b>	<b>72</b>
<b>LIPID 4 - n3 LC PUFA - Brain Development / Cognitive Function .....</b>	<b>73</b>
<b>LIPID 5 – n3 LC PUFA - Cardiovascular / Heart Health.....</b>	<b>74</b>
<b>LIPID 6 - n3 LC PUFA and Blood Pressure .....</b>	<b>74</b>
<b>LIPID 7 - n3 LC PUFA and Triglycerides .....</b>	<b>75</b>
<b>LIPID 8 - n3 LC PUFA and Endothelial Function / Arterial Function .....</b>	<b>75</b>
<b>LIPID 9 – LC n3 PUFA and Immune System Function Plus Anti-Inflammatory Effect.....</b>	<b>76</b>
<b>LIPID 10 - Cholesterol and Heart Health .....</b>	<b>77</b>
<b>DIETARY FIBRE and Bowel Function .....</b>	<b>77</b>
<b>DIETARY FIBRE and Satiety .....</b>	<b>80</b>
<b>DIETARY FIBRE and Glycemic Response .....</b>	<b>82</b>
<b>DIETARY FIBRE - Oat Beta-Glucan and Cholesterol .....</b>	<b>84</b>
<b>DIETARY FIBRE – Barley Beta-Glucan and Cholesterol .....</b>	<b>89</b>
<b>DIETARY FIBRE – Acacia Gum and Prebiotic Action.....</b>	<b>90</b>
<b>DIETARY FIBRE – Acacia Gum and Improved Intestinal Conditions.....</b>	<b>91</b>
<b>DIETARY FIBRE - Inulin from Chicory 1 .....</b>	<b>92</b>
<b>DIETARY FIBRE – Inulin / FOS (<math>\beta</math>2<math>\rightarrow</math>1 Linked Fructans).....</b>	<b>95</b>
<b>DIETARY FIBRE - Inulin from Chicory 2 .....</b>	<b>97</b>
<b>DIETARY FIBRE – Inulin from Chicory 3 .....</b>	<b>99</b>
<b>DIETARY FIBRE – Inulin from Chicory 4 .....</b>	<b>101</b>
<b>DIETARY FIBRE – Inulin from Chicory 5 .....</b>	<b>102</b>
<b>DIETARY FIBRE - Inulin from Chicory 6 .....</b>	<b>103</b>
<b>DIETARY FIBRE – Inulin from Chicory 7 .....</b>	<b>105</b>
<b>DIETARY FIBRE – Inulin from Chicory 8 .....</b>	<b>107</b>
<b>DIETARY FIBRE – Fructooligosaccharides from Sucrose 1.....</b>	<b>108</b>

DIETARY FIBRE – Fructoligosaccharides from Sucrose 2 .....	110
DIETARY FIBRE – Fructoligosaccharides from Sucrose 3 .....	112
DIETARY FIBRE – Fructoligosaccharides from Sucrose 4 .....	112
DIETARY FIBRE – Galacto-Oligosaccharides and Prebiotic Action .....	113
DIETARY FIBRE – Xylooligosaccharides and Prebiotic Action.....	114
DIETARY FIBRE – Resistant Starch 1 .....	115
DIETARY FIBRE – Sugar Beet Fibre 1.....	117
DIETARY FIBRE – Sugar Beet Fibre 2.....	117
DIETARY FIBRE – Polydextrose and Bowel Function.....	118
DIETARY FIBRE – Polydextrose and Prebiotic Action .....	119
DIETARY FIBRE – Pectins 1.....	119
DIETARY FIBRE – Pectins 2.....	119
PROBIOTIC 1 - Bacillus Subtilis BP6 and Intestinal / Digestive Health .....	120
PROBIOTIC 2 - Bifidobacterium Animalis Lafti B94 (CBS118.529) and Intestinal Flora .....	120
PROBIOTIC 3 - Bifidobacterium Animalis ssp. lactis Bb-12 ® and Intestinal Flora .....	121
PROBIOTIC 4 - Bifidobacterium Animalis ssp. Lactis BB-12® and Lactobacillus LA-5® and Digestive System .....	122
PROBIOTIC 5 - Bifidobacterium Animalis ssp. Lactis BB-12® and Lactobacillus Paracasei ssp. Paracasei CRL-431® and Digestive System.....	123
PROBIOTIC 6 - Bifidobacterium Animalis ssp. lactis BB-12®, Lactobacillus Acidophilus LA-5®, Lactbacillus Bulgaricus LBY-27® and Streptococcus Thermophilus STY-31® and Gut Flora .	123
PROBIOTIC 7 – Bifidobacterium Animalis ssp. Lactis CNCM I-2494 / DN-173 010 and Intestinal Transit .....	123
PROBIOTIC 8 – Bifidobacterium Bifidum CNCM I-373 and Digestive Health .....	125
PROBIOTIC 9 – Bifidobacterium Bifidum I-3426 and Digestive Health.....	126
PROBIOTIC 10 – Bifidobacterium Breve I-3425 and Digestive Health .....	126
PROBIOTIC 11 - Bifidobacterium Breve Yakult (BbY) and Digestive System / Intestinal Flora	126
PROBIOTIC 12 – Bifidobacterium Infantis I-3424 (Rosell-33) and Digestive Health .....	128
PROBIOTIC 13 – Bifidobacterium Longum I-3470 and Digestive Health .....	128

<b>PROBIOTIC 14 – Lactobacillus Acidophilus CNCM I-1722 and Digestive Health .....</b>	<b>129</b>
<b>PROBIOTIC 15 – Lactobacillus Acidophilus CUL21 NCIMB 30156, Lactobacillus Acidophilus CUL 60 NCIMB 30157, Bifidobacterium Adolescentis CUL 17 NCIMB 30153, Bifidobacterium Lactis (animalis ssp. lactis) CUL 34 NCIMB 30172 and Gut Flora .....</b>	<b>129</b>
<b>PROBIOTIC 16 – Lactobacillus Acidophilus Lafti L10 (CBS 116.411) and Digestive Health ....</b>	<b>129</b>
<b>PROBIOTIC 17 – Lactobacillus Acidophilus Lafti L10 (CBS 116.411) and Intestinal Flora.....</b>	<b>130</b>
<b>PROBIOTIC 18 - Lactobacillus Acidophilus NCFM ATCC SD5221 and Gut Health .....</b>	<b>130</b>
<b>PROBIOTIC 19 – Lactobacillus Helveticus I-1722 and Digestive Health.....</b>	<b>132</b>
<b>PROBIOTIC 20 – Lactobacillus Casei Lafti L26 (CBS 116.412) and Intestinal Flora.....</b>	<b>133</b>
<b>PROBIOTIC 21 – Lactobacillus Casei I-3429 and Digestive Health .....</b>	<b>133</b>
<b>PROBIOTIC 22 - Lactobacillus Casei Shirota (LcS) and Gut Health .....</b>	<b>133</b>
<b>PROBIOTIC 23 - Lactobacillus Casei Shirota (LcS) and Digestive System / Bowel Habit .....</b>	<b>136</b>
<b>PROBIOTIC 24 - Lactobacillus Gasseri PA 16/8 and Bifidobacterium Bifidum MF 20/5 and Intestinal Flora / Digestive Health .....</b>	<b>137</b>
<b>PROBIOTIC 25 - Lactobacillus Gasseri CECT5714 and Lactobacillus Coryniformis CECT5711 and Intestinal Flora and Intestinal Transit.....</b>	<b>137</b>
<b>PROBIOTIC 26 – Lactobacillus Helveticus CNCM I-1722 and Bifidobacterium Longum CNCM I-3470 and Digestive System.....</b>	<b>138</b>
<b>PROBIOTIC 27 – Lactobacillus Helveticus CNCM I-1722 and Lactobacillus Rhamnosus CNCM I-1720 and Digestive System.....</b>	<b>139</b>
<b>PROBIOTIC 28 - Lactobacillus Johnsonii La-19/CLbA5 and Bifidobacterium Animalis ssp. Lactis Bf-6/Bif-6/CB111 (Biogarde®/Bioghurt®/Bigarde®/Bighurt®-Cultures) and Intestinal Flora / Digestive Health .....</b>	<b>139</b>
<b>PROBIOTIC 29 - Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Gut Health .....</b>	<b>140</b>
<b>PROBIOTIC 30 - Lactobacillus Paracasei NCC 2461 (ST11) (Pasteur Culture Collection CNCM I-2116) and Gut Health .....</b>	<b>142</b>
<b>PROBIOTIC 31 – Lactobacillus Plantarum and Natural Defences / Digestive Health.....</b>	<b>144</b>
<b>PROBIOTIC 32 – Lactobacillus Plantarum 299v and Digestive System .....</b>	<b>144</b>
<b>PROBIOTIC 33 - Lactobacillus Reuteri ATCC 55730 and Intestinal Flora.....</b>	<b>145</b>
<b>PROBIOTIC 34 - Lactobacillus Rhamnosus ATCC53103 (LGG®) and Gastro-Intestinal Health</b>	<b>147</b>
<b>PROBIOTIC 35 – Lactobacillus Rhamnosus I-1720 and Digestive Health .....</b>	<b>153</b>

<b>PROBIOTIC 36 - Propionibacterium Freudenreichii SI 41 and Propionibacterium Freudenreichii SI 26 Propio-Fidus® and Intestinal Flora.....</b>	<b>153</b>
<b>PROBIOTIC 37 – Saccharomyces Boulardii (trade name PXN68) and Digestive Health.....</b>	<b>153</b>
<b>PROBIOTIC 38 – Sacharomyces Cerevisiae Var Boulardii and Digestive System .....</b>	<b>154</b>
<b>PROBIOTIC 39 – Streptococcus Thermophilus I-3428 and Digestive Health.....</b>	<b>154</b>
<b>PROBIOTIC 40 - Bifidobacterium Animalis ssp. Lactis Bb-12® and Natural Defence/ Immune System .....</b>	<b>154</b>
<b>PROBIOTIC 41 - Bifidobacterium Animalis ssp. Lactis BB-12, Lactobacillus Acidophilus LA-5, Lactbacillus Bulgaricus LBY-27 and Streptococcus Thermophilus STY-31 and Natural Defence / Immune System .....</b>	<b>155</b>
<b>PROBIOTIC 42 - Bifidobacterium Animalis ssp. Lactis BB-12® and Lactobacillus Acidophilus La-5® and Natural Defence / Immune System.....</b>	<b>156</b>
<b>PROBIOTIC 43 – Bifidobacterium Bifidum I-3426 and Immune Defenses / Support of Immunity .....</b>	<b>157</b>
<b>PROBIOTIC 44 – Bifidobacterium Breve I-3425 and Immune Defenses / Support of Immunity</b>	<b>157</b>
<b>PROBIOTIC 45 – Bifidobacterium Infantis I-3424 (Rosell-33) and Immune Defenses / Support of Immunity .....</b>	<b>157</b>
<b>PROBIOTIC 46 - Bifidobacterium Lactis HNO19 AGAL NM97/09513 and Natural Defence/Immune System .....</b>	<b>157</b>
<b>PROBIOTIC 47 – Bifidobacterium Longum I-3470 and Immune Defenses / Support of Immunity .....</b>	<b>159</b>
<b>PROBIOTIC 48 – Lactobacillus Acidophilus CUL21 NCIMB 30156, Lactobacillus Acidophilus CUL 60 NCIMB 30157, Bifibobacterium Adolescentis CUL 17 NCIMB 30153, Bifiidobacterium Lactis (animalis ssp. lactis) CUL 34 NCIMB 30172 and Natural Defence/Immune System .....</b>	<b>159</b>
<b>PROBIOTIC 49 – Lactobacillus Acidophilus Lafti L10 (CBS 116.411) and Natural Defence / Immune System .....</b>	<b>160</b>
<b>PROBIOTIC 50 - Lactobacillus Acidophilus NCFM ATCC SD5221 and Natural Resistance / Defence .....</b>	<b>160</b>
<b>PROBIOTIC 51 – Lactobacillus Helveticus I-1722and Immune Defenses / Support of Immunity .....</b>	<b>162</b>
<b>PROBIOTIC 52 – Lactobacillus Casei CNCM I-1518 / DN-114 001 and Natural Defence .....</b>	<b>162</b>
<b>PROBIOTIC 53 – Lactobacillus Casei I-3429 and Immune Defenses / Support of Immunity .....</b>	<b>166</b>
<b>PROBIOTIC 54 - Lactobacillus Casei Shirota (LcS) and Natural Resistance / Defence .....</b>	<b>166</b>
<b>PROBIOTIC 55 - Lactobacillus Casei Shirota (LcS) and Natural Resistance / Defence (enhance NK cell activity) .....</b>	<b>169</b>

PROBIOTIC 56 - Lactobacillus Casei Shirota (LcS) and Natural Defence (regulation of cell development).....	170
PROBIOTIC 57 - Lactobacillus Fermentum CECT5716 and Natural Defence / Immune System	173
PROBIOTIC 58 - Lactobacillus Gasseri CECT5714 and Lactobacillus Coryniformis CECT5711 and Natural Defence / Immune System.....	174
PROBIOTIC 59 - Lactobacillus Gasseri PA 16/8, Bifidobacterium Bifidum MF 20/5 and Bifidobacterium Longum SP 07/3 and Natural Defence / Immune System .....	175
PROBIOTIC 60 - Lactobacillus Johnsonii La-19/CLbA5 and Bifidobacterium Animalis ssp. Lactis Bf-6/Bif-6/CB111 (Biogarde®/Bioghurt®/Bigarde®/Bighurt®-Cultures) and Natural / Immune Defenses .....	176
PROBIOTIC 61 - Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Natural Defence / Immune System .....	177
PROBIOTIC 62 – Lactobacillus Paracasei NCC 2461 (ST11) (Pasteur Culture Collection CNCM I-2116) and Natural Defence / Immune System .....	178
PROBIOTIC 63 - Lactobacillus Paracasei ssp. Paracasei CRL-431 and Natural Defence / Immune System .....	179
PROBIOTIC 64 – Lactobacillus Plantarum Rosell-1012 and Immune Defenses / Support of Immunity .....	182
PROBIOTIC 65 - Lactobacillus Reuteri ATCC 55730 and Natural Defence .....	182
PROBIOTIC 66 - Lactobacillus Rhamnosus ATCC53103 (LGG®) and Natural Defence / Immune Response .....	183
PROBIOTIC 67 - Lactobacillus Rhamnosus HN001 AGAL NM97/09514 and Natural Defence / Immune System .....	187
PROBIOTIC 68 – Lactobacillus Rhamnosus I-1720 and Immune Defenses / Support of Immunity .....	188
PROBIOTIC 69 – Streptococcus Thermophilus I-3428 and Immune Defenses / Support of Immunity .....	189
PROBIOTIC 70 - Lactobacillus Rhamnosus GR 1 (ATCC 55826) and Lactobacillus Reuteri RC-14 (ATCC 55845) and Vaginal Health/Flora .....	189
PROBIOTIC 71 – Lactobacillus Acidophilus LA14 and Urogenital Tract / Natural Vaginal Defence .....	192
PROBIOTIC 72 – Lactobacillus Rhamnosus and Urogenital Tract / Natural Vaginal Defence ..	192
PROBIOTIC 73 – Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Skin Health.....	192
PROBIOTIC 74 – Lactobacillus Paracasei NCC 2461 (ST11) (Pasteur Culture Collection CNCM I-2116) and Skin Heath .....	193

## GENERAL SOURCES OF EVIDENCE

### **1. Authoritative Bodies that have approved claims**

- **AFSSA**

**AFFSA's list of opinions related to human nutrition (FR)**

<http://www.afssa.fr/Object.asp?IdObj=17334&Pge=0&CCH=070403112237:26:4&cwSID=BEA9A33C833E48A380BBDE26728C919B&AID=0>

**Miscellaneous reports of AFFSA (some related to nutrition) (FR)**

<http://www.afssa.fr/Object.asp?IdObj=164&Pge=0&CCH=070403112237:26:4&cwSID=BEA9A33C833E48A380BBDE26728C919B&AID=0>

- **ANZFA** - Food Standards Australia, New Zealand <http://www.foodstandards.gov.au/>

- **CEDAP.** Avis de la commission interministérielle d'étude des produits destinés à une alimentation particulière (CEDAP) en date du 18 décembre 1996 sur les recommandations relatives au caractère non trompeur des seuils des allégations nutritionnelles fonctionnelles. BOCCRF (Bulletin Officiel de la Concurrence, de la Consommation et de la Répression des fraudes) du 7 octobre 1997

- **CH** - Switzerland - Ordonnance du March 1995 sur les denrnées alimentaires et les objets usuels (ODAIQUs)

[http://www.admin.ch/ch/f/rs/c817\\_02.html](http://www.admin.ch/ch/f/rs/c817_02.html)

<http://www.baq.admin.ch/themen/ernaehrung/02907/03002/index.html?lang=fr>

- **FDA** Food and Drug Administration of the USA. Code of Federal Regulations; 21 CFR 101

- **FNFC/FOSHU** – Japan

<http://www.mhlw.go.jp/english/topics/foodsafety/fhc/index.html>

- **JHCI** – Joint Health Claims Initiative – Final Technical Report – A List of Well Established Nutrient Function Statements

[http://www.food.gov.uk/multimedia/pdfs/jhci\\_healthreport.pdf](http://www.food.gov.uk/multimedia/pdfs/jhci_healthreport.pdf)

- **NFA** – Terveysvätteiden valvontaopas, Finnish Food Authority Control guides number 2/2002

[http://www.palvelu.fi/evi/evi\\_material.php](http://www.palvelu.fi/evi/evi_material.php)

- **NHPD** – Health Canada Permitted Health Claims

<http://laws.justice.gc.ca/en/F-27/C.R.C.-c.870/236932.html#Section-B.01.603>

- **SNF** – Swedish Nutrition Foundation

[http://www.snf.ideon.se/snff/en/rh/Health\\_claims\\_FF.htm](http://www.snf.ideon.se/snff/en/rh/Health_claims_FF.htm)

## **2. Reports, Scientific Reviews and Dietary Reference Values from Authoritative and other Scientific Bodies**

- COMA 1991. Department of Health. Dietary Reference Values for Food Energy and Nutrients for the United Kingdom. Report of the panel on dietary reference values of the committee on medical aspects of food policy. London: HSMO
- D\_A\_CH (Deutsche Gesellschaft für Ernährung, Österreichische Gesellschaft für Ernährung, Schweizerische Gesellschaft für Ernährungsforschung, Schweizerische Vereinigung für Ernährung). Referenzwerte für die Nährstoffzufuhr. First Edition, Umschau Braus Verlag Frankfurt am Main, 2000.
- FAO/WHO. Human vitamin and mineral requirements. Report of a joint FAO/WHO expert consultation Bangkok, Thailand 2002.
- Institute of Medicine - USA
  1. *Institute of Medicine Dietary Reference Intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium and zinc.* Washington D.C. National Academy Press, 2001.  
<http://books.nap.edu/openbook.php?isbn=0309072794>
  2. *Institute of Medicine Dietary Reference Intakes for Vitamin C, Vitamin E, selenium and carotenoids.* Washington D.C. National Academy Press, 2000.  
<http://books.nap.edu/openbook.php?isbn=0309069351>
  3. *Institute of Medicine Dietary reference intakes for thiamin, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid, biotin and choline.* Washington D.C. National Academy Press 2000a  
<http://books.nap.edu/openbook.php?isbn=0309065542>
  4. *Institute of Medicine Dietary Reference Intakes for calcium, phosphorus, magnesium, vitamin D, and fluoride.* Washington D.C. National Academy Press, 1997.  
<http://books.nap.edu/openbook.php?isbn=0309063507>
  5. *Institute of Medicine Dietary Reference Intakes Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids (Macronutrients)* Washington D.C. National Academy 2005.  
<http://books.nap.edu/openbook.php?isbn=0309085373>
- Safe Upper Levels of Vitamins and Minerals. Report of the Expert Group on Vitamins and Minerals. 2003.  
<http://www.food.gov.uk/multimedia/webpage/vitandmin/howsafetyadviceproduced>
- World Health Organization and Food and Agriculture Organization, 2004 Vitamin and mineral requirements in human nutrition, Second edition,
- World Health Organization (1996) In Trace elements in human nutrition and health. World Health Organization, Geneva;
- WHO 2003. Diet, nutrition and the prevention of chronic diseases. Report of a Joint WHO/FAO expert consultation Geneva, World Health Organization, 28 January - 1 February 2002 [Public Health Nutrition, Volume 7(1A), February 2004. Special issue - Diet, nutrition and the prevention of chronic diseases: scientific background papers of the joint WHO/FAO expert consultation ]

## **3. Text Books**

- Biesalski HK, J. Schrezenmeir, P. Weber P, Weiß H (eds) Vitamine; Physiologie, Pathophysiologie, Therapie. Georg Thieme Verlag, 1997, ISBN 3-13-118401-9

- Biesalski HK, „Ernährungsmedizin“, Thieme Verlag Stuttgart, 3. überarbeitete und erweiterte Auflage, Juni 2004
- Elmadfa I, Leitzmann C. Ernährung des Menschen. Fourth Edition, Verlag Eugen Ulmer Stuttgart, 2004
- Encyclopedia of Human Nutrition 2nd Edition. Editor-in-chief, Michele J. Sadler, editors, J.J. Strain, Benjamin Caballero. San Diego : Academic Press, 1999.
- Garrow JS, James WPT, Ralph A. Human Nutrition and Dietetics. Tenth Edition, Churchill Livingstone (Harcourt Publishers) London, 2000.
- Gibney MJ, Voster, HH, Kok FJ (eds) Introduction to human nutrition. Blackwell Publishing, Oxford, 2002.
- Gröber, U. Orthomolekulare Medizin. 2. Ed. Wissenschaftl. Verlagsgesellschaft Stuttgart 2002.
- Hahn, Ströhle, Wolters: Ernährung. Physiologische Grundlagen, Prävention, Therapie. WVG. 2005 (textbook)
- Kasper H. Ernährungsmedizin und Diätetik. Tenth Edition, Urban & Fischer Verlag München, 2004
- Mann J, Truswell AS. Essentials of Human Nutrition, 2nd ed. Oxford University Press, 2001.
- Martin A et al., Apports nutritionnels conseillés pour la population française , Third Edition, Tec&Doc, 2001
- O'Dell, B.L. and Sunde, R.A. eds Handbook of nutritionally essential mineral elements,, Marcel Dekker Inc., New York, Basel, Hong Kong,
- Present knowledge in Nutrition, 8th edition. Washington, DC, ILSI Press,
- Rucker, R.B.; Suttie, J.W.; McCormick, D.B., Machlin, L.J. (eds): Handbook of vitamins; 3rd ed, Marcel Dekker Inc, New York, 2001.
- Shils M.E.; Olson, J.A.; Shike, M. and Ross, A.C. (eds): Modern Nutrition in Health and Disease, 9th edition. Williams & Wilkins, Baltimore, 1999.
- Watzl B, Leitzmann C. Bioaktive Substanzen in Lebensmitteln. Second Edition, Hippokrates Stuttgart, 1999.

## **VITAMIN A and Immune Function**

### ***Authoritative/Scientific Bodies***

- JHCI, Final technical report by the Joint Health Claims Initiative to the Food Standards Agency, 2003 p27 and Annex 4.1 p73-74  
[http://www.food.gov.uk/multimedia/pdfs/jhci\\_healthreport.pdf](http://www.food.gov.uk/multimedia/pdfs/jhci_healthreport.pdf)
- WHO, Vitamin A supplementation  
<http://www.who.int/vaccines/en/vitamina.shtml - issues>

### ***Reviews and Individual Studies***

- Cantorna et al. In vitamin A deficiency multiple mechanism establish a regulatory T helper cell imbalance with excess Th1 and insufficient Th2 function. *J immunol.* 1994 Feb;152 (4): 1515-22.
- Chew BP et al. Carotenoid action to immune response. *J Nutr.* 2004; 134(1): 98-101.
- Elitsur Y et al. Vitamin A and retinoic acids immunomodulation on human gut lymphocytes. *Immunopharmacology.* 1997 Jan; 35(3): 247-53.
- Iwata M et al. Retinoic acids exert direct effects on T cells to suppress Th1 development and enhance Th2 development via retinoic acid receptors. *Int Immunol.* 2003 Aug;15(8) : 1017-25.
- Semba RD. Vitamin A and immunity to viral, bacterial and protozoan infections. *Proc Nutr Soc.* 1999 Aug; 58 (3): 719-27

## **VITAMIN B1 and Cardiac Function**

### ***Individual Studies***

- Bender DA. Optimum nutrition: thiamin, biotin and pantothenate. *Proceedings of the Nutrition Society* 1999;58:427-433.
- Blanc P. et al. Severe metabolic acidosis and heart failure due to thiamine deficiency. *Nutrition* 2002;18(1):118.
- Several specific metabolic deficiencies have been found in the failing myocardium: a reduction in L-carnitine, coenzyme Q10, creatine, and thiamine nutrient co-factors important for myocardial energy production.
- Sole MJ. et al Conditioned nutritional requirements: Therapeutic relevance to heart failure. *Herz* 2002;27(2):174-178.

## **VITAMIN B6 and Homocysteine**

### ***Meta-Analysis***

- Clarke R. Lowering blood homocysteine with folic acid based supplements: meta-analysis of randomised trials. *Homocysteine Lowering Trialists' Collaboration.* *BMJ* 1998;316:894-898.
- Homocysteine Lowering Trialists' Collaboration (2005) Dose-dependent effects of folic acid on blood concentrations of homocysteine: a meta-analysis of the randomized trials. *American Journal of Clinical Nutrition,* 82: 806-12.

### ***Individual Studies***

- Bates CJ, Pentieva KD, Prentice A, Mansoor MA, Finch S. Plasma pyridoxal phosphate and pyridoxic acid and their relationship to plasma homocysteine in a representative sample of British men and women aged 65 years and over. *Br J Nutr* 1999;81:191-201.
- Boushey CJ, Beresford SA, Omenn GS, Motulsky AG. A quantitative assessment of plasma homocysteine as a risk factor for vascular disease. Probable benefits of increasing folic acid intakes [see comments]. *JAMA* 1995;274:1049-1057.
- Dakshinamurti K, Lal KJ, Ganguly PK. Hypertension, calcium channel and pyridoxine (vitamin B6). *Mol.Cell Biochem.* 1998;188:137-148.
- De Deckere EAM. Cardiovascular disease and plasma homocysteine: role of folate/folic acid, vitamin B6, and vitamin B12. *VD 00 0334* (2000).
- Folsom AR, Nieto FJ, McGovern PG et al. Prospective study of coronary heart disease incidence in relation to fasting total homocysteine, related genetic polymorphisms, and B vitamins: the Atherosclerosis Risk in Communities (ARIC) study. *Circulation* 1998;98:204-210.
- Haller J. The vitamin status and its adequacy in the elderly: an international overview. *Int J Vitam Nutr Res* 1999;69:160-168.
- Leklem JE. In: *Present Knowledge in Nutrition*, Ziegler EE, Filer LJ, eds. ILSI Press, Washington DC 1996, pp 176-178.
- McKinley MC, McNulty H, McPartlin J et al. Low-dose vitamin B-6 effectively lowers fasting plasma homocysteine in healthy elderly persons who are folate and riboflavin replete. *Am J Clin.Nutr.* 2001;73:759-764.
- Rimm EB, Willett WC, Hu FB et al. Folate and vitamin B6 from diet and supplements in relation to risk of coronary heart disease among women. *JAMA* 1998;279:359-364.
- Robinson K, Mayer EL, Miller DP et al. Hyperhomocysteinemia and low pyridoxal phosphate. Common and independent reversible risk factors for coronary artery disease. *Circulation* 1995;92:2825-2830.
- Robinson K, Arheart K, Refsum H et al. Low circulating folate and vitamin B6 concentrations: risk factors for stroke, peripheral vascular disease, and coronary artery disease. European COMAC Group. *Circulation* 1998;97:437-443.
- Selhub J, Jacques PF, Bostom AG et al. Association between plasma homocysteine concentrations and extracranial carotid-artery stenosis. *N Engl J Med* 1995;332:286-291.
- Tsuge H, Hotta N, Hayakawa T. Effects of vitamin B-6 on (n-3) polyunsaturated fatty acid metabolism. *J Nutr.* 2000;130:S333-S334.
- van Dijk RA, Rauwerda JA, Steyn M, Twisk JW, Stehouwer CD. Long-term homocysteine-lowering treatment with folic acid plus pyridoxine is associated with decreased blood pressure but not with improved brachial artery endothelium-dependent vasodilation or carotid artery stiffness: a 2-year, randomized, placebo-controlled trial. *Arterioscler.Thromb.Vasc.Biol.* 2001;21:2072-2079.
- VERA Schriftenreihe. Kübler W, Anders HJ, Heeschen W, Kohlmeier M, eds. Band III Lebensmittel- und Nährstoffaufname Erwachsener in der Bundesrepublik Deutschland. Die Wissenschaftlicher Fachverlag Dr. Fleck. Niederkleen, Germany, 1992.
- VERA Schriftenreihe. Kübler W, Anders HJ, Heeschen W, Kohlmeier M, eds. Band IV Vitaminversorgung Erwachsener in der Bundesrepublik Deutschland. Die Wissenschaftlicher Fachverlag Dr. Fleck. Niederkleen, Germany, 1992.
- Verhoef P, Meleady R, Daly LE, Graham IM, Robinson K, Boers GH. Homocysteine, vitamin status and risk of vascular disease; effects of gender and menopausal status. European COMAC Group. *Eur Heart J* 1999;20:1234-1244.

## **VITAMIN B6 and Immune Function**

### ***Scientific Bodies/Text Books***

- Deutsche Gesellschaft für Ernährung(German Society of Nutrition).
- Biesalski et al. 'Nutritional medicine', 2004
- Gröber, U. Orthomolekulare Medizin. 2. Ed. Wissenschaftl. Verlagsgesellschaft Stuttgart 2002.

### ***Reviews and Individual Studies***

- Chandra, R.K. and Sudhakaran, L. (1990) Regulation of immune responses by vitamin B6. Ann. N.Y. Acad. Sci. 585, 404-423
- Frisco, S.; Girelli, D.; Martinelli, N.; Olivieri, O.; Lotto, V.; Bozzini, C.; Pizzolo, F.; Faccini, G.; Beltrame, F. and Corrocher, R. (2004) Low plasma vitamin B6 concentrations and modulation of coronary artery disease risk. Am. J. Clin. Nutr. 79, 992-998
- Kwak, H.K.; Hansen, C.M.; Leklem, J.E.; Hardin, K. and Shultz, T.D. (2002) Improved vitamin B-6 status is positively related to lymphocyte proliferation in young women consuming a controlled diet. J. Nutr. 132, 3308-3313
- Long, .KZ. and Santos, J.L. (1999) Vitamins and the regulation of the immune response. Ped. Inf. Dis. J. 18, 283-290
- Meydani, S.N. and Han, S.N. (2001) Nutrition regulation of the immune response: the case of vitamin E; in Bowman, B.A. and Russel, R.M. (eds): Present knowledge in Nutrition, 8th edition. Washington, DC, ILSI Press, chapter 41, pp 449-462
- Meydani, S.N.; Ribaya-Mercado, J.D.; Russel,I R.M.; Sahyoun. N.; Morrow, F.D. and Gershoff, S.N. (1991) Vitamin B-6 deficiency impairs interleukin 2 production and lymphocyte proliferation in elderly adults. Am. J. Clin. Nutr. 53, 1275-1280
- Miller, L.T. and Kerkvliet, N.T. (1990) Effect of vitamin B6 on immune competence in the elderly. Ann. N.Y. Acad. Sc. 587, 49-54
- Namazi, M.R. (2003) Pyridoxal 5'-phosphate as a novel weapon against autoimmunity and transplant rejection. FASEB J 1, :2184-2186
- Rall, L.C. and Meydani, S.N. (1993) Vitamin B6 and immune competence. Nutr. Rev.51, 217-225
- Trakatellis, A.; Dimitriadou, A. and Trakadelli, M. (1997) Pyridoxine deficiency: new approaches in immunosuppression and chemotherapy. Postgr. Med. J. 73, 617-622
- Van den Berg, H.; Mulder, J.; Spanhaak, S.; Dokkum, W.V. and Oickhuizen, T. (1988) The influence of marginal vitamin B-6 status on immunological indices; in Leklem, J.E. and Reynolds, R.D. (eds): Clinical and physiological applications of vitamin B-6. New York, N.Y., Alan R Liss, pp 147-155

## **VITAMIN B9 and Homocysteine Metabolism**

### ***Meta-Analysis***

- Homocysteine Lowering Trialists' Collaboration (2005) Dose-dependent effects of folic acid on blood concentrations of homocysteine: a meta-analysis of the randomized trials. American Journal of Clinical Nutrition, 82: 806-12.
- Klerk M, Verhoef P, Clarke R, Blom HJ, Kok FJ, Schouten EG; MTHFR Studies Collaboration Group. MTHFR 677C-->T polymorphism and risk of coronary heart disease: a meta-analysis. JAMA. 2002 Oct 23-30;288(16):2023-31.

## **Review**

- Verhoef P, de Groot LC. Dietary determinants of plasma homocysteine concentrations. *Semin Vasc Med.* 2005 May;5(2):110-23.

## **Individual Studies**

- Appel, LJ, Miller ER, Jee, SH, Stolzenberg-Solomon, R et al. (2000) Effect of dietary patterns on serum homocysteine. Results of a randomized, controlled feeding study. *Circulation*, 102, 852-7.
- Brevik, A, Vollset, SE, Tell, GS, Refsum, H et al. (2005) Plasma concentration of folate as a biomarker for the intake of fruit and vegetables: the Hordaland Homocysteine Study. *The American Journal of Clinical Nutrition*, 81, 434-9.
- Brouwer, IA, van Dusseldorp, M, West, CE, Meyboom, S et al. Dietary folate from vegetables and citrus fruit decreases plasma homocysteine concentrations in humans in a dietary controlled trial. *Journal of Nutrition*, 129, 1135-9.
- Brouwer, IA, van Dusseldorp, M, Thomas, CMG, Duran, M et al. Low-dose folic acid supplementation decreases plasma homocysteine concentrations: a randomized trial. *The American Journal of Clinical Nutrition*, 69, 99-104.
- Durga J, Bots ML, Schouten EG, Kok FJ, Verhoef P. Low concentrations of folate, not hyperhomocysteinemia, are associated with carotid intima-media thickness. *Atherosclerosis*. 2005 Apr;179(2):285-92.
- Ganji, V & Kafai, MR (2004) Frequent consumption of milk, yogurt, cold breakfast cereals, peppers and cruciferous vegetables and intakes of dietary folate and riboflavin but not vitamins B-12 and B-6 are inversely associated with serum total homocysteine concentrations in the US population. *The American Journal of Clinical Nutrition*, 80, 1500-7.
- Gao, X, Yao, M, McCrory, MA, Ma, G et al. (2003) Dietary pattern is associated with homocysteine and B vitamin status in an urban Chinese population. *Journal of Nutrition*, 133, 3636-42.
- Picciano, MF, West, SG, Ruch, AL, Kris-Etherton, PM et al. (2004) Effect of cow milk on food folate bioavailability in young women. *The American Journal of Clinical Nutrition*, 80, 1565-9.
- Van Oort, FVA, Melse-Boonstra, A, Brouwer, IA, Clarke, R et al. (2003) Folic acid and reduction of plasma homocysteine concentrations in older adults: a dose-response study. *The American Journal of Clinical Nutrition*, 77, 1318-23.

## **VITAMIN B9 and (Cardio)vascular Health**

### **Authoritative/Scientific Bodies**

- Council Directive 90/496/EEC of 24 September 1990 on nutrition labelling for foodstuffs, document: 390L0496. *Official Journal L276*, 06/10/1990 P. 0040-0044.
- Holland B, Welch AA, Unwin ID, Buss DH, Paul AA, Southgate DAT. McCance and Widdowson's The composition of foods, 5th edn. UK: Royal Society of Chemistry and Ministry of Agriculture, Fisheries and Food, 1991.
- Malinow MR, Bostom AG, Krauss RM, Homocysteine, diet and cardiovascular diseases. A statement for Healthcare Professionals from the Nutrition Committee American heart Association. *Circulation*. 1999; 99:178-182.
- UK Committee on Medical Aspects of Food and Nutrition Policy. Folic acid and the prevention of disease. London, Stationery Office, 2000.

## **Reviews**

- Bergen C, Compher C. Total homocysteine concentration and associated cardiovascular and renal implications in adults. *J Cardiovasc Nurs.* 2006 Jan-Feb;21(1):40-6.
- Eikelboom JW, Lonn E, Genest JJ, Hankey G, Yusuf S. Homocyst(e)ine and cardiovascular disease: a critical review of the epidemiologic evidence. *Ann Intern Med* 1999;131:363-375.

## **Meta-Analysis**

- Angelika de Bree, Linda A. van Mierlo, Richard Draijer; Folic acid improves vascular reactivity in humans: a meta-analysis of randomized controlled trials. Accepted for publication in the American Journal of Clinical Nutrition.

## **Individual Studies**

- Bates CJ, Mansoor MA, van der Pols J, Prentice A, Cole TJ, Finch S. Plasma total homocysteine in a representative sample of 972 British men and women aged 65 and over. *Eur J Clin Nutr* . 1997;51:691-697.
- Bazzano LA, He J, Ogden LG et al. Dietary intake of folate and risk of stroke in US men and women: NHANES I Epidemiologic Follow-up Study. National Health and Nutrition Examination Survey. *Stroke* 2002;33:1183-1189.
- Beresford SA, Boushey CJ. Homocysteine, folic acid, and cardiovascular diseases risk. In: Bendich A, Deckelbaum RJ, eds. Preventive Nutrition. Totowa NJ, USA: Humana Press 1997:193-224.
- Boushey CJ, Beresford SA, Omenn GS, Motulsky AG. A quantitative assessment of plasma homocysteine as a risk factor for vascular disease. Probable benefits of increasing folic acid intakes. *JAMA* 1995;274:1049-1057.
- Cesari M., Rossi GP, Sticchi D, Pessina AC. Is homocysteine as risk factor for coronary heart disease? *Nutr Metab Cardiovasc Dis.* 2005 Apr; 15(2):140-7
- Cheearag Shirodaria, Charalambos Antoniades, Justin Lee, Clare E. Jackson, Matthew D. Robson, Jane M. Francis, Stuart J. Moat, Chandi Ratnatunga, Ravi Pillai, Helga Refsum, Stefan Neubauer, and Keith M. Channon; Global Improvement of Vascular Function and Redox State With Low-Dose Folic Acid: Implications for Folate Therapy in Patients With Coronary Artery Disease; *Circulation* 2007 115: 2262 - 2270; published online before print April 9 2007, doi:10.1161/CIRCULATIONAHA.106.679084
- Christen WG, Ajani UA, Glynn RJ, Hennekens CH. Blood levels of homocysteine and increased risks of cardiovascular disease: causal or casual? *Arch Intern Med* 2000;160:422-434.
- Eichholzer M, Luthy J, Gutzwiller F, Stahelin HB. The role of folate, antioxidant vitamins and other constituents in fruit and vegetables in the prevention of cardiovascular disease: the epidemiological evidence. *Int J Vitam Nutr Res.* 2001 Jan;71(1):5-17
- Finch S, Doyle W, et al. National Diet and Nutrition Survey: people aged 65 years and over. Volume 1: Report of the diet and nutrition survey. London, The Stationery Office, 1998
- Guthikonda S., Haynes WG. Homocysteine: role and implications in atherosclerosis. *Curr Atheroscler Rep.* 2006 Mar; 8(2):100-6.
- Homocysteine Lowering Trialists' Collaboration. Lowering blood homocysteine with folic acid based supplements: meta-analysis of randomised trials. *BMJ*. 1998 Mar 21; 316 (7135): 894-8.
- Jacques PF, Bostom AG, Williams RR et al. Relation between folate status, a common mutation in methylenetetrahydrofolate reductase, and plasma homocysteine concentrations. *Circulation* 1996;93:7-9.

- Jacques PF, Rosenberg IH, Rogers G et al. Serum total homocysteine concentrations in adolescent and adult Americans: results from the third National Health and Nutrition Examination Survey. *Am J Clin Nutr* 1999;69:482-489.
- Jacques PF, Selhub J, Boston AG, Wilson PW, Rosenberg IH. The effect of folic acid fortification on plasma folate and total homocysteine concentrations. *N Engl J Med* 1999;340:1449-1454.
- Joosten E, van den Berg A, Riezler R et al. Metabolic evidence that deficiencies of vitamin B-12 (cobalamin), folate, and vitamin B-6 occur commonly in elderly people. *Am J Clin Nutr* 1993;58:468-476.
- Klevay LM. The homocysteine theory of arteriosclerosis. *Nutr Rev*. 1992 May;50(5):155.
- Mayer EL, Jacobsen D, Robinson K. Homocysteine and coronary atherosclerosis. *J Am Coll Cardiol*. 1996;27:517-527.
- Nygard O, Vollset SE, Refsum H, Brattstrom L, Ueland PM. Total homocysteine and cardiovascular disease. *J Intern Med* 1999;246:425-454.
- Refsum H, Ueland PM. Recent data are not in conflict with homocysteine as a cardiovascular risk factor. *Curr Opin Lipidol* 1998;9:533-539.
- Rimm EB, Willett WC, Hu FB et al. Folate and vitamin B6 from diet and supplements in relation to risk of coronary heart disease among women. *JAMA* 1998;279:359-364.
- Ueland PM, Refsum H, Beresford SA, Vollset SE. The controversy over homocysteine and cardiovascular risk. *Am J Clin Nutr* 2000;72:324-332.
- VERA Schriftenreihe. Kübler W, Anders HJ, Heeschen W, Kohlmeier M, eds. Band III Lebensmittel- und Nährstoffaufnahme Erwachsener in der Bundesrepublik Deutschland. Die Wissenschaftlicher Fachverlag Dr. Fleck. Niederkleen, Germany, 1992.
- VERA Schriftenreihe. Kübler W, Anders HJ, Heeschen W, Kohlmeier M, eds. Band IV Vitaminversorgung Erwachsener in der Bundesrepublik Deutschland. Die Wissenschaftlicher Fachverlag Dr. Fleck. Niederkleen, Germany, 1992.
- Verhoef P, Kok FJ, Kluijtmans LA et al. The 677C-->T mutation in the methylenetetrahydrofolate reductase gene: associations with plasma total homocysteine levels and risk of coronary atherosclerotic disease. *Atherosclerosis* 1997;132:105-113.
- Verhoef P, Stampfer MJ, Buring JE et al. Homocysteine metabolism and risk of myocardial infarction: relation with vitamins B6, B12, and folate. *Am J Epidemiol* 1996;143:845-859.
- Villa P., Suriano R., Costantini B., Macri F., Ricciardi L., Campagna G., Lanzone A. Hyperhomocysteinemia and cardiovascular risk in postmenopausal women : the role of folate supplementation. *Clin Chem Lab Med*. 2007;45(2):130-5.
- Wilmink HW, Stroes ES, Erkelens WD, et al. Influence of folic acid on postprandial dysfunction. *Arterioscler Thromb Vasc Biol*. 2000;20:185-188.

## **VITAMIN B12 and Homocysteine Metabolism**

### **Meta-Analysis**

- Homocysteine Lowering Trialists' Collaboration (2005) Dose-dependent effects of folic acid on blood concentrations of homocysteine: a meta-analysis of the randomized trials. *American Journal of Clinical Nutrition*, 82: 806-12.
- Lowering blood homocysteine with folic acid based supplements: meta-analysis of randomised trials. Homocysteine Lowering Trialists' Collaboration. *BMJ*. 1998 Mar 21; 316 (7135): 894-8. Texte intégral : <http://bmj.com/cgi/content/full/316/7135/894>

### **Individual Studies**

- Koebnick, C, Hoffmann, I, Dagnelie, PC, Heins, UA, Wickramasinghe, SN, Ratnayaka, ID, Gruendel, S, Lindemans, J & Leitzmann, C (2004) Long-term ovo-lacto vegetarian diets impairs vitamin B12 status in pregnant women. *Journal of Nutrition*, 134, 3319-26.
- Marcucci R et al. Vitamin supplementation reduces the progression of atherosclerosis in hyperhomocysteinemic renal-transplant recipients. *Transplantation*. 2003 May 15; 75(9): 1551-5.
- Schnyder G et al. Effect of homocysteine-lowering therapy with folic acid, vitamin B12, and vitamin B6 on clinical outcome after percutaneous coronary intervention: the Swiss Heart Study: a randomized controlled trial. *JAMA*. 2002 Aug 28; 288(8): 973-9.
- Schnyder G et al. Decreased rate of coronary restenosis after lowering of plasma homocysteine levels. *N Engl J Med*. 2001 Nov 29; 345(22): 1593-600.
- Van Asselt, DZ, Pasman, JW, van Lier, HJ, Vingerhoets, DM, Poels, PJ, Kuin, Y, Blom, HJ & Hoefnagels, WH (2001) Cobalamin supplementation improves cognitive and cerebral function in older, cobalamin deficient persons. *Journal of Gerontology: Medical Sciences*, 56A, M775-M779

### **VITAMIN B12 and Cognitive Function in Ageing**

#### **Authoritative/Scientific Bodies**

- Institute of Medicine (1998) Vitamin B12 In Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. National Academy Press, Washington D.C, chapter 9, pp 306-356
- JHCl Final technical report 2003 p31 Annex 4.11p142-143  
[http://www.food.gov.uk/multimedia/pdfs/jhci\\_healthreport.pdf](http://www.food.gov.uk/multimedia/pdfs/jhci_healthreport.pdf)

#### **Reviews**

- Selhub J, Bagley LC, Miller J, Rosenberg IH. B vitamins, homocysteine, and neurocognitive function in the elderly. *Am J Clin Nutr*. 2000 Feb;71(2):614S-620S. Review.
- Wolters, M, Strohle, A and Hahn, A, (2004) Cobalamin: a critical vitamin in the elderly, *Journal/Prev Med*, 39, 1256-66 (Review)

#### **Textbooks**

- Gröber, U. Orthomolekulare Medizin. 2. Ed. Wissenschaftl. Verlagsgesellschaft Stuttgart 2002. (textbook)
- Haller, J. (2005) Vitamins and Brain Function. In: Lieberman, H.R.; Kanarek, R.B. and Prasad, C. (eds.) *Nutritional Neuroscience*. CRC Press, Boca Raton, 207-233
- Stabler, S.P. (2001) Vitamin B-12 In Bowman, B.A., Russel, R.M. (eds): *Present knowledge in Nutrition*, 8th edition. Washington, DC, ILSI Press, chapter 22, pp 230-240
- Weir, D.G. and Scott, J.M. (1999) Vitamin B12 "cobalamin". In: Shils M.E.; Olson, J.A.; Shike, M. and Ross, A.C (eds): *Modern Nutrition in Health and Disease*, 9th edition. Baltimore; Williams & Wilkins, pp 447-458

#### **Individual Studies**

- Beck, W.S. (2001) Cobalamin (Vitamin B12) in Rucker, R.B.; Suttie, J.W.; McCormick, D.B., Machlin, L.J. (eds): *Handbook of vitamins*; 3rd ed, revised and expanded. Marcel Dekker Inc, New York, chapter 13, pp 463-512

- Bryan, J, Calvaresi, E and Hughes, D, (2002) Short-term folate, vitamin B-12 or vitamin B-6 supplementation slightly affects memory performance but not mood in women of various ages, Journal/J Nutr, 132, 1345-56
- Bryan J., Associations between dietary intake of folate and vitamins B-12 and B-6 and self-reported cognitive function and psychological well-being in Australian, J Nutr Health Aging 2004; 8 (4) : 226-32. Cf Annex 2
- Clarke, R, Harrison, G and Richards, S, (2003) Effect of vitamins and aspirin on markers of platelet activation, oxidative stress and homocysteine in people at high risk of dementia, Journal/J Intern Med, 254, 67-75 (interventional study)
- Louwman, MWJ, van Dusseldorp, M, van de Vijver, FJR, Thomas, CMG, Schneede, J, Ueland, PM, Refsum, H & van Staveren, WA (2000) Signs of impaired cognitive function in adolescents with marginal cobalamin status. American Journal of Clinical Nutrition, 72, 762-9
- Nilsson, K, Gustafson, L and Hultberg, B, (2001) Improvement of cognitive functions after cobalamin/folate supplementation in elderly patients with dementia and elevated plasma homocysteine, Journal/Int J Geriatr Psychiatry, 16, 609-14 (interventional study)
- Selhub, J, Bagley, LC, Miller, J & Rosenberg, IH (2000) B vitamins, homocysteine, and neurocognitive function in the elderly. American Journal of Clinical Nutrition, 71, 614S-20S
- Tucker KL., High homocysteine and low B vitamins predict cognitive decline in aging men : the Veterans Affairs Normative Aging Study, Am J Clin Nutr 2005; 82 :627-35. Cf. Annex 3
- Van Asselt, DZ, Pasman, JW, van Lier, HJ, Vingerhoets, DM, Poels, PJ, Kuin, Y, Blom, HJ & Hoefnagels, WH (2001) Cobalamin supplementation improves cognitive and cerebral function in older, cobalamin deficient persons. Journal of Gerontology: Medical Sciences, 56A, M775-M779
- Wang HX et al. Vitamin (B12) and folate in relation to the development of Alzheimer's disease. Neurology. 2001 May 8; 56(9): 1188-94.
- Wolters, M, Ströhle, A & Hahn, A (2004) Cobalamin: a critical vitamin in the elderly. Preventive Medicine, 39, 1256-1266

## **VITAMIN B12 and Energy Metabolism**

### ***Authoritative/Scientific Bodies***

- Institute of Medicine (1998) Vitamin B12 In Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. National Academy Press, Washington D.C, chapter 9, pp 306-356

### ***Individual Studies***

- Beck, W.S. (2001) Cobalamin (Vitamin B12) in Rucker, R.B.; Suttie, J.W.; McCormick, D.B., Machlin, L.J. (eds): Handbook of vitamins; 3rd ed, revised and expanded. Marcel Dekker Inc, New York, chapter 13, pp 463-512
- Driskell, J. A. (1999a) Vitamins, in Sports Nutrition, pp 49-83, Wolinsky I. ed, CRC Press
- Stabler, S.P. (2001) Vitamin B-12 In Bowman, B.A., Russel, R.M. (eds): Present knowledge in Nutrition, 8th edition. Washington, DC, ILSI Press, chapter 22, pp 230-240
- Weir, D.G. and Scott, J.M. (1999) Vitamin B12 "cobalamin". In: Shils M.E.; Olson, J.A.; Shike, M. and Ross, A.C (eds): Modern Nutrition in Health and Disease, 9th edition. Baltimore; Williams & Wilkins, pp 447-458

## **BIOTIN**

### ***Authoritative/Scientific Bodies***

- Dietary Reference intakes for thiamin, riboflavin, niacin, vitamin B6, folate, vitamin B12, pantothenic acid, biotin and choline, 1999.  
<http://www.nap.edu/openbook/0309065542/html/58.html>
- Institute of Medicine (1998) Biotin In Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline. National Academy Press, Washington D.C, chapter 11, pp 374-389
- Les Apports Nutritionnels Conseillés, sous la coordination d'Ambroise Martin, AFSSA/CNERNA-CNRS, Editions Tec&Doc, Troisième édition (2001) Guilland JC, Vitamine B8, p203

### ***Reviews***

- Attwood PV, Wallace JC. Chemical and catalytic mechanisms of carboxyl transfer reactions in biotin-dependent enzymes. *Acc Chem Res.* 2002 Feb;35(2):113-20. Review.
- Fernandez-Mejia C: Pharmacological effects of biotin: *J NUTR,BIOCHEM*,2005 JUL;16(7)/424\_7 Review
- McMahon RJ. Biotin in metabolism and molecular biology. *Annu Rev Nutr.* 2002;22:221-39. Epub 2002 Jan 04. Review.
- Pacheco-Alvarez D, Solorzano-Vargas RS, Del Rio AL. Biotin in metabolism and its relationship to human disease. *Arch Med Res.* 2002 Sep-Oct;33(5):439-47. Review.
- Rodriguez Melendez R importance of biotin métabolism; *REV INVEST CLIN* 2000 Mar6APR; 52(2): 194-9 Review

### ***Textbooks***

- Mock DM. Biotin. In: Present Knowledge in Nutrition. Ziegler and Filer, 7th ed, ILSI Press. page 220-235.
- Mock, D.M. (1999) Biotin. In: Shils, M.E.; Olson, J.A.; Shike, M. and Ross, A.C. (eds): Modern Nutrition in Health and Disease, 9th edition. Baltimore; Williams & Wilkins, pp 459-466
- Mock, D.M. (2001) Biotin In Rucker, R.B.; Suttie, J.W.; McCormick, D.B., Machlin, L.J. (eds): Handbook of vitamins; 3rd ed, revised and expanded. Marcel Dekker Inc, New York, chapter 11, pp 397-426
- Zempleni, J (2001) Biotin In Bowman, B.A., Russel, R.M. (eds): Present knowledge in Nutrition, 8th edition. Washington, DC, ILSI Press, chapter 23, pp 241-252

## **VITAMIN K and Bone Integrity**

### ***Authoritative/Scientific Bodies***

- [http://europa.eu.int/comm/food/fs/sc/scf/out196\\_en.pdf](http://europa.eu.int/comm/food/fs/sc/scf/out196_en.pdf) (Scientific Committee Foods, 2003)
- <http://www.iom.edu/?id=12703> (Institute of Medicine of the National Academies, 2001)

### ***Meta-analysis***

- Adams & Pepping, Am J Health Syst Pharm 2005;62:1574-1581. Vitamin K in the treatment and prevention of osteoporosis and arterial calcification. (meta-analysis)

## **Reviews**

- Berkner, Annu. Rev. Nutr. 25, 127-149, 2005 : The vitamin K dependent carboxylase (review)
- Vermeer C et al. Beyond deficiency: Potential benefits of increased intakes of vitamin K for bone and vascular health. Eur J Nutr 2004;43:325-335 (critical review ; expert workshop)

## **Individual Studies**

- Bolton-Smith et al. Ann Nutr Metab 2001;45 (suppl 1):246. Two-year intervention study with phylloquinone (vitamin K1), vitamin D and calcium: effect on bone mineral content.
- Booth SL et al, Am J Clin Nutr 2000;71:1201-1208. Dietary vitamin K intakes are associated with hip fracture but not with bone mineral density in elderly men and women.
- Braam et al. Calcif Tissue Int 2003;73:21-26. Vitamin K1 supplementation retards bone loss in postmenopausal women between 50 and 60 years of age
- Feskanich D et al, Am J Clin Nutr 1999;69:74-79. Vitamin K intake and hip fractures in women: a prospective study.
- Tsugawa et al, Am J Clin Nutr 2006;83: 380-386, Vitamin K status of healthy Japanese women: agerelated vitamin K requirement for  $\gamma$ -carboxylation of osteocalcin

## **VITAMIN K 2 and Vascular Health**

### **Authoritative/Scientific Bodies**

- [http://europa.eu.int/comm/food/fs/sc/scf/out196\\_en.pdf](http://europa.eu.int/comm/food/fs/sc/scf/out196_en.pdf) (Scientific Committe Foods, 2003)
- <http://www.iom.edu/?id=12703> (Institute of Medicine of the National Academies, 2001)

### **Meta-Analysis**

- Adams & Pepping, Am J Health Syst Pharm 2005;62:1574-1581. Vitamin K in the treatment and prevention of osteoporosis and arterial calcification.

## **Reviews**

- Berkner, Annu. Rev. Nutr. 25, 127-149, 2005 : The vitamin K dependent carboxylase
- Vermeer C et al. Beyond deficiency: Potential benefits of increased intakes of vitamin K for bone and vascular health. Eur J Nutr 2004;43:325-335

## **Intervention Studies**

- Braam et al, Thromb Haemost 2004;91:373-380. Beneficial effects of vitamins D and K on the elastic properties of the vessel wall in postmenopausal women: a follow-up study. Thromb Haemost 2004;91:373-380.
- Schurgers & Vermeer, Haemostasis 2000;30:298-307. Determination of phylloquinone and menaquinones in food. Effect of food matrix on circulating vitamin K concentrations. (much higher bioavailability of K2 versus K1).
- Geleijnse et al, J Nutr 2004;134:3100-3105. Dietary intake of menaquinone is associated with a reduced risk of coronary heart disease: the Rotterdam Study.
- Spronk et al, J. Vasc. Res. 40, 531-537 (2003). Tissue-specific utilisation of menaquinone-4 results in prevention of arterial calcification in warfarin-treated rats.

## **VITAMIN C and Antioxidant Action**

### ***Authoritative/Scientific Bodies***

- National Research Council. Recommended Dietary Allowances 10th Edition. Washington DC: National Academy Press, 1989.
- Scientific Committee for Food. Reports of The Scientific Committee for Food (31st Series), Nutrient and Energy Intakes for the European Community (Opinion Expressed on 11 December, 1992). Directorate - General Industry. The Commission of the European Communities, 1993. Chapter 15.

### ***Reviews and Individual Studies***

- Carr AC & Frei B. Toward a New Recommended Dietary Allowance for Vitamin C Based on Antioxidant and Health Effects in Humans. American Journal of Clinical Nutrition 1999; 69: 1086-1107
- Hallberg L, Sandström B, Ralph A, Arthur J. Iron, Zinc and Other Trace Elements. In: Garrow JS, James WPT, Ralph A eds. Human Nutrition and Dietetics, 10th Edition. Edinburgh: Churchill Livingstone, 2000: 177-209.
- Kallner AB, Hartmann D, Hornig DH. On the Requirements of Ascorbic Acid in Man: Steady-State Turnover and Body Pool in Smokers. American Journal of Clinical Nutrition 1981; 34: 1347-1355.
- Riemersma RA. Epidemiology and the Role of Antioxidants in Preventing Coronary Heart Disease: a Brief Overview. Proceedings of the Nutrition Society 1994; 53: 59-65.
- Rock CL, Jacob RA, Bowen PE. Update on the Biological Characteristics of Antioxidant Micronutrients: Vitamin C, Vitamin E and the Carotenoids. Journal of the American Dietetic Association 1996; 96: 693-702.
- Southgate DAT. Food processing. In: Garrow JS, James WPT, Ralph A eds. Human Nutrition and Dietetics, 10th Edition. Edinburgh: Churchill Livingstone, 2000: 397-409.

## **VITAMIN C and Connective Tissue**

### ***Textbook***

- Hahn, Ströhle, Wolters: Ernährung. Physiologische Grundlagen, Prävention, Therapie. WVG. 2005.

### ***Reviews***

- Asplund K. Antioxidant vitamins in the prevention of cardiovascular disease: a systematic review. J. Int. Med. 2002;251:372-392.

### ***Clinical Trials***

- A randomized, placebo-controlled, clinical trial of high-dose supplementation with vitamins C and E, beta carotene, and zinc for age-related macular degeneration and vision loss: AREDS report no. 8. Arch. Ophthalmol. 2001;119(10):1417-1436.
- A randomized, placebo-controlled, clinical trial of high-dose supplementation with vitamins C and E and beta carotene for age-related cataract and vision loss: AREDS report no. 9. Arch. Ophthalmol. 2001;119(10):1439-1452.

- Blankenhorn G. [Clinical effectiveness of Spondyvit (vitamin E) in activated arthroses. A multicenter placebo-controlled double-blind study]. Z. Orthop. Ihre Grenzgeb. 1986;124(3):340-343.
- Chylack LT Jr., Brown NP, Bron A et al. The Roche European American Cataract Trial (REACT): a randomized clinical trial to investigate the efficacy of an oral antioxidant micronutrient mixture to slow progression of age-related cataract. Ophthalmic Epidemiol. 2002;9(1):49-80.

### ***Individual Studies***

- Anderson R, Lukey PT. A biological role for ascorbate in the selective neutralization of extracellular phagocyte-derived oxidants. Ann N Y Acad Sci 1987; 498: 229-47
- Anderson R. Ascorbate-mediated stimulation of neutrophil motility and lymphocyte transformation by inhibition of the peroxidase/H<sub>2</sub>O<sub>2</sub>/halide system in vitro and in vivo. Am J Clin Nutr 1981; 34: 1906-11
- Baker JC, Ayres JG. Diet and asthma. Respir. Med. 2000;94(10):925-934.
- Basu, S, Michaelsson, K, Olofsson, H, Johansson, S and Melhus, H, (2001) Association between oxidative stress and bone mineral density, Journal/Biochem Biophys Res Commun, 288, 275-9
- Bodner C, Godden D, Brown K, Little J, Ross S, Seaton A. Antioxidant intake and adult-onset wheeze: a case-control study. Aberdeen WHEASE Study Group. Eur. Respir. J. 1999;13(1):22-30.
- Boxer LA, Watanabe AM, Rister M, et al. Correction of leukocyte function in Chediak-Higashi syndrome by ascorbate. N Engl J Med 1976; 295: 041-5
- Darlington LG, Stone TW, Romieu I et al. Antioxidants and fatty acids in the amelioration of rheumatoid arthritis and related disorders. Br. J. Nutr. 2001;85(3):251-269.
- Delafuente JC et al. Immunologic modulation by vitamin C in the elderly. Int J Immunopharmacol. 1986 ; 8(2) : 205-11.
- Engelhart MJ, Geerlings MI, Ruitenberg A, van Swieten JC, Hofman A, Witteman JC, Breteler MM. Dietary intake of antioxidants and risk of Alzheimer disease. J.A.M.A. 2002;287(24):3223-3229.
- Evans JR, Henshaw K. Antioxidant vitamin and mineral supplementation for preventing age-related macular degeneration. Cochrane Database Syst. Rev. 2000;2:CD000253.
- Evans JR. Antioxidant vitamin and mineral supplements for age-related macular degeneration. Cochrane Database Syst. Rev. 2002;2:CD000254.
- Fairfield KM, Fletcher RH. Vitamins for chronic disease prevention in adults. J.A.M.A. 2002;287:3116-3126.
- Frei B, England L, Ames BN. Ascorbate is an outstanding antioxidant in human blood plasma. Proc. Natl. Acad. Sci. USA. 1989;86:6377-6381.
- Ganguly R, Durieux MF, Waldman RH. Macrophage function in vitamin C-deficient guinea pigs. Am J Clin Nutr 1976; 29: 762-5
- Ganguly R, Waldmann RH. Macrophage functions in aging: effects of vitamin C deficiency. Allerg Immunol Leipzig 1985; 31: 37-43
- Garrow JS, James WPT, eds. Human Nutrition and Dietetics. 9th ed. Churchill Livingstone, 1994.
- Guillemin F, Briancon S, Klein JM, Sauleau E, Pourel J. Low incidence of rheumatoid arthritis in France. Scand. J. Rheumatol. 1994;23(5):264-268.
- Hall, SL and Greendale, GA, (1998) The relation of dietary vitamin C intake to bone mineral density: results from the PEPI study, Journal/Calcif Tissue Int, 63, 183-9

- Hallberg L, Brune M, Rossander-Hulthén L. Is there a physiological role of vitamin C in iron absorption? *Ann. NY Acad. Sci.* 1987;498:324-332.
- Hemilä H. Vitamin C and common cold incidence: a review of studies with subjects under heavy physical stress. *Int J Sports Med* 1996; 17: 379-83
- Hemilä H. Vitamin C supplementation and common cold symptoms: factors affecting the magnitude of the benefit. *Medical Hypotheses* 1999; 52: 171-8
- Hunt JR, Gallagher SK, Johnson LK. Effect of ascorbic acid on apparent iron absorption by women with low iron stores. *Am J Clin Nutr* 1994; 59: 1381-5
- Illich, JZ, Brownbill, RA and Tamborini, L, (2003) Bone and nutrition in elderly women: protein, energy, and calcium as main determinants of bone mineral density, *Journal/Eur J Clin Nutr*, 57, 554-65
- Jacob RA, Kelly DS, Pianalto FS, et al Immunocompetence and oxidant defence during ascorbate depletion of healthy men. *Am J Clin Nutr* 1991; 54: 1302S-9S
- Jariwalla RJ, Harakeh S. Mechanisms underlying the action of vitamin C in viral and immunodeficiency disease. In: Packer L, Fuchs J, editors. *Vitamin C in health and disease*. New York: Marcel Dekker, 1997: 309-22
- Kaur B, Rowe BH, Ram FS. Vitamin C supplementation for asthma. *Cochrane Database Syst. Rev.* 2001;4:CD000993.
- Kelly FJ, Mudway I, Blomberg A, Frew A, Sandstrom T. Altered lung antioxidant status in patients with mild asthma. *Lancet* 1999 ;354(9177):482-483.
- Khaw KT, Bingham S, Welch A, Luben R, Wareham N, Oakes S, Day N. Relation between plasma ascorbic acid and mortality in men and women in EPIC-Norfolk prospective study: a prospective population study. *European Prospective Investigation into Cancer and Nutrition*. *Lancet* 2001;357:657-663.
- Kritharides L, Stocker R. The use of antioxidant supplements in coronary heart disease. *Atherosclerosis* 2002;164:211-219.
- Landrum JT, Bone RA, Kilburn MD. The macular pigment: a possible role in protection from age-related macular degeneration. *Adv. Pharmacol.* 1997;38:537-556.
- Laurin D, Foley DJ, Masaki KH, White LR, Launer LJ. Vitamin E and C supplements and risk of dementia. *J.A.M.A.* 2002;288(18):2266-2268.
- Maeda H, Akaike T. Oxygen free radicals as pathogenic molecules in viral diseases. *Proc Soc Exp Biol Med* 1991; 198: 721-7
- Mann J, Truswell AS, *Essentials of Human Nutrition*. 2nd ed. Oxford University Press, 2002.
- McAlindon T, Felson DT. Nutrition: risk factors for osteoarthritis. *Ann. Rheum. Dis.* 1997;56(7):397-400.
- Phillips CL, Yeowell HN. Vitamin C, collagen biosynthesis and aging. In: *Vitamin C in health and disease*. Eds. Packer L, Fuchs J, Marcel Dekker, Inc., New York, USA. pp 205-230.
- Prinz E, Bortz R, Bregin B, Hersch M. The effect of ascorbic supplementation on some parameters of the human immunological defence system. *Int J Vitam Nutr Res* 1977; 47: 248-57
- Salonen RM, Nyyssonen K, Kaikkonen J, Porkkala-Sarataho E, Voutilainen S, Rissanen TH, Tuomainen TP, Valkonen VP, Ristonmaa U, Lakka HM, Vanharanta M, Salonen JT, Poulsen HE. Six-year effect of combined vitamin C and E supplementation on atherosclerotic progression: the Antioxidant Supplementation in Atherosclerosis Prevention (ASAP) Study. *Circulation*. 2003;107(7):947-953.

- Schaafsma, A, de Vries, PJ and Saris, WH, (2001) Delay of natural bone loss by higher intakes of specific minerals and vitamins, *Journal/Crit Rev Food Sci Nutr*, 41, 225-49
- Schwartz J, Weiss ST. Relationship between dietary vitamin C intake and pulmonary function in the First National Health and Nutrition Examination Survey (NHANES I). *Am. J. Clin. Nutr.* 1994;59(1):110-114.
- Siegel BV et al. Vitamin C and immunity: natural killer (NK) cell factor. *Int J Vitam Nutr Res.* 1983; 53 (2): 179-83. PMID: 6885275.
- Smith JA. Neutrophils, host defence, and inflammation: a double-edged sword. *Journal of Leukocyte Biology* 1994; 56: 672-86
- Soutar A, Seaton A, Brown K. Bronchial reactivity and dietary antioxidants. *Thorax.* 1997;52(2):166-170.
- Renaud S, de Lorgeril M. Wine, alcohol, platelets, and the French paradox for coronary heart disease. *Lancet* 1992;339(8808):1523-1526.
- Romieu I, Trenga C. Diet and obstructive lung diseases. *Epidemiol. Rev.* 2001;23(2):268-287.

## **VITAMIN C and Immune Function**

### ***Authoritative/Scientific Bodies***

- Department of Health. Dietary Reference Values for Food Energy and Nutrients for the United Kingdom, Report on Health and Social Subjects 41. London: HMSO, 1991.
- EGVM: Expert Group of Vitamins and Minerals, Safe upper levels for vitamins and Minerals - Mai 2003.
- Institute of Medicine, F.N.B., Vitamin C, in Dietary Reference Intakes for Vitamin C, Vitamin E, Selenium and Carotenoids. National Academy Press: Washington DC. 2000. 95-185.
- JHCl: Joint Health Claims Initiative (UK), List of Well-Established Nutrient Function Statements, A report by the Joint Health Claims Initiative to the Food Standards Agency. Prepared by JHCl Executive Director. 17th Dec 2003.
- SCF, Request N° EFSA-Q-2003-018: Opinion of the Scientific Panel on Dietetic Products, Nutrition and Allergies on a request from the Commission related to the Tolerable Upper Intake Level of Vitamin C (L-Ascorbic acid, its calcium, potassium and sodium salts and L-ascorbyl-6-palmitate). Adopted on 28 April 2004, Scientific Committee on Food SCF/CS/NUT/UPPLEV/ 54. Final, 11 October 2001 (expressed on 26 September 2001).

### ***Textbooks and Monographs***

- Courtand M, Sagaut P. Acide ascorbique (Vitamine C). In Les Vitamines – Aspects métaboliques, génétiques, nutritionnels et thérapeutiques. A. Munich (Ed.), Masson, Paris, 1987, pp.326-346.
- ERNA: European Responsible Nutrition Alliance, Vitamin C. Fact sheet – 2004.
- Guillard JC, Lequeu B., Vitamine C et grippe, Les Vitamines – du nutriment au médicament. Ed. Médicales Internationales 1992. pp.293-295.
- Moser U., Bendich A. Vitamin C. In Handbook of vitamins, Edited by L.J. Machlin, 2nd edition, revised and expanded Marcel Dekker Inc, 1991, 5, 195-232. (and ANDERSON R. The immunostimulatory, anti-inflammatory and anti-allergic properties of ascorbate. In Advances in Nutritional Research, vol.6, H.H. Draper (Ed.). Plenum Press, New York 1984, pp. 19-45.)

- NUTRANEWS, Science, Nutrition, Prévention et Santé Edité par la Fondation pour le Libre Choix - Décembre 2003. Des nutriments pour renforcer le système immunitaire et faire échec aux infections de l'hiver.

### **Reviews**

- Hemilä H., Does vitamin C alleviate the symptoms of the common cold? A review of current evidence, Scand J Infect Dis. 1994, 26 (1) : 1-6.
- Hemila H: Vitamin C and common cold incidence: a review of studies with subjects under heavy physical stress. Int J Sports Med 1996;17:379-383.

### **Clinical Trials**

- Bucca C, Rolla G, Arossa W, Caria E, Elia C, Nebiolo F, Baldi S, Effect of ascorbic acid on increased bronchial responsiveness during upper airway infection, Respiration. 1989;55(4):214-9.
- Bucca C, Rolla G, Oliva A, Farina JC, Effect of vitamin C on histamine bronchial responsiveness of patients with allergic rhinitis, Ann Allergy. 1990 Oct;65(4):311-4
- Du W.D., Yuan Z.R., Sun J., Tang J.X., Cheng A.Q., Shen D.M., Huang C.J., Song X.H., Yu X.F., Zheng S.B., Therapeutic efficacy of high-dose vitamin C on acute pancreatitis and its potential mechanisms, d. J. Gastroenterol., 2003, 9 (11), 2565-2569.
- Lenton KJ, Sane AT, Therriault H, Cantin AM, Payette H, Wagner JR., Vitamin C augments lymphocyte glutathione in subjects with ascorbate deficiency, Am J Clin Nutr. 2003;77(1):189-195
- Nieman D.C., Peters .E.M., Henson D.A., Nevines E.I., Thompson M.M., Influence of vitamin C supplementation on cytokine changes following an ultramarathon, J. Interferon Cytokine Res., 2000, 20 (11), 1029-1035.
- Sasazuki S, Sasaki S, Tsubono Y, Okubo S, Hayashi M, Tsugane S., Effect of vitamin C on common cold: randomized controlled trial, Eur J Clin Nutr. 2006;60(1):9-17.
- Tauler P., Aguiló A., Gimeno I., Noguera A., Agustí A., Tur J.A., Pons A., Differential response of lymphocytes and neutrophils to high intensity physical activity and to vitamin C diet supplementation, Free Radic. Res., 2003, 37 (9), 931-938.
- Thompson D., Williams C., McGregor S.J., Nicholas C.W., McArdle F., Jackson M.J., Powell J.R., Prolonged vitamin C supplementation and recovery from demanding exercise, Int. J. Sport Nutr. Exerc. Metab., 2001, 11 (4), 466-481.
- Van Straten M, Josling P., Preventing the common cold with a vitamin C supplement: a double-blind, placebo-controlled survey, Adv Ther. 2002;19(3):151-9

### **Individual Studies**

- Anderson R: Vitamin C; in Hughes DA, Darlington LG, Bendich A (eds): Diet and human immune function. Humana Press, Totowa, NJ, chapter 7; 2004, pp 133-148
- Anderson, R., Oosthuizen, R., Maritz, R., Theron, A., Van Rensburg, A.J., The effects of increasing weekly doses of ascorbate on certain cellular and humoral immune functions in normal volunteers. Am J Clin Nutr, 1980. 33(1): 71-76.
- Anderson TW, Beaton GH, Corey PN, Spero L: Winter illness and vitamin C: The effect of relatively low doses. Can Med Assoc J 1975;112:823-826.
- Brenner, G., [Enteral absorption of ascorbic acid in man after application of a micro-encapsulated retard preparation (author's transl)]. Med Klin, 1975. 70(28-29): 1219-1222.

- Campbell J.D., Cole M., Bunditrutavorn B., Vella A.T., Ascorbic acid is a potent inhibitor of various forms of T cell apoptosis, *Cell. Immunol.*, 1999, 194 (1), 1-5.
- Carr, A.C. and Frei, B., Toward a new recommended dietary allowance for vitamin C based on antioxidant and health effects in humans. *Am J Clin Nutr*, 1999. 69(6): 1086-1107.
- Chandra R: Influence of multinutrient supplement on immune responses and infection-related illness in 50-65 year old individuals. *Nutr Res* 2002a;22:5-11.
- Chandra RK: Nutrition and the immune system from birth to old age. *Eur J Clin Nutr* 2002b;56:S73-S76.
- Delafuente JC. Prendergast JM. Modigh A., Immunologic modulation by vitamin C in the elderly, *Int J Immunopharmacol.* 1986; 8(2): 205-211.
- Douglas, R., Hemila, H., D'Souza, R., Chalker, E., Treacy, B., Vitamin C for preventing and treating the common cold. *Cochrane Database Syst Rev*, 2004(4): CD000980.
- Douglas RM, Chalker EB, Treacy B: Vitamin C for preventing and treating the common cold. *Cochrane Database Syst Rev* 2000;2.
- Dwenger A., Funck M., Lueken B., Schweitzer G., Lehmann U., Effect of ascorbic acid on neutrophil functions and hypoxanthine/xanthine oxidase-generated, oxygen-derived radicals, *Eur. J. Clin. Chem. Clin. Biochem.*, 1992, 30 (4), 187-191.
- Field, C.J., Johnson, I.R., Schley, P.D., Nutrients and their role in host resistance to infection. *J Leukoc Biol*, 2002. 71(1): 16-32.
- Fraker PJ, Lill-Elghanian DA: The many roles of apoptosis in immunity as modified by aging and nutritional status. *J Nutr Health Aging* 2004;8: 56-63.
- Galli F., Vitamin C, vitamin E and immune response, *J Nutr Biochem*. 2005, 16 (4) : 257.
- Hemilä H., Vitamin C, respiratory infections and the immune system, *Trends Immunol.* 2003, 24 (11) : 579-80.
- Hemilä H. Vitamin C and the Common Cold. *British Journal of Nutrition* 1992; 67(1): 3-16.
- Hemilä H. Vitamin C Intake and Susceptibility to the Common Cold. *British Journal of Nutrition*. 1997, 77(1): 59-72.
- Hemila H, Chalker E, D'Souza RRD, Douglas RM, Treacy B: Vitamin C for preventing and treating the common cold. *The Cochrane Database of Systematic Reviews* 2004, issue 4.
- Hemila H, Douglas RM: Vitamin C and acute respiratory infections. *Int J Tuberc Lung Dis* 1999;3:756-761.
- Hemila H: Vitamin C intake and susceptibility to the common cold - Invited commentary - Reply. *Br J Nutr* 1997c;78:861-866.
- Hemila H: Vitamin C supplementation and the common cold – was Linus Pauling right or wrong? *Int J Vitam Nutr Res* 1997a;67:329-335.
- Heuser G, Vojdani A: Enhancement of natural killer cell activity and T and B cell function by buffered vitamin C in patients exposed to toxic chemicals; the role of protein kinase-C. *Immunopharmacol Immunotoxicol* 1997;19:291-312
- Higdon, J.V. and Frei, B., Vitamin C: An Introduction, in *The Antioxidant Vitamins C and E*, Packer, L., et al., Editors. AOCS Press: Champaign, Illinois. 2002. 1-16.
- Hughes DA: Antioxidant vitamins and immune function; in Calder PC, Field CJ, Gill HS (eds): *Nutrition and immune function*. CABI 2002, pp 171-191

- Hume R and Weyers E. Changes in Leucocyte Ascorbic Acid During the Common Cold. Scottish Medical Journal. 1973. 18: 3 – 7
- Jacob, R.A., Kelley, D.S., Pianalto, F.S., Swendseid, M.E., Henning, S.M., Zhang, J.Z., Ames, B.N., Fraga, C.G., Peters, J.H., Immunocompetence and oxidant defense during ascorbate depletion of healthy men. Am J Clin Nutr, 1991. 54(6 Suppl): 1302S-1309S.
- Jacob, R.A., Vitamin C, in Modern Nutrition in Health and Disease, Shils, M.E., et al., Editors. Williams & Wilkins: Baltimore. 1999. 467-483.
- Johnston CS: Complement component C1q unaltered by ascorbate supplementation in healthy men and women. J Nutr Biochem 1991;2:499-501
- Kelley, D.S. and Bendich, A., Essential nutrients and immunologic functions. Am J Clin Nutr, 1996. 63(6): 994S-996S.
- Kennes B, Dumont I, Brohee D, Hubert C, Neve P: Effect of vitamin C supplements on cell-mediated immunity in older people. Gerontology 1983;29:305-310.
- Levine M, Conry-Cantilena C, Wang Y, Welch RW, Washko PW, Dhariwal KR, Park JB, Lazarev A, Graumlich JF, King J, Cantilena LR: Vitamin C pharmacokinetics in healthy volunteers: evidence for a recommended dietary allowance. Proc Natl Acad Sci USA 1996;93:3704-3709
- Levy R, Shriker O, Porath A, Riesenbergs K, Schlaeffer F: Vitamin C for the treatment of recurrent furunculosis in patients with impaired neutrophil functions. J Infect Dis 1996;173:1502-1505
- Muggli R: Vitamin C and phagocytes; in Cunningham-Rundles S (ed): Nutrient modulation of the immune response. New York, Basel, Hongkong, Marcel Dekker Inc, 1992, pp 75-90
- Panush RS, Delafuente JC, Katz P, Johnson J. Modulation of certain immunologic responses by vitamin C. III. Potentiation of in vitro and in vivo lymphocyte response. Int J Vitam Nutr Res Suppl 1982;23:35-47
- Peters, E.M., Goetzsche, J.M., Grobbelaar, B., Noakes, T.D., Vitamin C supplementation reduces the incidence of postrace symptoms of upper-respiratory-tract infection in ultramarathon runners. Am J Clin Nutr, 1993. 57(2): 170-174.
- Schwager J., Schulze J., Modulation of interleukin production by ascorbic acid, Vet. Immunol. Immunopathol., 1998, 64 (1), 45-57.
- Schwartz AR, Togo Y, Hornick RB, Tominaga S and Gleckman RA. Evaluation of the Efficacy of Ascorbic Acid in Prophylaxis of Induced Rhinovirus 44 Infection in Man. The Journal of Infectious Diseases. 1973, 128 (4): 500 – 505.
- Shankar AH: Nutritional modulation of malaria morbidity and mortality. J Infect Dis 2000;182:S37-S53.
- Shils ME, Olson JA, Shike M, Ross AK: Modern Nutrition in Health and Disease, 9th Ed. Philadelphia, Baltimore, New York, London, Buenos Aires, Hong Kong, Sydney, Tokyo, Lippincott Williams & Wilkins, 1999, pp223-240 & pp467-484.
- Siegel BV, Morton JI., Vitamin C and immunity: natural killer (NK) cell factor, Int J Vitam Nutr Res. 1983 ; 53(2) : 179-183.
- Siegel BV: Vitamin C and the immune response in health and disease; in Klurfeld DM (ed) Nutrition and immunology. Plenum Press, New York, 1993, pp 167-196
- Washko P., Rotrosen D., Levine M., Ascorbic acid in human neutrophils, Am. J. Clin. Nutr., 1991, 54 (6 Suppl), 1221S-1227S.
- Webb R., Vitamin C. Give a boost to your immune system, Diabetes Forecast. 2004, 57 (1) : 17-9.
- Wilson CWM and Loh HS. Common Cold and Vitamin C. The Lancet. 1973, 1: 638 – 641.

- Wintergerst, E.S., Maggini, S., Hornig, D.H., Immune-enhancing role of vitamin C and zinc and effect on clinical conditions. Ann Nutr Metab, 2006. 50(2): 85-94.
- Wolf G., Uptake of ascorbic acid by human neutrophils, Nutr. Rev., 1993, 51 (11), 337-8.

## **VITAMIN C and Energy Metabolism**

### ***Individual Studies***

- Driskell, J. A. (1999) Vitamins, in Sports Nutrition, pp 49-83, Wolinsky I. ed, CRC Press
- Institute of Medicine (2000) Vitamin C In Dietary reference intakes for vitamin C, vitamin E, selenium and carotenoids. National Academic Press, Washington D.C, chapter 5, pp 95-185
- Institute of Medicine (2001) Iron In Dietary Reference Intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium, and zinc. National Academic Press, Washington D.C, chapter 9, pp 290-393
- Jacob, R.A. (1999) Vitamin C In Shils, M.E.; Olson, J.A.; Shike, M. and Ross, A.C. (eds): Modern Nutrition in Health and Disease, 9th edition. Baltimore; Williams & Wilkins, pp 467-483;
- Johnston, C.S.; Steinberg, F.M. and Rucker, R.B. (2001) Vitamin C In Rucker, R.B.; Suttie, J.W.; McCormick, D.B., Machlin, L.J. (eds): Handbook of vitamins; 3rd ed, revised and expanded. Marcel Dekker Inc, New York, chapter 15, pp 529-554;
- Johnston, C.S. (2001) Vitamin C In Bowman, B.A., Russel, R.M. (eds): Present knowledge in Nutrition, 8th edition. Washington, DC, ILSI Press, chapter 16, pp 175-183
- Tsao C.S. An overview of ascorbic acid chemistry and biochemistry. In: Vitamin C in Health and Disease (Packer L., Fuchs J., eds) Marcel Dekker, New York (1997) pp 25-58

## **VITAMIN D and Immune Function**

### ***Clinical Trial***

- Schulze Schleithoff, S.; Zittermann, A.; Tenderich, G.; Berthold, H.K.; Stehle, P. and Koerfer, R. (2006) Vitamin D supplementation improves cytokine profiles in patients with congestive heart failure: a double-blind, randomized, placebo-controlled trial. Am. J. Clin. Nutr. 83, 754-759

### ***Individual Studies***

- Boonstra, A.; Barrat, F.J.; Crain, C.; Heath, V.L.; Savelkoul, H.F. and O'Garra, A (2001) 1a,25-dihydroxyvitamin D3 has a direct effect on naïve CD4(+) T cells to enhance the development of Th2 cells. J. Immunol. 167. 4974-4980
- Cannell, J.J.; Vieth, R.; Umhau, J.C.; Holick, M.F.; Grant, W.B.; Madronich, S.; Garland, C.F. and Giovannucci, E. (2006) Epidemic influenza and vitamin D. Epidemiol Infect. 134(6), 1129-1140
- Cantorna, M.T.; Zhu, Y.; Froicu, M. and Wittke, A. (2004) Vitamin D status, 1,25-dihydroxy- vitamin D3, and the immune system. Am. J. Clin. Nutr. 80, 1717S-1720S
- DeLuca, H.F. and Cantorna, M.T. (2001) Vitamin D: its role and uses in immunology. FASEB J. 15, 2579-2585
- Griffin, M.D.; Xing, N. and Kumar, R. (2003) Vitamin D and its analogs as regulators of immune activities and antigen presentation. Ann. Rev. Nutr. 23, 117-145
- Hayes, C.E.; Nashold, F.E.; Spach, K.M. and Pedersen, L.B. (2003) The immunological functions of the vitamin D endocrine system. Cell. Molec. Biol. 49, 277-300

- Hypponen, E.; Laara, E.; Reunanan, A.; Jarvelin, M.R. and Virtanen, S.M. (2001) Intake of vitamin D and risk of type 1 diabetes: a birth-cohort study. *Lancet* 358, 1500-1503
- Lemire, J.M.; Archer, D.C.; Beck, L. and Spiegelberg, H.L. (1995) Immunosuppressive actions of 1,25(OH)2D3: preferential inhibition of Th1 functions. *J. Nutr.* 125, 1704S-1708S
- Lips, P. (2006) Vitamin D physiology. *Prog. Biophys. Mol. Biol.* 92(1), 4-8
- Mahon, B.D.; Gordon, S.A.; Cruz, J.; Cosman, F. and Cantorna, M.T. (2003) Cytokine profile in patients with multiple sclerosis following vitamin D supplementation: *J. Neuroimmunol.* 134, 128-132
- Penna, G. and Adorini, L (2000) 1a,25-Dihydroxyvitamin D3 inhibits differentiation, maturation, activation and survival of dendritic cells leading to impaired alloreactive T cell activation. *J. Immunol.* 164, 2405-2411
- Reichel, H.; Koeffler, H.P. and Norman, A.W. (1990) Regulation of immune system 1a,25-dihydroxyvitamin D3 by hematopoietic cells. *Prog. Clin. Biol. Res.* 332, 81-97
- The EURODIAB substudy 2 study group (1999) Vitamin D supplement in early childhood and risk for type I (insulin-dependent) diabetes mellitus. *Diabetologia* 42, 51-54
- Veldman, C.M.; Cantorna, M.T. and DeLuca, H.F. (2000) Expression of 1,25-dihydroxyvitamin D3 receptor in the immune system. *Arch. Biochem. Biophys.* 374, 334-338
- Witte, K.K. and Clark, A.L. (2005) Chronic heart failure and multiple micronutrient supplementation: realistic hope or idealistic conjecture? *Heart Fail. Monit.* 4, 123-129
- Yang, S.; Smith, C.; Prahl, J.M.; Luo, X. and DeLuca, H.F. (1993) Vitamin D deficiency suppresses cell-mediated immunity in vivo. *Arch. Biochem. Biophys.* 303, 98-106
- Zittermann, A.; Schulze Schleithoff, S.; Tenderich, G.; Berthold, H.K.; Koerfer, R. and Stehle, P. (2003) Low vitamin D status: A contributing factor in the pathogenesis of congestive heart failure? *J. Am. Coll.*

## **VITAMIN D and Muscle Growth**

### **Meta-Analysis**

- Bischoff-Ferrari HA et al. Effect of vitamin D on falls: a meta-analysis. *JAMA*. 291: 1999-2006, 2004a.

### **Reviews**

- Boland R. Role of vitamin D in skeletal muscle function. *Endocrine Reviews*. 7(4): 434-448.
- Grant WB and Holick MF. Benefits and Requirements of vitamin D for optimal health: a review. *Altern Med Rev.* 10(2): 94-111, 2005
- Janssen HCJP et al. Vitamin D deficiency, muscle function, and falls in elderly people. *Am J Clin Nutr.* 75: 611-615, 2002
- Zitterman A. Vitamin D in preventive medicine: are we ignoring the evidence? *Br J Nutr.* 89: 552-572, 2003.

### **Individual Studies**

#### **Human**

- Bischoff HA et al. Effects of vitamin D and calcium supplementation on falls: a randomized controlled trial. *J Bone Miner Res.* 18: 343-351, 2003.

- Bischoff Ha et al. In situ detection of 1,25-dihydroxyvitamin D3 receptor in human skeletal muscle tissue. *Histochemical J.* 33: 19-24, 2001.
- Bischoff-Ferrari et al. Vitamin D receptor expression in human muscle tissue decreases with age. *J Bone Miner Res.* 19: 265-9, 2004c.
- Bischoff-Ferrari HA et al. Higher 25-hydroxyvitamin D concentrations are associated with better lower-extremity function in both active and inactive persons aged >60y. *Am J Clin Nutr.* 80: 752-758, 2004b.
- Dhesi JK et al. Vitamin D supplementation improves neuromuscular function in older people who fall. *Age and Aging.* 33: 589-595, 2004.
- Fraser D and Scrivener CR. Hereditary disorders associated with vitamin D resistance or defective phosphate metabolism. In: DeGroot LJ, ed. *Endocrinology*, vol 2. New York: Grune & Stratton, 797-807, 1979.
- Geusens P et al. Quadriceps and grip strength are related to vitamin D receptor genotype in elderly non-obese women. *J Bone Miner Res.* 12: 2082-2088, 1997.
- Grady D et al. 1,25-dihydroxyvitamin D3 and muscle strength in the elderly: a randomized controlled trial. *J Clin Endo Metab.* 73(5): 1111-1117, 1991.
- Kenny et al. Effects of vitamin D supplementation on strength, physical function, and health perception in older, community-dwelling men. *J Am Geriatr Soc.* 51: 1762-1767, 2003.
- Latham et al. A randomized, controlled trial of quadriceps resistance exercise and vitamin D in frail older people: the frailty interventions trial in elderly subjects (FITNESS). *J Am Geriatr Soc.* 51: 291-299, 2003.
- Lips et al. Vitamin D supplementation and fracture incidence in elderly persons. *Ann Int Med.* 124(4): 400-406, 1996.
- Lips P et al. A global study of vitamin D status and parathyroid function in post menopausal women with osteoporosis: baseline data from the multiple outcomes of raloxifene evaluation clinical trial. *J Clin Endo Metab.* 86(3): 1212-1221, 2001.
- Ritz E et al. Effects of vitamin D and parathyroid hormone on muscle: potential role in uremic myopathy. *Am J Clin Nutr.* 33: 1522-1529, 1980.
- Schott GD and Willis MR. Muscle weakness in osteomalacia. *Lancet.* 1: 626-629, 1976.
- Simpson RU et al. Identification of 1,25-hydroxyvitamin D3 receptors and activities in muscle. *J Biol Chem.* 260(15): 8882-8891, 1985.
- Sorenson OH et al. Myopathy in bone loss of ageing: improvement by treatment with 1 alpha-hydroxycholecalciferol and calcium. *Clin Sci (Colch).* 56: 157-161, 1979.
- Van der Heyden JJ et al. Hypovitaminosis D-related myopathy in immigrant teenagers. *35(5): 290-292, 2004.*

## **Others**

- Holick MF. The vitamin D epidemic and its health consequences. *J Nutr.* 135: 2739S-2748S, 2005
- Weaver CM and Heaney RP. Calcium. In: *Modern Nutrition in Health and Disease*. ed. Shils ME, Olson JA, Shike M and Ross AC. Williams & Wilkins, Baltimore, 1999.

## **VITAMIN E and Immune Function**

### **References Background**

- Albers R, Antoine JM, Bourdet-Sicard R, Calder PC, Gleeson M, Lesourd B, Samartin S, Sanderson IR, Van Loo J, Vas Dias FW, Watzl B. Markers to measure immunomodulation in human nutrition intervention studies. *Br J Nutr.* 2005;94:452-481
- Chavanne M, Herbert B, Fournier C, Janot C, Vernhes G. Vitamin status, immunity and infections in elderly populations. *Eur J Clin Nutr* 1989;48:827-835
- Meydani SN, Han SN: Nutrient regulation of the immune response: The case of vitamin E. In: Present Knowledge in Nutrition (Bowman BA, Russell RM, eds.) 9th edition, ILSI Press, Washington 2006, pp 585-603

### ***Recognised Textbooks and Monographs***

- Han SN, Adolfsson O, Meydani SN: Vitamin E and enhancement of the immune response in the aged: Cellular and molecular mechanisms. In: The antioxidant vitamins E and C (Packer L, Traber MG, Kraemer K, Frei B, ed.) AOCS Press, Champaign, Illinois, USA 2002, 216-227
- High KP Nutritional strategies to boost immunity and prevent infection in elderly individuals. *Clin Infect Dis.* 2001;33:1892-1900.
- Hughes DA: Antioxidant vitamins and immune function. In: Nutrition and Immune Function (Calder PC, Field CJ, Gill HS, eds.) CABI Publishing, Oxon, New York 2002, pp 171-192.
- Meydani SN, Han SN: Nutrient regulation of the immune response: The case of vitamin E. In: Present Knowledge in Nutrition (Bowman BA, Russell RM, eds.) 9th edition, ILSI Press, Washington 2006, pp 585-603
- Meydani SN, Tengerdy RP: Vitamin E and immune response. In: Vitamin E in health and disease (Packer L, Fuchs J, eds.) Marcel Dekker, New York 1993, pp 549-562
- Serafini M: Dietary vitamin E and T cell-mediated function in the elderly: effectiveness and mechanism of action. *Int J Dev Neurosci* 2000;18:401-410

### ***Reviews***

- Han SN, Meydani SN. Vitamin E and infectious diseases in the aged. *Proc Nutr Soc.* 1999 Aug;58(3):697-705. Review.
- Kelleher J. Vitamin E and the immune response. *Proc Nutr Soc.* 1991 Aug;50(2):245-9. Review.
- Meydani SN, Han SN, Wu D. Vitamin E and immune response in the aged: molecular mechanisms and clinical implications. *Immunol Rev.* 2005 Jun;205:269-84. Review.
- Meydani SN, Beharka AA. Recent developments in vitamin E and immune response. *Nutr Rev.* 1998 Jan;56 (1 Pt 2):S49-58. Review.

### ***Clinical Trials***

- Graat JM, Schouten EG, Kok FJ; Effect of Daily vitamin E and Multivitamin-Mineral Supplementation on Acute Respiratory Tract Infections in Elderly Persons – A Randomized Controlled Trial. *JAMA* 2002;288:715-721
- Meydani SN, Meydani M, Blumberg JB, Leka LS, Siber G, Loszewski R, Thompson C, Pedrosa MC, Diamond RD, Stollar BD; Vitamin E supplementation and In Vivo Immune Response in Healthy Elderly Subjects. *JAMA* 1997;277:1380-1386
- Wu D, Han SN, Meydani M, Meydani SN; Effect of Concomitant Consumption of Fish Oil and Vitamin E on T Cell Mediated Function in the Elderly: A Randomized Double-Blind Trial. *J Am Coll Nutr* 2006;25:300-306

### ***Individual Papers***

- De la Fuente M, Ferrández MD, Burgos MS, Soler A, Prieto A, Miquel J; Immune function in aged women is improved by ingestion of vitamins C and E. *Can J Physiol Pharmacol* (1998); 76:373-380
- De Waart FG, Portengen L, Doeke G, Verwaal CJ, Kok FJ; Effects of 3 month vitamin E supplementation on indices of the cellular and humoral immune response in elderly subjects. *Br J Nutr* 1997;78:761-774
- Hann SN, Adolfsson O, Lee CK, Prolla TA, ORDOVAS J, MEYDANI SN Vitamin E and gene expression in immun cells, *ANN N Y ACAD SCI* 2004 DEC, 1031:96-101
- Harman D, White Miller R; Effect of Vitamin E on the Immune Response to Influenza Virus Vaccine and the Incidence of Infectious Disease in Man. *Age* 1986; 9:21-23
- Hemilä H, Kaprio J, Albanes D, Heinonen OP; Virtamo J; Vitamin C, Vitamin E, and Beta-carotene in Relation to common Cold Incidence in male Smokers. *Epidemiology* 2002;13:32-37
- Hemilä H, Virtamo J, Albanes D, Kaprio J; Vitamin E and Beta-carotene supplementation and Hospital-treated Pneumonia Incidence in Male Smokers. *CHEST* 2004;125:557-565
- Hemilä H, Virtamo J; Albanes D, Kaprio J; The Effect of vitamin E on Common Cold Incidence Is Modified by Age, Smoking and Residential Neighborhood. *J Am Coll Nutr* 2006;25:332-339
- Lee C-YJ, Wan JM-F; Vitamin E supplementation Improves Cell-Mediated Immunity and Oxidative Stress of Asian Men and Women. *J Nutr* 2000;130:2932-2937
- Malkowska-Zwierz W, Garliński P, Zukowska M, Zabuska K, Wartanowicz M, Kleniewska D, Niemirowska H, Izdebska Z, Roszowski W, Wróblewski T, Ziemiański S, Radomska D, Skopińska-Różewska E; The effect of vitamin E on Granulocyte Function in Patients with recurrent Infections. *Arch Immunol Ther Exp (Warz.)* 1991;39:109-115
- Meydani SN, Barklund MP, Liu S, Meydani M, Miller RA, Cannon JG, Morrow FD, Rocklin R, Blumberg JB; Vitamin E supplementation enhances cell-mediated immunity in healthy elderly subjects. *Am J Clin Nutr* 1990;52:557-63
- Meydani SN, Leka LS, Fine BC, Dallal GE, Keusch GT, Singh MF, Hamer DH; Vitamin E and Respiratory Tract Infections in Elderly Nursing Home Residents. *JAMA* 2004;292:828-236
- Okano T, Tamai H, Mino M; Superoxide Generation in Leukocytes and Vitamin E. *Internat J Vit Nutr Res* 1991;61:20-26
- Pallast EG, Schouten EG, de Waart FG, Fonk HC, Doeke F, von Blomberg BM, Kok FJ; Effect of 50- and 100-mg vitamin E supplements on cellular immune function in noninstitutionalized elderly persons. *Am J Clin Nutr* 1999;69:1273-1281
- Prasad JS; Effect of vitamin E supplementation on leukocyte function. *Am J Clin Nutr* 1980;33:606-608
- Richards GA, Theron AJ, van Rensburg CEJ, Van Rensburg AJ, Van der Merwe CA, Kuyl JM, Anderson R; Investigation of the Effects of Oral Administration of Vitamin E and Beta-Carotene on the Chemiluminescence Responses and the Frequency of Sister Chromatid Exchanges in Circulating Leukocytes from Cigarette Smokers. *Am Rev Respir Dis* 1990;142:648-654
- van Tits LJ, Demacker PN, de Graaf J, Hak-Lemmers HL, Stalenhoef AF; α-Tocopherol supplementation decreases production of superoxide and cytokines by leukocytes ex vivo in both normolipidemic and hypertriglyceridemic individuals. *Am J Clin Nutr* 2000; 71:458-464

## **CALCIUM and Bone Health**

### **Authoritative/Scientific Bodies**

- U.S. Food and Drug Administration, Nutrition Labeling and Education Act, Authorized Health Claims, November - December 1998
- NIH Consensus Development Panel on Osteoporosis Prevention, Diagnosis, and Therapy. Osteoporosis prevention, diagnosis, and therapy. JAMA. 2001 Feb 14;285(6):785-95. Review.
- Standing Committee on the Scientific Evaluation of Dietary Reference Intakes: Calcium, in Dietary Reference Intakes, Dietary Reference Intakes for Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride, Washington D.C., National Academy Press 1997, 71-145
- Standing Committee on the Scientific Evaluation of Dietary Reference Intakes Dietary Reference Intakes for calcium, phosphorus, magnesium, vitamin D, and fluoride, Food and Nutrition Board, Institute of Medicine, 1999.
- Avis de la commission interministérielle d'étude des produits destinés à une alimentation particulière (CEDAP) en date du 18 décembre 1996 sur les recommandations relatives au caractère non trompeur des seuils des allégations nutritionnelles fonctionnelles. BOCCRF (Bulletin Officiel de la Concurrence, de la Consommation et de la Répression des fraudes) du 7 octobre 1997.
- Greer FR, Krebs NF & Committee on Nutrition, American Academy of Pediatrics. Optimizing bone health and calcium intakes of infants, children, and adolescents. Pediatrics 117 ; 578-585.
- Department of Health (UK) (1998) Report of the subgroup on Bone Health Working Group on the Nutritional Status of the population of the Committee on Medical Aspects of Food and Nutrition Policy. HMSO, London.
- Joint FAO/WHO Food Standards Programme. Codex Alimentarius. *Food labelling, complete texts*. Rome, 1998.
- FDA Food Labelling. Specific Health Claims. Sec. 101.72 *Health claims: calcium and osteoporosis*. 2001. <http://www.cfsan.fda.gov/~lrd/cf101-72.html>
- Health Canada. Health Claims. [http://www.hc-sc.gc.ca/english/media/releases/2001/pdf\\_docs/2001\\_68e\\_regapp3.pdf](http://www.hc-sc.gc.ca/english/media/releases/2001/pdf_docs/2001_68e_regapp3.pdf)

### **Meta-Analysis**

- Cumming RG. Calcium intake and bone mass: a quantitative review of the evidence. Calcif Tissue Int. 1990 Oct;47(4):194-201.
- Welten DC et al., A meta-analysis of the effect of calcium intake on bone mass in young and middle aged females and males. J Nutr. 1995 Nov;125(11):2802-13.
- Xu L et al (2004) Does dietary calcium have a protective effect on bone fractures in women? A meta-analysis of observational studies. Br J Nutr 91; 625-634.

### **Reviews**

- Hagenfeldt K et al (2003) Osteoporosis: prevention, diagnosis and treatment. A systematic literature review (in Swedish). Stockholm, Swedish Council on Technology Assessment in Health Care (SBU) SBU Report 165/1.
- Hailey D et al (1998) The effectiveness of bone density measurement and associated treatments for prevention of fractures. An international collaborative review. Int J Technol Assess Health Care 14; 237-254.

- Heaney RP, Calcium, dairy products and osteoporosis. *Journal of the American College of Nutrition* 2000;19:S83-99.
- Monograph on water containing calcium, Federal Gazette No. 115, 26.6.1990, p. 3239

### **Individual Studies**

- Bonjour JP, Carrie AL, Ferrari S, Clavien H, Slosman D, Theintz G, Rizzoli R. Calcium-enriched foods and bone mass growth in prepubertal girls: a randomised, double-blind, placebo-controlled trial. *Journal of Clinical Investigation* 1997;99:1287-1294.
- Cadogan J et al (1997) Milk intake and bone mineral acquisition in adolescent girls: randomised, controlled intervention trial. *BMJ* 315; 1255-1260.
- Chang GM, Hoffman K, McMurry M. Effects of dairy products on bone and body composition in pubertal girls. *Journal of Pediatrics* 1995;126:551-556.
- Cheng S et al (2005) Effects of calcium, dairy product, and vitamin D supplementation on bone mass accrual and body composition in 10-12-y-old girls: a 2-y randomized trial. *Am J Clin Nutr* 82; 1115-1126.
- Cleghorn DB et al (2001) An open, crossover trial of calcium-fortified milk in prevention of early postmenopausal bone loss. *Med J Aust* 175; 242-245.
- Cumming RG, Nevitt MC. Calcium for prevention of osteoporotic fractures in postmenopausal women. *J Bone Miner Res*. 1997 Sep;12(9):1321-9.
- Dawson-Hughes B, Dallal GE, Krall EA, Sadowski L, Sahyoun N, Tannenbaum S. A controlled trial of the effect of calcium supplementation on bone density in postmenopausal women. *New England Journal of Medicine* 1990;323:878-883.
- Fehily AM et al (1992) Factors affecting bone density in young adults. *Am J Clin Nutr* 56; 579-586.
- Heaney RP et al (2002) Effect of yogurt on a urinary marker of bone resorption in postmenopausal women. *J Am Diet Assoc* 102; 1672-1674.
- Johnston CC, Miller JZ, Slemenda CW, Reister TK, Hui S, Christian JC, Peacock M. Calcium supplementation and increases in bone mineral density in children. *New England Journal of Medicine* 1992;327:82-87.
- Lee WT, Leung SS, Leung DM, Tsang HS, Lau J, Chang JC. A randomised double-blind controlled calcium supplementation trial, and bone and height acquisition in children. *British Journal of Nutrition* 1995;74:125-139.
- Lee WT, Leung SS, Leung DM, Cheng JC. A follow-up study on the effects of calcium supplement withdrawal and puberty on bone acquisition of children. *American Journal of Clinical Nutrition* 1996;64:71-77.
- Lloyd T, Andon MB, Rollings N, Martel JK, Landis R, Demers LM, Eggli DF, Kieselhorst K, Kulin HE. Calcium supplementation and bone mineral density in adolescent girls. *Journal of American Medical Association* 1993;270:841-844.
- Mackerras D & Lumley T (1997) First- and second-year effects in trials of calcium supplementation on the loss of bone density in postmenopausal women. *Bone* 21 ; 527-533.
- Merrilees MJ et al (2000) Effects of dairy food supplements on bone mineral density in teenage girls. *Eur J Nutr* 39; 256-262.
- Prince R et al (1995) The effects of calcium supplementation (milk powder or tablets) and exercise on bone density in postmenopausal women. *J Bone Miner Res* 10; 1068-1075.

- Recker RR & Heaney RP (1985) The effect of milk supplements on calcium metabolism, bone metabolism and calcium balance. *Am J Clin Nutr* 41; 254-263.
- Recker RR, Hinders S, Davies KM, Heaney RP, Stegman MR, Lappe JM, Kimmel DB. Correcting calcium nutritional deficiency prevents spine fractures in postmenopausal women: a randomised controlled trial. *American Journal of Medicine* 1996;98:331-335.
- Shea B., Cochrane Review on exercise for preventing and treating osteoporosis in postmenopausal women. *Eura Medicophys.* 2004 Sep;40(3):199-209.
- Slemenda CW, Peacock M, Hui S, Zhou L, Johnston CC. Reduced rates of skeletal remodelling are associated with increased bone mineral density during the development of peak skeletal mass. *Journal of Bone Mineral Research* 1997;12:676-682.
- Teegarden D et al (2005) Dietary calcium intake protects women consuming oral contraceptives from spine and hip bone loss. *J Clin Endocrinol Metab* 90; 5127-5133.
- Weinsier RL & Krumdieck CL. Dairy foods and bone health: examination of the evidence, *Am J Clin Nutr* 72; 681-689, 2000

## **CALCIUM and Blood Pressure**

### ***Authoritative/Scientific Bodies***

- Kotchen TA, McCarron DA. Dietary electrolytes and blood pressure: a statement for healthcare professionals from the American Heart Association Nutrition Committee. *Circulation* 1998;98:613-617.
- Working Group appointed by the Finnish Hypertension Society. *Hypertension, Current Care Guidelines*. Duodecim 2002;118:110-126.

### ***Meta-Analysis***

- Allender PS, Cutler JA, Follmann D, Cappuccio FP, Pryer J, Elliott P. Dietary calcium and blood pressure: a meta-analysis of randomized clinical trials. *Ann Intern Med* 1996;124:825-31.
- Bucher HC, Cook RJ, Guyatt GH, et al. Effects of dietary calcium supplementation on blood pressure. A meta-analysis of randomized controlled trials. *Jama* 1996;275:1016-22.
- Griffith LE, Guyatt GH, Cook RJ, Bucher HC, Cook DJ. The influence of dietary and nondietary calcium supplementation on blood pressure: an updated metaanalysis of randomized controlled trials. *Am J Hypertens* 1999;12:84-92.
- Van Mierlo LA, Arends LR, Streppel MT, et al. Blood pressure response to calcium supplementation: a meta-analysis of randomized controlled trials. *J Hum Hypertens* 2006.

### ***Reviews and Individual Studies***

- Gillman MW et al. Effect of calcium supplementation on blood pressure in children. *J Pediatr*. 1995;127:186-192.
- Hatton DC, McCarron DA. Dietary calcium and blood pressure in experimental models of hypertension. A review. *Hypertension* 1994;23:513-30.
- Jorde and Bonaa. Calcium from dairy products, vitamin D intake, and blood pressure: the Tromso Study. *Am J Clin Nutr* 2000;71:1530-5.
- McCarron DA, Morris CD, Henry HJ, Stanton JL. Blood pressure and nutrient intake in the United States. *Science* 1984;224:1392-8.

- McCarron DA, Reusser ME. Finding consensus in the dietary calcium-blood pressure debate. *J Am Coll Nutr* 1999;18:398S-405S.
- Nurminen ML, Korpela R, Vapaatalo H. Dietary factors in the pathogenesis and treatment of hypertension. *Ann Med* 1998;30:143-50.
- Ruidavets JB, Bongard V, Simon C, et al. Independent contribution of dairy products and calcium intake to blood pressure variations at a population level. *J Hypertens* 2006;24:671-81.
- Vaskonen T. Dietary minerals and modification of cardiovascular risk factors. *J Nutr Biochem* 2003;14:492-506.

## **CALCIUM and Weight Management**

### **Reviews**

- Barba G, Russo P. Dairy foods, dietary calcium and obesity: a short review of the evidence. *Nutr Metab Cardiovasc Dis.* 2006 Sep;16(6):445-51.
- Barr SI. "Increased Dairy Products or Calcium Intake: Is Body Weight and composition Affected in Humans" *J Nutr* 2003;133:245S-248S
- Gerstner G, Fighting obesity with calcium, AgroFood Industry High Tech (B-to-B journal), Anno 16, January/February 2005
- Heaney RP. Normalizing calcium intake: projected population effects for body weight. *J Nutr.* 2003;133(1):268S-270S.
- Heaney RP, Davies KM, Barger-Lux J. Calcium and weight: Clinical studies. *Journal of the American College of Nutrition* 2002; 21: 152S-55S
- Parikh SJ, Yanovski JA. Calcium intake and adiposity. *American Journal of Clinical Nutrition* 2003; 77: 281-7
- Schrager S. Dietary calcium intake and obesity. *Journal of the American Board of Family Practitioners* 2005 May-Jun; 18(3): 205-10.
- Teegarden D. Calcium intake and reduction in weight or fat mass. *Journal of Nutrition* 2003; 133: 249S-251S.
- Teegarden D. The influence of dairy product consumption on body composition. *J Nutr.* 2005 Dec;135(12):2749-52. Review.
- Trowman R, Dumville JC, Hahn S, Torgerson DJ. A systematic review of the effects of calcium supplementation on body weight. *Br J Nutr.* 2006 Jun;95(6):1033-8.
- Zemel MB. Regulation of adiposity and obesity risk by dietary calcium: Mechanisms and implications. *Journal of the American College of Nutrition* 2002; 21: 146S-51S.
- Zemel MB. The role of dairy foods in weight management. *J Am Coll Nutr.* 2005 Dec;24(6 Suppl):537S-46S. Review.
- Zemel MB, Miller SL. Dietary calcium and dairy modulation of adiposity and obesity risk. *Nutr Rev.* 2004 Apr;62(4):125-31. Review.
- Zemel MB. Mechanisms of dairy modulation of adiposity. *J Nutr.* 2003 Jan;133(1):252S-256S. Review.
- Zemel MB, Shi H, Greer B, Dirienzo D, Zemel PC. Regulation of adiposity by dietary calcium. *The FASEB Journal.* 2000;14:1132-1137
- Zemel MB. Role of calcium and dairy products in energy partitioning and weight management. *American Journal of Clinical Nutrition* 2004 May; 79(5): 907S-912S.

- Zemel MB. Role of dietary calcium and dairy products in modulating adiposity. *Lipids* 2003; 38(2): 139-46.
- Zemel MB. Calcium modulation of hypertension and obesity: Mechanisms and implications. *Journal of the American College of Nutrition* 2001; 20: 428S-35S.

### ***Human Intervention Studies***

- Azadbakht L, Mirmiran P, Esmaillzadeh A, Azizi F. Dairy consumption is inversely associated with the prevalence of the metabolic syndrome in Iranian adults. *Am J Clin Nutr.* 2005 Sep;82(3):523-30
- Berkey CS, Rockett HRH, Willett WC, Colditz GA. "Milk, Dairy fat, Dietary calcium, and weight gain" *Arch Pediatr Adolesc Med* 2005;159:543-550.
- Boon N, Koppes LL, Saris WH, Van Mechelen W. The relation between calcium intake and body composition in a Dutch population: The Amsterdam Growth and Health Longitudinal Study. *Am J Epidemiol.* 2005;162(1):27-32.
- Bowen J, Noakes M, Clifton PM "Effect of calcium and dairy foods in high protein, energy-restricted diets on weight loss and metabolic parameters in overweight adults" *Int J Obes* 2005;29:957-965.
- Buchowski MS, Semenza J, Johnson AO. Dietary calcium intake in lactose maldigesting intolerant and tolerant African-American women. *J Am Coll Nutr.* 2002;21(1):47-54.
- Carruth BR, Skinner JD. The role of dietary calcium and other nutrients in moderating body fat in preschool children. *Int J Obes Relat Metab Disord.* 2001;25(4):559-66.
- Cummings NK, James AP, Soares MJ. The acute effects of different sources of dietary calcium on postprandial energy metabolism. *Br J Nutr.* 2006 Jul;96(1):138-44.
- Davies KM, Heaney RP, Recker RR, Lappe JM, Barger-Lux MJ, Rafferty K, Hinders S. Calcium intake and Body Weight. *The Journal of Clinical Endocrinology & Metabolism.* 2000;85(12):4635-4638
- DeJongh ED, Binkley TL, Specker BL. Fat mass gain is lower in calcium-supplemented than in unsupplemented preschool children with low dietary calcium intakes. *Am J Clin Nutr.* 2006;84(5):1123-7.
- Denke MA, Fox MM, Schulte MC. Short-term dietary calcium fortification increases fecal saturated fat content and reduces serum lipids in men. *J. Nutr.* 1993; 123:1047-53.
- Downs BW, Bagchi M, Subbaraju GV, Shara MA, Preuss HG, Bagchi D. Bioefficacy of a novel calcium-potassium salt of (-)-hydroxycitric acid. *Mutat Res.* 2005 Nov 11;579(1-2):149-62.
- Drapeau V, Despres JP, Bouchard C, Allard L, Fournier G, Leblanc C, Tremblay A. Modifications in food group consumption are related to long-term body weight changes. *Am. J. Clin. Nutr.* 2004; 80: 29-37.
- Gonzalez AJ, White E, Kristal A, Littman AJ. Calcium intake and 10-year weight change in middle-aged adults. *J Am Diet Assoc.* 2006 Jul;106(7):1066-73
- Gunther CW, Legowski PA, Lyle RM, McCabe GP, Eagan MS, Peacock M, Teegarden D. Dairy products do not lead to alterations in body weight or fat mass in young women in a 1-y intervention. *Am J Clin Nutr.* 2005 Apr;81(4):751-6.
- Heaney RP. Low calcium intake among African Americans: effects on bones and body weight. *J Nutr.* 2006 Apr;136(4):1095-8.
- Heaney RP. Normalizing calcium intake: projected population effects for body weight. *J Nutr.* 2003 Jan;133(1):268S-270S

- Jacobsen R, Lorenzen JK, Toubro S, Krog-Mikkelsen I, Astrup A. Effect of short-term high dietary calcium intake on 24-h energy expenditure, fat oxidation, and fecal fat excretion. *Int J Obes (Lond)*. 2005;29(3):292-301.
- Jacqmain M, Doucet E, Despres JP, Bouchard C, Tremblay A. Calcium intake, body composition, and lipoprotein-lipid concentrations in adults. *Am J Clin Nutr*. 2003;77(6):1448-52.
- Kamycheva E, Joakimsen RM, Jorde R. Intakes of calcium and vitamin d predict body mass index in the population of Northern Norway. *J Nutr*. 2003 Jan;133(1):102-6.
- Lelovics Z. Relation between calcium and magnesium intake and obesity. *Asia Pac J Clin Nutr*. 2004;13(Suppl):S144.
- Lin YC, Lyle RM, McCabe LD, McCabe GP, Weaver CM, Teegarden D. Dairy calcium is related to changes in body composition during a two-year exercise intervention in young women. *J Am Coll Nutr*. 2000;19(6):754-60.
- Loos RJ, Rankinen T, Leon AS, Skinner JS, Wilmore JH, Rao DC, Bouchard C. Calcium intake is associated with adiposity in Black and White men and White women of the HERITAGE Family Study. *J Nutr*. 2004;134(7):1772-8.
- Lovejoy JC, Champagne CM, Smith SR, de Jonge L, Xie H. Ethnic differences in dietary intakes, physical activity, and energy expenditure in middle-aged, premenopausal women: the Healthy Transitions Study. *Am J Clin Nutr*. 2001 Jul;74(1):90-5.
- Major GC, Alarie F, Dore J, Phouttama S, Tremblay A. Supplementation with calcium + vitamin D enhances the beneficial effect of weight loss on plasma lipid and lipoprotein concentrations. *Am J Clin Nutr*. 2007 Jan;85(1):54-9.
- Marques-Vidal P, Goncalves A, Dias CM. Milk intake is inversely related to obesity in men and in young women: data from the Portuguese Health Interview Survey 1998-1999. *Int J Obes (Lond)*. 2006 Jan;30(1):88-93.
- Melanson EL, Donahoo WT, Dong F, Ida T, Zemel MB. Effect of low- and high-calcium dairy-based diets on macronutrient oxidation in humans. *Obes Res*. 2005;13(12):2102-12.
- Melanson EL, Sharp TA, Schneider J, Donahoo WT, Grunwald GK, Hill JO. Relation between calcium intake and fat oxidation in adult humans. *Int J Obes Relat Metab Disord*. 2003;27(2):196-203.
- Pereia MA, Jacobs DR Jr., Van Horn L, Slattery ML, Kartashov AI, Ludwig DS. Dairy consumption, obesity, and the insulin resistance syndrome in young adults: the CARDIA Study. *JAMA* 2002; 287: 2081-9.
- Ping-Delfos WC, Soares MJ, Cummings NK. Acute suppression of spontaneous food intake following dairy calcium and vitamin D. *Asia Pac. J. Clin. Nutr*. 2004;13: S82.
- Preuss HG, Garis RI, Bramble JD, Bagchi D, Bagchi M, Rao CV, Satyanarayana S. Efficacy of a novel calcium/potassium salt of (-)-hydroxycitric acid in weight control. *Int J Clin Pharmacol Res*. 2005;25(3):133-44
- Shahkhalilii Y, Murset C, Meirim I, Duruz E, Guinchard S, Cavadini C, Acheson K. Calcium supplementation of chocolate : effect on cocoa butter digestibility and blood lipids in humans, *Am. J. Clin. Nutr*. 2001; 73: 246-52.
- Shapses SA, Heshka S, Heymsfield SB. Effect of calcium supplementation on weight and fat loss in women. *J Clin Endocrinol Metab*. 2004 Feb;89(2):632-7.
- Shi H, Norman AW, Okamura WH, Sen A, Zemel MB. 1 $\alpha$ ,25-Dihydroxyvitamin D<sub>3</sub> modulates human adipocyte metabolism via nongenomic action. *The FASEB Journal*. 2001;15(12):U117-U131.
- Skinner JD, Bounds W, Carruth BR, Ziegler P. Longitudinal calcium intake is negatively related to children's body fat indexes. *J Am Diet Assoc*. 2003;103(12):1626-31.

- Summerbell CD, Watts C, Higgins JP, Garrow JS. Randomised controlled trial of novel, simple, and well supervised weight reducing diets in outpatients. *BMJ*. 1998;317(7171):1487-9.
- Tanasescu M, Ferris AM, Himmelgreen DA, Rodriguez N, Perez-Escamilla R. Biobehavioral factors are associated with obesity in Puerto Rican children. *J Nutr*. 2000;130(7):1734-42.
- Thompson WG, Rostad Holdman N, Janzow DJ, Slezak JM, Morris KL, Zemel MB. Effect of energy-reduced diets high in dairy products and fiber on weight loss in obese adults. *Obes Res*. 2005 Aug;13(8):1344-53.
- Venti CA, Tataranni PA, Salbe AD. Lack of relationship between calcium intake and body size in an obesity-prone population. *J Am Diet Assoc*. 2005 Sep;105(9):1401-7.
- Welberg JW, Monkelaan JG, de Vries EG, Muskiet FA, Cats A et al. Effects of supplemental dietary calcium on quantitative and qualitative fecal fat excretion in man. *Ann. Nutr. Metab*. 1994; 38:185-91.
- Wosje KS, Kalkwarf HJ. Lactation, weaning, and calcium supplementation: effects on body composition in postpartum women. *Am J Clin Nutr*. 2004 Aug;80(2):423-9.
- Zemel MB, Richards J, Mathis S, Milstead A, Gebhardt L, Silva E. Dairy augmentation of total and central fat loss in obese subjects. *Int J Obes (Lond)*. 2005;29(4):391-7.
- Zemel MB, Richards J, Milstead A, Campbell P. Effects of calcium and dairy on body composition and weight loss in African-American adults. *Obes Res*. 2005;13(7):1218-25.
- Zemel MB, Thompson W, Milstead A, Morris K, Campbell P. Calcium and dairy acceleration of weight and fat loss during energy restriction in obese adults. *Obes Res*. 2004;12(4):582-90.
- Zemel, M. B., Zemel, P. C., Bryg, R. J., Sowers, J. R. (1990) 'Dietary calcium induces regression of left ventricular hypertrophy in hypertensive non-insulin-dependent diabetic blacks', *Am. J. Hypertens.*, 3, 468-73.

### ***In Vitro and Animal Studies***

- Jones BH, Kim JH, Zemel MB, Woychik RP, Michaud EJ, Wilkison WO, Moustaid N. Upregulation of adipocyte metabolism by agouti protein: possible paracrine actions in yellow mouse obesity. *Am J Physiol*. 1996 Jan;270(1 Pt 1):E192-6.
- Morris KL, Zemel MB. 1,25-dihydroxyvitamin D<sub>3</sub> modulation of adipocyte glucocorticoid function. *Obes Res*. 2005;13(4):670-7.
- Papakonstantinou E, Flatt WP, Huth PJ, Harris RB. High dietary calcium reduces body fat content, digestibility of fat, and serum vitamin D in rats. *Obes Res*. 2003 Mar;11(3):387-94
- Paradis S, Cabanac M. Calcium deficiency cannot induce obesity in rats. *Physiol Behav*. 2005 Jun 30;85(3):259-64.
- Shi H, Dirienzo D, Zemel MB. Effects of dietary calcium on adipocyte lipid metabolism and body weight regulation in energy-restricted aP2-agouti transgenic mice. *FASEB J*. 2001;15(2):291-3. Epub 2000 Dec 8.
- Shi H, Halvorsen YD, Ellis PN, Wilkison WO, Zemel MB. Role of intracellular calcium in human adipocyte differentiation. *Physiol Genomics*. 2000;3(2):75-82.
- Shi H, Norman AW, Okamura WH, Sen A, Zemel MB. 1alpha,25-dihydroxyvitamin D<sub>3</sub> inhibits uncoupling protein 2 expression in human adipocytes. *FASEB J*. 2002;16(13):1808-10.
- Shi H, Norman AW, Okamura WH, Sen A, Zemel MB. 1alpha,25-Dihydroxyvitamin D<sub>3</sub> modulates human adipocyte metabolism via nongenomic action. *FASEB J*. 2001;15(14):2751-3.
- Sun X, Zemel MB. Calcium and dairy products inhibit weight and fat regain during ad libitum consumption following energy restriction in Ap2-agouti transgenic mice. *J Nutr*. 2004;134(11):3054-60.

- Sun X, Zemel MB. Effects of mitochondrial uncoupling on adipocyte intracellular Ca(2+) and lipid metabolism. *J Nutr Biochem.* 2003;14(4):219-26.
- Sun X, Zemel MB. Role of uncoupling protein 2 (UCP2) expression and 1alpha, 25-dihydroxyvitamin D3 in modulating adipocyte apoptosis. *FASEB J.* 2004;18(12):1430-2.
- Vaskonen T, Mervaala E, Sumuvuori V, Seppanen-Laakso T, Karppanen H. Effects of calcium and plant sterols on serum lipids in obese Zucker rats on a low-fat diet. *Br J Nutr.* 2002 Mar;87(3):239-45.
- Xue B, Greenberg AG, Kraemer FB, Zemel MB. Mechanism of intracellular calcium ([Ca2+]i) inhibition of lipolysis in human adipocytes. *FASEB J.* 2001;15(13):2527-9.
- Zemel MB, Kim JH, Woychik RP, Michaud EJ, Kadwell SH, Patel IR, Wilkison WO. Agouti regulation of intracellular calcium: role in the insulin resistance of viable yellow mice. *Proc Natl Acad Sci U S A.* 1995 May 23;92(11):4733-7.

### **Book**

- Gerstner G and de Vreese M, Dietary and supplementary calcium and its role in weight loss: weighing the evidence, in: Henry C.J.K. „Novel food ingredients for weight control“ Woodhead Publishing (in press, publication in May 2007)"

## **CALCIUM and Colorectal Cell Protection**

### **Authoritative/Scientific Bodies**

- National Cancer Institute. (1987) State data package, National Cancer Institute, Bethesda, Md
- USDA, Human Nutrition Information Service (1984) Nutrient intakes, individuals in 48 states, year 1977-78. Nationwide food consumption survey 1977-78

### **Meta-Analysis**

- Cho E, Smith-Warner SA, Spiegelman D et al. Dairy foods, calcium, and colorectal cancer: a pooled analysis of 10 cohort studies. *J Natl Cancer Inst* 2004;96:1015-1022.
- Fleet JC, Dairy consumption and the prevention of colon cancer: is there more to the story than calcium? *Am. J. Clinical Nutrition*, Mar 2006; 83: 527 - 528. Editorial
- Shaukat A, Scouras N, Schunemann HJ. Role of supplemental calcium in the recurrence of colorectal adenomas: a metaanalysis of randomized controlled trials. *Am J Gastroenterol* 2005;100:390-394.

### **Reviews**

- Alvarez-Leon EE, Roman-Vinas B, Serra-Majem L. Dairy products and health: a review of the epidemiological evidence. *Br J Nutr.* 2006 Aug;96 Suppl 1:S94-9. Review.
- Sorenson AW, Slattery ML, Ford MH. Calcium and colon cancer, a review. *Nutrition and Cancer* 1988;11,135-145

### **Individual Studies**

- Baron JA, Beach M, Mandel JS et al. Calcium supplements for the prevention of colorectal adenomas. *N Engl J Med.* 1999;340,101-107
- Flood A, Peters U, Chatterjee N et al. Calcium from diet and supplements is associated with reduced risk of colorectal cancer in a prospective cohort of women. *Cancer Epidemiol Biomarkers Prev* 2005;14:126-132

- Garland C, Barret-Connor E, Rossof AH et al. Dietary vitamin D and calcium and risk of colorectal cancer: a 19-year prospective study in men. *Lancet* 1985;i,307-309
- Govers MJAP, Van der Meer R. Effects of dietary calcium and phosphate on the intestinal interactions between calcium, phosphate, fatty acids, and bile acids. *Gut* 1993;34,365-370
- Govers MJAP, Termont DSML, Van der Meer R. The mechanism of the anti-proliferative effect of milk mineral on rat colonic epithelium. *Gastroenterology* 1993;104,A1040
- Govers MJAP, Termont DSML, Van Aken GA, Van der Meer R. Characterization of the adsorption of conjugated and unconjugated bile acids to unsoluble, amorphous calcium phosphate. *J Lip Res* 1994;35,741-748
- Govers MJAP, Termont DSML, Lapré JA et al. Calcium in milk products precipitates intestinal fatty acids and secondary bile acids and thus inhibits colonic cytotoxicity in humans. *Cancer Res* 1996;56,3270-3275
- Grau MV, Baron JA, Sandler RS et al. Vitamin D, calcium supplementation, and colorectal adenomas: results of a randomized trial. *J Natl Cancer Inst* 2003;95:1765-1771
- Hartman TJ, Albert PS, Snyder K et al. The association of calcium and vitamin D with risk of colorectal adenomas. *J Nutr* 2005;135:252-259
- Holt PR, Attilasoy EO, Gillman J et al. Modulation of abnormal colonic epithelial cell proliferation and differentiation by low-fat dairy foods. A randomized controlled trial. *JAMA* 1998;280,1074-1079
- Holt PR, Wolper C, Moss SF, Yang K, Lipkin M. Comparison of calcium supplementation or low-fat dairy foods on epithelial cell proliferation and differentiation. *Nutr Cancer* 2001;41,150-155
- Holt PR, Bresalier RS, Ma CK, Liu KF, Lipkin M, Byrd JC, Yang K. Calcium plus vitamin D alters preneoplastic features of colorectal adenomas and rectal mucosa. *Cancer.* 2006 Jan 15;106(2):287-96.
- Kesse E, Boutron-Ruault MC, Norat T et al. Dietary calcium, phosphorus, vitamin D, dairy products and the risk of colorectal adenoma and cancer among French women of the E3N-EPIC prospective study. *Int J Cancer* 2005;117:137-144
- Lamprecht SA, Lipkin M. Cellular mechanisms of calcium and vitamin D in the inhibition of colorectal carcinogenesis. *Ann NY Acad Sci* 2001;952:73-87
- Lapré JA, Van der Meer R. Diet-induced increase of colonic bile acids stimulates lytic activity of fecal water and proliferation of colonic cells. *Carcinogenesis* 1992;13,41-44
- Lapré JA, Termont DSML, Groen AK, Van der Meer R. Lytic effects of mixed micelles of fatty acids and bile acids. *Am J Physiol* 1992;263,G333-G337
- Lapré JA, De Vries HT, Termont DSML et al. Mechanism of the protective effects of supplemental dietary calcium on cytolytic activity of fecal water. *Cancer Res* 1993;53,248-253
- Larsson SC, Bergkvist L, Rutegård J, Giovannucci E, Wolk A. Calcium and dairy food intakes are inversely associated with colorectal cancer risk in the Cohort of Swedish Men. *Am J Clin Nutr.* 2006 Mar;83(3):667-73; quiz 728-9.
- Lin J, Zhang SM, Cook NR et al. Intakes of calcium and vitamin D and risk of colorectal cancer in women. *Am J Epidemiol* 2005;161;755-764
- Ma J, Giovannucci E, Pollak M et al. Milk intake, circulating levels on insulin-like growth factor-I, and risk of colon cancer in men. *J Natl Cancer Inst* 2001;93:1330-1336
- Martinez ME, Marshall JR, Sampliner R et al. Calcium, vitamin D, and risk of adenoma recurrence (United States). *Cancer Causes Control* 2002;13:213-220

- Miller EA, Keku TO, Satia JA et al. Calcium, vitamin D, and apoptosis in the rectal epithelium. *Cancer Epidemiol Biomarkers Prev* 2005;14:525-528
- Oh K, Willett WC, Wu K, Fuchs CS, Giovannucci EL. Calcium and Vitamin D Intakes in Relation to Risk of Distal Colorectal Adenoma in Women. *Am J Epidemiol.* 2007 Mar 22; [Epub ahead of print]
- Oh SY, Lee JH, Jang DK et al. Relationship of nutrients and food to colorectal cancer risk in Koreans. *Nutr Res* 2005;25,805-813
- Park SY, Murphy SP, Wilkens LR, Nomura AM, Henderson BE, Kolonel LN. Calcium and vitamin D intake and risk of colorectal cancer: the multiethnic cohort study. *Am J Epidemiol.* 2007 Apr 1;165(7):784-93. Epub 2007 Jan 10.
- Peters U, Chatterjee N, McGlynn KA et al. Calcium intake and colorectal adenoma in a US colorectal cancer early detection program. *Am J Clin Nutr* 2004;80:1358-1365
- Rozen P, Lubin F, Papo N et al. Calcium supplements interact significantly with long-term diet while suppressing rectal epithelial proliferation of adenoma patients. *Cancer* 2001;91,833-840
- Shin A, Li H, Shu XO, Yang G, Gao YT, Zheng W. Dietary intake of calcium, fiber and other micronutrients in relation to colorectal cancer risk: Results from the Shanghai Women's Health Study. *Int J Cancer.* 2006 Dec 15;119(12):2938-42.
- Slattery ML, Neuhausen SL, Hoffman M et al. Dietary calcium, vitamin D, VDR genotypes and colorectal cancer. *Int J Cancer* 2004;111,750-756
- Terry P, Baron JA, Bergkvist L et al. Dietary calcium and vitamin D intake and risk of colorectal cancer: a prospective cohort study in women. *Nutr Cancer* 2002;43,39-46
- Van der Meer R, Welberg JWM, Kuipers F et al. Effects of supplemental dietary calcium on the intestinal association of calcium, phosphate, and bile acids. *Gastroenterology* 1990;99,1653-1659
- Van der Meer R, Termont DSML, De Vries HT. Differential effects of calcium ions and calcium phosphate on cytotoxicity of bile acids. *Am J Physiol* 1991;260,G142-G147
- Wu K, Willett WC, Fuchs CS, Colditz GA, Giovannucci EL. Calcium intake and the risk of colon cancer in women and men. *J Natl Cancer Inst* 2002;94,437-446

## **MAGNESIUM and Bone Health**

### **Reviews**

- Abraham GE. The importance of magnesium in the management of primary osteoporosis. *Journal of Nutritional Medicine* 1991; 2: 165-78
- Cohen L. Recent data on magnesium and osteoporosis. *Magnes Res* 1988; 1: 85-7
- Ilich JZ, Kerstetter JE. Nutrition in bone health revisited: a story beyond calcium. *J Am Coll Nutr* 2000; 19: 715-37
- Sojka JE, Weaver CM. Magnesium supplementation and osteoporosis. *Nutr Rev* 1995; 53: 71-4

### **Individual Studies**

- Cohen L, Kitzes R. Infrared spectroscopy and magnesium content of bone mineral in osteoporotic women. *Isr J Med Sci* 1981; 17: 1123-5
- Cohen L, Laor A, Kitzes R. Bone magnesium, crystallinity index and state of body magnesium in subjects with senile osteoporosis, maturity-onset diabetes and women treated with contraceptive preparations. *Magnesium* 1983; 2: 70-5

- Reginster JY, Strause L, Deroisy R, Lecart MP, Saltman P, Franchimont P. Preliminary report of decreased serum magnesium in postmenopausal osteoporosis. *Magnesium* 1989; 8: 106-9
- Rude RK, Olerich M. Magnesium deficiency: possible role in osteoporosis associated with gluten-sensitive enteropathy. *Osteoporos Int* 1996; 6: 453-61

### ***Animals Trials***

- Creedon A, Flynn A, Cashman K. The effect of moderately and severely restricted dietary magnesium intakes on bone composition and bone metabolism in the rat. *Br J Nutr* 1999; 82: 63-71
- Rude RK, Gruber HE, Wei LY, Frausto A, Mills BG. Magnesium deficiency: effect on bone and mineral metabolism in the mouse. *Calcif Tissue Int* 2003; 72: 32-41
- Rude RK, Kirchen ME, Gruber HE, Meyer MH, Luck JS, Crawford DL. Magnesium deficiency-induced osteoporosis in the rat: uncoupling of bone formation and bone resorption. *Magnes Res* 1999; 12: 257-67
- Rude RK, Kirchen ME, Gruber HE, Stasky AA, Meyer MH. Magnesium deficiency induces bone loss in the rat. *Miner Electrolyte Metab* 1998; 24: 314-20
- Stendig-Lindberg G, Koeller W, Bauer A, Rob PM. Experimentally induced prolonged magnesium deficiency causes osteoporosis in the rat. *Eur J Intern Med* 2004; 2: 97-107

## **IRON**

### ***Authoritative/Scientific Bodies***

- ACC/SCN. What works? A Review of the Efficacy and Effectiveness of Human Interventions, Allen LH and Gillespie SR. 2001. Geneva, ACC/SCN in collaboration with the Asian Development Bank, Manila.
- ACC/SCN. Third Report on the World Nutrition Situation. Geneva, 1997.
- ACC/SCN. Fourth Report on the World Nutrition Situation: Nutrition Throughout the Life Cycle, 2000.
- Dietary Reference Values for Food Energy and Nutrients for the United Kingdom, Department of Health, 1996.
- Human vitamin and mineral requirements; Report of a joint FAO/WHO expert consultation Bangkok-Thailand, Rome, 2002.
- Institute of Medicine (2001) Iron In Dietary reference intakes for vitamin A, vitamin K, arsenic, boron, chromium, copper, iodine, iron, manganese, molybdenum, nickel, silicon, vanadium, and.... National Academic Press, Washington D.C., chapter 9, pp 290-393
- International Nutritional Anemia Consultative Group (INACG). Why iron is important and what to do about it: a new perspective. 2001 INACG Symposium, 2002.
- Reference Values for Nutrient Intake, 1st ed. German Nutrition Society (DGE), 2002.
- Rivera Dommarco J, Shamah Levy T, Villalpando Hernández S, González de Cossío T, Hernández Prado B, Sepúlveda J. Encuesta Nacional de Nutrición. 1999. Estado nutricional de niños y mujeres en México. Cuernavaca, Morelos, México: Instituto Nacional de Salud Pública, 2001.
- UNICEF 1998. The State of the World's Children <http://www.unicef.org/sowc98/sowc98.pdf>

### ***Reviews***

- Gera T, Sachdev HPS. Effect of iron supplementation on incidence of infectious illness in children: systematic review. *B.M.J.* 2002;325:1142-1152.
- Grantham-McGregor S, Ani C. A review of studies on the effect of iron deficiency on cognitive development in children. *Journal of Nutrition* 2001;131:649S-666S.
- Haas JD, Brownlie T. Iron deficiency and reduced work capacity: A critical review of the research to determine a causal relationship. *Journal of Nutrition* 2001;131:676S-688S.
- Oppenheimer SJ. Iron and its relation to immunity and infectious disease. *Journal of Nutrition* 2001;131:616S-633S.

### **Textbooks**

- Beard, J.L. and Dawson, H.D. (1997) Iron In Handbook of nutritionally essential mineral elements, O'Dell, B.L. and Sunde, R.A. eds., Marcel Dekker Inc., New York, Basel, Hong Kong, chapter 9 pp 275-334
- Fairbanks, V.F. (1999) Iron in Medicine and Nutrition. In: Shils, M.E.; Olson, J.A.; Shike, M. and Ross, A.C. eds. Modern Nutrition in Health and Disease, 9th edition, Williams and Wilkins, pp 193-221
- Skikine B et al. Iron absorption. In: Brock JH et al. eds. Iron metabolism in Health and Disease. WB Saunders, London, 1994.

## **IODINE and Cognitive Development/Thyroid Function**

### **Authoritative/Scientific Bodies**

- Becker, D.V., L.E. Braverman, F. Delange, J.T. Dunn, J.A. Franklyn, J.G. Hollowell, S.H. Lamm, M.L. Mitchell, E. Pearce, J. Robbins, and J.F. Rovet. 2006. Iodine supplementation for pregnancy and lactation - United States and Canada: Recommendations of the American Thyroid Association. *Thyroid*. 16:949-951.
- Bundesinstitut für Risikobewertung (BfR), Arbeitskreis Jodmangel (AKJ) (Hrsg.). Jod, Folsäure und Schwangerschaft – Ratschläge für Ärzte. Februar 2006
- WHO. 2004. Vitamin and mineral requirements in human nutrition. WHO.
- WHO 2003. Micronutrient deficiencies - Iodine Deficiency Disorders, WHO.

### **Reviews and Individual Studies**

- Angermayr L, Clar C., Iodine supplementation for preventing iodine deficiency disorders in children, *Cochrane Database Syst Rev*. 2004;(2):CD003819
- Black, M. M. 2003. Micronutrient deficiencies and cognitive functioning. *Journal of Nutrition*, 133: 3972S-3931S.
- Bryan J, Osendarp S, Hughes D, Calvaresi E, Baghurst K, van Klinken JW., Nutrients for cognitive development in school-aged children, CSIRO, Health Sciences and Nutrition, GPO Box 10041, Adelaide BC, South Australia, 5000, *Nutr Rev*. 2004 Aug;62(8):295-306
- Delange, F. (2000). "The role of iodine in brain development." *Proceedings of the Nutrition Society* 59: 75-79.
- Cashman, K. D. (2003). Trace elements, nutritional significance. *Encyclopedia of Dairy Science*. H. Roginski, J. W. Fuquay and P. F. Fox. London, Academic Press: 2058-2065.

- Glinoer, D. 2004. The regulation of thyroid function during normal and pregnancy: importance of the iodine nutrition function. Best Practice & Research in Clinical Endocrinology & Metabolism. 18: 133-152.
- Grantham-McGregor SM, Ani CC., The role of micronutrients in psychomotor and cognitive development, Centre for International Child Health, University College London, UK, Br Med Bull. 1999;55(3):511-27.
- Hetzel, B.S. 1998. Iodine-deficiency disorders. In Human nutrition and dietetics. J.S. Garrow and W.P.T. James, editors. Churchill Livingstone, London. 534-555.
- Huda, S.N., S.M. Grantham-McGregor, K.M. Rahman, and A. Tomkins. 1999. Biochemical hypothyroidism secondary to iodine deficiency id associated with poor school achievement and cognition in Bangladeshi children. Journal of Nutrition. 129:980-987.
- Kasatkina, É.P., L.N. Samsonova, V.N. Ivakhnenko, G.V. Ibragimova, A.V. Ryabykh, L.L. Naumenko, and Y.A. Evdokimova. 2006. Gestational hypothyroxinemia and cognitive function in offspring. Neuroscience and Behavioral Physiology. 36:619-624.
- Münte, T.F., C. Lill, G. Ötting, and G. Brabant. 2003. Cognitive changes in short-term hypothyroidism assessed with event-related brain potentials. Psychoneuroendocrinolgy. 29:1109-1118.
- Sankar, R., B. Rai, T. Pulger, L. Srinivasan, and C.S. Pandav. 1994. Intellectual and motor functions in school children from severely iodine deficient region in Sikkim. Indian Journal of Pediatrics. 61:231-236.
- Siarkowski Amer, K. 2005. Advances in assessment, diagnosis and treatment of hyperthyroidism in children. Journal of Pediatric Nursing. 20:119-126.
- Vitti, P., T. Rago, et al. (2001). "Iodine deficiency disorders in Europe." Public Health Nutrition 4: 529-535.
- Zimmermann, M.B., J.C. Köhrle, K., M. Bozo, F. Roher, and L. Grimci. 2006. Iodine supplementation improves cognition in iodine-deficient schoolchildren in Albania: a randomized, controlled double-blind study. American Journal of Clinical Nutrition. 83:108-114.

## **SELENIUM and Antioxidant Activity**

### ***Authoritative/Scientific Bodies***

- WHO (2004). Vitamin and mineral requirements in human nutrition. Geneva, Switzerland

### ***Reviews***

- Rayman, M. P. (2000). "The importance of selenium to human health." Lancet 356: 233-241
- Thomson, C. D. (2004). "Assessment of requirements for selenium and adequacy of selenium status: a review." European Journal of Clinical Nutrition 58: 391-402
- Combs, G. F. J. (2005). "Current evidence and research needs to support a health claim for selenium and cancer prevention." Journal of Nutrition 135: 343-347.

## **SELENIUM and Immune System**

### ***Authoritative/Scientific Bodies***

- WHO (2004). Vitamin and mineral requirements in human nutrition. Geneva, Switzerland

## **Reviews**

- Rayman, M. P. (2000). "The importance of selenium to human health." Lancet 356: 233-241
- Thomson, C. D. (2004). "Assessment of requirements for selenium and adequacy of selenium status: a review." European Journal of Clinical Nutrition 58: 391-402
- Combs, G. F. J. (2005). "Current evidence and research needs to support a health claim for selenium and cancer prevention." Journal of Nutrition 135: 343-347.

## **SELENIUM and Thyroid Function**

### **Authoritative/Scientific Bodies**

- WHO (2003). Micronutrient deficiencies - Iodine Deficiency Disorders, WHO.Vitti, P., T. Rago, et al. (2001). "Iodine deficiency disorders in Europe." Public Health Nutrition 4: 529-535.

### **Individual Studies**

- Cashman, K. D. (2003). Trace elements, nutritional significance. Encyclopedia of Dairy Science. H. Roginski, J. W. Fuquay and P. F. Fox. London, Academic Press: 2058-2065
- Delange, F. (2000). "The role of iodine in brain development." Proceedings of the Nutrition Society 59: 75-79.

## **ZINC and Immune Function**

### **Reviews**

- Black RE, Sazawal S. Zinc and childhood infectious disease morbidity and mortality. B J Nutr 2001;85(2) S125-S129.
- Brown KH. Diarrhea and malnutrition. J. Nutr. 2003;133:328S-332S.
- Brown KH. Effect of infections on plasma zinc concentration and implications for zinc status assessment in low-income countries. Am. J. Clin. Nutr. 1998;68:425-429.
- Calder PC and Jackson AJ. Undernutrition, infection and immune function. Nutrition Research Reviews. 2000;13:3-29
- Dardenne M. Zinc and immune function. Eur. J. Clin. Nutr. 2002;569(suppl 30):520-523.
- Fraker PJ, King LE, Laakko T, Vollmer TL: The dynamic link between the integrity of the immune system and zinc status. J Nutr 2000;130:1399S-1406S
- Fraker PJ, King LE: Reprogramming of the immune system during zinc deficiency. Annu Rev Nutr 2004;24:277-298
- Ibs KH, Rink L: Zinc; in Hughes DA, Darlington LG, Bendich A (eds): Diet and human immune function. Humana Press, Totowa, NJ, 2004, chapter 13, pp 241-259
- Ibs K-H, Rink L: Zinc-altered immune function. J Nutr 2003;133:1452S-1456S)
- Prasad AS: Effects of zinc deficiency on immune functions. J Trace Elem Exp Med 2000;13:1-30
- Rink L, Gabriel P: Zinc and the immune system. Proc Nutr Soc 2000;59:541-552
- Shankar AH, Prasad AS: Zinc and immune function: the biological basis of altered resistance to infection. Am J Clin Nutr 1998;68:447S-463S
- Wintergerst ES, Maggini S, Hornig DH. Immune-enhancing role of vitamin C and zinc and effect on clinical conditions. Ann Nutr Metab. 2006;50(2):85-94

## **Clinical Trials**

- Bhutta ZA, et al (Zinc investigators collaborative group). Prevention of diarrhea and pneumonia by zinc supplementation in children in developing countries: Pooled analysis of randomized trials. *J. Pediatr.* 1999a;135:689-697.
- Bhutta ZA Therapeutic effects of oral zinc in acute and persistent diarrhea in children in developing countries: pooled analysis of randomized controlled trials. *Am. J. Clin. Nutr.* 2000;72:1516-1522.
- Brown KH. Effect of supplemental zinc on the growth and serum zinc concentrations of pre-pubertal children: a meta-analysis of randomized controlled trials. *Am. J. Clin. Nutr.* 2002;75:1062-1071.
- Hamadani JD et al. Randomized controlled trial of the effect of zinc supplementation on the mental development of Bangladeshi infants. *Am. J. Clin. Nutr.* 2001;74(3):381-386.
- The Zinc Against Plasmodium Study Group. Effect of zinc on the treatment of Plasmodium falciparum malaria in children: a randomized controlled trial. *Am. J. Clin. Nutr.* 2002;76:805-812.

## **ZINC and Antioxidant Action**

### **Reviews**

- Alternative medicine Review Monographs vol I p459 (Belgium)
- Klotz LO, Kroncke KD, Buchczyk DP, Sies H. Role of copper, zinc, selenium and tellurium in the cellular defense against oxidative and nitrosative stress. *J Nutr.* 2003 May;133(5 Suppl 1):1448S-51S. Review
- Powell SR. The antioxidant properties of zinc. *J. Nutr.* 2000; may130 (Suppl): 1447S-1454S Review

### **Individual Studies**

- Bartnikas TB, Gitlin JD. Mechanisms of biosynthesis of mammalian copper/zinc superoxide dismutase. *J Biol Chem.* 2003 Jun 18
- Kushleikaite Miu et al. Microelement concentration in the blood plasma, erythrocytes and hair of patients with coronary disease with risk factors. *Kardiologija* 1984 Feb; 24(2):89-92.
- Richard MJ et al. Effect of zinc supplementation on resistance of cultured human skin fibroblasts toward oxidant stress. *Biol Trace Elem Res.* 1993 May-Jun; 37(2-3): 187-99.
- Roussel AM; Kerkeni A, Zouari N, Mahjoub S, Matheau JM, Anderson RA. Antioxidant effects of zinc supplementation in tunisians with type 2 diabetes mellitus. *J. Am. Coll. Nutr.* 2003;22(4):316-321.
- Suntres ZE; Lui EM. Antioxidant effect of zinc metallothionein in the acute cytotoxicity of hydrogen peroxide in Ehrlieh ascites tumour cells. *Chem. Biol. Interact.* 2006;April 27:

## **ZINC and Bone Formation**

### **Reviews**

- Illich JZ, Kerstetter JE. Nutrition in bone health revisited: a story beyond calcium. *J Am Coll Nutr* 2000; 19: 715-37
- Lowe NM, Lowe NM, Fraser WD, Jackson MJ. Is there a potential therapeutic value of copper and zinc for osteoporosis? *Proc Nutr Soc* 2002; 61: 181-5

- Meunier, N, O'Connor, JM, Maiani, G, Cashman, KD, Secker, DL, Ferry, M, Roussel, AM and Coudray, C, (2005) Importance of zinc in the elderly: the ZENITH study, *Journal/Eur J Clin Nutr*, 59 Suppl 2, S1-4 (Review)
- Nishi Y. Zinc and growth. *J Am Coll Nutr* 1996; 15: 340-4
- Rico H, Villa LF. Zinc, a new coherent therapy for osteoporosis? *Calcified tissue international* 2000; 67: 422-423
- Saltman PD, Strause LG. The role of trace minerals in osteoporosis. *J Am Coll Nutr* 1993; 12: 384-389
- Yamaguchi M. Beta-Alanyl-L-histidinato zinc and bone resorption. *Gen Pharmacol* 1995; 26: 1179-83

#### ***Randomized Human Trials***

- Peretz A, Papadopoulos T, Willems D, Hotimsky A, Michiels N, Siderova V, Bergmann P, Neve J. Zinc supplementation increases bone alkaline phosphatase in healthy men. *Journal of trace elements in medicine and biology* 2001; 15: 175-178
- Strause L, Saltman P, Smith KT, Bracker M, Andon MB. Spinal bone loss in postmenopausal women supplemented with calcium and trace minerals. *J Nutr* 1994; 124: 1060-4

#### ***Open Human Trials***

- Sugiyama T, Tanaka H, Kawai S. Improvement of periarticular osteoporosis in postmenopausal women with rheumatoid arthritis by beta-alanyl-L-histidinato zinc: a pilot study. *Journal of bone and mineral metabolism* 2000; 18: 335-338

#### ***Epidemiologic Studies***

- Atik OS. Zinc and senile osteoporosis. *J Am Geriatr Soc* 1983; 31: 790-1
- Elmstahl S, Gullberg B, Janzon L, Johnell O, Elmstahl B. Increased incidence of fractures in middle-aged and elderly men with low intakes of phosphorus and zinc. *Osteoporos Int.* 1998; 8: 333-40
- Gur A, Colpan L, Nas K, Cevik R, Sarac J, Erdogan F, Duz MZ. The role of trace minerals in the pathogenesis of postmenopausal osteoporosis and a new effect of calcitonin. *J Bone Miner Metab* 2002; 20: 39-43
- Herzberg M, Foldes J, Steinberg R, Menczel J. Zinc excretion in osteoporotic women. *J Bone Miner Res* 1990; 5: 251-7
- Hyun TH, Barrett-Connor E, Milne DB. Zinc intakes and plasma concentrations in men with osteoporosis: the Rancho Bernardo Study. *Am J Clin Nutr* 2004; 80: 715-21
- New SA, Bolton-Smith C, Grubb DA, Reid DM. Nutritional influences on bone mineral density: a cross-sectional study in premenopausal women. *Am J Clin Nutr* 1997; 65: 1831-9
- Ohry A, Shemesh Y, Zak R, Herzberg M. Zinc and osteoporosis in patients with spinal cord injury. *Paraplegia* 1980; 18: 174-80
- Relea P, Revilla M, Ripoll E, Arribas I, Villa LF, Rico H. Zinc, biochemical markers of nutrition, and type I osteoporosis. *Age Ageing* 1995; 24: 303-7
- Szathmari M, Steczek K, Szucs J, Hollo I. [Zinc excretion in osteoporotic women]. *Orv Hetil* 1993; 134: 911-4

#### ***Animal Trials***

- Dimai HP, Hall S, Stilt-Coffing B, Leb G, Farley J. Dosisabhängiger Anstieg von Knochenformationsmarkern in Serum und Knochen unter Zink-Supplementation – eine Untersuchung an der erwachsenen weiblichen Maus. *J Miner Stoffwechs* 1998; 5: 5-14
- Eberle J, Schmidmayer S, Erben RG, Stangassinger M, Roth HP. Skeletal effects of zinc deficiency in growing rats. *J Trace Elem Med Biol* 1999; 13: 21-6
- Ehara Y, Takahashi H, Hanahisa Y, Yamaguchi M. Effect of vitamin K2 (menaquinone-7) on bone metabolism in the femoral-metaphyseal tissues of normal and skeletal-unloaded rats: enhancement with zinc. *Res Exp Med (Berl)* 1996; 196: 171-8
- Hosea HJ, Taylor CG, Wood T, Mollard R, Weiler HA. Zinc-deficient rats have more limited bone recovery during repletion than diet-restricted rats. *Exp Biol Med (Maywood)* 2004; 229: 303-11
- Igarashi A, Yamaguchi M. Increase in bone growth factors with healing rat fractures: the enhancing effect of zinc. *Int J Mol Med* 2001; 8: 433-8
- Igarashi A, Yamaguchi M. Increase in bone protein components with healing rat fractures: enhancement by zinc treatment. *Int J Mol Med* 1999; 4: 615-20
- Kishi S, Segawa Y, Yamaguchi M. Histomorphological confirmation of the preventive effect of beta-alanyl-L-histidinato zinc on bone loss in ovariectomized rats. *Biol Pharm Bull* 1994; 17: 862-5
- Rossi L, Migliaccio S, Corsi A, Marzia M, Bianco P, Teti A, Gambelli L, Cianfarani S, Paoletti F, Branca F. Reduced Growth and Skeletal Changes in Zinc-Deficient Growing Rats Are Due to Impaired Growth Plate Activity and Inanition. *J Nutr* 2001; 131:1142-1146
- Seco C, Revilla M, Hernandez ER, Gervas J, Gonzalez-Riola J, Villa LF, Rico H. Effects of zinc supplementation on vertebral and femoral bone mass in rats on strenuous treadmill training exercise. *J Bone Miner Res* 1998; 13: 508-12
- Yamaguchi M, Kishi S. Prolonged administration of beta-alanyl-L-histidinato zinc prevents bone loss in ovariectomized rats. *Jpn J Pharmacol* 1993; 63: 203-7
- Yamaguchi M, Yamaguchi R. Action of zinc on bone metabolism in rats. Increases in alkaline phosphatase activity and DNA content. *Biochem Pharmacol* 1986; 35: 773-7

### ***Studies with Cell Cultures***

- Holloway WR, Collier FM, Herbst RE, Hodge JM, Nicholson GC. Osteoblast-mediated effects of zinc on isolated rat osteoclasts: inhibition of bone resorption and enhancement of osteoclast number. *Bone* 1996; 19: 137-42
- Kishi S, Yamaguchi M. Inhibitory effect of zinc compounds on osteoclast-like cell formation in mouse marrow cultures. *Biochem Pharmacol* 1994; 48: 1225-30
- Matsui T, Yamaguchi M. Zinc modulation of insulin-like growth factor's effect in osteoblastic MC3T3-E1 cells. *Peptides* 1995; 16: 1063-8
- Moonga BS, Dempster DW. Zinc is a potent inhibitor of osteoclastic bone resorption in vitro. *J Bone Miner Res* 1995; 10: 453-7
- Yamaguchi M, Kitajima T. Effect of estrogen on bone metabolism in tissue culture: enhancement of the steroid effect by zinc. *Res Exp Med (Berl)* 1991; 191: 145-54
- Yamaguchi M, Segawa Y, Shimokawa N, Tsuzuike N, Tagashira E. Inhibitory effect of beta-alanyl-L-histidinato zinc on bone resorption in tissue culture. *Pharmacology* 1992; 45: 292-300

### **MANGANESE and Antioxidant Action**

#### ***Authoritative/Scientific Bodies***

- WHO: Concise International Chemical Assessment Document 12, Manganese and its compounds, 4.
- Expert Group on Vitamins and Minerals 2003, Risk Assessment Manganese; 213-218.

### **Tea References**

- Engelhardt, U.H. (1999): Grüner und schwarzer Tee -Gemeinsamkeiten und Unterschiede. W.I.T. S. 1-6.
- Nippon Eiseigaku Zasshi, Japanese journal of hygiene 1993 Oct.; 48 (4): 864-72.

## **POTASSIUM and Blood Pressure**

### **Meta-Analysis**

- Cappuccio FP et al. Does potassium supplementation lower blood pressure? A meta-analysis of published trials. J Hypertens. 9: 465-473, 1991 (Meta-analysis)
- Geleijnse JM et al. Blood pressure response to changes in sodium and potassium intake: a metaregression analysis of randomised trials. J Hum Hypertens. 17: 471-480, 2003 (Meta-analysis)
- Whelton PK et al. Effects of oral potassium on blood pressure. Meta-analysis of randomized controlled clinical trials. J Am Med Assoc. 277: 1624-1632, 1997 (Meta-analysis)

### **Individual Studies**

- He FJ et al. Effect of short term supplementation of potassium chloride and potassium citrate on blood pressure in hypertensive. Hypertension. 45: 571-574, 2005 (RCT)

## **CITRATES (as Na-, K-, Ca-, Mg-salts) and Acid Base/ Bone Health**

### **Reviews**

- Alpern RJ, Sakhaei K. The clinical spectrum of chronic metabolic acidosis: homeostatic mechanisms produce significant morbidity. Am J Kidney Dis. 29, 291-302, 1997
- Bushinsky DA. Acid-base imbalance and the skeleton. Eur J Nutr. 40, 238-244, 2001
- Cordain L, Eaton SB, Sebastian A, Mann N, Lindeberg S, Watkin BA, O'Keefe JH, Brand-Miller J. Origins and evolution of the Western diet: health implications for the 21st century. Am J Clin Nutr. 81, 341–54, 2005
- Demigne C, Sabboh H, Puel C, Remesy C, Coxam V. Organic anions and potassium salts in nutrition and metabolism. Nutrition Research Reviews 17, 249-258, 2004
- Frassetto L, Morris RC Jr., Sellmeyer DE, Todd K, Sebastian A. Diet, evolution and aging. The pathophysiologic effects of the post-agricultural inversion of the potassium-to-sodium and base-to-chloride ratios in the human diet. Eur J Nutr 40, 200–213, 2001
- Hess B. Acid-base metabolism: implications for kidney stones formation. Urol Res. 34, 134-138, 2006
- Lemann J Jr, Bushinsky DA, Hamm LL. Bone buffering of acid and base in humans. Am J Physiol, Renal Physiol. 285, F811-F832, 2003
- Sabboh H, Puel C, Rémésy C, Coxam V. Organic anions and potassium salts in nutrition and metabolism. Nutrition Research Reviews 17, 249 - 258, 2004

- Vormann J, Goedecke T. Acid-Base Homeostasis: Latent acidosis as a cause of chronic diseases. Schweiz. Zschr. GanzheitsMedizin 18, 255 - 266, 2006

### ***Individual Studies***

- Alexy U, Remer T, Manz F, Neu CM , Schoenau E. Long-term protein intake and dietary potential renal acid load are associated with bone modeling and remodeling at the proximal radius in healthy children. Am J Clin Nutr. 82, 1107-1114, 2005
- Buclin T, Cosma M, Appenzeller M, Jacquet AF, Decosterd LA, Biollaz J, Burckhardt P. Diet acids and alkalis influence calcium retention in bone. Osteoporos Int. 12, 493-499, 2001
- Cseuz R, Bender T, Vormann J. Alkaline mineral supplementation for patients with rheumatoid arthritis. Rheumatology 44, i79, 2005
- Jajoo R, Song L, Rasmussen H, Harris SS, Dawson-Hughes B. Dietary acid-base balance, bone resorption, and calcium excretion. J Am Coll Nutr. 25, 224-30, 2006
- Jehle S, Zanetti A, Muser J, Hulter HN, Krapf R. Partial neutralization of the acidogenic Western diet with potassium citrate increases bone mass in postmenopausal women with osteopenia. J Am Soc Nephrol. 17, 3213-22, 2006
- Marangella M, Di Stefano M, Casalis S, Berutti S, D'Amelio P, Isaia GC. Effects of potassium citrate supplementation on bone metabolism. Calcif Tissue Int. 74, 330-335, 2004
- New SA, MacDonald HM, Campbell MK, Martin JC, Garton MJ, Robins SP, Reid DM. Lower estimates of net endogenous non-carbonic acid production are positively associated with indexes of bone health in premenopausal and perimenopausal women. Am J Clin Nutr. 79, 131-138, 2004
- Remer T, Dimitriou T, Manz F. Dietary potential renal acid load and renal net acid excretion in healthy, free-living children and adolescents. Am J Clin Nutr. 77, 1255–1260, 2003
- Rylander R, Remer T, Berkemeyer S, Vormann J. Acid-base status affects renal magnesium losses in healthy, elderly persons. J Nutr. 136, 2374-7, 2006
- Sakhaee K, Maalouf NM, Abarms SA, Pak CYC. Effect of potassium alkali and calcium supplementation on bone turnover in postmenopausal women. J Clin Endocrinol Metabol. 90, 3528-3533, 2005
- Sellmeyer DE, Schloetter N, Sebastian A. Potassium citrate prevents increased urine calcium excretion and bone resorption induced by a high sodium chloride diet. J Clin Endocrinol Metab. 87, 2008-2012, 2002
- Vormann J, Wirlitschek M, Goedecke T, Silver B. Supplementation with alkaline minerals reduces symptoms in patients with chronic low back pain. J Trace Elem Med Biol. 15, 179-183, 2001
- Vormann, J. and T. Goedecke (2002). "Latent Acidosis: Overacidification as a Cause of Chronic Diseases." Schweiz Zschr Ganzheitsmedizin 14: 90-96.

## **PROTEIN and Bone Health**

### **Reviews**

- Bell J, Whiting SJ. Elderly women need dietary protein to maintain bone mass. *Nutr Rev.* 2002;60(10 Pt 1):337-41.
- Bonjour JP, Schurch MA, Chevalley T, Ammann P, Rizzoli R. Protein intake, IGF-1 and osteoporosis. *Osteoporos Int.* 1997;7 Suppl 3:S36-42.
- Bonjour JP, Ammann P, Chevalley T, Rizzoli R. Protein intake and bone growth. *Can J Appl Physiol.* 2001;26 Suppl:S153-66.
- Bonjour JP. Dietary proteins: an essential nutrient for bone health. *J Am Coll Nutr.* 2005, 24(6 Suppl):526S-36S. Review
- Heaney RP. Protein intake and bone health: the influence of belief systems on the conduct of nutritional science. *Am J Clin Nutr.* 2001;73(1):5-6.
- Kerstetter JE, O'Brien KO, Insogna KL. Dietary protein, calcium metabolism, and skeletal homeostasis revisited. *Am J Clin Nutr.* 2003;78(3 Suppl):584S-592S.
- Massey LK. Dietary animal and plant protein and human bone health: a whole foods approach. *J Nutr.* 2003;133(3):862S-865S.
- Naot D, Grey A, Reid IR, Cornish J. Lactoferrin - a novel bone growth factor. *Clin Med Res.* 2005;3:93-101.
- Rizzoli R, Bonjour JP. Dietary protein and bone health. *J Bone Miner Res.* 2004;19(4):527-31.

### **Intervention Studies**

- Cadogan J, Eastell R, Jones N, Barker ME. Milk intake and bone mineral acquisition in adolescent girls: randomised, controlled intervention trial. *BMJ.* 1997; 315:1255-60.
- Dawson-Hughes B, Harris SS, Rasmussen H, Song L, Dallal GE. Effect of dietary protein supplements on calcium excretion in healthy older men and women. *J Clin Endocrinol Metab.* 2004;89(3):1169-73.
- Dawson-Hughes B, Harris SS. Calcium intake influences the association of protein intake with rates of bone loss in elderly men and women. *Am J Clin Nutr.* 2002;75(4):773-9.
- Delmi M, Rapin CH, Bengoa JM, Delmas PD, Vasey H, Bonjour JP. Dietary supplementation in elderly patients with fractured neck of the femur. *Lancet.* 1990;335(8696):1013-6.
- Kerstetter JE, O'Brien KO, Caseria DM, Wall DE, Insogna KL. The impact of dietary protein on calcium absorption and kinetic measures of bone turnover in women. *J Clin Endocrinol Metab.* 2005;90(1):26-31.
- Kerstetter JE, O'Brien KO, Insogna KL. Dietary protein affects intestinal calcium absorption. *Am J Clin Nutr.* 1998;68(4):859-65.
- Roughead ZK, Johnson LK, Lykken GI, Hunt JR. Controlled high meat diets do not affect calcium retention or indices of bone status in healthy postmenopausal women. *J Nutr.* 2003;133(4):1020-6
- Schurch MA, Rizzoli R, Slosman D, Vadas L, Vergnaud P, Bonjour JP. Protein supplements increase serum insulin-like growth factor-I levels and attenuate proximal femur bone loss in patients with recent hip fracture. A randomized, double-blind, placebo-controlled trial. *Ann Intern Med.* 1998;128(10):801-9.

- Tkatch L, Rapin CH, Rizzoli R, Slosman D, Nydegger V, Vasey H, Bonjour JP. Benefits of oral protein supplementation in elderly patients with fracture of the proximal femur. *J Am Coll Nutr* 1992;11:519-525.

### ***Observational Studies***

- Feskanich D, Willett WC, Stampfer MJ, Colditz GA. Protein consumption and bone fractures in women. *Am J Epidemiol*. 1996;143(5):472-9.
- Garnero P, Sornay-Rendu E, Delmas PD. Low serum IGF-1 and occurrence of osteoporotic fractures in postmenopausal women. *Lancet*. 2000;355(9207):898-9.
- Hannan MT, Tucker KL, Dawson-Hughes B, Cupples LA, Felson DT, Kiel DP. Effect of dietary protein on bone loss in elderly men and women: the Framingham Osteoporosis Study. *J Bone Miner Res*. 2000;15(12):2504-12.
- Munger RG, Cerhan JR, Chiu BC. Prospective study of dietary protein intake and risk of hip fracture in postmenopausal women. *Am J Clin Nutr*. 1999;69(1):147-52.
- Promislow JH, Goodman-Gruen D, Slymen DJ, Barrett-Connor E. Protein consumption and bone mineral density in the elderly : the Rancho Bernardo Study. *Am J Epidemiol*. 2002;155(7):636-44.
- Wengreen HJ, Munger RG, West NA, et al. Dietary protein intake and risk of osteoporotic hip fracture in elderly residents of Utah. *J Bone Miner Res*. 2004;19(4):537-45.

### ***Preclinical Studies***

- Ammann P, Bourrin S, Bonjour JP, Meyer JM, Rizzoli R. Protein undernutrition-induced bone loss is associated with decreased IGF-I levels and estrogen deficiency. *J Bone Miner Res*. 2000;15(4):683-90.
- Ammann P, Laib A, Bonjour JP, Meyer JM, Ruegsegger P, Rizzoli R. Dietary essential amino acid supplements increase bone strength by influencing bone mass and bone microarchitecture in ovariectomized adult rats fed an isocaloric low-protein diet. *J Bone Miner Res*. 2002;17(7):1264-72.
- Bourrin S, Ammann P, Bonjour JP, Rizzoli R. Dietary protein restriction lowers plasma insulin-like growth factor I (IGF-I), impairs cortical bone formation, and induces osteoblastic resistance to IGF-I in adult female rats. *Endocrinology*. 2000;141(9):3149-55.
- Chevalley T, Rizzoli R, Manen D, Caverzasio J, Bonjour JP. Arginine increases insulin-like growth factor-I production and collagensynthesis in osteoblast-like cells. *Bone*. 1998;23:103-9

## **PROTEIN and Satiety / Weight Management**

### ***Reviews***

- Anderson GH, Moore SE. Dietary proteins in the regulation of food intake and body weight in humans. *J Nutr*. 2004 Apr;134(4):974S-9S.
- Astrup A. Dietary approaches to reducing body weight. *Baillieres Clin. Endo. Metab*. 1999;13:109-120.
- Eisenstein J, Roberts SB, Dallal G, Saltzman E. High-protein weight-loss diets: are they safe and do they work? A review of the experimental and epidemiologic data. *Nutr Rev*. 2002 Jul;60(7 Pt 1):189-200.
- Halton TL, Hu FB. The effects of high protein diets on thermogenesis, satiety and weight loss: a critical review. *J Am Coll Nutr*. 2004 Oct;23(5):373-85.

- Harvey Anderson G et al. Dietary proteins in the regulation of food intake and body weight in humans. *Journal of Nutrition* 2004; 134: 974S-979S.
- Schaafsma G. Health issues of whey proteins: Weight management. *Current topics in nutraceutical research*. 2006 May;4(2):123-26.
- Stubbs RJ. Macronutrient effects on appetite. *Int. J. Obes. Relat. Metab. Disord.* 1995;19(Suppl 5):S11-S9.
- Westerterp-Plantenga MS, Lejeune MP. Protein intake and body-weight regulation. *Appetite*. 2005 Oct;45(2):187-90.
- Westerterp-Plantenga MS. The significance of protein in food intake and body weight regulation. *Curr Opin Clin Nutr Metab Care*. 2003 Nov;6(6):635-8.

### ***Intervention Studies***

- Baba NH, Sawaya S, Torbay N, Habbal Z, Azar S, Hashim SA. High protein vs high carbohydrate hypoenergetic diet for the treatment of obese hyperinsulinemic subjects. *Int. J. Obes. Relat. Metab. Disord.* 1999;23(11):1202-1206.
- Barkeling B, Rossner S, Bjorvell H. Effects of a high-protein meal (meat) and a high-carbohydrate meal (vegetarian) on satiety measured by automated computerized monitoring of subsequent food intake, motivation to eat and food preferences. *Int. J. Obes.* 1990;14(9):743-751.
- Boirie Y, Dangin M, Gachon P, Vasson M-P, Maubois J-L, Beaufrère B. Slow and fast dietary proteins differently modulate postprandial protein accretion. *Proc. Natl. Acad. Sci.* 1997;94:14930-14935.
- French SJ. 'The effects of specific nutrients on the regulation of feeding behaviour in human subjects Proc. Nutr. Soc. 1999;58:533-540.
- Lang V, Bellisle F, Alamowitch C, Craplet C, Bornet FRJ, Slama G, Guy-Grand B. Varying the protein source in mixed meal modifies glucose, insulin and glucagon kinetics in healthy men, has weak effects on subjective satiety and fails to effect food intake. *Eur. J. Clin. Nutr.* 1999;53:959-965.
- Latner J. The Effects of a High-carbohydrate, High-protein or Balanced Lunch upon Later Food Intake and Hunger Ratings. *Appetite* 1999;33(1):119-128.
- Mikkelsen PB, Toubro S, Astrup A. Effect of fat-reduced diets on 24-h energy expenditure: comparisons between animal protein, vegetable protein, and carbohydrate. *Am J Clin Nutr.* 2000 Nov;72(5):1135-41.
- Skov AR, Toubro S, Rønn B, Holm L, Astrup A. Randomized trial on protein vs carbohydrate in ad libitum fat reduced diet for the treatment of obesity. *Int. J. Obes.* 1999;23:528-536.
- Stubbs RJ. Breakfast high in protein, fat or carbohydrate: effect on within-day appetite and energy balance. *Eur. J. Clin. Nutr.* 1996;50:409-417.
- Weigle DS, Breen PA, Matthys CC, Callahan HS, Meeuws KE, Burden VR, Purnell JQ. A high-protein diet induces sustained reductions in appetite, ad libitum caloric intake, and body weight despite compensatory changes in diurnal plasma leptin and ghrelin concentrations. *Am J Clin Nutr.* 2005 Jul;82(1):41-8.
- Westerterp-Plantenga MS, Lejeune MP, Nijs I, van Ooijen M, Kovacs EM. High protein intake sustains weight maintenance after body weight loss in humans. *Int J Obes Relat Metab Disord.* 2004 Jan;28(1):57-64.

- Westerterp-Plantenga MS, Rolland V, Wilson SA, Westerterp KR. Satiety related to 24h diet-induced thermogenesis during high protein/carbohydrate vs high fat diets measured in a respiration chamber. *Eur. J. Clin. Nutr.* 1999;53:495-502.

## **CARBOHYDRATES - Low GI - Blood Glucose**

### **Authoritative/Scientific Bodies**

- FAO. Report of a joint FAO/WHO expert consultation: carbohydrates in human nutrition, in FAO food and nutrition paper Rome, 1998.
- WHO/FAO. Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series 916, Geneva, 2003, pg 76.

### **Textbooks**

- Frost G and Dornhurst A. Glycemic Index. Encyclopedia of Human Nutrition, 2nd Edition. Eds Caballero B et al. Elsevier: London UK, 2005.
- Wolever T. The Glycaemic Index – physiological classification of dietary carbohydrate. CABI: Oxfordshire, UK, 2006.

### **Systematic Reviews/Meta-Analysis**

- Brand Miller J. Low GI diets in the management of diabetes a meta-analysis of randomised control trials. *Diabetes Care* 2003, 26: 2261-2267.
- Opperman AM Venter CS, Oosthuizen W, Thompson RL, Vorster HH. Meta-analysis of the health effects of using the GI in meal planning. *Brit J Nutr* 2004, 92: 367-381.

### **Reviews**

- Alfenas RCG, Mattes RD. Influence of glycemic index/load on GI response, appetite, and food intake in healthy humans. *Diabetes Care* 2005; 28: 2123-2129.
- Augustin LS, Franceschi S, Jenkins DJA, Kendall CWC, La Vecchia C. Glycemic index in chronic disease: a review. *Eur J Clin Nutr* 2002, 56: 1049-1107.
- Brouns F, Bjorck I, Frayn K, Gibbs AL, Lang V, Slama G, Wolever TMS. Glycaemic Index Methodology. *Nutrition Research Reviews* 2005, 18:145-171.
- Foster-Powell K, Holt S, Brand Miller J. International table of GI/GL values 2002. *American Journal of Clinical Nutrition* 2002, 76: 5-56.
- Gray J. (2003). Carbohydrates: Nutritional and Health Aspects. ILSI Monograph (2003) (ISBN: 1-57881-146-5).
- Henry CJ, Lightowler HJ, Strik CM, Renton H, Hails S. Glycaemic index and glycaemic load values of commercially available products in the UK. *Br J Nutr* 2005, 94: 922-930.
- Unwin N, Shaw J, Zimmet P, Alberti KG. Impaired glucose tolerance and impaired fasting glycaemia: the current status on definition and intervention. *Diabet Med.* 2002, 19: 708-723.

### **Individual Studies**

- Bouche C, Rizkalla SW, Luo J, Vidal H, Veronese A, Pacer N, Fouquet C, Lang V, Slama G. Five week, low GI diet decreases total fat mass and improves plasma lipid profile in moderately overweight non-diabetic men. *Diabetes Care* 2002, 25: 822-828.

- Brynes AE, Edwards MC, Ghatei MA, Dornhorst A, Morgan LM, Bloom SR, Frost GS. A randomised four-intervention crossover study investigating the effect of carbohydrates on daytime profiles of insulin, glucose, non-esterified fatty acids and triacylglycerols in middle-aged men. *Br J Nutr* 2003, 89: 207-218.
- Brynes AE, Lee JL, Brighton RE, Leeds AR, Dornhorst A, Frost GS. A low glycemic diet significantly improves the 24-h blood glucose profile in people with type 2 diabetes, as assessed using the continuous glucose MiniMed monitor. *Diabetes Care* 2003, 26: 548-549.
- Brynes AE, Adamson J, Dornhorst A, Frost G. The beneficial effect of a diet with low GI on 24 h glucose profiles in healthy young people as assessed by continuous glucose monitoring. *British Journal of Nutrition* 2005, 93: 179-182.
- Liljeberg H, Akerberg AK, Björck IM. Effect of the glycemic index and content of indigestible carbohydrates of cereal-based breakfast meals on glucose tolerance at lunch in healthy subjects. *Am J Clin Nutr* 1999, 69: 647-655.
- Liljeberg H, Björck I. Effects of a low-glycaemic index spaghetti meal on glucose tolerance and lipaemia at a subsequent meal in healthy subjects. *Eur J Clin Nutr* 2000, 54: 24-28.
- Henry CJ, Lightowler HJ, Kendall FL, Storey M. The impact of the addition of toppings/fillings on the glycaemic response to commonly consumed carbohydrate foods. *Eur J Clin Nutr* 2006, 60: 763-769. Epub 2006 Jan 25.
- Jenkins DJ, Ocana AM, Rao VA, Collier GR. Second-meal effect: low-glycemic-index foods eaten at dinner improve subsequent breakfast glycemic response. *Am J Clin Nutr* 1988, 48: 1041-1047.
- Ludwig DS, Majzoub JA, Al-Zahrani A et al. High GI foods, overeating and obesity. *Pediatrics*, 1999, 103: e26.

## **CARBOHYDRATES - Low GI - Cholesterol**

### ***Authoritative/Scientific Body***

- FAO. Report of a joint FAO/WHO expert consultation: carbohydrates in human nutrition, in FAO food and nutrition paper Rome, 1998.

### ***Textbook***

- Frost G and Dornhurst A. Glycemic Index. *Encyclopedia of Human Nutrition*, 2nd Edition. Eds Caballero B et al. Elsevier: London UK, 2005.

### ***Systematic Reviews/Meta-Analysis***

- Kelly S, Frost G, Whittaker V, Summerbell C. Low glycaemic index diets for coronary heart disease (Cochrane Review). The Cochrane Library, Issue 2, 2005.
- Opperman AM, Venter CS, Oosthuizen W, Thompson RL, Vorster HH. Meta-analysis of the health effects of using the GI in meal planning. *Brit J Nutr* 2004, 92: 367-381.

### ***Reviews***

- Augustin LS, Franceschi S, Jenkins DJA, Kendall CWC, La Vecchia C. Glycemic index in chronic disease: a review. *Eur J Clin Nutr* 2002, 56: 1049-1107.
- Brouns F, Björck I, Frayn K, Gibbs AL, Lang V, Slama G, Wolever TMS. Glycaemic Index Methodology. *Nutrition Research Reviews* 2005, 18:145-171.

- Gray J. (2003). Carbohydrates: Nutritional and Health Aspects. ILSI Monograph (2003) (ISBN: 1-57881-146-5).
- Jenkins DJA, Kendall CWC, Augustin LSA et al. GI Overview of Implications of Health and Disease. Am J Clin Nutr 2002, 76: 266s-273s.
- Leeds AR. GI and Heart Disease. American Journal of Clinical Nutrition 2002, 76: 286s-289s.
- Ludwig DS. The Glycemic Index: Physiological Mechanisms Relating to Obesity, Diabetes and Cardiovascular Disease. JAMA 2002, 287: 2414-2423.
- Pawlac DB, Ebbeling CB, Ludwig DS. Should obese patients be counselled to follow a low GI diet? Yes! Obesity Reviews 2002, 3: 235-243.
- Pelkman CL. Effect of GI foods on serum concentration of HDL, cholesterol and triglycerides. Current Atherosclerosis Reports 2001, 3: 456-461.
- Perlstein RWJ, Hines C, Milsavljevic M. Dietitians' Association of Australia, review paper. Australian Journal of Nutrition and Dietetics 1997, 54: 57-63..

### ***Individual Studies***

- Bornet FR, Costagliola D, Rizkalla SW et al. Insulinaemic and glycaemic indexes of six starch-rich foods taken alone and in a mixed meal by type 2 diabetics. Am J Clin Nutr 1987, 45: 588-595.
- Jenkins DJ, Wolever TM, Kalmusky J, Giudici S, Giordano C, Wong GS, Bird JN, Patten R, Hall M, Buckley G, et al. Low glycemic index carbohydrate foods in the management of hyperlipidemia. Am J Clin Nutr 1985, 42: 604-617.
- Ma Y, Li Y, Chiriboga DE, Olendzki BC, Hebert JR, Li W, Leung K, Hafner AR, Ockene IS. Association between carbohydrate intake and serum lipids. J Am Coll Nutr 2006, 25: 155-163.
- Rizkalla S, Taghrid L, Laramiguere M et al. Improved plasma glucose control, whole body glucose utilization and lipid profile on a low glycemic index diet in type 2 diabetic men – a randomized controlled trial. Diabetes Care 2004, 27: 1866-1872.
- Sloth B, Krog-Mikkelsen I, Flint A et al. No difference in body weight decrease between a low GI and a high GI diet but reduced LDL-cholesterol after 10-weeks ad libitum intake of the low glycemic index diet. Am J Clin Nutr 2004, 80: 337-347.

### ***Epidemiological Studies***

- Ford ES, Liu S. GI and serum HDL cholesterol concentration amongst US adults. Arch Intern Med 2001, 161: 572-576.
- Frost G, Leeds AA, Dore CJ, Madeiros S, Brading S, Dornhorst A. Glycaemic index as a determinant of serum HDL-cholesterol concentration. Lancet 1999, 353: 1045-1048.

## **CARBOHYDRATES - Low GI - Satiety**

### ***Authoritative/Scientific Body***

- FAO. Report of a joint FAO/WHO expert consultation: carbohydrates in human nutrition, in FAO food and nutrition paper Rome, 1998.

### ***Systematic Review/Meta-Analysis***

- Bornet FRJ, Jardy-Gennetier A-E, Jacquet N and Stowell J (2007) Glycaemic response to foods: impact on satiety and long-term weight regulation. Appetite: In press

## **Reviews**

- Alfenas RCG, Mattes RD. Influence of glycemic index/load on glycemic response, appetite and food intake in healthy humans. *Diabetes Care* 2005, 28: 2123-2129.
- Augustin LS, Franceschi S, Jenkins DJA, Kendall CWC La Vecchia C. Glycemic index in chronic disease: a review. *European Journal of Clinical Nutrition* 2002, 56: 1049-1107.
- Brand Miller J, Holt S, Pawlak DB, McMillan J (2002). Glycemic Index and Obesity. *American Journal of Clinical Nutrition* 2002, 76: 281s-285s.
- Brouns F, Björck I, Frayn K, Gibbs AL, Lang V, Slama G, Wolever TMS. Glycaemic Index Methodology. *Nutrition Research Reviews* 2005, 18:145-171.
- Roberts SB. High-glycemic index foods, hunger, and obesity: is there a connection? *Nutrition Reviews* 2000, 58:163-169.
- Ekmekcioglu C. Glycemic Index - A novel opportunity in the dietetic therapy of metabolic diseases? *Ernaehrung / Nutrition* 2002, 26: 349-356.
- Ludwig DS, Majzoub JA, Al-Zahrani A, et al. High Glycemic Index Foods, Overeating, and Obesity. *Pediatrics* 1999, 103: e26.
- Ludwig DS. Dietary Glycemic Index and Obesity. *Journal of Nutrition* 2000, 130: 280s-283s.
- Pawlak DB, Ebbeling CB, Ludwig DS. Should obese patients be counselled to follow a low GI diet? Yes! *Obesity Reviews* 2002, 3: 235-243.
- Perlstein RWJ, Hines C, Milsavljevic M. Dietitians' Association of Australia, review paper. *Australian Journal of Nutrition and Dietetics* 1997, 54: 57-63.
- Pi-Sunyer FX. Glycemic index and Disease. *American Journal of Clinical Nutrition*, 2002, 76: 290s-298s.
- Raben A. Should obese patients be counselled to follow a low GI Diet? No. *Obesity Review*, 2002, 3: 245-256.

## **Individual Studies**

- Anderson GH, Catherine NL, Woodend DM, Wolever TM. Inverse association between the effect of carbohydrates on blood glucose and subsequent short-term food intake in young men. *Am J Clin Nutr* 2002, 76: 1023-2030.
- Ball SD, Keller KR, Moyer-Mileur LJ, Ding YW, Donaldson D, Jackson WD. Prolongation of satiety after low versus moderately high glycemic index meals in obese adolescents. *Pediatrics* 2003, 111: 488-494.
- Bornet FR, Costagliola D, Rizkalla SW et al. Insulinaemic and glycaemic indexes of six starch-rich foods taken alone and in a mixed meal by type 2 diabetics. *Am J Clin Nutr* 1987, 45: 588-595.
- Jimenez-Cruz A, Gutierrez-Gonzalez AN, Bacardi-Gascon M. Low glycemic index lunch on satiety in overweight and obese people with type 2 diabetes. *Nutr Hosp* 2005, 20: 348-350.
- Liljeberg HG. Effect of the glycemic index and content of indigestible carbohydrates of cereal-based breakfast meals on glucose tolerance at lunch in healthy subjects *Am J Clin Nutr* 1999, 69: 647-655.
- Pasman WJ, Blokdijk VM, Bertina FM, Hopman WP, Hendriks HF. Effect of 2 breakfasts different in carbohydrate composition on hunger, satiety and mood in healthy men. *International Journal of Obesity Related Metabolic Disorders* 2003, 27: 663-668.
- Warren JM, Henry CJK, Simonite V. Low GI breakfast and reduced food intake in pre-adolescent children. *Pediatrics* 2003, 112: e414.

## **CARBOHYDRATES with a Low Glycaemic Response**

### **Conditions of Use**

*The glycemic response is not more than half that of glucose, without increasing the fat content, assessed from blood glucose response curves (e.g. test food vs glucose) either based on a portion of the food providing 50g (minimum 10g) of total carbohydrates and dietary fibre (thus taking into account available carbohydrates and their replacements, e.g. polyols and dietary fibre) or based on the amount of carbohydrates in one serving of the food vs the equivalent amount of glucose.*

### **Authoritative/Scientific Bodies**

- WHO/FAO. Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series 916, Geneva, 2003, pg 76.
- FAO/WHO 1998 Carbohydrates in Human Nutrition, FAO Food and Nutrition Paper No. 66, Report of a Joint FAO/WHO Expert Consultation Rome, 14-18 April 1997.

### **Meta-Analysis**

- Anderson J, Randles K, Kendall C, Jenkins D (2004) Carbohydrate and fiber recommendations for individuals with diabetes: A quantitative assessment and meta-analysis of the evidence. *Journal of the American College of Nutrition* 23, 5-17.
- Brand Miller J (2003) Low-glycemic index diets in the management of diabetes. A meta-analysis of randomised control trials. *Diabetes Care* 26, 2261-2267.
- Livesey G (2005) Low glycemic diets and health: implications for obesity. *Proceedings of the Nutrition Society* 64, 1-9.
- Opperman A, Venter C, Oosthuizen W, Thompson R, Vorster H (2004) Meta-analysis of the health effects of using the glycaemic index in meal planning. *British Journal of Nutrition*, 92, 367-381
- Wolever TMS (2003) Carbohydrate and the Regulation of Blood Glucose and Metabolism. *Nutrition Reviews*. 61, S40-S48.

### **Reviews**

- Augustin LS, Franceschi S, Jenkins DJA, Kendall CWC, La Vecchia C (2002) Glycemic index in chronic disease: a review. *European Journal of Clinical Nutrition* 56, 1049-1107.
- Berg A, Hamm M, Theis S (2005) Kohlenhydrate und ihre glykämische Wirkung [Carbohydrates and their glycemic effect]. *Praxishandbuch Functional Food* (eds. Erbersdobler, Meyer), Behrs, Hamburg.
- Björck I, Liljeberg H, Östman E (2000) Low glycaemic-index foods. *British Journal of Nutrition* 83, Suppl. 1, 149-155.
- Brand-Miller J (2003) Glycemic load and chronic disease. *Nutrition Reviews* 61, 49-55.
- Jenkins DJA, Kendall CWC, Augustin LSA, Franceschi S, Hamidi M, Marchie A, Jenkins AL, Axelsen M (2002) Glycemic index: an overview of implications in health and disease. *American Journal of Clinical Nutrition* (suppl), 266S-273S.
- Leeds A (2002) Glycemic index and heart disease. *American Journal of Clinical Nutrition* 76 (suppl.)286S-289S.
- Liu S (2002) Intake of refined carbohydrates and whole grain foods in relation to risk of type 2 diabetes mellitus and coronary heart disease. *Journal of the American College of Nutrition* 21, 298-306.

- Liu S, Willet WC (2002) Dietary glycemic load and atherothrombotic risk. *Curr. Atheroscler. Rep.* 4(6), 454-461.
- Livesey G (2003) Health potential of polyols as sugar replacers, with emphasis on low glycaemic properties. *Nutrition Research Reviews* 16, 163-191.
- Livesey G (2006) Glycemic control with unavailable carbohydrates including polyols. *Foods Food Ingredients J Jpn* 211, 445-455
- Livesey G (2005) Low glycemic diets and health: implications for obesity. *Proceedings of the Nutrition Society* 64, 1-9.
- Ludwig DS (2002) The glycemic index – physiological mechanisms relating to obesity, diabetes, and cardiovascular disease. *JAMA* 287, 2414-2423.
- Ludwig DS (2003) Dietary glycemic index and the regulations of body weight. *Lipids* 38, 117-121.
- Monro J (2005) Expressing the glycaemic potency of foods. *Proceedings of the Nutrition Society* 64, 115-122.
- Riccardi G, Aggett P, Brighenti F, Delzenne N, Frayn K, Nieuwenhuizen A, Pannemans D, Theis S, Truijtelaars S, Vessby B (2004) PASSCLAIM – Body weight regulation, insulin sensitivity and diabetes risk. *European Journal of Nutrition, Suppl.* 2 43 II/7-II/46.
- Willett W, Manson J, Liu S (2002) Glycemic index, glycemic load, and risk of type 2 diabetes. *American Journal of Clinical Nutrition (suppl)*, 274S-280S.
- Wolever TMS (2000) Dietary carbohydrates and insulin action in humans. *British Journal of Nutrition* 83, Suppl.1, S97-S102.
- Wolever TMS (2003) Carbohydrate and the Regulation of Blood Glucose and Metabolism. *Nutrition Reviews* 61, S40-S48.

### ***Individual Studies***

- Gostner A, Schäffer V, Theis S, Menzel T, Lührs H, Melcher R, Schauber J, Kudlich T, Dusel G, Dorbath D, Kozianowski G, Scheppach W (2005) Effects of isomalt consumption on gastrointestinal and metabolic parameters in healthy volunteers. *British Journal of Nutrition* 94, 575-581.
- Holub I, Gostner A, Hessdoerfer S, Theis S, Kozianowski G, Bender G, Willinger B, Allolio B, Dusel G, Dorbath, D, Volk A, Backhaus K, Scheppach W (2006) Wirkung des Zuckeraustauschstoffes Isomalt auf Stoffwechsel- und Risikoparameter bei Patienten mit Diabetes mellitus Typ 2. [Influence of low glycaemic sweetener isomalt on metabolic parameters and vascular risk factors in type 2 diabetics]. *Z Gastroenterol* 44, 699-941 [Abstract P385].

## **CARBOHYDRATES with a Reduced Glycemic Response**

### ***Authoritative/Scientific Bodies***

- WHO/FAO. Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series 916, Geneva, 2003, pg 76.
- FAO/WHO 1998 Carbohydrates in Human Nutrition, FAO Food and Nutrition Paper No. 66, Report of a Joint FAO/WHO Expert Consultation Rome, 14-18 April 1997.

### ***Meta-Analysis***

- Brand Miller J (2003) Low-glycemic index diets in the management of diabetes. A meta-analysis of randomised control trials. *Diabetes Care* 26, 2261-2267.

- Opperman A, Venter C, Oosthuizen W, Thompson R, Vorster H (2004) Meta-analysis of the health effects of using the glycaemic index in meal planning. *Br J Nutr*, 92, 367-381
- Wolever TMS (2003) Carbohydrate and the regulation of blood glucose and metabolism. *Nutrition Reviews* 61, S40-S48.

### **Reviews**

- Augustin LS, Franceschi S, Jenkins DJA, Kendall CWC, La Vecchia C (2002) Glycemic index in chronic disease: a review. *European Journal of Clinical Nutrition* 56, 1049-1107.
- Berg A, Hamm M, Theis S (2005) Kohlenhydrate und ihre glykämische Wirkung [Carbohydrates and their glycemic effect]. *Praxishandbuch Functional Food* (eds. Erbersdobler, Meyer), Behrs, Hamburg.
- Brand-Miller J (2003) Glycemic load and chronic disease. *Nutrition Reviews* 61, 49-55.
- Jenkins DJA, Kendall CWC, Augustin LSA, Franceschi S, Hamidi M, Marchie A, Jenkins AL, Axelsen M (2002) Glycemic index: an overview of implications in health and disease. *American Journal of Clinical Nutrition* (suppl), 266S-273S.
- Livesey G (2006) Glycemic control with unavailable carbohydrates including polyols. *Foods Food Ingredients J Jpn* 211 (5), 445-455.
- Livesey G (2003) Health potential of polyols as sugar replacers, with emphasis on low glycaemic properties. *Nutrition Research Reviews* 16, 163-191.
- Ludwig DS (2002) The glycemic index – physiological mechanisms relating to obesity, diabetes, and cardiovascular disease. *JAMA* 287, 2414-2423.
- Wolever TMS (2000) Dietary carbohydrates and insulin action in humans. *British Journal of Nutrition* 83, Suppl. 1, S97-S102.
- Wolever TMS (2003) Carbohydrate and the regulation of blood glucose and metabolism. *Nutrition Reviews* 61, S40-S48.

**See as well references for “Carbohydrates with a low glycemic response”.**

### **CARBOHYDRATES and Physical Endurance**

#### **Authoritative/Scientific Body**

- FAO. Report of a joint FAO/WHO expert consultation: carbohydrates in human nutrition, in FAO food and nutrition paper Rome, 1998.  
<http://www.fao.org/DOCREP/w8079e/w8079e08.htm#physical%20activity>
- AFSSA (2004) Glucides et santé : état des lieux, évaluation et recommandations.

### **CARBOHYDRATE/GLUCOSE and Cognitive Performance**

#### **Reviews and Individual Studies**

- Bellisle F, Blundell JE, Dye L, Fantino M, Fern E, Fletcher RJ, Lambert J, Roberfroid M, Specter S, Westenhöfer J and Westerterp-Plantenga MS (1998) Functional food science and behaviour and psychological functions. *British Journal of Nutrition* 80, (Suppl.1), S173 – S193. [PASSCLAIM]
- Benton D, Owens DS, Parker PY. Blood glucose influences memory and attention in young adults. *Neuropsychologia*. 1994;32:595-607.

- Benton D, Parker PY, Donohoe RT. The supply of glucose to the brain and cognitive functioning. *J Biosoc Sci*. 1996;28:463-479.
- Benton D, Owens DS (1993) Blood glucose and human memory. *Psychopharmacology* 113, 83-88.
- Benton, D. (2002). Carbohydrate ingestion, blood glucose and mood. *Neuroscience and Biobehavioral Reviews* 26, 293-308.
- Donohoe RT, Benton D (1999) Cognitive function is susceptible to the level of blood glucose. *Psychopharmacology* 145, 378-385.
- Foster JK, Lidder PG, Sunram SI (1998) Glucose and memory: fractionation of enhancement effects? *Psychopharmacology* 137, 259-270.
- Geßner B, Cnota PJ, Schaaf B. The effect of dextrose on the pharmaco-EEG. *EEG-EMG-Zeitschrift für Elektroenzephalographie Elektromyographie und verwandte Gebiete*. 1992;3:158-162.
- Gonder-Frederick L, Hall JL, Vogt J, Cox DJ, Green J, Gold PE (1987) Memory enhancement in elderly humans: effects of glucose ingestion. *Physiol Behav* 41, 503-4.
- Hall JL, Gonder-Frederick LA, Chewning WW, Silveira J, Gold PE (1989) Glucose enhancement of performance on memory tests in young and aged humans. *Neuropsychologia* 27, 1129-38.
- Kennedy DO and Scholey AB. Glucose administration, heart rate and cognitive performance: effects of increasing mental effort. *Psychopharmacology*. 2000;149:63-117.
- Korol DL, Lexcen FJ, Parent M, Ragozzino M, Manning CA, Gold PE (1995) Effects of glucose on cognitive performance in college students. *Soc Neurosci Abstr* 21, 2085.
- Messier C, Pierre J, Desrochers A, Gravel M. Dose-dependent action of glucose on memory processes in women: effect on serial position and recall priority. *Cognitive Brain Research*. 1998;7:221-233.
- Morris N & Sarll P (2001) Drinking glucose improves listening span in students who miss breakfast. *Educational Research* 43, 201-207.
- Moser L, Plum H, Buckmann M. Der Einfluß von Dextrose auf die psychophysische Leistungsfähigkeit des Autofahrers. *Akt. Ernähr. Med.* 1983;8:247-249.
- Owens DS & Benton D (1994) The impact of raising blood glucose on reaction times. *Neuropsychobiology* 30, 106-13.
- Owens DS, Parker PY, Benton D (1997) Blood Glucose and Subjective Energy Following Cognitive Demand. *Physiology and Behaviour* 62, 471 – 478.
- Parsons MW, Gold PE. Glucose enhancement of memory in elderly humans - an inverted-U dose-response curve. *Neurobiology of Ageing*. 1992;13:401-404.
- Sunram-Lea SI, Foster JK, Durlach P, Perez C. Glucose facilitation of cognitive performance in healthy young adults: examination of the influence of fast-duration, time of day and pre-consumption plasma glucose levels. *Psychopharmacology*. 2001;157:46-54.
- Sunram-Lea SI, Foster JK, Durlach P, Perez C (2002) Investigation into the significance of task difficulty and divided allocation of resources on the glucose memory facilitation effect. *Psychopharmacology* 160, 387-397.

## **CARBOHYDRATES – Non-Cariogenic / Absence of Fermentable**

### ***Authoritative/Scientific Bodies***

## General

- Swedish Nutrition Foundation (SNF)
- US FDA 21CFR §101.80

## Isomaltulose

- FOSHU
- EU Novel Food Approval for Isomaltulose: Initial Assessment Report of the competent German Authority (BfR)
- US FDA 21CFR §101.80 (submitted)

## Tagatose

- US FDA 21CFR §101.80

## Polyols

- American Dental Association (2001). Role of Sugar-Free Foods and Medications in Maintaining Good Oral Health. <http://www.ada.org/prof/resources/statements/sugarfre.asp>
- FDA (1996) Health claims: dietary sugar alcohols and dental caries. Federal Register 61 (154) 43433-43445, August 23, 1996, and 21CFR §101.80
- FOSHU Japan: (1) FOSHU approved products classified by ingredients used and intended benefit or effect 1991-1997 at website of the International Association of Consumer Food Organisation at <http://www.cspinet.org/reports/functionalfoods/table4.html>; (2) website of the Japan Health Nutrition Food Association (JHNFA); (3) Shimizu, T. (2003) Health claims on functional foods: the Japanese regulations and an international comparison. Nutrition Research Reviews 16, 241-252. [Note: the Japanese name of isomalt is "hydrogenised Palatinose"]
- Swiss Lebensmittelverordnung (LMV) of March, 1, 1995, as amended, Art. 176 Zuckerfreie Lebensmittel.
- WHO/FAO (2003) Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/FAO Expert Consultation. WHO Technical report Series 916. WHO, Geneva.
- EU Directive 94/35/EC (Sweeteners, Preamble)
- European Commission, Health and Protection Directorate-General: Revision of the scientific opinion on the effects of xylitol and other polyols on caries development adopted by the Scientific Committee on Medicinal Products and Medical Devices on 2 June 1999. Opinion adopted by the Scientific Committee on Medicinal Products and Medical Devices on 26<sup>th</sup> September 2002.

## Polydextrose

- Muhlemann HR (1980) Polydextrose - ein kalorienarmer Zuckersatzstoff. Zahnmedizinische Prüfungen. Swiss Dent 2(3) 29-32

## **Reviews**

### Isomaltulose

- Birkhead D, Takazoe I, Frostell G (1987) New experiments on Palatinose (isomaltulose) as a sugar substitute. Dtsch Zahnärztl Z 42, 124-127.
- Oku T (1996) Oligosaccharides with beneficial health effects - a Japanese perspective. Nutr Rev 54, S59-S66.
- Takazoe I (1985) New trend on sweeteners in Japan. Intern Dent J 35, 58-65.

- Takazoe I (1989) Palatinose - an isomeric alternative to sucrose. In: Progress in Sweeteners (ed. TH Grenby), 143-167.

### Polyols

- Edgar WM, Dodds MWJ (1985) The effect of sweeteners on acid production plaque. Int Dent J 35, 18-22.
- Imfeld T (1993) Efficacy of sweeteners and sugar substitutes in caries prevention. Caries Res 27 (suppl 1) 50-55.
- Imfeld TN (1994) Clinical caries studies with polyalcohols – a literature review. Schweiz Monatsschr Zahnmed 104 (8) 941-945.
- Imfeld T, Mühlemann HR (1978) Cariogenicity and acidogenicity of food, confectionery and beverages. Pharmacology and Therapeutics in Dentistry 3, 53-68.
- Scheie AA, Fejerskov, OB (1998) Xylitol in caries prevention – what is the evidence for clinical efficacy. Critical reviews. Oral Diseases 4, 268-278.
- Sentko A, Tietze W, Stoesser L (2006) Zuckerfreie Süßwaren in der Kariesprophylaxe. [Sugarfree foods and their role in caries prevention]. Prophylaxe Impuls 10, 174-183.
- Van Loveren C (2004) Sugar alcohols – what is the evidence for caries-preventive and caries-therapeutic effects? Caries Research 38, 286-293.

### Isomalt

- Featherstone JDB (1994) Effects of isomalt sweetener on the caries process: A review. J Clin Dent 5, 82 – 85.
- Gehring F, Karle EJ (1981). The sugar substitute Palatinit® [isomalt] with special emphasis on microbiological and caries-preventing aspects. Zeitschrift Ernährungswiss. 20, 96 – 106.

### **Individual Studies**

#### Isomaltulose

##### a) *Human studies in situ (pH telemetry)*

- Expert opinion by Imfeld T (2006) of the University of Zurich following the requirements of the Swiss legislation (LMV Art. 176) and the methodology as laid down in the US FDA 21 CFR §101.80.
- Takazoe I, Frostell G, Ohta K, Topitsoglou V, Sasaki N (1985) Palatinose - a sucrose substitute. Swed Dent J 9, 81-87.
- Topitsoglou V, Sasaki N, Takazoe I, Frostell G (1984) Effect of frequent rinses with isomaltulose (palatinose) solution on acid production in human dental plaque. Caries Res 18. 47-51.

##### b) *in vitro and animal studies*

- Gehring F (1973) Über die Säurebildung kariesätiologisch wichtiger Streptokokken aus Zuckern und Zuckeralkoholen unter besonderer Berücksichtigung von Isomaltit und Isomaltulose. [Formation of acids by cariogenically important streptococci from sugars and sugar alcohols with special reference to isomalt and isomaltulose]. Z Ernährungswiss Suppl 15, 16-27.
- Ohta K, Takazoe I (1983) Effect of isomaltulose on acid production and insoluble glucan synthesis by Streptococcus mutans. Bull Tokyo Dent Coll 24, 1-11.
- Ooshima T, Izumitani A, Sobue S, Okahashi N, Hamada S (1983) Non-cariogenicity of the disaccharide palatinose in experimental dental caries of rats. Infections and Immunity 39, 43-49.

- Sasaki N, Topitsoglou V, Takazoe I, Frostell G (1985) Cariogenicity of isomaltulose (palatinose), sucrose and mixtures of these sugars in rats infected with Streptococcus mutans E-49. *Swed Dent J* 9, 149-155.
- Takazoe I, Frostell G, Ohta K, Topitsoglou V, Sasaki N (1985) Palatinose - a sucrose substitute. *Swed Dent J* 9, 81-87.

### Polyols

- Edgar WM, Dodds MWJ (1985) The effect of sweeteners on acid production plaque. *Int Dent J* 35, 18-22.
- Imfeld T, Muehlemann HR (1978) Cariogenicity and acidogenicity of food, confectionery and beverages. *Pharmacology and Therapeutics in Dentistry* 3, 53-68.

### Isomalt

#### a) *Human studies in situ (pH telemetry)*

- Gehring F, Hufnagel HD (1983) Intra- and extra-oral pH measurements on human dental plaque after rinsing with some sugar and sucrose substitute solutions. [Intra- und extraorale pH-Messungen an Zahnpulpa des Menschen nach Spülungen mit einigen Zucker- und Saccharoseaustauschstoff-Lösungen]. *Oralprophylaxe* 5, 13-19.
- Imfeld TN (1983) Identification of Low Caries Risk Dietary Components. Karger, Basel.
- Imfeld T, Mühlemann HR (1978) Cariogenicity and acidogenicity of food, confectionery and beverages. *Pharmacology and Therapeutics in Dentistry* 3, 53-68.
- Takatsuka T (2002) Enamel remineralisation by isomalt toothpaste in situ. *J Dent Res* 81 (spec iss) (Seq No 259, Presentation 2815).

#### b) *in vitro and animal studies*

- Ciardi J, Bowen WH, Rolla G, Nagorski K (1983) Effect of sugar substitutes on bacterial growths, acid production and glucan synthesis. *J Dent Res* 62, 182 [AADR Abstracts No. 110].
- Gehring F (1978) Cariogenic properties of sugar substitutes examined in gnotobiotic rat experiments. *Proc. ERGOB Conf., Geneva*, 229-234.
- Gehring F (1979) Sucrose replacers and their role in caries prevention with particular emphasis on microbial aspects. [Saccharose.Austauschstoffe und ihre Bedeutung für die Kariesprophylaxe, unter besonderer Berücksichtigung mikrobiologischer Aspekte]. *Kariesprophylaxe* 1, 77-96.
- Gehring F, Karle EJ (1981). The sugar substitute Palatinit® with special emphasis on microbiological and caries-preventing aspects. *Zeitschrift Ernährungswiss.* 20, 96 – 106.
- Grenby TH, Mistry M (1996) Laboratory studies of sweets re-formulated to improve their dental properties. *Oral Diseases* 2, 32-40.
- Karle EJ, Gehring F (1978) Palatinit® [isomalt] - a new sugar substitute and its carioprophylactic assessment. [Palatinit®, ein neuer Zuckeraustauschstoff und seine kariesprophylaktische Beurteilung]. *Dtsch Zahnärztl Z* 31, 189-191.
- Karle EJ, Gehring F (1979) Study of the cariogenicity of sugar substitutes in xerostomized rats. *Dtsch Zahnärztl Z* 34, 551-554.
- Karle EJ, Gehring F (1981) Palatinit® [isomalt] and xylitol in gnotobiotic rat studies. [Palatinit® und Xylit im Rattenversuch]. *Dtsch Zahnärztl Z* 36, 673-676.
- Takatsuka T (2000) Influence of Palatinit (isomalt) and xylitol on demineralisation / remineralisation on bovine enamel. *Cariology Today* 1, 27-40.

- Van der Hoeven JS (1979) Influence of disaccharide alcohols on the oral microflora. *Caries Res* 13, 301-306.
- Van der Hoeven JS (1980) Cariogenicity of disaccharide alcohols in rats. *Caries Res* 14, 61-66.

### Polydextrose

- Stosser L, Tietze W, Henrich-Weltzien R, Kruger Ch, Griffiths JC, Auerbach MH (2005) Polydextrose - ein 'zahnfreundlicher' Kohlenhydrat- Fullstoff: Oralprophylaxe & Kinderzahnheilkunde 27(4) 144-149

### ISOMALTULOSE and Low Glycaemic Response

#### **Authoritative/Scientific Bodies**

- German Federal Institute for Risk Assessment (BfR): Initial assessment report on the application made by Südzucker AG to place on the market the novel food ingredient isomaltulose (Palatinose(TM)) in accordance with Article 6 of Regulation (EC) No 258/97. 24 September 2004.

#### **Reviews**

- Irwin WE, Sträter PJ (2001) Isomaltulose. In: *Handbook of Sweeteners* (ed. L. O'Brien Nabors), 3rd ed., Marcel Dekker, New York, 413-421.
- Lina BAR, Jonker D, Kozianowski G (2002) Isomaltulose (Palatinose®): a review of biological and toxicological studies. *Food and Chemical Toxicology* 40, 1375-1381.
- Livesey G (2004) Glycaemic and inslinaemic response curves to isomaltulose in healthy humans. A retrospective analysis. Internal Report.

#### **Individual Studies**

##### a) Digestion, absorption, blood glucose measurements

- Gostner A, Holub I, Theis S, Volk A, Kozianowski G, Scheppach W (2006) Intestinal digestibility of isomaltulose (Palatinose™) in patients with ileostoma. [Intestinale Verdaulichkeit von Isomaltulose (Palatinose™) bei Patienten mit Ileostoma]. *Z Gastroenterol* 44, 1073-1094 [Abstract P18].
- Kawai K, Okuda Y, Yamashita K (1985) Changes in blood glucose and insulin after an oral Palatinose administration in normal subjects. *Endocrinologia Japonica* 32, 933-936.
- Kawai K, Yoshikawa H, Muryama Y, Okuda Y, Yamashita K (1989) Usefulness of Palatinose as a caloric sweetener for diabetic patients. *Hormone and Metabolic Research* 21, 338-340
- Liao ZH, Li YB, Yao B, Fan HD, Hu GL, Weng JP (2001). The effects of isomaltulose on blood glucose and lipids for diabetic subjects. *Diabetes* 50 Suppl., 1530-P, A366.
- Macdonald M, Daniel JW (1983) The bio-availability of isomaltulose in man and rat. *Nutrition Reports International* 28, 1083-1090.
- Sydney University's Glycaemic Research Service (SUGiRS) (2002) Glycaemic Index Report – Isomaltulose. Result published in GI Database at [www.glycemicindex.com](http://www.glycemicindex.com)

##### b) in vitro and animal studies

- Dahlqvist A (1961) Hydrolysis of palatinose (isomaltulose) by pig intestinal glycosidases. *Acta Chemica Scandinavica* 15, 808-816.
- Grupp U, Siebert G (1978) Metabolism of hydrogenated palatinose, an equimolar mixture of alpha-D-glucopyranosido-1,6-sorbitol and alpha-D-glucopyranosido-1,6-mannitol. *Research in Experimental Medicine (Berl.)* 173, 261-278.

- Heinz F (1987) Enzymatische Spaltung von Zuckeraustauschstoffen durch isolierte Enzyme und Enzymkomplexe der Dünndarmmukosa. Medizinische Hochschule Hannover, Zentrum Biochemie, Universität Hannover, Forschungsvorhaben 6539.
- Tsuji Y, Yamada K, Hosoya N, Moriuchi S (1986) Digestion and absorption of sugars and sugar substitutes in rat small intestine. *J Nutr Sci Vitaminol* 32, 93-100.
- Van Weerden EJ, Huisman J, Van Leeuwen P (1983) Digestion processes of isomaltulose and saccharose in the small and large intestine of the pig. ILOB-Report No. 520, unpublished.
- Yamada K, Shinohara H, Hosoya N (1985) Hydrolysis of 1-O-alpha-D-glucopyranosyl-D-fructofuranose (Trehalulose) by rat intestinal sucrase-isomaltase complex. *Nutr Rep Int* 32, 1211-1220.
- Ziesenitz SC (1986a) Zur Verwertung des Zuckeraustauschstoffs Palatinit® im Stoffwechsel. [Utilization of the sugar substitute Palatinit in metabolism]. Beiträge zu Infusionstherapie und Klinische Ernährung 16, 120-132.
- Ziesenitz SC (1986b) Stufenweises Prüfschema für Zuckeraustauschstoffe – Vorprüfung mittels Enzymen. 3. Carbohydrazen aus Jejunalmucosa des Menschen. [A stepwise method of evaluating sugar substitutes--a preliminary study using enzymes. 3. Carbohydrazes from the human jejunal mucosa]. *Z Ernährungswiss* 25, 253-258.

### **LACTOSE and Calcium Absorption**

#### **Reviews**

- Allen HL. Calcium bioavailability and absorption: a review. *The American Journal of Clinical Nutrition* 1982;35:783-808
- Camara-Martos F, Amaro-Lopez MA. Influence of dietary factors on calcium bioavailability: a brief review. *Biol Trace Elem Res.* 2002;89:43-52.
- Gueguen L, Pointillart A. The bioavailability of dietary calcium. *J Am Coll Nutr.* 2000;19:119S-136S.
- Schaafsma G. Bioavailability of calcium and magnesium. *Eur J Clin Nutr.* 1997 Jan;51 Suppl 1:S13-6.

#### **Individual Studies**

- Lee D.B.N, Hu, M-S. , Kayne, L.H. , Nakhoul, F. and Jamgotchian, N. (1991) , The importance of non-vitamin D-mediated calcium absorption. *Contributions to Nephrology* 91, 14-20.
- Pansu D., Chapuy MC. Calcium Absorption Enhanced by Lactose and Xylose. *Calcified tissue research* 1970;4:155-156
- Schuette SA, Yasillo NJ, Thompson CM. The effect of carbohydrates in milk on the absorption of calcium by postmenopausal women. *J Am Coll Nutr.* 1991;10:132-9.
- Wood RJ, Hanssen DA. Effect of milk and lactose on zinc absorption in lactose-intolerant postmenopausal women. *J Nutr.* 1988;118:982-6.
- Zadow JG. Lactose utilisation. *Food Research Quarterly*, 1991;51:99-106
- Zitterman A, Bock P, Drummer C, Scheld K, Heer M, Stehle P. Lactose does not enhance calcium bioavailability in lactose-tolerant healthy adults. *Am J Clin Nutr* 2000;71:931–6.

#### **Individual Studies on Infants**

- Abrams SA, Griffin IJ, Davila PM. Calcium and zinc absorption from lactose-containing and lactose-free infant formulas. *Am J Clin Nutr.* 2002 Aug;76(2):442-6.
- Kobayashi A, Kawai S, Ohbe Y, Nagashima Y. Effects of dietary lactose and a lactase preparation on the intestinal absorption of calcium and magnesium in normal infants. *Am J Clin Nutr* 1975;28:681-3.
- Moya M, Cortes E, Ballester MI, Vento M, Juste M. Short-term polyose substitution for lactose reduces calcium absorption in healthy term babies. *J Pediatr Gastroenterol Nutr* 1992;14:57-61.
- Moya M, Lifschitz C, Ameen V, Euler AR. A metabolic balance study in term infants fed lactose-containing or lactose-free formula. *Acta Paediatr* 1999;88:1211-5.
- Vento M, Moya M. Lactose hydrolysis and calcium absorption in premature feeding. *J Pediatr.* 2003;142:737-8.
- Wirth FH Jr, Numerof B, Pleban P, Neylan MJ. Effect of lactose on mineral absorption in preterm infants. *J Pediatr.* 1990;117:283-7.
- Ziegler EE, Fomon SJ. Lactose enhances mineral absorption in infancy. *J Pediatr Gastroenterol Nutr* 1983;2:288-94.
- Ziegler EE, Fomon SJ. Methods in infant nutrition research: Balance and growth studies. *Acta Paediatr Scan Suppl* 1982;299:90

#### ***Individual Studies on Animals***

- Schaafsma G. , Visser W.J. , Dekker P.R. and van Schaik M. (1988), Effect of dietary calcium supplementation with lactose on bone in vitamin D-deficient rats. *Bone* 8, 357-362.
- Sogabe N, Mizoi L, Asahi K, Ezawa I, Goseki-Sone M. Enhancement by lactose of intestinal alkaline phosphatase expression in rats. *Bone*. 2004;35:249-55.

#### **POLYOLS and Remineralisation of Teeth**

#### ***Authoritative Bodies***

- WHO/FAO (2003) Diet, Nutrition and the Prevention of Chronic Diseases. Report of a Joint WHO/FAO Expert Consultation. WHO Technical report Series 916. WHO, Geneva.

#### ***Reviews***

- Birkhead D (1994) Cariologic aspects of xylitol and its use in chewing gum – a review. *Acta Odontol Scand* 52, 116-127.
- Edgar WM (1990) Saliva and dental health – Clinical implications of saliva: Report of a consensus meeting. *Br Dent J* 25, 96-89.
- Edgar WM (1998) Sugar substitutes, chewing gum and dental caries – a review. *Br Dent J* 10, 184 (1) 29- 32.
- Featherstone JDB (2000) The science and practice of caries prevention. *Journal of the American Dental Association* 131, 887-899.
- Imfeld TN (1994) Clinical caries studies with polyalcohols – a literature review. *Schweiz Monatsschr Zahnmed* 104 (8) 941-945.
- Imfeld TN (1999) Chewing gum – facts and fiction: a review of gum-chewing and oral health. *Crit Rev Oral Biol Med* 10 (3) 405-419.
- Itthagarun A (1997) Chewing gum and saliva in oral health. *J Clin Dent* 8 (6) 159-162.

- Kandelman D (1997) Sugar, alternative sweeteners and meal frequency in relation to caries prevention –new perspectives. Br J Nutr 77 Suppl 1, S121-S128.
- Leach SA (1987) Sugar substitutes and remineralization. Dtsch. Zahnärztl. Z. 42, S135-S138.
- Leach SA, Agalmanyi EA, Green RM (1984) Remineralization of the teeth by dietary means. In: Demineralization and Remineralization of Teeth. Proceedings of a workshop. Oct. 11-15, 1982, Samos, Greece. Ed. SA Leach and WM Edgar, IRL Press Ltd., Oxford England.
- Lingström P, Moynihan P (2003) Nutrition, saliva and oral health. Nutrition 19 (6), 567-569.
- Rigmont Barber L, Wilkins EM (2002) Evidence-based prevention, management and monitoring of dental caries. J Dent Hygiene 76, 270-275.
- Sentko A, Tietze W, Stoesser L (2006) Zuckerfreie Süßwaren in der Karieprophylaxe. [Sugarfree foods and their role in caries prevention]. Prophylaxe Impuls 10, 174-183.
- Van Loveren C (2004) Sugar alcohols - what is the evidence for caries-preventive and caries-therapeutic effects? Caries Research 38, 286-293.

### ***Individual Studies***

- Dawes C, Macpherson LMD (1992) Effects of nine different chewing-gums and lozenges on salivary flow rate and pH. Caries Res 26, 176-182.
- Takatsuka T (2000) Influence of Palatinit (isomalt) and xylitol on demineralisation / remineralisation on bovine enamel. Cariology Today 1, 27-40.
- Takatsuka T (2002) Enamel remineralisation by isomalt toothpaste in situ. J Dent Res 81 (spec iss) ( Seq No 259, Presentation 2815).

## **POLYOLS and Low Glycaemic Properties**

### ***Authoritative/Scientific Bodies***

- EU Directive 94/35/EC (Sweeteners, Preamble)
- The glycemic properties of polyols were evaluated in several EU Member States (e.g. German DiätV §12) in the 1980<sup>th</sup> and 1990<sup>th</sup> in connection with their suitability as sweeteners in foodstuffs for diabetics.

### ***Reviews***

- Foster-Powell K, Holt S, Brand.Miller J (2002) International table of GI/GL values 2002. American Journal of Clinical Nutrition 76, 5-56.
- Livesey, G. (2003) Health potential of polyols as sugar replacers, with emphasis on low glycaemic properties. Nutrition Research Reviews 16, 163-191.
- Livesey, G. (2005) Low glycemic diets and health: implications for obesity. Proceedings of the Nutrition Society 64, 1-9.

### ***Individual Studies (example isomalt)***

#### ***a) Blood glucose measurements***

- Bachmann W, Haslbeck M, Spengler M, Schmitz H, Mehner H (1984) Investigations of the metabolic effects of acute doses of Palatinit – comparison with fructose and sucrose in type II diabetes [Untersuchungen zur Stoffwechselbeeinflussung durch akute Palatinitgaben - Vergleich zu Fructose und Saccharose bei Typ-II-Diabetes]. Aktuelle Ernaehrung 9, 65-70.

- Drost H, Gierlich P, Spengler M, Jahnke K (1980) Blood glucose and serum insulin after oral administration of Palatinit in comparison with glucose in diabetics of the late-onset type [Blutglucose und Seruminsulin nach oraler Applikation von Palatinit im Vergleich zu Glucose bei Diabetikern vom Erwachsenen Typ]. Verhandlungen der Deutschen Gesellschaft für Innere Medizin 68, 978 – 98.
- Gee JM, Cooke D, Gorick S, Wortley GM, Greenwood RH, Zumbé A, Johnson IT (1991) Effects of conventional sucrose-based, fructose-based and isomalt-based chocolates on postprandial metabolism in non-insulin-dependent diabetics. European Journal of Clinical Nutrition 45, 561-566.
- Kasper L, Spengler M (1984) Wirkung oraler Gaben von Palatinit auf den Insulinverbrauch bei Typ-I Diabetikern [Effect of oral doses of Palatinit on insulin requirements in type I diabetics]. Aktuelle Ernährungsmedizin 9, 60-64.
- Petzoldt R, Lauer P, Spengler M, Schöffling K (1982) Palatinit® bei Typ-II Diabetikern: Wirkung auf Blutglucose, Seruminsulin, C-Peptid und freie Fettsäuren im Vergleich mit Glucose. [Palatinit® in type II diabetics: effect in blood glucose, serum insulin, C peptide and free fatty acids in comparison with glucose]. Deutsche Medizinische Wochenschrift 107, 1910-1913.
- Sydney University's Glycaemic Research Service (SUGiRS) (2002) Glycaemic Index Report – Isomalt. Result published in GI Database at <http://www.glycemicindex.com/>
- Thiébaud D, Jacot E, Schmitz H, Spengler M, Felber JP (1984) Comparative study of isomalt and sucrose by means of continuous indirect calorimetry. Metabolism 33, 808 - 813.

*b) Human intervention studies (long-term benefits)*

- Gostner A, Schäffer V, Theis S, Menzel T, Lührs H, Melcher R, Schäuber J, Kudlich T, Dusel G, Dorbath D, Kozianowski G, Scheppach W (2005) Effects of isomalt consumption on gastrointestinal and metabolic parameters in healthy volunteers. British Journal of Nutrition 94, 575-581.
- Holub I, Goster A, Hessdoerfer S, Theis S, Kozianowski G, Bender G, Willinger B, Allolio B, Dusel G, Dorbath, D, Volk A, Backhaus K, Scheppach W (2006) Wirkung des Zuckeraustauschstoffes Isomalt auf Stoffwechsel- und Risikoparameter bei Patienten mit Diabetes mellitus Typ 2. [Influence of low glycaemic sweetener isomalt on metabolic parameters and vascular risk factors in type 2 diabetics]. Z Gastroenterol 44, 699-941 [Abstract P385].
- Pometta D, Trabichet C, Spengler M (1985) Effects of a 12-week administration of isomalt on metabolic control in type-II-diabetics. Aktuelle Ernährungsmedizin 10, 174-177.

## **LIPID 1 – Unsaturates – Blood Cholesterol and Heart Health**

### ***Authoritative/Scientific Bodies***

- Institute of Medicine. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty acids, Cholesterol, Protein, and Amino Acids. 2002. National Academy of Sciences, Washington, DC.
- EFSA 2005. Opinion of the Scientific Panel on Dietetic Products, Nutrition and Allergies on a request from the Commission related to nutrition claims concerning omega-3 fatty acids, monounsaturated fat, polyunsaturated fat and unsaturated fat Request N° EFSA-Q-2004-107(adopted on 6 July 2005)
- FDA. FDA USA Authoritative Statement on MUFA from olive oil and CHD.
- WHO 2003 Diet, Nutrition and the Prevention of Chronic Diseases. WHO Technical Report Series, no. 916 (TRS 916).

### ***Meta-Analysis***

- Mensink RP et al., Effects of dietary fatty acids and carbohydrates on the ratio of serum total to HDL cholesterol and on serum lipids and apolipoproteins: a meta-analysis of 60 controlled trials. Am J Clin Nutr. 2003;77:1146-55.
- Brouwer IA, Katan MB, Zock PL. Dietary alpha-linolenic acid is associated with reduced risk of fatal coronary heart disease, but increased prostate cancer risk: a meta-analysis. J Nutr. 2004;134:919-22.

### **Reviews**

- De Lorgeril M, Salen P. Dietary prevention of coronary heart disease: the Lyon diet heart study and after. World Rev Nutr Diet. 2005;95:103-14. Review.
- British Nutrition Foundation 2005. Stanner S (ed) Cardiovascular Disease: Diet, Nutrition and Emerging Risk Factors

### **Individual Studies**

- Finnegan YE, Minihane AM, Leigh-Firbank EC et al. Plant- and marine-derived polyunsaturated fatty acids have differential effects on fasting and postprandial blood lipid concentrations and on the susceptibility of LDL to oxidative modification in moderately hyperlipidemic subjects. Am J Clin Nutr 2003;77:783-95.
- Petra L. L. Goyens and Ronald P. Mensink The Dietary alpha-Linolenic Acid to Linoleic Acid Ratio Does Not Affect the Serum Lipoprotein Profile in Humans. J. Nutr. 135: 2799–2804, 2005

## **LIPID 2 – LA (Omega 6) and LNA (Omega 3) – Artery / Heart Health**

### **Expert Review**

- National Cholesterol Education Program. Third report of the expert panel on detection, evaluation, and treatment of high blood cholesterol in adults. [http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3\\_rpt.htm](http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3_rpt.htm). Bethesda, MD, National Heart, Lung and Blood Institute

### **Meta-Analysis**

- Brouwer IA, Katan MB, Zock PL. Dietary alpha-linolenic acid is associated with reduced risk of fatal coronary heart disease, but increased prostate cancer risk: a meta-analysis. J Nutr. 2004;134:919-22.
- Mensink RP, Zock PL, Kester AD, Katan MB. Effects of dietary fatty acids and carbohydrates on the ratio of serum total to HDL cholesterol and on serum lipids and apolipoproteins: a meta-analysis of 60 controlled trials. Am J Clin Nutr 2003;77:1146-55.

### **Review**

- Hutter CM, Austin MA, Humphries SE. Familial hypercholesterolemia, peripheral arterial disease, and stroke: a HuGE minireview. Am J Epidemiol. 2004; 160(5): 430-435

### **Clinical Trials**

- Arntzenius AC et al Diet, lipoproteins, and the progression of coronary atherosclerosis. The Leiden Intervention Trial. N Engl J Med. 1985;312:805-11.
- Dayton S, Pearce ML, Hashimoto S, Dixon WJ, Tomiyasu U. A controlled clinical trial of a diet high in unsaturated fat in preventing complications of atherosclerosis. Circulation 1969;40 (suppl 2):1-63.

### ***Individual Studies***

- Agmon Y, Khandheria BK, Meissner I, Schwartz GL, Petterson TM, O'Fallon WM, Whisnant JP, Wiebers DO, Seward JB. Relation of coronary artery disease and cerebrovascular disease with atherosclerosis of the thoracic aorta in the general population. Am J Cardiol. 2002; 89(3): 262-267.
- Brown AA and Hu F B (2001) Dietary Modulation of Endothelial Function: Implications for Cardiovascular Disease. Am J Clin Nutr 73:673-686.
- Frantz ID, Jr., Dawson EA, Ashman PL et al. Test of effect of lipid lowering by diet on cardiovascular risk. The Minnesota Coronary Survey. Arteriosclerosis 1989;9:129-35.
- Law MR, Wald NJ, & Thompson SG By how much and how quickly does reduction in serum cholesterol concentration lower risk of ischaemic heart disease? 1994 BMJ. 308, 367-372.
- Leren P. The Oslo diet-heart study. Eleven-year report. Circulation 1970;42:935-42.
- Matsushima Y, Kawano H, Koide Y, Baba T, Toda G, Seto S, Yano K. Relationship of carotid intima-media thickness, pulse wave velocity, and ankle brachial index to the severity of coronary artery atherosclerosis. Clin Cardiol. 2004; 27(11): 629-634.
- Nicolosi RJ, Wilson TA, Rogers EJ, Kritchevsky D. Effects of specific fatty acids (8:0, 14:0, cis-18:1, trans-18:1) on plasma lipoproteins, early atherogenic potential, and LDL oxidative properties in the hamster. J Lipid Res. 1998;39:1972-80.
- Nicolosi RJ. Experimental mechanism: formation of atheroma. Am J Clin.Nutr. 1995;62:689S-92S.
- Taniguchi H, Momiyama Y, Fayad ZA, Ohmori R, Ashida K, Kihara T, Hara A, Arakawa K, Kameyama A, Noya K, Nagata M, Nakamura H, Ohsuzu F. In vivo magnetic resonance evaluation of associations between aortic atherosclerosis and both risk factors and coronary artery disease in patients referred for coronary angiography. Am Heart J. 2004; 148(1): 137-143.
- Turpeinen O, Karvonen MJ, Pekkarinen M, Miettinen M, Elosuo R, Paavilainen E. Dietary prevention of coronary heart disease: the Finnish Mental Hospital Study. Int.J Epidemiol. 1979;8:99-118.
- Watts GF, Jackson P, Burke V, Lewis B. Dietary fatty acids and progression of coronary artery disease in men. Am J Clin.Nutr 1996;64:202-9.

### **LIPID 3 – LNA to LA Ratio**

### ***Authoritative/Scientific Bodies***

- WHO Technical Report N°916 "Diet, Nutrition And The Prevention Of Chronic Diseases", 2003. <http://www.who.org/>.

### ***Review***

- Hamer et al. Influence of specific nutrients on progression of atherosclerosis, vascular function, haemostasis and inflammation in coronary heart disease patients: a systematic review. Brit J Nutr.2006 May; 95(5):849-59.

### ***Individual Studies***

- Ascherio A et al. Dietary fat and risk of coronary heart disease in men: cohort follow-up study in the United States. British Medical Journal, 1996, 313:84--90.
- Calder, Philip. Monograph Danone Chair, 2005.
- Fritschke et al. Fatty acids as modulators of the immune response. Annu Rev Nutr.2006;26:45-73.

- Giugliano et al. The effects of diet on inflammation: emphasis on the metabolic syndrom. J Am Coll Cardiol.2006 Aug 15;48(4):677-85.
- Hu FB et al. Dietary intake of alpha-linolenic acid and risk of fatal ischemic heart disease among women. American Journal of Clinical Nutrition, 1999, 69:890--897.
- Lefevre et al. Dietary fatty acids, homostasis, and cardiovascular disease risk. J Am Diet Assoc. 2004 Mar;104(3):410-9;quiz492.
- Mori TA, Beilin LJ. Long-chain omega 3 fatty acids, blood lipids and cardiovascular risk reduction. Current Opinion in Lipidology, 2001, 12:11--17.
- Rosell MS et al. Long-chain n-3 polyunsaturated fatty acids in plasma in British meat-eating, vegetarian, and vega men. Am J Clin Nutr 2005;82: 327-34.
- Zhao et al. Dietary {alpha}-Linolenic Acid reduces inflammatory and lipid cardiovascular risk factors in hypercholesterolemic men and women. J Nutr 2004; 134(11):2991-2997.

#### **LIPID 4 - n3 LC PUFA - Brain Development / Cognitive Function**

##### ***Authoritative/Scientific Bodies***

- Voedingsnormen. Energie, eiwitten, vetten en verterbare koolhydraten. The Netherlands, 2001.
- SACN 2004. Scientific Advisory Committee on Nutrition .Advice on Fish Consumption. Benefits and Risks <http://www.sacn.gov.uk/reports/#>

##### ***Individual Studies***

- Bakker EC, Ghys AJA, Kester ADM et al. Long-chain polyunsaturated fatty acids at birth and cognitive function at 7 y of age. European Journal of Clinical Nutrition 2003;57:89-95.
- Brenna JT. Efficiency of conversion of alpha-linolenic acid to long chain n-3 fatty acids in man. Current Opinion in Clinical Nutrition and Metabolic Care 2002;5:127-32.
- Hirayama S, Hamazaki T, Terasawa K. Effect of docosahexaenoic acid-containing food administration on symptoms of attention-deficit/hyperactivity disorder- a placebo- controlled double-blind study. European Journal of Clinical Nutrition 2004;58:467-73.
- Hulshof KFAM et al. Intake of fatty acids in Western Europe with emphasis on trans fatty acids: The TRANSFAIR study. European Journal of Clinical Nutrition 1999; 53 (2), 143-157.
- Kretchmer, N, Beard JL, Carlson S. The role of nutrition in the development of normal cognition. Am J Clin Nutr 1996;63:997S-1001S.
- Richardson AJ, Puri BK. A randomized double-blind, placebo controlled study of the effects of supplementation with highly unsaturated fatty acids on ADHD-related symptoms in children with specific learning difficulties. Progress in Neuro-Psychopharmacology & Biological Psychiatry 2002;26:233-9.
- Richardson AJ, Montgomery P. The Oxford-Durham study: a randomized, controlled trial of dietary supplementation with fatty acids in children with developmental coordination disorder. Pediatrics 2005;115:1360-6.
- Richardson AJ & Puri BK. The potential role of fatty acids in attention-deficit/hyperactivity disorder. Prostaglandins, Leukotrienes and Essential Fatty Acids 2000;63: 79-87.
- Stevens L, Zhang W, Peck L et al. EFA supplementation in children with inattention, hyperactivity, and other disruptive behaviors. Lipids 2003; 38:1007-21/

- Uauy R, Mena P, Valenzuela A. Essential fatty acids as determinants of lipid requirements in infants, children and adults. European Journal of Clinical Nutrition 1999;53:S66-S77.
- Voigt RG, Llorente AM, Jensen CL, Fraley JK, Berretta MC, Heird WC. A randomized, double-blind, placebo-controlled trial of docosahexaenoic acid supplementation in children with attention-deficit/hyperactivity disorder. Journal of Pediatrics 2001;139:189-96.
- Wainwright P. Nutrition and behaviour: The role of n-3 fatty acids in cognitive function. Br J Nutr 2000;83:337-9.

## **LIPID 5 – n3 LC PUFA - Cardiovascular / Heart Health**

### **Expert Reviews**

- AHA Scientific Statement 2006; Diet and Lifestyle Recommendations Revision 2006: A Scientific Statement From the American Heart Association Nutrition Committee. Circulation 2006;114:82-96; <http://circ.ahajournals.org/cgi/content/full/114/1/82>  
<http://circ.ahajournals.org/cgi/reprint/106/21/2747.pdf>
- British Nutrition Foundation 2005. Stanner S (ed) Cardiovascular Disease: Diet, Nutrition and Emerging Risk Factors
- SACN 2004. Scientific Advisory Committee on Nutrition .Advice on Fish Consumption. Benefits and Risks <http://www.sacn.gov.uk/reports/#>

### **Meta-Analysis**

- Bucher HC, Hengstler P, Schindler C, Meier G. N-3 polyunsaturated fatty acids in coronary heart disease: a meta-analysis of randomized controlled trial. Am J Med 2002;112: 298-304.
- He K, Song Y, Daviglus ML, Liu K, Van Horn, L, Dyer AR, et al. Accumulated evidence on fish consumption and coronary heart disease mortality: a meta-analysis of cohort studies. Circulation 2004;109: 2705-11
- Whelton SP, He J, Whelton PK, Muntner P. Meta-analysis of observational studies on fish intake and coronary heart disease. Am J Cardiol 2004;93: 1119-23.

## **LIPID 6 - n3 LC PUFA and Blood Pressure**

### **Meta-Analysis**

- Appel LJ,et al Does supplementation of diet with 'fish oil' reduce blood pressure? A meta-analysis of controlled clinical trials. Arch Int Med, 1993, 153: 429-438
- Morris MC,et al. Does fish oil lower blood pressure? A meta-analysis of controlled trials. Circulation, 1993, 88: 523-533.

### **Reviews**

- Abeywardena MY, Head RJ. Longchain n-3 polyunsaturated fatty acids and blood vessel function. Cardiovasc Res. 2001 Dec;52(3):361-71.
- British Nutrition Foundation 2005. Stanner S (ed) Cardiovascular Disease: Diet, Nutrition and Emerging Risk Factors
- Wijendran V, Hayes KC. Dietary n-6 and n-3 fatty acid balance and cardiovascular health. Annu Rev Nutr. 2004;24:597-615

## **LIPID 7 - n3 LC PUFA and Triglycerides**

### **Reviews**

- British Nutrition Foundation 2005. Stanner S (ed) Cardiovascular Disease: Diet, Nutrition and Emerging Risk Factors
- Wijendran V, Hayes KC. Dietary n-6 and n-3 fatty acid balance and cardiovascular health. Annu Rev Nutr. 2004;24:597-615

### **Individual Studies**

- Baro L, Fonolla J, Pena JL, Martinez-Ferez A, Lucena A, Jimenez J, Boza JJ, Lopez-Huertas E. n-3 Fatty acids plus oleic acid and vitamin supplemented milk consumption reduces total and LDL cholesterol, homocysteine and levels of endothelial adhesion molecules in healthy humans. Clin Nutr. 2003 Apr;22(2):175-82.
- Carrero JJ, Lopez-Huertas E, Salmeron LM, Baro L, Ros EDaily supplementation with (n-3) PUFAs, oleic acid, folic acid, and vitamins B-6 and E increases pain-free walking distance and improves risk factors in men with peripheral vascular disease. J Nutr. 2005 Jun;135(6):1393-9
- Carrero JJ, Baro L, Fonolla J, Gonzalez-Santiago M, Martinez-Ferez A, Castillo R, Jimenez J, Boza JJ, Lopez-Huertas E. Cardiovascular effects of milk enriched with omega-3 polyunsaturated fatty acids, oleic acid, folic acid, and vitamins E and B6 in volunteers with mild hyperlipidemia. Nutrition. 2004 Jun;20(6):521-7
- Harris WS : n-3 fatty acids and serum lipoproteins: human studies. Am J Clin Nutr, 1997, 65: 1645S-1654S
- Visioli F, et al Very low intakes of n-3 fatty acids incorporated into bovine milk reduce plasma triacylglycerol and increase HDL-cholesterol concentrations in healthy subjects. Pharmacol Res, 2000, 41: 571-576
- Zampelas A, et al. : Polyunsaturated fatty acids of the n-6 and n-3 series : effects on postprandial lipid and apoprotein levels in healthy men. Eur J Clin Nutr, 1994, 48: 842-848
- Zampelas A, Roche H, Knapper JM et al.: Differences in postprandial lipemic response between Northern and Southern Europeans. Atherosclerosis, 1998, 139: 83-93

## **LIPID 8 - n3 LC PUFA and Endothelial Function / Arterial Function**

### **Authoritative/Scientific Bodies**

- Health Council of the Netherlands. Guidelines for a healthy diet 2006. The Hague: Health Council of the Netherlands, 2006; publication no. 2006/21. <http://www.gr.nl/pdf.php?ID=1479> or <http://www.gr.nl/referentie.php?ID=1481>
- Lichtenstein AH, Appel LJ, Brands M, et al. Diet and lifestyle recommendations revision 2006. A scientific statement from the American Heart Association Nutrition Committee. Circulation 2006;114:82-96. <http://circ.ahajournals.org/cgi/reprint/114/1/82.pdf>
- Scientific Advisory Committee on Nutrition (SACN). Advice on fish consumption: benefits & risks. London, TSO, 2004. <http://www.sacn.gov.uk/reports/#>
- World Health Organization. Diet, nutrition and the prevention of chronic diseases. WHO Technical Report Series 916. Geneva, 2003. [http://www.who.int/hpr/NPH/docs/who\\_fao\\_expert\\_report.pdf](http://www.who.int/hpr/NPH/docs/who_fao_expert_report.pdf)

### **Reviews**

- Brown AA, Hu FB; Am J Clin Nutr 2001; 73:673 Dietary modulation of endothelial function: implications for cardiovascular disease. Am J Clin Nutr. 2001 Apr;73(4):673-86.
- Mozaffarian D, Rimm B: Fish intake, contaminants, and human health: evaluating the risks and the benefits. JAMA. 2006 Oct 18;296(15):1885-99. (**Erratum in:** JAMA. 2007 Feb 14; 297(6):590 JAMA. 2006; 296(15):1885.)

### ***Human Intervention Studies***

- Engler MM, Engler MB, Malloy M, Chiu E, Besio D, Paul S, Stuehlinger M, Morrow J, Ridker P, Rifai N, Mietus-Snyder M; Docosahexaenoic acid restores endothelial function in children with hyperlipidemia: results from the EARLY study. Int J Clin Pharmacol Ther. 2004 Dec;42(12):672-9.
- Fleischhauer FJ, Yan WD, Fischell TA.; Fish oil improves endothelium-dependent coronary vasodilation in heart transplant recipients; J Am Coll Cardiol. 1993 Mar 15;21(4):982-9.
- Goodfellow J, Goodfellow J, Bellamy MF, Ramsey MW, Jones CJ, Lewis MJ.; Dietary supplementation with marine omega-3 fatty acids improve systemic large artery endothelial function in subjects with hypercholesterolemia: J Am Coll Cardiol. 2000 Feb;35(2):265-70.
- Khan F, Elherik K, Bolton-Smith C, Barr R, Hill A, Murrie I, Belch JJ. The effects of dietary fatty acid supplementation on endothelial function and vascular tone in healthy subjects; Cardiovasc Res. 2003 Oct 1;59(4):955-62
- McVeigh GE, Brennan GM, Johnston GD, McDermott BJ, McGrath LT, Henry WR, Andrews JW, Hayes JR.;Dietary fish oil augments nitric oxide production or release in patients with type 2 (non-insulin-dependent) diabetes mellitus.; Diabetologia. 1993 Jan;36(1):33-8
- Mita T, Watada H, Ogihara T, Nomiyama T, Ogawa O, Kinoshita J, Shimizu T, Hirose T, Tanaka Y, Kawamori R.; Eicosapentaenoic acid reduces the progression of carotid intima-media thickness in patients with type 2 diabetes.; Atherosclerosis. 2007 Mar;191(1):162-7. Epub 2006 Apr 17
- Mori TA, Watts GF, Burke V, Hilme E, Puddey IB, Beilin LJ. Differential effects of eicosapentaenoic acid and docosahexaenoic acid on vascular reactivity of the forearm microcirculation in hyperlipidemic, overweight men; Circulation. 2000 Sep 12;102(11):1264-9.
- Woodman RJ, Mori TA, Burke V, Puddey IB, Barden A, Watts GF, Beilin LJ. Effects of purified eicosapentaenoic acid and docosahexaenoic acid on platelet, fibrinolytic and vascular function in hypertensive type 2 diabetic patients.; Atherosclerosis. 2003 Jan;166(1):85-93.

### ***Observational Studies***

- Nishizawa H, Hamazaki K, Hamazaki T, Fujioka S, Sawazaki S. The relationship between tissue RBC n-3 fatty acids and pulse wave velocity. In Vivo. 2006 Mar-Apr;20(2):307-10.
- Sondergaard E, Moller JE, Egstrup K.; Effect of dietary intervention and lipid-lowering treatment on brachial vasoreactivity in patients with ischemic heart disease and hypercholesterolemia.; Am Heart J. 2003 May;145(5):E19.

## **LIPID 9 – LC n3 PUFA and Immune System Function Plus Anti-Inflammatory Effect**

### ***Reviews***

- Calder, PC. Polyunsaturated fatty acids and inflammation. Biochem Soc Trans. 2005 Apr;33 (Pt 2):423-7. Review.
- Calder, PC. Polyunsaturated fatty acids, inflammation and immunity. World Rev Nutr Diet. 2001;88:109-16. Review

- Calder, PC. Dietary modification of inflammation with lipids. Proc Nutr Soc. 2002 Aug;61(3):345-58. Review.

## **LIPID 10 - Cholesterol and Heart Health**

### ***Textbook***

- Encyclopedia of Human Nutrition 1999 page 1039

### ***Authoritative/Scientific Bodies***

- AHA Scientific statement – Diet and lifestyle recommendations revision 2006 – A scientific statement from the American Heart Association Nutrition Committee Circulation 2006;114:82-96
- European guidelines on cardiovascular disease prevention in clinical practice – Third Joint Task force of European and other Societies on Cardiovascular disease prevention in clinical practice. European Heart Journal 2003; 24,1601-1610
- Hoge Gezondheidsraad - Voedingsaanbevelingen voor België – Herziening november 2006 HGR dossiernummer 7145-2
- Belgische Voedingsmiddelentabel – NUBEL vierde uitgave, vijfde druk september 2006
- WHO - Report of the Joint WHO/FAO Expert Consultation on Diet, Nutrition and the Prevention of Chronic Disease (2002: Geneva, Switzerland). WHO Technical Report Series 916. WHO Geneva, 2003.
- ATP III Final Report V. Adopting Healthful Lifestyle Habits to Lower LDL Cholesterol and Reduce CHD Risk <http://circ.ahajournals.org/cgi/content/full/106/25/3253#TBL4>
- NCEP Report Implications of Recent Clinical Trials for the National Cholesterol Education Program Adult Treatment Panel III Guidelines <http://circ.ahajournals.org/cgi/content/full/110/2/227>

### ***Meta-Analysis***

- Weggemans-Zock-Katan meta-analysis, American Journal of Clinical Nutrition 2001/73:885-91

### ***Individual studies***

- Denke M.A. et al. "Individual Cholesterol Variation in Response to a Margarine – or Butter – Based Diet." JAMA, 2000; 284: 2740-2747.
- Müller et al. "Serum Cholesterol Predictive Equations with Special Emphasis on Trans and Saturated Fatty Acids. An Analysis from Designed Controlled Studies" Lipids, 2001; 36: 783-791.

## **DIETARY FIBRE and Bowel Function**

### ***Authoritative/Scientific Bodies***

- SNF
- NHPD
- JHCI
- NFA

### **1. INULIN - OLIGOFRUCTOSE and Bowel Function**

### **Authoritative/Scientific Bodies**

- AFSSA. 2005. Effects of probiotics and prebiotics on flora and immunity in adults

### **Books**

- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL.

### **Reviews**

- Flamm G, Glinsmann W, Kritchevsky D, Prosky L, Roberfroid M. Inulin and oligofructose as dietary fiber: a review of the evidence. *Crit Rev Food Sci Nutr.* 2001 Jul;41(5):353-62.
- Gibson, G., and M. Roberfroid. 1995. Dietary modulation of the human colonic microbiota: Introducing the concept of prebiotics. *J. Nutr.* 125:(6) 1401-1412.
- Gibson, G. R., H. Probert, J. van Loo, R. A. Rastall, and M. B. Roberfroid. 2004. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. *Nutr. Res. Rev.* 17:(2) 259-275.

### **Clinical Studies**

- Den Hond E., Geypens B., Ghoos Y., 2000; "Effect on high performance chicory inulin on constipation"; *Nut. Res.* 20,5, pp. 731-736.
- Gibson, G.R., Beatty, E.R., Wang, X. and Cummings, J.H. 1995. Selective stimulation of bifidobacteria in the human colon by oligofructose and inulin. *Gastroenterolgy* 108, 975-982.
- Kleessen B., Sykura B., Zunft H., Blaut M., 1997; "Effects of inulin and lactose on fecal microflora, microbial activity, and bowel habit in elderly constipated persons"; *Am. J; Clin. Nutr.*, 65, 1397-1402.
- Menne, E., Guggenbuhl, N. and Roberfroid, M. 2000. Chicory inulin hydrolysate has a prebiotic effect in humans. *J. Nutrition* 130, 1197-1199.

## **2. FRUCTO-OLIGOSACCHARIDES FROM SUCROSE and Bowel Function (transit)**

### **Authoritative/Scientific Bodies**

- AFSSA. February 2005. Effects of probiotics and prebiotics on flora and immunity in adults. p 98. <http://www.afssa.fr/Object.asp?IdObj=28184&Pge=0&CCH=060314094213:26:4&cwSID=E8813D883E014BF1A75E3341A1807E1D&AID=0>

### **Individual Studies**

- Frank, A. 2002. Prébiotiques. In: Aliments fonctionnels. M. B. Roberfroid (ed.). p 105-123. Lavoisier, Paris.
- Hidaka, H., T. Eida, T. Takizawa, T. Tokunaga, and Y. Tashiro. 1986. Effects of fructo-oligosaccharides on intestinal flora and human health. *Bifidobacteria Microflora* 5:37-50.
- Sano, T. 1986. Effect of neosugar on constipation, intestinal microflora and gallblader contractions in diabetics. In: 3rd Neosugar Conference, Tokyo.
- Tahiri, M., Tressol, J.C., Arnaud, J., Bornet, F., Bouteloup-Demange, C., Feillet-Coudray, C., Ducros, V., Pepin, D., Brouns, F., Rayssiguier, A.M. and Coudray, C. 2001. Five-week intake of short-chain fructo-oligosaccharides increases intestinal absorption and status of magnesium in postmenopausal women. *Journal of Bone Mineral Research.* 11, 2152-2160.

### **3. RESISTANT STARCH and Bowel Function**

#### **Clinical Trial**

- Grubben MJ, van den Braak CC, Essenberg M et al. Effect of resistant starch on potential biomarkers for colonic cancer risk in patients with colonic adenomas: a controlled trial. *Dig Dis Sci* 2001;46:750-6.

#### **Individual Studies**

- Cummings JH, Beatty ER, Kingman SM, Bingham SA, Englyst HN. Digestion and physiological properties of resistant starch in the human large bowel. *Br J Nutr* 1996;75:733-47.
- Heijnen ML, van Amelsvoort JM, Deurenberg P, Beynen AC. Limited effect of consumption of uncooked (RS2) or retrograded (RS3) resistant starch on putative risk factors for colon cancer in healthy men. *Am J Clin Nutr* 1998;67:322-31.
- Jenkins DJ, Vuksan V, Kendall CW et al. Physiological effects of resistant starches on fecal bulk, short chain fatty acids, blood lipids and glycemic index. *J Am Coll Nutr* 1998;17:609-16.
- Muir JG, Yeow EG, Keogh J et al. Combining wheat bran with resistant starch has more beneficial effects on fecal indexes than does wheat bran alone. *Am J Clin Nutr* 2004;79:1020-8.
- Phillips J, Muir JG, Birkett A et al. Effect of resistant starch on fecal bulk and fermentation-dependent events in humans. *Am J Clin Nutr* 1995;62:121-30.
- Raghupathy P, Ramakrishna BS, Oommen SP et al. Amylase-resistant starch as adjunct to oral rehydration therapy in children with diarrhea. *J Pediatr Gastroenterol Nutr* 2006;42:362-8.
- Van M, I, Tangerman A, Nagengast FM. Effect of resistant starch on colonic fermentation, bile acid metabolism, and mucosal proliferation. *Dig Dis Sci* 1994;39:834-42.
- Van M, I, Nagengast FM. The role of carbohydrate fermentation in colon cancer prevention. *Scand J Gastroenterol Suppl* 1993;200:80-6.:80-6.

### **4. SUGAR BEET FIBRE and Bowel Function**

#### **Human Studies**

Hamberg, O; Rumessen, J; Gudmand-Høyer, E (1989): Inhibition of starch absorption by dietary fibre. A comparative study of wheat bran, sugar-beet fibre and pea fibre. *Scandinavian Journal of Gastroenterology*, 24, 103-109.

#### **Animal Studies**

Nyman, M; Asp, N G (1982): Fermentation of dietary fibre components in the rat intestinal tract. *British Journal of Nutrition*, 47, 357-366.

### **5. DIETARY FIBRE (SOLUBLE) and Colonic Function**

#### **Authoritative/Scientific Body**

- ILSI (2006) – Dietary Fibre, Definition, Analysis & Health. ILSI Europe Concise Monograph Series, 35 pages

#### **Review**

- Topping D. L., Clifton P. M. Short-Chain Fatty Acids and Human Colonic Function: Roles of Resistant Starch and Non starch Polysaccharides *Physiological Review*, 2001, 81, 1031-1064.

### ***Individual Studies***

- Brown I.L. Applications and uses of resistant starch Journal of AOAC International, 2004, 87, 3, 727-732;
- Brown I.L., Wang X., Topping D.L., Playne M.J., Conway L. High amylose maize starch as a versatile prebiotic for use with probiotic bacteria. Food Australia, 1998, 50, 12, 603-610;
- Conway P.L. (2001) Prebiotics and human health: the state-of-the-art and future perspectives. Scandinavian Journal of Nutrition 45: 13-21.
- Gibson G.R., Roberfroid M. B. (1995) Dietary modulation of the human colonic microbiota: introducing the concept of prebiotics. Journal of Nutrition 125: 1401-12.
- Holt S.M., Miller-Fosmore C.M., Cote G.L. Utilization of various carbohydrates by intestinal bacteria. Abstracts of the General Meeting of the American Society for Microbiology, 2002, 102, 258 ;
- Lim C.C., Ferguson L.R., Tannock G.W. Dietary fibres as "prebiotics": Implications for colorectal cancer Molecular Nutrition Food Research, 2005, 49, 609-619;
- Nugent A. P. Health properties of resistant starch. Nutrition Bulletin, British Nutrition Foundation, 2005, 30, 27–54 ;
- Queiroz-Monici K., Costa G.E.A., Silva N., Reis S.M., Oliveira A.C. Bifidogenic effect of dietary fiber and resistant starch from leguminous on the intestinal microbiota of rats Nutrition, 2005, 21, 602-605 ;
- Roberfroid M., Slavin J.L. Resistant oligosaccharides Handbook of dietary fiber, 2001, chap. 8, 125-145 ;
- Satouchi M., Wakabayashi S., Ohkuma K., Tsuji K. Effect of depolymerized pyrodextrin on human intestinal flora Biosci Microflora, 1996, 15, 2, 93-101;
- Starch Based Dietary Fibres Starch and Fermentation, 2003, 2, 1-5
- Topping D.L., Fukushima M., Bird A.R. Resistant starch as a prebiotic and synbiotic: state of the art Proceedings of the Nutrition Society, 2003, 62, 171-176 ;
- Wang X., Brown I.L., Evans A.J., Conway P.L. The protective effects of high amylose maize (amylomaize) starch granules on the survival of *Bifidobacterium* spp. in the mouse intestinal tract Journal of Applied Microbiology, 1999, 87, 631-639 ;

## **6. PECTINS**

### ***Individual Studies***

- Cummings JH, Southgate DA, Branch WJ, Wiggins HS, Houston H, Jenkins DJ, Jivraj T, Hill MJ, The digestion of pectin in the human gut and its effect on calcium absorption and large bowel function, Br. J. Nutr. 1979 May, 41(3): 477-85

## **DIETARY FIBRE and Satiety**

### ***Books***

- Britt Burton-Freeman "Dietary Fiber and Energy Regulation" Journal of Nutrition. 2000
- Diet & Health, Implications for Reducing Chronic Disease. National Research Council. National Academy Press. 1989, page 292.

- Health Council for the Netherlands : Guideline for dietary fiber intake A high-fibre diet is important for preventing overweight.
- Human Nutrition & Dietetics 9E, Edited by J.S.Garrow. W.P.T.James. Churchill Livingstone.1996. Page 53.
- Introduction to Human Nutrition. Edited on behalf of The Nutrition Society by Michael J. Gibney, Hester H. Vorster and Frans J. Kok. Blackwell Science, September 2002. page 77.
- Manual of dietetic practice 3E. Edited by Briony Thomas in conjunction with the British Dietetic association. Blackwell Science 2001. page 3, 14.

### **Clinical Trial**

- Rigaud D, Ryttig KR, Leeds AR, Bard D, Apfelbaum M (1987), Effects of a moderate dietary fibre supplement on hunger rating, energy input and faecal energy output in young, healthy volunteers. A randomized, double-blind, cross-over trial, *Int.J Obes.* 11 Suppl 1: 73-78

### **Individual Studies**

- Astrup A, Vrist E, Quaade F (1990), Dietary fibre added to very low calorie diet reduces hunger and alleviates constipation, *Int.J Obes.* 14: 105-112
- Blundell JE, Burley VJ (1987), Satiation, satiety and the action of fibre on food intake, *Int.J Obes.* 11 Suppl 1: 9-25
- Bolton RP, Heaton KW, Burroughs LF (1981), The role of dietary fiber in satiety, glucose, and insulin: studies with fruit and fruit juice, *Am J Clin Nutr;* 34; 211-17.
- Burley VJ, Blundell JE (1990). The action of dietary fibre on the satiety cascade. In: Dietary fibre. Chemistry, physiology and health effects, eds D Kritchevsky, C Bonfield & J Anderson, pp. 227-246. New Your: Plenum Publishing.
- Burley VJ, Leeds AR, Blundell JE (1987), The effect of high and low-fibre breakfasts on hunger, satiety and food intake in a subsequent meal. *Int. J. Obes,* 11, Suppl 1:87-93.
- Burley VJ, Paul AW, Blundell JE (1992). An investigation of the effects of a sugar beet fibre-supplemented breakfast on energy intake in young non-obese subjects. *Int J Obes* 16 (Suppl. 1), 53
- Delargy HJ, O'Sullivan KR, Fletcher RJ, Blundell JE (1997), Effects of amount and type of dietary fibre (soluble and insoluble) on short-term control of appetite, *Int.J Food Sci.Nutr* 48: 67-77
- Ellis PR, Apling EC, Leeds AR et al (1985). Guar bread and satiety: effects of an acceptable new product in overweight diabetic patients and normal subjects. *J Plant Foods;* 6: 253-62.
- Gustafsson K, Asp NG, Hagander B, Nyman M (1995), Satiety effects of spinach in mixed meals: comparison with other vegetables, *Int.J Food Sci.Nutr* 46: 327-334
- Hulshof T, De Graaf C, Weststrate JA (1993), The effects of preloads varying in physical state and fat content on satiety and energy intake, *Appetite;* 21; 273-286.
- Hylander B, Rossner S (1983), Effects of dietary fiber intake before meals on weight loss and hunger in a weight-reducing club, *Acta Med.Scand.* 213: 217-220
- Pasman WJ, Saris WH, Wauters MA, Westerterp-Plantenga MS (1997), Effect of one week of fibre supplementation on hunger and satiety ratings and energy intake, *Appetite* 29: 77-87
- Raben A, Christensen NJ, Madsen J, Holst JJ, Astrup A (1994), Decreased postprandial thermogenesis and fat oxidation but increased fullness after a high-fiber meal compared with a low-fiber meal, *Am.J Clin.Nutr* 59: 1386-1394

- Ryttig KR, Larsen S, Haegh L (1985). Treatment of slightly to moderately overweight persons. A double blind placebo-controlled investigation with diet and fiber tablets (DumoVital). In : Bjoerntorp P, Kritchevsky GV, eds. Dietary fiber and obesity. New York,
- Tiwary CM, Ward JA, Jackson BA (1997), Effect of pectin on satiety in healthy US Army adults, J Am.Coll.Nutr 16: 423-428.
- Turnbull WH, Walton J, Leeds AR (1993), Acute effects of mycoprotein on subsequent energy intake and appetite variables, Am J Clin Nutr; 58; 507-12.
- Van Itallie T. B. Dietary fiber and obesity. Am. J. Clin. Nutr. 1978;31(suppl.):S43-S52
- Wilmshurst P, Crawley JC (1980), The measurement of gastric transit time in obese subjects using 24Na and the effects of energy content and guar gum on gastric emptying and satiety, Br.J Nutr 44: 1-6

## **DIETARY FIBRE and Glycemic Response**

### **1. FRUCTOLIGOSACCHARIDES FROM SUCROSE**

#### ***Authoritative/Scientific Bodies***

- DGCCRF, 1992: 92: 5673/1 Ref: CS/SE//BEGH-FOS

#### ***Individual Studies***

- Bornet, F. 1994. Undigestible sugars in food products. Am. J. Clin. Nutr. 59:S763-S769.
- Yamashita, N., K. Kawai, and M. Itakura. 1984. Effects of fructooligosaccharides on blood glucose and serum lipids in diabetic subjects. Nutr. Res. 4:961-966.

### **2. ACACIA GUM**

#### ***Individual Studies***

- Castellani F. Fibregum (acacia gum) helps reduce the glycemic index of food products. AgroFood Industry Hi-tech 2006;16:24-6.
- Gee JM, Lee-Finglas WE, Wortley GM, Pell JD, Johnson IT. Influence of non-starch polysaccharides on gastrointestinal endocrine mechanisms. Eur.J.Clin.Nutr. 1995;49 Suppl 3:S170-S172.
- Sharma RD. Hypoglycemic effect of gum acacia in healthy human subjects. Nutrition Research 1985;5:1437-41.

### **3. INULIN-OLIGOFRUCTOSE**

#### ***Individual Studies***

- Alles, M.S., de Roos, N.M., Baks, J.C., van de Lisdonk, E., Zock, P.L., Hautvast, J.G. 1999. Consumption of fructooligosaccharides does not favorably affect blood glucose and serum lipid concentrations in patients with type 2 diabetes. Am. J. Clin. Nutr. 69, 64-69.
- Bornet, F. 1994. Undigestible sugars in food products. Am. J. Clin. Nutr. 59:S763-S769.
- Brighenti, F., Casiraghi, M.C., Canzi, E. and Ferrari, A. 1999. Effect of consumption of a ready-to-eat breakfast cereal containing inulin on the intestinal milieu and blood lipids in healthy male volunteers. Eur. J. Clin. Nutr. 53, 726-733.

- Van Dokkum, W., Wezendonk, B., Srikumar, T.S., van den Heuvel, E.G. 1999. Effect of nondigestible oligosaccharides on large-bowel functions, blood lipid concentrations and glucose absorption in young healthy male subjects. *Eur. J. Clin. Nutr.* 53, 1-7.
- Yamashita, N., K. Kawai, and M. Itakura. 1984. Effects of fructooligosaccharides on blood glucose and serum lipids in diabetic subjects. *Nutr. Res.* 4:961-966.

#### **4. OAT BETA-GLUCAN**

##### ***Authoritative/Scientific Body***

- Primaliv/OatWell® oat bran Müesli with 4 g oat beta-glucans lowers glucose and insulin responses after a bread meal [http://www.hp-info.nu/prodsp/Finalreport\\_Primaliv.pdf](http://www.hp-info.nu/prodsp/Finalreport_Primaliv.pdf)

##### ***Human Intervention study***

- Granfeldt Y, Nyberg L, and Björck I. 2007. Müesli with 4 g oat beta-glucans lowers glucose and insulin responses after a bread meal in healthy subjects. *Eur J Clin Nutr.* 4 April, 1-8, online publication doi:10.1038/sj.ejcn.1602747

#### **5. OAT AND BARLEY BETA-GLUCAN and Blood Glucose Lowering**

##### ***Review***

- Würsch P; Pi-Sunyer FX. 1997. The role of viscous soluble fiber in the metabolic control of diabetes. A review with special emphasis on cereals rich in beta-glucan. *Diabetes care*, Vol. 20 (11), p: 1774-80

##### ***Clinical Trial***

- Björklund M; van Rees A; Mensink RP; Onning G. 2005. Changes in serum lipids and postprandial glucose and insulin concentrations after consumption of beverages with beta-glucans from oats or barley: a randomised dose-controlled trial. *European journal of clinical nutrition*, Vol. 59 (11), p: 1272-81.

##### ***Individual Studies***

- Battilana, P., Ornstein, K., Minehira, K., Schwarz, J.M., Acheson, K., Burri, J., Jequier, E. and Tappy, L. 2001. Mechanisms of action of  $\beta$ -glucan in postprandial glucose metabolism in healthy men. *European Journal of Clinical Nutrition* 55(5):327-333.
- Behall KM; Scholfield DJ; Hallfrisch J. 2005. Comparison of hormone and glucose responses of overweight women to barley and oats. *Journal of the American College of Nutrition*, Vol. 24 (3), p: 182-8.
- Behall KM; Scholfield DJ; Hallfrisch JG; Liljeberg-Elmståhl HG. 2006. Consumption of both resistant starch and beta-glucan improves postprandial plasma glucose and insulin in women. *Diabetes care*, Vol. 29 (5), p: 976-81.
- Braaten, J. T., Scott, F. W., Wood, P. J., Riedel, K. D., Wolynetz, M. S., Brûlé, D. and Collins, M. W. 1994. High  $\beta$ -glucan oat bran and oat gum reduce postprandial blood glucose and insulin in subjects with and without type 2 diabetes. *Diabetic Medicine* 11: 312-318.
- Braaten, J. T., Wood, P. J., Scott, F. W., Riedel, K. D, Poste, L. M. and Collins, M. W. 1991. Oat gum glucose and insulin after an oral glucose load. *American Journal of Clinical Nutrition* 53:1425-1430.
- Ellis PR; Roberts FG; Blake DE. 1992. Effect of oat gum on postprandial hyperglycemia. *The American journal of clinical nutrition*, Vol. 55 (1): 142-4.

- Granfeldt, Y., Eliasson, A.-C., Björck, I. 2000. An examination of the possibility of lowering the glycemic index of oat and barley flakes by minimal processing. *Journal of Nutrition* 130(9):2207-2214.
- Hallfrisch, J., Schofield, D. J. and Behall, K. M. 2003. Physiological responses of men and women to barley and oat extracts (Nu-trimX). II. Comparison of glucose and insulin responses. *Cereal Chemistry* 80:80-83.
- Hallfrisch, J., Scholfield, D.J., Behall, K.M. 1995. Diets containing soluble oat extracts improve glucose and insulin responses of moderately hypercholesterolemic men and women. *American Journal of Clinical Nutrition* 61(2):379-384.
- Jenkins, A.L., Jenkins, D.J.A., Zdravkovic, U., Wursch, P. and Vuksan, V. 2002. Depression of the glycemic index by high levels of  $\beta$ -glucan fiber in two functional foods tested in type 2 diabetes. *European Journal of Clinical Nutrition* 56(7):622-628.
- Kabir, M., Oppert, J.-M., Vidal, H., Bruzzo, F., Fiquet, C., Würsch, P., Slama, G. and Rizkalla, S.W. 2002 Four-week low-glycemic index breakfast with a modest amount of soluble fibers in type 2 diabetic men. *Metabolism: Clinical and Experimental* 51(7):819-826.
- Kim SY; Song HJ; Lee YY; Cho KH; Roh YK. 2006. Biomedical issues of dietary fiber beta-glucan. *Journal of Korean medical science*.
- Maki KC, Galant R, Samuel P, Tesser J, Witchger MS, Ribaya-Mercado JD, Blumberg; JB, Geohas J. 2006. Effects of consuming foods containing oat beta-glucan on blood pressure, carbohydrate metabolism and biomarkers of oxidative stress in men and women with elevated blood pressure. *Eur J Clin Nutr*. 2006 Dec 6; (Epub ahead of print).
- Pick, M.E., Hawrysh, Z.J., Gee, M.I., Toth, E., Garg, M.L., Hardin, R.T. 1996. Oat bran concentrate bread products improve long-term control of diabetes: A pilot study. *Journal of the American Dietetic Association* 96(12):1254-1261.
- Tapola, N., Karvonen, H., Niskanen, L., Mikola, M. and Sarkkinen, E. 2005. Glycemic responses of oat bran products in type 2 diabetes patients. *Nutrition, Metabolism and Cardiovascular diseases* 15:255-261.
- Tappy, L., Gügelz, E. and Würsch, P. 1996. Effects of breakfast cereals containing various amounts of beta-glucan fibers on plasma glucose and insulin responses in NIDDM subjects. *Diabetes Care* 19:831-834.
- Wood, P. J., Braaten, J. T., Scott, F. W., Riedel, K. D., Wolynetz, M. S. and Collins M. W. 1994. Effect of dose and modification of viscous properties of oat gum on plasma glucose and insulin following an oral glucose load. *British Journal of Nutrition* 72:731-743.

## **DIETARY FIBRE - Oat Beta-Glucan and Cholesterol**

### ***Authoritative Bodies***

- FDA - Final rule Federal Register: January 23, 1997 (Volume 62, Number 15, Pages 3584-) <http://www.fda.gov/ohrms/dockets/dockets/06p0393/06p-0393-cp00001-038-Tab-F-FR-Rules-Regulations-1997-vol2.pdf>
- Federal Office of Public Health Switzerland (BAG) (CH) <http://www.bag.admin.ch/index.html?lang=en>
- Ministry for Health Czech Republic 333/1997 amended by decree 936/2000. Czech Republic SZU – Ministry for Health
- NL Profit/OatWell oat bran bread

<http://www.voedingscentrum.nl/voedingscentrum/Private/Nieuws/2005/Nieuw%20cholesterolverlagend%20brood.htm>  
<http://www.voedingscentrum.nl/voedingscentrum/Public/Dynamisch/productinformatie/functionele%20voeding/aanbod.htm>

- SNF Sweden - Health claims in the labelling and marketing of food products. The food sector's code of practice. Revised version September 2004. [http://www.hp-info.nu/SweCode\\_2004\\_1.pdf](http://www.hp-info.nu/SweCode_2004_1.pdf)
- UK JHCI Expert Committee - October 04-Approved Claim by the Joint Health Claim Initiative <http://www.jhci.co.uk/> Submitter CreaNutrition AG Switzerland

### **Meta-Analysis**

- Brown L, Rosner B, Willett WW, Sacks FM. Cholesterol-lowering effects of dietary fibre: a meta-analysis. Am J Clin Nutr. 1999 Jan;69(1):30-42.
- Ripsin CM, Keenan JM, Jacobs DR Jr, Elmer PJ, Welch RR, Van Horn L, Liu K, Turnbull WH, Thye FW, Kestin M, et al. Oat products and lipid lowering. A meta-analysis. JAMA. 1992 Jun 24;267(24):3317-25.

### **Reviews**

- Glore SR, van Treeck D, Kehans AW, Giuld M. Soluble fiber and serum lipids: A litterature review. J Am Diet Assoc. 1994; 94:425-436
- Wood PJ, Beer MU. Functional oat products. In book Mazza G (ed.). Functional Foods, Lancaster, USA: Technomic publishing Co. Inc. 1998:1-37

### **Human Intervention Studies 1984 – 2007**

- Anderson JW, Story L, Sieling B, Chen WJ, Petro MS, Story J. Hypocholesterolemic effects of oat-bran or bean intake for hypercholesterolaemic men. Am J Clin Nutr. 1984 Dec;40(6):1146-55.
- Anderson JW, Spencer DB, Hamilton CC, Smith SF, Tietyen J, Bryant CA, Oeltgen P. Oat-bran cereal lowers blood total and LDL cholesterol in hypercholesterolaemic men. Am J Clin Nutr. 1990 Sep;52(3):495-9.
- Anderson JW, Gilinsky NH, Deakins DA, Smith SF, O'Neal DS, Dillon DW, Oeltgen PR. Lipid responses of hypercholesterolaemic men to oat-bran and wheat-bran intake. Am J Clin Nutr. 1991 Oct;54(4):678-83.
- Bartram P, Gerlach S, Scheppach W, Keller F, Kasper H. Effect of a single oat bran cereal breakfast on blood cholesterol, lipoproteins, and apolipoproteins in patients with hyperlipoproteinemia type IIa. JPEN J Parenter Enteral Nutr. 1992 Nov-Dec;16(6):533-7.
- Beer MU, Arrigoni E, Amado R. Effects of oat gum on blood cholesterol levels in healthy young men. Eur J Clin Nutr. 1995 Jul;49(7):517-22.
- Behall KM, Scholfield DJ, Hallfrisch J. Effect of beta-glucan level in oat fibre extracts on blood lipids in men and women. J Am Coll Nutr. 1997 Feb;16(1):46-51.
- Berg A, Konig D, Deibert P, Grathwohl D, Berg A, Baumstark MW, Franz IW. Effect of an oat bran enriched diet on the atherogenic lipid profile in patients with an increased coronary heart disease risk. A controlled randomized lifestyle intervention study. Ann Nutr Metab. 2003;47(6):306-11.
- Berg A, Konig D, Deibert P, Grathwohl D, Berg A, Baumstark MW, Franz IW. Effect of an oat bran enriched diet on the atherogenic lipid profile in patients with an increased coronary heart disease risk. A controlled randomized lifestyle intervention study. Ann Nutr Metab. 2003;47(6):306-11.
- Björklund M, van Rees A, Mensink RP, Onnig G. Changes in serum lipids and postprandial glucose and insulin concentrations after consumption of beverages with beta-glucans from oats or barley: a randomised dose-controlled trial. Eur J Clin Nutr. 2005 Nov;59(11):1272-81.

- Braaten JT, Wood PJ, Scott FW, Wolynetz MS, Lowe MK, Bradley-White P, Collins MW. Oat beta-glucan reduces blood cholesterol concentration in hypercholesterolaemic subjects. *Eur J Clin Nutr.* 1994 Jul;48(7):465-74.
- Bridges SR, Anderson JW, Deakins DA, Dillon DW, Wood CL. Oat bran increases blood acetate of hypercholesterolaemic men. *Am J Clin Nutr.* 1992 Aug;56(2):455-9.
- Cara L, Dubois C, Borel P, Armand M, Senft M, Portugal H, Pauli AM, Bernard PM, Lairon D. Effects of oat bran, rice bran, wheat fibre, and wheat germ on postprandial lipemia in healthy adults. *Am J Clin Nutr.* 1992 Jan;55(1):81-8.
- Davidson MH, Dugan LD, Burns JH, Bova J, Story K, Drennan KB. The hypocholesterolemic effects of beta-glucan in oatmeal and oat bran. A dose-controlled study. *JAMA.* 1991 Apr 10;265(14):1833-9.
- Davy BM, Davy KP, Ho RC, Beske SD, Davrath LR, Melby CL. High-fibre oat cereal compared with wheat cereal consumption favorably alters LDL-cholesterol subclass and particle numbers in middle-aged and older men. *Am J Clin Nutr.* 2002 Aug;76(2):351-8.
- Demark-Wahnefried W, Bowering J, Cohen PS. Reduced blood cholesterol with dietary change using fat-modified and oat bran supplemented diets. *J Am Diet Assoc.* 1990 Feb;90(2):223-9.
- Dubois C, Armand M, Senft M, Portugal H, Pauli AM, Bernard PM, Lafont H, Lairon D. Chronic oat bran intake alters postprandial lipemia and lipoproteins in healthy adults. *Am J Clin Nutr.* 1995 Feb;61(2):325-33.
- Gerhardt AL, Gallo NB. Full-fat rice bran and oat bran similarly reduce hypercholesterolaemia in humans. *J Nutr.* 1998 May;128(5):865-9.
- Gold K, Wong N, Tong A, Bassin S, Iftner C, Nguyen T, Khoury A, Baker S. Blood apolipoprotein and lipid profile effects of an oat-bran-supplemented, low-fat diet in children with elevated blood cholesterol. *Ann N Y Acad Sci.* 1991;623:429-31. No abstract available.
- Gold KV, Davidson DM. Oat bran as a cholesterol-reducing dietary adjunct in a young, healthy population. *West J Med.* 1988 Mar;148(3):299-302. No abstract available.
- Hallfrisch J, Scholfield DJ, Behall KM. Diets containing soluble oat extracts improve glucose and insulin responses of moderately hypercholesterolaemic men and women. *Am J Clin Nutr.* 1995 Feb;61(2):379-84.
- Hegele RA, Zahariadis G, Jenkins AL, Connelly PW, Kashtan H, Stern H, Bruce R, Jenkins DJ. Genetic variation associated with differences in the response of blood apolipoprotein B levels to dietary fibre. *Clin Sci (Lond).* 1993 Sep;85(3):269-75.
- Jenkins DJ, Hegele RA, Jenkins AL, Connelly PW, Hallak K, Bracci P, Kashtan H, Corey P, Pintilia M, Stern H, et al. The apolipoprotein E gene and the blood low-density lipoprotein cholesterol response to dietary fibre. *Metabolism.* 1993 May;42(5):585-93.
- Kabir M, Oppert JM, Vidal H, Bruzzo F, Fiquet C, Wursch P, Slama G, Rizkalla SW. Four-week low-glycaemic index breakfast with a modest amount of soluble fibres in type 2 diabetic men. *Metabolism.* 2002 Jul;51(7):819-26.
- Kahn RF, Davidson KW, Garner J, McCord RS. Oat bran supplementation for elevated blood cholesterol. *Fam Pract Res J.* 1990 Fall;10(1):37-46.
- Karmally W, Montez MG, Palmas W, Martinez W, Branstetter A, Ramakrishnan R, Holleran SF, Haffner SM, Ginsberg HN. Cholesterol-lowering benefits of oat-containing cereal in Hispanic americans. *J Am Diet Assoc.* 2005 Jun;105(6):967-70.
- Kashtan H, Stern HS, Jenkins DJ, Jenkins AL, Hay K, Marcon N, Minkin S, Bruce WR. Wheat-bran and oat-bran supplements' effects on blood lipids and lipoproteins. *Am J Clin Nutr.* 1992 May;55(5):976-80.

- Keenan JM, Pins JJ, Frazel C, Moran A, Turnquist L. Oat ingestion reduces systolic and diastolic blood pressure in patients with mild or borderline hypertension: a pilot trial. *J Fam Pract.* 2002 Apr;51(4):369.
- Keenan JM, Wenz JB, Ripsin CM, Huang Z, McCaffrey DJ. A clinical trial of oat bran and niacin in the treatment of hyperlipidemia. *J Fam Pract.* 1992 Mar;34(3):313-9.
- Keenan JM, Wenz JB, Myers S, Ripsin C, Huang ZQ. Randomized, controlled, crossover trial of oat bran in hypercholesterolaemic subjects. *J Fam Pract.* 1991 Dec;33(6):600-8.
- Kelley MJ, Hoover-Plow J, Nichols-Bernhard JF, Verity LS, Brewer H. Oat bran lowers total and low-density lipoprotein cholesterol but not lipoprotein(a) in exercising adults with borderline hypercholesterolaemia. *J Am Diet Assoc.* 1994 Dec;94(12):1419-21. No abstract available.
- Kerckhoffs DA, Hornstra G, Mensink RP. Cholesterol-lowering effect of beta-glucan from oat bran in mildly hypercholesterolaemic subjects may decrease when beta-glucan is incorporated into bread and cookies. *Am J Clin Nutr.* 2003 Aug;78(2):221-7.
- Kestin M, Moss R, Clifton PM, Nestel PJ. Comparative effects of three cereal brans on blood lipids, blood pressure, and glucose metabolism in mildly hypercholesterolaemic men. *Am J Clin Nutr.* 1990 Oct;52(4):661-6.
- Leadbetter J, Ball MJ, Mann JI. Effects of increasing quantities of oat bran in hypercholesterolaemic people. *Am J Clin Nutr.* 1991 Nov;54(5):841-5.
- Lepre F, Crane S. Effect of oatbran on mild hyperlipidaemia. *Med J Aust.* 1992 Sep 7;157(5):305-8.
- Lia Amundsen A, Haugum B and Andersson H. Changes in blood cholesterol and sterol metabolites after intake of products enriched with oat bran concentrate within a controlled diet. *Scan. J. Nutr.* (2003) 47 (2): 68-74.
- Lovegrove JA, Clohessy A, Milon H, Williams CM. Modest doses of beta-glucan do not reduce concentrations of potentially atherogenic lipoproteins. *Am J Clin Nutr.* 2000 Jul;72(1):49-55.
- Mackay S, Ball MJ. Do beans and oat bran add to the effectiveness of a low-fat diet? *Eur J Clin Nutr.* 1992 Sep;46(9):641-8.
- Marlett JA, Hosig KB, Vollendorf NW, Shinnick FL, Haack VS, Story JA. Mechanism of blood cholesterol reduction by oat bran. *Hepatology.* 1994 Dec;20(6):1450-7.
- Naumann E, van Rees AB, Onning G, Oste R, Wydra M, Mensink RP. Beta-glucan incorporated into a fruit drink effectively lowers serum LDL-cholesterol concentrations. *Am J Clin Nutr.* 2006 Mar;83(3):601-5.
- Noakes M, Clifton PM, Nestel PJ, Le Leu R, McIntosh G. Effect of high-amylose starch and oat bran on metabolic variables and bowel function in subjects with hypertriglyceridemia. *Am J Clin Nutr.* 1996 Dec;64(6):944-51.
- O'Kell RT, Duston AA. Lack of effect of dietary oats on blood cholesterol. *Mo Med.* 1988 Nov;85(11):726-8. No abstract available.
- Onning G, Wallmark A, Persson M, Akesson B, Elmstahl S, Oste R. Consumption of oat milk for 5 weeks lowers blood cholesterol and LDL cholesterol in free-living men with moderate hypercholesterolaemia. *Ann Nutr Metab.* 1999;43(5):301-9.
- Onning G, Akesson B, Oste R, Lundquist I. Effects of consumption of oat milk, soya milk, or cow's milk on blood lipids and antioxidative capacity in healthy subjects. *Ann Nutr Metab.* 1998;42(4):211-20.
- Pick ME, Hawrysh ZJ, Gee MI, Toth E, Garg ML, Hardin RT. Oat bran concentrate bread products improve long-term control of diabetes: a pilot study. *J Am Diet Assoc.* 1996 Dec; 96(12):1254-61.

- Pins JJ, Geleva D, Keenan JM, Frazel C, O'Connor PJ, Cherney LM. Do whole-grain oat cereals reduce the need for antihypertensive medications and improve blood pressure control? *J Fam Pract.* 2002 Apr;51(4):353-9.
- Poulter N, Chang CL, Cuff A, Poulter C, Sever P, Thom S. Lipid profiles after the daily consumption of an oat-based cereal: a controlled crossover trial. *Am J Clin Nutr.* 1994 Jan;59(1):66-9.
- Redard CL, Davis PA, Schneeman BO. Dietary fibre and gender: effect on postprandial lipemia. *Am J Clin Nutr.* 1990 Nov;52(5):837-45.
- Robitaille J, Fontaine-Bisson B, Couture P, Tchernof A, Vohl MC. Effect of an oat bran-rich supplement on the metabolic profile of overweight premenopausal women. *Ann Nutr Metab.* 2005 May-Jun;49(3):141-8. Epub 2005 May 24.
- Romero AL, Romero JE, Galaviz S, Fernandez ML. Cookies enriched with psyllium or oat bran lower blood LDL cholesterol in normal and hypercholesterolaemic men from Northern Mexico. *J Am Coll Nutr.* 1998 Dec;17(6):601-8.
- Saltzman E, Das SK, Lichtenstein AH, Dallal GE, Corrales A, Schaefer EJ, Greenberg AS, Roberts SB. An oat-containing hypocaloric diet reduces systolic blood pressure and improves lipid profile beyond effects of weight loss in men and women. *J Nutr.* 2001 May;131(5):1465-70.
- Saudia TL, Barfield BR, Barger J. Effect of oat bran consumption on total blood cholesterol levels in healthy adults. *Mil Med.* 1992 Nov;157(11):567-8.
- Spiller GA, Farquhar JW, Gates JE, Nichols SF. Guar gum and blood cholesterol. Effect of guar gum and an oat fibre source on blood lipoproteins and cholesterol in hypercholesterolaemic adults. *Arterioscler Thromb.* 1991 Sep-Oct;11(5):1204-8.
- Stevens J, Burgess MB, Kaiser DL, Sheppa CM. Outpatient management of diabetes mellitus with patient education to increase dietary carbohydrate and fibre. *Diabetes Care.* 1985 Jul-Aug;8(4):359-66.
- Stewart FM, Neutze JM, Newsome-White R. The addition of oatbran to a low fat diet has no effect on lipid values in hypercholesterolaemic subjects. *N Z Med J.* 1992 Oct 14;105(943):398-400.
- Swain JF, Rouse IL, Curley CB, Sacks FM. Comparison of the effects of oat bran and low-fibre wheat on blood lipoprotein levels and blood pressure. *N Engl J Med.* 1990 Jan 18;322(3):147-52.
- Theuwissen E and Mensink RP, Simultaneous Intake of  $\beta$ -Glucan and Plant Stanol Esters Affects Lipid Metabolism in Slightly Hypercholesterolemic Subjects, *J Nutr.* 2007, 137;583-588
- Torronen R, Kansanen L, Uusitupa M, Hanninen O, Myllymaki O, Harkonen H, Malkki Y. Effects of an oat bran concentrate on blood lipids in free-living men with mild to moderate hypercholesterolaemia. *Eur J Clin Nutr.* 1992 Sep;46(9):621-7.
- Trinidad TP, Loyola AS, Mallillin AC, Valdez DH, Askali FC, Castillo JC, Resaba RL, Masa DB. The cholesterol-lowering effect of coconut flakes in humans with moderately raised serum cholesterol. *J Med Food.* 2004 Summer;7(2):136-40.
- Uusitupa MI, Miettinen TA, Sarkkinen ES, Ruuskanen E, Kervinen K, Kesaniemi YA. Lathosterol and other non-cholesterol sterols during treatment of hypercholesterolaemia with beta-glucan-rich oat bran. *Eur J Clin Nutr.* 1997 Sep;51(9):607-11.
- Uusitupa MI, Ruuskanen E, Makinen E, Laitinen J, Toskala E, Kervinen K, Kesaniemi YA. A controlled study on the effect of beta-glucan-rich oat bran on blood lipids in hypercholesterolaemic subjects: relation to apolipoprotein E phenotype. *J Am Coll Nutr.* 1992 Dec;11(6):651-9.
- Van Horn L, Moag-Stahlberg A, Liu KA, Ballew C, Ruth K, Hughes R, Stamler J. Effects on blood lipids of adding instant oats to usual American diets. *Am J Public Health.* 1991 Feb;81(2):183-8.
- Van Horn L, Emidy LA, Liu KA, Liao YL, Ballew C, King J, Stamler J. Blood lipid response to a fat-modified, oatmeal-enhanced diet. *Prev Med.* 1988 May;17(3):377-86.

- Van Horn LV, Liu K, Parker D, Emidy L, Liao YL, Pan WH, Giumetti D, Hewitt J, Stamler J. Blood lipid response to oat product intake with a fat-modified diet. *J Am Diet Assoc.* 1986 Jun;86(6):759-64.
- Vorster HH, Lotter AP, Odendaal I. Effects of an oats fibre tablet and wheat bran in healthy volunteers. *S Afr Med J.* 1986 Mar 29;69(7):435-8.
- Whyte JL, McArthur R, Topping D, Nestel P. Oat bran lowers blood cholesterol levels in mildly hypercholesterolaemic men. *J Am Diet Assoc.* 1992 Apr;92(4):446-9.
- Winblad I, Joensuu T, Korpela H. Effect of oat bran supplemented diet on hypercholesterolaemia. *Scand J Prim Health Care.* 1995 Jun;13(2):118-21.
- Zhang JX, Hallmans G, Andersson H, Bosaeus I, Aman P, Tidehag P, Stenling R, Lundin E, Dahlgren S. Effect of oat bran on blood cholesterol and bile acid excretion in nine subjects with ileostomies. *Am J Clin Nutr.* 1992 Jul;56(1):99-105.

### **DIETARY FIBRE – Barley Beta-Glucan and Cholesterol**

#### ***Authoritative/Scientific Bodies***

- FDA - Interim final rule: Federal Register: December 23, 2005 (Volume 70, Number 246, Page 76150-76162)  
[http://www.access.gpo.gov/su\\_docs/fedreq/a051223c.html](http://www.access.gpo.gov/su_docs/fedreq/a051223c.html)  
<http://a257.g.akamaitech.net/7/257/2422/01jan20051800/edocket.access.gpo.gov/2005/pdf/05-24387.pdf>
- FDA - Final rule Federal Register: May 22, 2006 (Volume 71, Number 98, Page 29248-29250]  
<http://www.fda.gov/OHRMS/DOCKETS/98fr/06-4703.htm>

#### ***Individual Studies***

- Behall, K. M., Scholfield, D. & Hallfrisch, J. (2003). Barley consumption lowers cholesterol in men and overweight women. *FASEB Journal*, 17, A1.1,
- Behall, K. M., Scholfield, D. J. & Hallfrisch, J. G. (2004a). Lipids significantly reduced by diets containing barley in moderately hypercholesterolemic men. *J Am Coll Nutr*, 23, 55-62. ,
- Behall, K. M., Scholfield, D. & Hallfrisch, J. (2004b). Diets containing barley reduce lipids significantly in mildly hypercholesterolemic men and women. *Am J Clin Nutr*, 80(5):1185-93.,
- Hallfrisch, J., Scholfield, D. J. & Behall, K. M. (2002). Increasing whole grain foods (barley or wheat and rice) in a Step 1 diet lowers blood pressure in moderately hypercholesterolemic men. *The FASEB Journal*, 16, A655.1,
- Hallfrisch, J., Scholfield, D. J. & Behall, K. M. (2003). Blood pressure reduced by whole grain diet containing barley or whole wheat and brown rice) in moderately hypercholesterolemic men. *Nutrition Research*, 23, 1631-1642.,
- Keenan JM, Goulson M, Shamlivan T, Knutson N, Kolberg L & Curry L (2007) The effects of concentrated barley  $\beta$ -glucan on blood lipids in a population of hypercholesterolaemic men and women. *Br J Nutr*, 97 (6), 1162-68
- Keogh, G. F., Cooper, G. J. S., Mulvey, T. B., McArdle, B. H., Coles, G. D., Monro, J. A. & Poppitt, S. D. (2003). Randomized controlled crossover study of the effect of a highly  $\beta$ -glucan-enriched barley on cardiovascular disease risk factors in mildly hypercholesterolemic men. *Am J Clin Nutr*, 78, 711-718.,
- Li, J., Kaneko, T., Qin, L., Wang, J. & Wang, Y. (2003). Effects of barley intake on glucose tolerance, lipid metabolism, and bowel function in women. *Nutrition*, 19, 926-929.,

- McIntosh, G. H., Whyte, J., McArthur, R. & Nestel, P. J. (1991). Barley and wheat foods: influence on plasma cholesterol concentrations in hypercholesterolemic men. *Am J Clin Nutr*, 53, 1205-1209.1,
- Newman, R. K., Newman, C. W. & Graham, H. (1989). The hypocholesterolemic function of barley beta-glucans. *Cereal Foods World*, 34, 883-886.1,
- Yang, J. L. & Moon, Y. K. (2002). Effects of waxy barley and barley  $\beta$ -glucan on serum and liver cholesterol concentrations in rats fed a high cholesterol diet. *The FASEB Journal*, 16, A655.1,
- Yang, J.-L., Kim, Y.-H., Lee, H.-S., Lee, M.-S. & Moon, Y.-K. (2003). Barley  $\beta$ -glucan lowers serum cholesterol based on the up-regulation of cholesterol 7 $\alpha$ -hydroxylase activity and mRNA abundance in cholesterol-fed rats. *J Nutr Sci Vitaminol*, 49, 381-387.

## **DIETARY FIBRE – Acacia Gum and Prebiotic Action**

### ***Authoritative/Scientific Body***

- AFSSA opinion 2005-SA-0008 AFSSA opinion 23 April 2001  
<http://www.afssa.fr/ftp/afssa/basedoc/NUT2000sa0138.pdf>  
<http://www.afssa.fr/Ftp/Afssa/31119-31120.pdf>

### ***Individual Studies***

- Adiotomre J, Eastwood MA, Edwards CA, Brydon WG. Dietary fiber: in vitro methods that anticipate nutrition and metabolic activity in humans. *Am.J.Clin.Nutr.* 1990;52:128-34.
- Annison G, Trimble RP, Topping DL. Feeding Australian Acacia gums and gum arabic leads to non-starch polysaccharide accumulation in the cecum of rats. *J.Nutr.* 1995;125:283-92.
- Bliss DZ, Stein TP, Schleifer CR, Settle RG. Supplementation with gum arabic fiber increases fecal nitrogen excretion and lowers serum urea nitrogen concentration in chronic renal failure patients consuming a low-protein diet. *Am.J.Clin.Nutr.* 1996;63:392-8.
- Bourquin LD, Titgemeyer EC, Fahey GC, Jr., Garleb KA. Fermentation of dietary fibre by human colonic bacteria: disappearance of, short-chain fatty acid production from, and potential water-holding capacity of, various substrates. *Scand.J.Gastroenterol.* 1993;28:249-55.
- Cherbut C, Michel C, Raison V, Kravtchenko T, Méance S. Acacia gum is a bifidogenic dietary fiber with high digestive tolerance in healthy humans. *Microbial Ecology in Health and Disease* 2003;15:43-50.
- Crociani F, Alessandrini A, Mucci MM, Biavati B. Degradation of complex carbohydrates by *Bifidobacterium* spp. *Int.J.Food Microbiol.* 1994;24:199-210.
- May T, Mackie RI, Fahey GC, Jr., Cremin JC, Garleb KA. Effect of fiber source on short-chain fatty acid production and on the growth and toxin production by *Clostridium difficile*. *Scand.J.Gastroenterol.* 1994;29:916-22.
- McLean Ross AH, Eastwood MA, Brydon WG, Anderson JR, Anderson DM. A study of the effects of dietary gum arabic in humans. *Am.J.Clin.Nutr.* 1983;37:368-75.
- McLean Ross AH, Eastwood MA, Brydon WG, Busuttil A, McKay LF. A study of the effects of dietary gum arabic in the rat. *Br.J.Nutr.* 1984;51:47-56.
- Meance S. Acacia gum (FIBREGUM), a very well tolerated specific natural prebiotic having a wide range of food applications - Part 1. *AgroFood Industry Hi-tech*:24-28, 2004.
- Michel C, Kravtchenko T, David A, Gueneau S, Kozlowski F, Cherbut C. In vitro prebiotic effects of Acacia gums onto the human intestinal microbiota depends on both botanical origin and environmental pH. *Anaerobe* 1998;4:257-66.

- Mortensen PB, Hove H, Clausen MR, Holtug K. Fermentation to short-chain fatty acids and lactate in human faecal batch cultures. Intra- and inter-individual variations versus variations caused by changes in fermented saccharides. *Scand.J.Gastroenterol.* 1991;26:1285-94.
- Rochat, F., Ballèvre, O, and Jann, A. Nutritional Composition. NESTLE, S. A. 00115850.0(EP 1 175 905 A1), 1-12. 30-1-2002. Suisse (CH). 24-7-2000.
- Salyers AA, Palmer JK, Wilkins TD. Degradation of polysaccharides by intestinal bacterial enzymes. *Am.J.Clin.Nutr.* 1978;31:S128-S130.
- Storer GB, Illman RJ, Trimble RP, Snoswell AM, Topping DL. Plasma and caecal volatile fatty acids in male and female rats : effects of dietary gum arabic and cellulose. *Nutrition Research* 1984;4:701-7.
- Titgemeyer EC, Bourquin LD, Fahey GC, Jr., Garleb KA. Fermentability of various fiber sources by human fecal bacteria in vitro. *Am.J.Clin.Nutr.* 1991;53:1418-24.
- Tomlin J. Which fibre is best for the colon? *Scand.J.Gastroenterol.Suppil* 1987;129:100-4.
- Topping DL, Mock S, Trimble RP, Storer GB, Illman RJ. Effects of varying the content and proportions of gum arabic and cellulose on caecal volatile fatty acid concentrations in the rat. *Nutrition Research* 1988;8:1013-20.
- Tulung B, Remesy C, Demigne C. Specific effect of guar gum or gum arabic on adaptation of cecal digestion to high fiber diets in the rat. *J.Nutr.* 1987;117:1556-61.
- Walter DJ, Eastwood MA, Brydon WG, Elton RA. Fermentation of wheat bran and gum arabic in rats fed on an elemental diet. *Br.J.Nutr.* 1988;60:225-32.
- Wyatt GM, Bayliss CE, Holcroft JD. A change in human faecal flora in response to inclusion of gum arabic in the diet. *Br.J.Nutr.* 1986;55:261-6.

## **DIETARY FIBRE – Acacia Gum and Improved Intestinal Conditions**

### ***Authoritative/Scientific Body***

- AFSSA Opinion 23 April 2001 <http://www.afssa.fr/ftp/afssa/basedoc/NUT2000sa0138.pdf>

### ***Individual Studies***

- Bliss, D. Z., Jung, H. J., Savik, K., Lowry, A., LeMoine, M., Jensen, L., Werner, C., & Schaffer, K. 2001, "Supplementation with dietary fiber improves fecal incontinence", *Nurs.Res.*, vol. 50, no. 4, pp. 203-213.
- Bliss, D. Z., Stein, T. P., Schleifer, C. R., & Settle, R. G. 1996, "Supplementation with gum arabic fiber increases fecal nitrogen excretion and lowers serum urea nitrogen concentration in chronic renal failure patients consuming a low-protein diet", *Am.J.Clin.Nutr.*, vol. 63, no. 3, pp. 392-398.
- Campbell, J. M., Fahey, G. C., Jr., Demichele, S. J., & Garleb, K. A. 1997a, "Metabolic characteristics of healthy adult males as affected by ingestion of a liquid nutritional formula containing fish oil, oligosaccharides, gum arabic and antioxidant vitamins", *Food Chem.Toxicol.*, vol. 35, no. 12, pp. 1165-1176.
- Cherbut, C., Michel, C., Raison, V., Kravtchenko, T. P., & Meance, S. 2003, "Acacia gum is a bifidogenic dietary fiber with high digestive tolerance in healthy humans", *Microbial Ecol Health Dis*, vol. 15, pp. 43-50.
- Codipilly, C. N., Teichberg, S., & Wapnir, R. A. 2006, "Enhancement of absorption by gum arabic in a model of gastrointestinal dysfunction", *J.Am.Coll.Nutr.*, vol. 25, no. 4, pp. 307-312.

- Codipilly, C. N. & Wapnir, R. A. 2004, "Proabsorptive action of gum arabic in isotonic solutions orally administered to rats. II. Effects on solutes under normal and secretory conditions", *Dig.Dis.Sci.*, vol. 49, no. 9, pp. 1473-1478.
- McLean Ross, A. H., Eastwood, M. A., Brydon, W. G., Anderson, J. R., & Anderson, D. M. 1983, "A study of the effects of dietary gum arabic in humans", *Am.J.Clin.Nutr.*, vol. 37, no. 3, pp. 368-375.
- Rehman, K. U., Codipilly, C. N., & Wapnir, R. A. 2004, "Modulation of small intestinal nitric oxide synthase by gum arabic", *Exp.Biol.Med.(Maywood.)*, vol. 229, no. 9, pp. 895-901.
- Rehman, K. U., Wingertzahn, M. A., Harper, R. G., & Wapnir, R. A. 2001, "Proabsorptive action of gum arabic: regulation of nitric oxide metabolism in the basolateral potassium channel of the small intestine", *J.Pediatr.Gastroenterol.Nutr.*, vol. 32, no. 5, pp. 529-533.
- Rehman, K. U., Wingertzahn, M. A., Teichberg, S., Harper, R. G., & Wapnir, R. A. 2003, "Gum arabic (GA) modifies paracellular water and electrolyte transport in the small intestine", *Dig.Dis.Sci.*, vol. 48, no. 4, pp. 755-760.
- Teichberg, S., Wingertzahn, M. A., Moyse, J., & Wapnir, R. A. 1999, "Effect of gum arabic in an oral rehydration solution on recovery from diarrhea in rats", *J.Pediatr.Gastroenterol.Nutr.*, vol. 29, no. 4, pp. 411-417.
- Tulung, B., Remesy, C., & Demigne, C. 1987, "Specific effect of guar gum or gum arabic on adaptation of cecal digestion to high fiber diets in the rat", *J.Nutr.*, vol. 117, no. 9, pp. 1556-1561.
- Turvill, J. L., Wapnir, R. A., Wingertzahn, M. A., Teichberg, S., & Farthing, M. J. 2000, "Cholera toxin-induced secretion in rats is reduced by a soluble fiber, gum arabic", *Dig.Dis.Sci.*, vol. 45, no. 5, pp. 946-951.
- Wapnir, R. A., Teichberg, S., Go, J. T., Wingertzahn, M. A., & Harper, R. G. 1996, "Oral rehydration solutions: enhanced sodium absorption with gum arabic", *J.Am.Coll.Nutr.*, vol. 15, no. 4, pp. 377-382.
- Wapnir, R. A., Wingertzahn, M. A., Moyse, J., & Teichberg, S. 1997, "Gum arabic promotes rat jejunal sodium and water absorption from oral rehydration solutions in two models of diarrhea", *Gastroenterology*, vol. 112, no. 6, pp. 1979-1985.
- Wingertzahn, M. A., Teichberg, S., & Wapnir, R. A. Jejunal nitric oxide (NO) levels are reduced by gum arabic (GA). *J.Am.Coll.Nutr. Abstract* 52, 509. 1998.
- Wingertzahn, M. A., Teichberg, S., & Wapnir, R. A. 2001, "Stimulation of non-sodium-dependent water, electrolyte, and glucose transport in rat small intestine by gum arabic", *Dig.Dis.Sci.*, vol. 46, no. 5, pp. 1105-1112.
- Wyatt, G. M., Bayliss, C. E., & Holcroft, J. D. 1986, "A change in human faecal flora in response to inclusion of gum arabic in the diet", *Br.J.Nutr.*, vol. 55, no. 2, pp. 261-266.

## **DIETARY FIBRE - Inulin from Chicory 1**

***Inulin/ Oligofructose/ Oligofructose-enriched inulin from chicory and Prebiotic/Bifidogenic***

### ***Authoritative/Scientific Bodies***

- AFSSA. 2005. Effects of probiotics and prebiotics on flora and immunity in adults. ISBN 2-11-095439-6  
<http://www.isapp.net/PDF/AFFSAprobioticprebioticfloraimmunity05.pdf>
- AFSSA Advice (France) 2004-SA-0365

<http://www.afssa.fr/Object.asp?IdObj=29810&Pge=0&CCH=060512092005:26:4&cwSID=E1930764922A4D3C8D41649348D811D0&AID=0>

- AFSSA (CSHPF) Advice (France) 2000-SA-0118  
<http://www.afssa.fr/ftp/afssa/basedoc/2000sa118.pdf>
- VC (the Netherlands): Assessment report of VC on Vitaalbrood Flora  
[http://www.voedingscentrum.nl/NR/rdonlyres/85938396-FFD6-44B0-8143-769E3B25A14C/0/beoordelingsrapport\\_vitaalbrood\\_florapdf.pdf](http://www.voedingscentrum.nl/NR/rdonlyres/85938396-FFD6-44B0-8143-769E3B25A14C/0/beoordelingsrapport_vitaalbrood_florapdf.pdf)

### **Book**

- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL. ISBN 0-8493-0059-2.

### **Reviews**

- Biedrzycka, E., and M. Bielecka. 2004. Prebiotic effectiveness of fructans of different degrees of polymerization. *Trends in Food Science and Technology* 15:170-175
- Conway, P. 2001. Prebiotics and human health : The state-of-the-art and future perspectives. *Scan. J. Nutr.* 45:13-21
- Cummings, J. H., G. T. Macfarlane, and H. N. Englyst. 2001. Prebiotic digestion and fermentation. *Am J Clin Nutr* 73:(2) 415S-420.
- Gibson, G. R., H. Probert, J. van Loo, R. A. Rastall, and M. B. Roberfroid. 2004. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. *Nutr. Res. Rev.* 17:(2) 259-275.
- Gibson, G. R., McCartney, A. L., and Rastall, R. A. Prebiotics and resistance to gastrointestinal infections *British Journal of Nutrition* 2005;93:S31-S34.
- Gibson, G., and M. Roberfroid. 1995. Dietary modulation of the human colonic microbiota: Introducing the concept of prebiotics. *J. Nutr.* 125:(6) 1401-1412.
- Macfarlane S, Macfarlane GT, Cummings JH. Review article: prebiotics in the gastrointestinal tract. *Aliment Pharmacol Ther.* 2006 Sep 1;24(5):701-14.
- Roberfroid, M. B. 2001. Prebiotics: Preferential substrates for specific germs? *Am J Clin Nutr* 73:(2) 406S-409
- Schrezenmeir, J., and M. deVrese. 2001. Probiotics, prebiotics, and synbiotics -approaching a definition. *73:(suppl 1)* 361S-364S.
- Tuohy KM, Rouzaud GC, Bruck WM, Gibson GR. Modulation of the human gut microflora towards improved health using prebiotics--assessment of efficacy. *Curr Pharm Des.* 2005;11(1):75-90.

### **Clinical Studies**

- Bouhnik Y, Raskine L, Champion K, Andrieux C, Penven S, Jacobs H, Simoneau G. 2007. Prolonged administration of low-dose inulin stimulates bifidobacteria growth in humans. *Nutr Res* 27(4): 187-193.
- Brighenti F.; Casiraghi MC.; Canzi E.; Ferrari A.; 1999; "Effect of consumption of a ready-to-eat breakfast cereal containing inulin on the intestinal milieu and blood lipids in healthy volunteers"; *Eur. J. Clin. Nutr.*, 53, pp. 726-733.
- Gibson, G.R., Beatty, E.R., Wang, X. and Cummings, J.H. 1995. Selective stimulation of bifidobacteria in the human colon by oligofructose and inulin. *Gastroenterolgy* 108, 975-982.

- Harmsen H, 2002; "The Effect of the Prebiotic Inulin and the Probiotic Bifidobacterium longum on the Faecal Microflora of Healthy Volunteers Measured by FISH and DGGE"; *Microbial Ecology in Health and Disease*, 2002; 14; 212 – 220.
- Kim SH, Lee da H, Meyer D. 2007. Supplementation of baby formula with native inulin has a prebiotic effect in formula-fed babies. *Asia Pac J Clin Nutr.* 16(1):172-7.
- Kleessen B., Sykura B., Zunft H., Blaut M., 1997; "Effects of inulin and lactose on fecal microflora, microbial activity, and bowel habit in elderly constipated persons"; *Am. J. Clin. Nutr.*, 65, 1397-1402.
- Kolida S, Meyer D, Gibson GR. 2007. A double-blind placebo-controlled study to establish the bifidogenic dose of inulin in healthy humans. *Eur J Clin Nutr* advance online publication, 31 January 2007.
- Kruse H., Kleessen B., Blaut M., 1999; "Effects of inulin on faecal bifidobacteria in human subjects"; *BJN*, 82, 375-382.
- Langlands S.; Hopkins M.; Coleman N.; Cummings J. 2004 "Prebiotic carbohydrates modify the mucosa associated microflora of the human large bowel"; *Gut*; 53; 1610-1616.
- Menne E., Guggenbuhl N., Roberfroid M., 2000; "Fn-type Chicory Inulin Hydrolysate Has a Prebiotic Effect in Humans"; *J. Nutr.*, 130, pp. 1197-1199.
- Rao V., 2001; "The prebiotic properties of oligofructose at low intake levels"; *Nutrition Research*, 21, pp. 843-848.
- Tuohy K.; Finlay R.; Wynne A.; Gibson G.; 2001; "A Human Volunteer Study on the Prebiotic Effects of HP-Inulin – Faecal Bacteria Enumerated Using Fluorescent In Situ Hybridisation (FISH)"; *Anaerobe*, 7, pp. 113-118.
- Waligora-Dupriet AJ, Campeotto F, Nicolis I, Bonet A, Soulaines P, Dupont C, Butel MJ. 2007. Effect of oligofructose supplementation on gut microflora and well-being in young children attending a day care centre. *Int J Food Microbiol* 113(1):108-13.

### ***In Vitro Studies***

- Durieux, A., Fougnies, C., Jacobs, H., Simon, J.-P. (2001). Metabolism of chicory fructooligosaccharides by bifidobacteria. *Biotechnology Letters* 23, 1523-1527.
- Gibson G.R. and Wang X (1994b), "Regulatory effects of Bifidobacteria on the growth of other colonic bacteria.", *J. Appl. Bacteriology*, 77, 412-420.
- Gibson G.R. and Wang X (1994c), "Bifidogenic properties of different types of fructooligosaccharides.", *Food Microbiology*, 11; 491-498.
- Gibson G.R. and Wang X. (1994a), "Enrichment of Bifidobacteria from human gut contents by oligofructose using continuous culture.", *FEMS microbiology ecology*, 118, 121-128.
- Perrin, S., Fougnies, C., Grill, J.-P., Jacobs, H., Schneider, F. (2002). Fermentation of chicory fructo-oligosaccharides in mixtures of different degrees of polymerization by three strains of bifidobacteria. *Can. J. Microbiol.* 48: 759-763
- Rycroft, C. E., M. R. Jones, G. R. Gibson, and R. A. Rastall. 2001. A comparative in vitro evaluation of the fermentation properties of prebiotic oligosaccharides. *J. Appl. Microbiol.* 91:878-887.
- Van de Wiele T., Boon, N., Possemiers, S., Jacobs, H., Verstraete, W. (2004). Prebiotic effects of chicory inulin in the Simulator of the Human Intestinal Microbial Ecosystem. *FEMS Microbiology Ecology* 51, 143-153.

## **DIETARY FIBRE – Inulin / FOS ( $\beta$ 2→1 Linked Fructans)**

### ***Books and Review Papers***

- Roberfroid, M B. Inulin-Type Fructans, Functional Food Ingredients. CRC Press, Boca Raton, FL, 2005.
- Boeckner LS, Schnepp MI, Tungland BC. Inulin: a review of nutritional and health implications. In: Advances in Food and Nutrition Research, volume 43. Edited by Steve L. Taylor. Academic Press, USA. Pages 1-62, 2001.
- Bornet FRJ. Undigestible sugars in food products. Am J Clin Nutr 59:763S-769S, 1994.
- Bornet FRJ, Brouns F. Immune-stimulating and gut health-promoting properties of short chain fructo-oligosaccharides. Nutr Reviews, 60:326-334, 2002.
- Carabin IG, Flamm WG. Evaluation of safety of inulin and oligofructose as dietary fiber. Reg Tox Pharm, 30:268-282, 1999.
- Cherbut C. Inulin and oligofructose in the dietary fibre concept. Br J Nutr, 87:S159-S162, 2002.
- Egan SK, Petersen BJ. Estimated consumption of inulin and oligofructose by the US population. Technical Assessment Systems Inc. Washington DC, USA, 1992.
- Flamm G, Glinsmann W, Kritchevsky D, Prosky L, Roberfroid M. Inulin and oligofructose as dietary fiber: a review of the evidence. Crit Rev Food Sci Nutr, 41:353-362, 2001.
- Gibson GR and Roberfroid MB. Dietary modulation of the human colonic microbiota: introducing the concept of prebiotics. J Nutr, 125:1401-1412, 1995.
- Gibson GR, Probert HM, Van Loo J, Rastall RA, Roberfroid MB. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. Nutr Res Rev, 17:259-275, 2004
- Moshfegh AJ, Friday JE, Goldman JP, Ahuja JKC. Presence of inulin and oligofructose in the diets of Americans. J Nutr, 129:1407S-1411S, 1999.
- Niness KR. Inulin and oligofructose: what are they? J Nutr 129:1402S-1406S, 1999.
- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL.
- Roberfroid M, Gibson GR, Delzenne N. The biochemistry of oligofructose, a nondigestible fiber : an approach to calculate its caloric value. Nutr Rev, 51:137-146, 1993.
- Roberfroid M, van Loo JAE, Gibson G. The bifidogenic nature of chicory inulin and its hydrolysis products. J Nutr. 128:11-19, 1998.
- Van Loo J. The specificity of the interaction with intestinal bacterial fermentation by prebiotics determines their physiological efficacy. Nutr Res Rev 17:89-98, 2004.
- Van Loo J, Coussement P, de Leenheer L, Hoebregs H, Smits G. On the presence of inulin and oligofructose as natural ingredients in the Western diet. Crit Rev Food Science and Nutr, 35:525-552, 1995.

### ***Human Studies***

- Bach Knudsen KE and Hessov I. Recovery of inulin from Jerusalem artichoke (*Helianthus tuberosus* L.) in the small intestine of man. Br J Nutr, 74:101-113, 1995.
- Bouhnik Y, Flourié B, Riottot M, Bisetti N, Gailing M, Guibert A, Bornet F, Rambaud J. Effects of fructo-oligosaccharides ingestion on fecal bifidobacteria and selected metabolic indexes of colon carcinogenesis in healthy humans. Nutr Cancer 26:21-29, 1996.

- Bouhnik Y, Raskine L, Simoneau G, Paineau D, Bornet FR. The capacity of short-chain fructo-oligosaccharides to stimulate faecal bifidobacteria : a dose- response relationship study in healthy humans. *Nutr J*, 5:8-14, 2006.
- Bouhnik Y, Raskine L, Simoneau G, Vicaut E, Neut C, Flourié B, Brouns F, Bornet FR. The capacity of nondigestible carbohydrates to stimulate fecal bifidobacteria in healthy humans: a double-blind, randomized, placebo-controlled, parallel-group, dose-response relation study. *Am J Clin Nutr*, 80:1658-1664, 2004.
- Bouhnik Y, Vahedi K, Achour L, Attar A, Salfati J, Pochart P, Marteau P, Flourié B, Bornet F, Rambaud J. Short-chain fructo-oligosaccharide administration dose-dependently increases fecal bifidobacteria in healthy humans. *J Nutr*, 129:113-116, 1999.
- Boutron-Ruault M, Marteau P, Lavergne-Slove A, Myara A, Gerhardt M, Franchisseur C, Bornet F, and the Erioplyp Study Group. *Nutr and Cancer*, 53:160-168, 2005.
- Buddington RK, Williams CH, Chen S, Witherly SA. Dietary supplement of neosugar alters the fecal flora and decreases activities of some reductive enzymes in human subjects. *Am J Clin Nutr*, 63:709-716, 1996.
- Clavel T, Fallani M, Lepage P, Levanez F, Mathey J, Fochet V, Serezat M, Sutren M, Henderson G, Bennetau-Pelissero C, Tondu F, Blaut M, Dore J, Coxam V. Isoflavones and functional foods alter the dominant intestinal microbiota in postmenopausal women. *J Nutr*, 135:2786-2792, 2005.
- Rumessen JJ, Bode S, Hamberg O, Gudmand-Hoyer E. Fructans of Jerusalem artichokes: intestinal transport, fermentation, and influence on blood glucose, insulin, and C-peptide responses in healthy subjects. *Am J Clin Nutr*, 52:675-681, 1990.
- Wada T, Sugatani J, Terada E, Ohguchi M, Miwa M. Physicochemical characterization and biological effects of inulin enzymatically synthesized from sucrose. *J Agric Food Chem* 53:1246-1253, 2005.

### ***Animal and In-Vitro Studies***

- Coudray C, Tressol JC, Gueux E, and Rayssiguier Y. Effects of inulin-type fructans of different chain length and type of branching on intestinal absorption and balance of calcium and magnesium in rats. *Eur J Nutr* 42: 91-98, 2003.
- Lopez-Molina D, Navarro-Martinez MD, Melgarejo FR, Hiner ANP, Chazarra S, Rodriguez-Lopez JN. Molecular properties and prebiotic effect of inulin obtained from artichoke (*Cynara scolymus* L.). *Phytochemistry* 66:1476-1484, 2005.
- Marx SP, Winkler S, Hartmeier W. Metabolization of  $\beta$ -(2,6)-linked fructose-oligosaccharides by different bifidobacteria. *Microbiol Letters* 182:163-169, 2000.
- Probert HM, Apajalahti JHA, Rautonen N, Stowell J, Gibson GR. Polydextrose, lactitol, and fructooligosaccharide fermentation by colonic bacteria in a three-stage continuous culture system. *App Env Microbiol*, 70:4505-4511, 2004.
- Rao DS, Murthy KSK, Srinivasan M. Effect of polyfructosan from Agave vera-cruz mill and inulin on cholesterol levels in plasma and liver of albino rats. *Indian J Exp Biology* 3:103-105, 1965.
- Yamamoto Y, Takahashi Y, Kawano M, Iizuka M, Matsumoto T, Saeki S, Yamaguchi H. In vitro digestibility and fermentability of levan and its hypocholesterolemic effects in rats. *J Nutr Biochemm*, 10:13-18, 1999.

### ***Chemical Structure of Inulin / FOS ( $\beta$ 2→1 Linked Fructans)***

- AOAC Official Method 997.08. Fructans in Food Products. *JAOAC Int*. 80:1029-1033, 1997.

- AOAC Official Method 997.08. Fructans in Food Products. AOAC Official Methods of Analysis (2005).
- Beck, RHF, and Praznik, W. Molecular characterization of fructans by high-performance gel chromatography. *J. Chromat.* 369:208-212, 1986.
- Besemer, AC, and van Bekkum, H. The hypochlorite oxidation of inulin. *Recueil des Travaux Chimiques des Pays-Bas* 113:398-402, 1994.
- Carpita, NC, Housley, TL, Hendrix, JE. New features of plant fructan structure revealed by methylation analysis and C13 NMR-Spectroscopy. *Carbohydr. Res.* 217:127-136, 1991.
- DeLeenheer, L., and Hoebregs, H. Progress in the elucidation of the composition of chicory inulin. *Starch.* 46: 193-196, 1994.
- Egan SK, Petersen BJ. Estimated consumption of inulin and oligofructose by the US population. Technical Assessment Systems Inc. Washington DC, USA, 1992.
- Jamie, L., Martin-Cabrejas, MA, Molíá, E., López-Andréu, F., and Esteban, RM. Effect of storage on fructan and fructooligosaccharide of onion (*Allium cepa* L.). *J. Agric. Food Chem.* 49:982-988, 2001.
- Lopez, MG, Mancilla-Margalli, NA, and Mendoza-Diaz, G. Molecular structure of fructans from *Agave tequilana* Weber var. azul. *J. Agric. Food. Chem.* 51:7835-7840, 2003.
- Losso, JN, and Nakai, S. Molecular size of garlic fructooligosaccharides and fructopolymers by matrix-assisted laserdesorption ionization mass spectrometry. *J. Agric. Food Chem.* 45:4342-4346, 1997.
- Moerman, FT, VanLeeuwen, MB, and Delcour, JA. Enrichment of higher molecular weight fractions in inulin. *J. Agric. Food Chem.* 52: 3780-3783, 2004.
- Praznik, W., and Beck, RHF. Application of gel permeation chromatographic systems to the determination of the molecular weight of inulin. *J. Chromat.* 348:187-197, 1985.
- Praznik, W., Huber, A., Loppert, R. Occurrence and potential of fructan plants. IP: Renewable Biomaterials. Ghent, 2006.
- Schütz, K., Muks, E., Carle, R., and Schieber, A. Separation and quantification of inulin in selected artichoke (*Cynara scolymus* L.) cultivars and dandelion (*Taraxacum officinale* WEB. ex WIGG.) roots by high-performance anion exchange chromatography with pulsed amperometric detection. *Biomed. Chromat.* 20:1295-1303, 2006.
- Wack, M, and Blaschek, W. Determination of the structure and degree of polymerization of fructans from *Echinacea purpurea* roots. *Carbohydr. Res.* 241:1147-1153, 2006.

## **DIETARY FIBRE - Inulin from Chicory 2**

### ***Authoritative/Scientific Bodies***

- AFSSA. 2005. Effects of probiotics and prebiotics on flora and immunity in adults. ISBN 2-11-095439-6  
<http://www.isapp.net/PDF/AFFSAprobioticprebioticfloraimmunity05.pdf>
- VC (the Netherlands): Assessment report of VC on Vitaalbrood Flora  
[http://www.voedingscentrum.nl/NR/rdonlyres/85938396-FFD6-44B0-8143-769E3B25A14C/0/beoordelingsrapport\\_vitaalbrood\\_florapdf.pdf](http://www.voedingscentrum.nl/NR/rdonlyres/85938396-FFD6-44B0-8143-769E3B25A14C/0/beoordelingsrapport_vitaalbrood_florapdf.pdf)

### ***Book***

- Ashwell M.; 2002: "Concepts of functional foods"; ILSI Concise Monograph Series; ISBN 1-57881-145-7
- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL. ISBN 0-8493-0059-2.

### **Reviews**

- Cummings, J. H., G. T. Macfarlane, and H. N. Englyst. 2001. Prebiotic digestion and fermentation. *Am J Clin Nutr* 73:(2) 415S-420.
- Gibson, G. R., H. Probert, J. van Loo, R. A. Rastall, and M. B. Roberfroid. 2004. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. *Nutr. Res. Rev.* 17:(2) 259-275.
- Gibson, G., and M. Roberfroid. 1995. Dietary modulation of the human colonic microbiota: Introducing the concept of prebiotics. *J. Nutr.* 125:(6) 1401-1412.
- Guarner F. Inulin and oligofructose: impact on intestinal diseases and disorders. *Br J Nutr.* 2005 Apr;93 Suppl 1:S61-5.
- Kaur N., Gupta A.; 2002; "Applications of inulin and oligofructose in health and nutrition"; *J. Bioscience.*; 27; 7; 703-714.
- Losada M.; Olleros T; 2002; "Towards a healthier diet for the colon: the influence of fructooligosaccharides and lactobacilli on intestinal health"; *Nutrition Research*; 22; 71-84.
- Macfarlane S, Macfarlane GT, Cummings JH. Review article: prebiotics in the gastrointestinal tract. *Aliment Pharmacol Ther.* 2006 Sep 1;24(5):701-14.
- Nyman M. Fermentation and bulking capacity of indigestible carbohydrates: the case of inulin and oligofructose. *Br J Nutr.* 2002 May;87 Suppl 2:S163-8.
- Roberfroid MB. Introducing inulin-type fructans. *Br J Nutr.* 2005 Apr;93 Suppl 1:S13-25
- Saavedra J. M.; Tschernia A..; 2002; "Human studies with probiotics and prebiotics: clinical implications"; *BJN*; 87; Suppl. 2; S241-S246.
- Van Loo J.; 2004; "Prebiotics promote good health; the basis, the potential and the emerging evidence"; *J. Clin. Gastroenterol.*; 38; 2; S70-S75.

### **Clinical Studies**

- Brighenti F.; Casiraghi MC.; Canzi E.; Ferrari A.; 1999; "Effect of consumption of a ready-to-eat breakfast cereal containing inulin on the intestinal milieu and blood lipids in healthy volunteers"; *Eur. J. Clin. Nutr.*, 53, pp. 726-733.
- Castiglia-Delavaud C., Verdier E., Besle J., Vernet J., Boirie Y., Beaufreire B., de Baynast R., Vermorel M.; 1998; „Net energy value of non-starch polysaccharide isolates (sugarbeet fibre and commercial inulin) and their impact on nutrient digestive utilization in healthy human subjects“; *BJN.*, 80, pp. 343-352.
- Causey J.; Feirtag J.; Gallaher D.; Tungland B.; Slavin J.; 2000; "Effects of dietary inulin on serum lipids, blood glucose and the gastrointestinal environment in hypercholesterolic men"; *Nut Res.* 20, 2, pp. 191-201.
- Cummings J.; Christie S.; Cole T.; 2001; "A study of fructo oligosaccharides in the prevention of travellers' diarrhoea"; *Aliment. Pharmacol. Ther.*; 15; 1139-1145.
- Gibson, G.R., Beatty, E.R., Wang, X. and Cummings, J.H. 1995. Selective stimulation of bifidobacteria in the human colon by oligofructose and inulin. *Gastroenterology* 108, 975-982.

- Kleessen B., Sykura B., Zunft H., Blaut M., 1997; "Effects of inulin and lactose on fecal microflora, microbial activity, and bowel habit in elderly constipated persons"; Am. J. Clin. Nutr., 65, 1397-1402.
- Kruse H., Kleessen B., Blaut M., 1999; "Effects of inulin on faecal bifidobacteria in human subjects"; BJN, 82, 375-382.
- Menne E., Guggenbuhl N., Roberfroid M., 2000; "Fn-type Chicory Inulin Hydrolysate Has a Prebiotic Effect in Humans"; J. Nutr., 130, pp. 1197-1199.
- Moore N.; Chao C.; Yang L.; Storm H.; Oliva-Hemker M.; Saavedra J.; 2003; "Effects of fructo-oligosaccharide-supplemented infant cereal: a double-blind, randomized trial"; BJN., 90, pp. 581-587.
- Waligora-Dupriet AJ, Campeotto F, Nicolis I, Bonet A, Soulaines P, Dupont C, Butel MJ. 2007. Effect of oligofructose supplementation on gut microflora and well-being in young children attending a day care centre. Int J Food Microbiol 113(1):108-13.

### **Animal Studies**

- Campbell JM, Fahey GC Jr, Wolf BW. Selected indigestible oligosaccharides affect large bowel mass, cecal and fecal short-chain fatty acids, pH and microflora in rats. J Nutr. 1997 Jan;127(1):130-6.
- Djouzi Z, Andrieux C. Compared effects of three oligosaccharides on metabolism of intestinal microflora in rats inoculated with a human faecal flora. Br J Nutr. 1997 Aug;78(2):313-24.
- Levrat MA, Remesy C, Demigne C. 1991. High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin. J Nutr. 1991 Nov;121(11):1730-7
- Roland N, Nugon-Baudon L, Andrieux C, Szylit O. Comparative study of the fermentative characteristics of inulin and different types of fibre in rats inoculated with a human whole faecal flora. Br J Nutr. 1995 Aug;74(2):239-49.

### **In Vitro Studies**

- Rycroft, C. E., M. R. Jones, G. R. Gibson, and R. A. Rastall. 2001. A comparative in vitro evaluation of the fermentation properties of prebiotic oligosaccharides. J. Appl. Microbiol. 91:878-887.
- Van de Wiele T., Boon, N., Possemiers, S., Jacobs, H., Verstraete, W. (2004). Prebiotic effects of chicory inulin in the Simulator of the Human Intestinal Microbial Ecosystem. FEMS Microbiology Ecology 51, 143-153.
- van Nuenen MH, Meyer PD, Venema K. 2003 The effect of various inulins and Clostridium difficile on the metabolic activity of the human colonic microbiota in vitro. Microbial Ecol. Health Dis. 15: 137-144.

## **DIETARY FIBRE – Inulin from Chicory 3**

### **Book**

- Ashwell M.; 2002: "Concepts of functional foods"; ILSI Concise Monograph Series; ISBN 1-57881-145-7
- Roberfroid M.; 2005; "The Digestive functions: inulin-type fructans as non-digestible oligosaccharides, as fermentable carbohydrates, as dietary fibre, as low-calory carbohydrates, Conclusions; Inulin-type fructans; CRC Series in Modern Nutrition; ISBN 0-8493-0059-2; 61-150.

## **Reviews**

- Kaur N., Gupta A.; 2002; "Applications of inulin and oligofructose in health and nutrition"; *J. Bioscience.*; 27; 7; 703-714.
- Losada M.; Olleros T; 2002; "Towards a healthier diet for the colon: the influence of fructooligosaccharides and lactobacilli on intestinal health"; *Nutrition Research*; 22; 71-84.
- Van Loo J.; 2004; "Prebiotics promote good health; the basis, the potential and the emerging evidence"; *J. Clin. Gastroenterol.*; 38; 2; S70-S75.

## **Human Intervention Studies**

- Bettler J.; Euler A.; 2005; "An evaluation of the growth of term infants fed formula supplemented with fructo-oligosaccharide"; *Int. J. of Probiotics and Prebiotics*; 1; 1; 19-26.
- Castiglia-Delavaud C., Verdier E., Besle J., Vernet J., Boirie Y., Beaufreire B., de Baynast R., Vermorel M.; 1998; „Net energy value of non-starch polysaccharide isolates (sugarbeet fibre and commercial inulin) and their impact on nutrient digestive utilization in healthy human subjects“; *BJN.*, 80, pp. 343-352.
- Causey J.; Feirtag J.; Gallaher D.; Tungland B.; Slavin J.; 2000; "Effects of dietary inulin on serum lipids, blood glucose and the gastrointestinal environment in hypercholesterolic men"; *Nut Res.* 20, 2, pp. 191-201.
- Chen H.; Lu Y.; Lin J.; Ko L.; 2000; "Effects of fructooligosaccharide on bowel function and indicators of nutritional status in constipated elderly men"; *Nut. Res.* 20, 12, pp. 1725-1733
- Clausen M.; Jorgensen J.; Mortensen P.; 1998; „Comparison of Diarrhoea Induced by Ingestion of Fructooligosaccharide Idolax and Disaccharide Lactulose“; *Dig. Dis. And Sc.*, 43, 12, pp. 2696-2707.
- Cummings J.; Christie S.; Cole T.; 2001; "A study of fructo oligosaccharides in the prevention of travellers' diarrhoea"; *Aliment. Pharmacol. Ther.*; 15; 1139-1145.
- Den Hond E.; Geypens B.; Ghoos Y.; 2000; "Effect on high performance chicory inulin on constipation"; *Nut. Res.* 20,5, pp. 731-736.
- Euler A.; Mitchell D.; Kline R.; Pickering L.; 2005; "Prebiotic effect of fructo-oligosaccharide supplemented term infant formula at two concentrations compared with unsupplemented formula and human milk"; *J Pediatric Gastroenterology and Nutrition*; 40; 157-164.
- Gibson G.; Beatty E.; Wang X.; Cummings J.; 1995; "Selective Stimulation of Bifidobacteria in the Human Colon by Oligofructose and Inulin"; *Gastroenterology*, 108, pp. 975-982.
- Kleessen B.; Sykura B.; Zunft H.; Blaut M.; 1997; "Effects of inulin and lactose on fecal microflora, microbial activity, and bowel habit in elderly constipated persons"; *Am. J. Clin. Nutr.*, 65, 1397-1402.
- Menne E.; Guggenbuhl N.; Roberfroid M.; 2000; "Fn-type Chicory Inulin Hydrolysate Has a Prebiotic Effect in Humans"; *J. Nutr.*, 130, pp. 1197-1199.
- Moore N.; Chao C.; Yang L.; Storm H.; Oliva-Hemker M.; Saavedra J.; 2003; "Effects of fructo-oligosaccharide-supplemented infant cereal: a double-blind, randomized trial"; *BJN.*, 90, pp. 581-587.
- Saavedra J. M.; Tschernia A..; 2002; "Human studies with probiotics and prebiotics: clinical implications"; *BJN*; 87; Suppl. 2; S241-S246.
- Waligora-Dupriet A.; Campeotto F.; Nicolis I.; Bonet A.; Soulaines P.; Dupont C.; Butel M.; 2006; "Effects of oligofructose supplementation on gut microflora and well-being in young children attending a day care centre"; *Int J of Food Microbiology*; doi:10.1016/j.foodmicro.2006.07.009.

## **DIETARY FIBRE – Inulin from Chicory 4**

### **Review**

- Delzenne, N.M. and Williams, C.M. (2002) Prebiotics and lipid metabolism. *Curr. Opinion Lipidol.* 13 (1): 61-67.
- Delzenne NM, Kok N. Effects of fructans-type prebiotics on lipid metabolism. *Am J Clin Nutr.* 2001 Feb;73(2 Suppl):456S-458S.

### **Clinical Studies**

- Alles, M.S., de Roos, N.M., Baks, J.C., van de Lisdonk, E., Zock, P.L., Hautvast, J.G. 1999. Consumption of fructooligosaccharides does not favorably affect blood glucose and serum lipid concentrations in patients with type 2 diabetes. *Am. J. Clin. Nutr.* 69, 64-69
- Brighenti, F., Casiraghi, M.C., Canzi, E. and Ferrari, A. 1999. Effect of consumption of a ready-to-eat breakfast cereal containing inulin on the intestinal milieu and blood lipids in healthy male volunteers. *Eur. J. Clin. Nutr.* 53, 726-733
- Canzi, E., Brighenti, F., Casiraghi, M.C., Del Puppo, E., Ferrari, A. 1995. Prolonged consumption of inulin in ready-to-eat breakfast cereals: effects on intestinal ecosystem, bowel habits and lipid metabolism. p. 280-284 in 'Dietary fibre and fermentation in the colon', Proc. COST action 92 workshop, Finland.
- Causey, J.L., Feirtag, J.M., Gallaher, D.D., Tungland, B.C., Slavin, J.L. 2000. Effects of dietary inulin on serum lipids, blood glucose and the gastrointestinal environment in hypercholesterolemic men. *Nutr. Res.* 20, 191-201
- Davidson, M.H., Maki, K.C., Synecki, C., Torri, S.A., Drennan, K.B. 1998. Effects of dietary inulin on serum lipids in men and women with hypercholesterolemia. *Nutr. Res.* 18, 503-517
- Jackson, K.G., Taylor, G.R.J., Clohessy, A.M., Williams, C.M. 1999. The effect of daily intake of inulin on fasting lipid, insulin and glucose concentrations in middle-aged men and women. *Br. J. Nutr.* 82, 23-30
- Letexier D, Diraison F, Beylot M. Addition of inulin to a moderately high-carbohydrate diet reduces hepatic lipogenesis and plasma triacylglycerol concentrations in humans. *Am J Clin Nutr.* 2003 Mar;77(3):559-64.
- McEvoy, S.M., Gibney, M.J., Roche, H.M. 1999. A dose response study of inulin - towards a functional food. Presented at: Functional Foods '99 - Claims and Evidence, 14-15 April 1999, Wye College, Kent, UK.
- Pedersen, A., Sandström, B., van Amelsvoort, J.M.M. 1997. The effect of inulin on blood lipids and gastrointestinal symptoms in healthy females. *Br. J. Nutr.* 78, 215-222.
- Van Dokkum, W., Wezendonk, B., Sri Kumar, T.S., van den Heuvel, E.G. 1999. Effect of nondigestible oligosaccharides on large-bowel functions, blood lipid concentrations and glucose absorption in young healthy male subjects. *Eur. J. Clin. Nutr.* 53, 1-7

### **Animal Studies**

- Delzenne N, Kok N, Fiordaliso M. 1993 Dietary fructooligosaccharides modify lipid metabolism in rats. *Am J Clin Nutr* 5:820S.
- Diez, M., Hornick, J.L., Baldwin, P., van Eenaeime, C., Istasse, L. 1998. Study of dietary fibre in dog's diet: results of 7 experimental trials. *Ann. Med. Vet.* 142, 185-201

- Fiordaliso, M., Kok, N., Desager, J.-P., Goethals, F., Deboyser, D., Roberfroid, M., Delzenne, N. 1995. Dietary oligofructose lowers triglycerides, phospholipids and cholesterol in serum and very low density lipoproteins in rats. *Lipids* 30, 163-167.
- Kok, N.N., Taper, H.S., Delzenne, N.M. 1998. Oligofructose modulates lipid metabolism alterations induced by a fat-rich diet in rats. *J. Appl. Toxicol.* 18, 47-53
- Levrat, M.A., Favier, M.L., Moundras, C., Rémesy, C., Demigné, C., Morand, C. 1994. Role of dietary propionic acid and bile acid excretion in the hypocholesterolemic effects of oligosaccharides in rats. *J. Nutr.* 124, 531-538.
- Levrat, M.A., Rémesy, C., Demigné, C. 1991. High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin. *J. Nutr.* 121, 1730-1737
- Trautwein, E.A., Rieckhoff, D., Erbersdobler, H.F. 1998. Dietary inulin lowers plasma cholesterol and triacylglycerol and alters biliary bile acid profile in hamsters. *J. Nutr.* 128, 1937-1943
- Vanhoof K., De Schrijver R. Effect of unprocessed and baked inulin on lipid metabolism in normo and hypercholesterolemic rats. *Nutr. Res.* 1995; 15:1637-1646

## **DIETARY FIBRE – Inulin from Chicory 5**

### **Reviews**

- Coxam V. Inulin-type fructans and bone health: state of the art and perspectives in the management of osteoporosis. *Br J Nutr.* 2005 Apr;93 Suppl 1:S111-23
- Meyer D. & Stasse-Wolthuis M. Inulin and bone health. 2006 Current Topics in Nutraceutical Research; 4(3/4), 211-226
- Scholz-Ahrens, K.E., Ade, P, Marten, B., Weber, P., Timm, W., Asil, Y., Glueer, C.C. and Schrezenmeir, J. 2007. Prebiotics, probiotics, and synbiotics affect mineral absorption, bone mineral content, and bone structure. *J Nutr* 137 (3) S838-S846
- Scholz-Ahrens KE, Schaafsma G, van den Heuvel EG, Schrezenmeir J. Effects of prebiotics on mineral metabolism. *Am J Clin Nutr.* 2001 Feb;73(2 Suppl):459S-464S.

### **Clinical Studies**

- Abrams SA, Griffin IJ, Hawthorne KM, Liang L, Gunn SK, Darlington G, Ellis KJ. A combination of prebiotic short- and long-chain inulin-type fructans enhances calcium absorption and bone mineralization in young adolescents. *Am J Clin Nutr.* 2005 Aug;82(2):471-6
- Coudray C, Bellanger J, Castiglia-Delavaud C, Remesy C, Vermorel M, Rayssignier Y. Effect of soluble or partly soluble dietary fibres supplementation on absorption and balance of calcium, magnesium, iron and zinc in healthy young men. *Eur J Clin Nutr.* 1997 Jun;51(6):375-80.
- Griffin I, Hicks P, Heaney R, Abrams S. Enriched chicory inulin increases calcium absorption mainly in girls with lower calcium absorption. *Nutrition research* 2003; 23(7):901-909.
- Griffin IJ, Davila PM, Abrams SA. Non-digestible oligosaccharides and calcium absorption in girls with adequate calcium intakes. *Br J Nutr.* 2002 May;87 Suppl 2:S187-91
- Holloway L, Moynihan S, Abrams S, Kent K, Hsu A, Fiedlander A. Effect of oligofructose enriched inulin on calcium and magnesium absorption and bone turnover markers in postmenopausal women. *Brit J Nutr* 2006; 97(2): 365-372 .
- Kim Y-Y, Jang K-H, Lee E-Y, Cho Y, Kang S, Ha W-K, Choue R. The effect of chicory fructan fiber on calcium absorption and bone metabolism in korean postmenopausal women. *Nutritional Sciences* 2004; (73): 151-157.

- Maki, K.C., Dicklin, M.R., Cyrowski, M., Umporowicz, D.M., Nagata, Y., Moon, G., Forusz, S., Davidson, M.H. 2002. Improved calcium absorption from a newly formulated beverage compared with a calcium carbonate tablet. *Nutr. Res.* 22, 1163-1176.
- Van den Heuvel EG, Muys T, van Dokkum W, Schaafsma G. Oligofructose stimulates calcium absorption in adolescents. *Am J Clin Nutr.* 1999 Mar;69(3):544-8.
- Van den Heuvel E, Schaafsma G, Muys T, van Dokkum W. 1998; Nondigestible oligosaccharides do not interfere with calcium and nonheme-iron absorption in young, healthy men. *Am J Clin Nutr* 67, 445-451

### ***Animal Studies***

- Coudray C, Rambeau M, Feillet-Coudray C, Tressol JC, Demigne C, Gueux E, Mazur A, Rayssiguier Y. 2005. Dietary inulin intake and age can significantly affect intestinal absorption of calcium and magnesium in rats: a stable isotope approach. *Nutr J.* Oct 27;4:29.
- Coudray C, Tressol JC, Gueux E, Rayssiguier Y. 2003. Effects of inulin-type fructans of different chain length and type of branching on intestinal absorption and balance of calcium and magnesium in rats. *Eur J Nutr.* Apr;42(2):91-8.
- Delzenne N, Aertssens J, Verplaetse H, Roccaro M, Roberfroid M. 1995. Effect of fermentable fructo-oligosaccharides on mineral, nitrogen and energy digestive balance in the rat. *Life Sci.* 57(17):1579-87.
- Levrat MA, Remesy C, Demigne C. High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin. *J Nutr.* 1991 Nov;121(11):1730-7.
- Lopez HW, Coudray C, Levrat-Verny MA, Feillet-Coudray C, Demigne C, Remesy C. 2000. Fructooligosaccharides enhance mineral apparent absorption and counteract the deleterious effects of phytic acid on mineral homeostasis in rats. *J Nutr Biochem.* Oct;11(10):500-8
- Nzeusseu A, Dienst D, Haufroid V, Depresseux G, Devogelaer JP, Manicourt DH. Inulin and fructo-oligosaccharides differ in their ability to enhance the density of cancellous and cortical bone in the axial and peripheral skeleton of growing rats. *Bone.* 2006 Mar;38(3):394-9.
- Raschka L, Daniel H. Mechanisms underlying the effects of inulin-type fructans on calcium absorption in the large intestine of rats. *Bone.* 2005 Nov;37(5):728-35.
- Roberfroid MB, Cumps J, Devogelaer JP. 2002. Dietary chicory inulin increases whole-body bone mineral density in growing male rats. *J Nutr.* Dec;132(12):3599-602.
- Scholz-Ahrens KE, Acil Y, Schrezenmeir J. 2002. Effect of oligofructose or dietary calcium on repeated calcium and phosphorus balances, bone mineralization and trabecular structure in ovariectomized rats. *Br J Nutr* 88(4):365-77

### **DIETARY FIBRE - Inulin from Chicory 6**

#### **Oligofructose-enriched inulin: Increased Ca absorption**

##### **1. Scientific support for oligofructose-enriched inulin**

###### ***Book***

- Roberfroid M.; 2005; "Inulin-type fructans and the intestinal absorption of minerals"; Inulin-type fructans; CRC Series in Modern Nutrition; ISBN 0-8493-0059-2; 183-238.

###### ***Clinical Studies***

- Abrams S.; Griffin I.; Hawthorne K.; Liang L.; Gunn S.; Darlington G.; Ellis K.; 2005; "A combination of prebiotic short- and long-chain inulin-type fructans enhances calcium absorption and bone mineralisation in young adolescents"; Am J Clin Nutr; 82; 471-476.
- Abrams S.; Griffin.; Hicks P.; Hawthorne K.; 2006; "Kinetic evaluation of the effects of an inulin-type fructan on Ca absorption in young adults"; Unpublished report to Orafti.
- Griffin I.; Davila P.; Abrams S.; 2002; "Non-digestible oligosaccharides and calcium absorption in girls with adequate calcium intakes"; BJN; 87; S187-S191.
- Griffin I.; Hicks P.; Heaney R.; Abrams S.; 2003; "Enriched chicory inulin increases calcium absorption mainly in girls with lower calcium absorption"; Nutrition Research; 23; 901-909.
- Holloway L.; Moynihan S.; Abrams S.; Kent K.; Hsu A.; Friedlander A.; 2007; "Effects of oligofructose enriched inulin on calcium and magnesium absorption and bone turnover markers in postmenopausal women"; BJN; 97(2); 365-372.

#### **Animal Studies**

- Coudray C.; Tressol J.; Gueux E.; Rayssiguier Y. ; 2003; « Effects of inulin-type fructans of different chain length and type of branching on intestinal absorption and balance of calcium and magnesium in rats”; Eur. J. Nutr.; 42;91-98.
- Coudray C.; Feillet-Coudray C.; Tressol J.; Gueux E.; Thien S.; Jaffrelo L.; Mazur A.; Rayssiguier; 2005a; “Stimulatory effect of inulin on intestinal absorption of calcium and magnesium in rats is modulated by dietary calcium intakes: Short- and long-term balance studies” Eur J Nutr 44, 293-302.
- Coudray C.; Rambeau M.; Feillet-Coudray C.; Tressol J.; Demigne C.; Gueux E.; Mazur A.; Rayssiguier; 2005b; “Dietary inulin intake and age can significantly affect intestinal absorption of calcium and magnesium in rats: a stable isotope approach” Nutrition Journal 4:29.

## **2. Scientific support: Inulin & oligofructose**

#### **Expert Review & Opinion**

- Cashman K.; Dept. of Food and Nutritional Sciences, and Medicine, University College, Cork, Ireland; 2004; “Prebiotics and Calcium bioavailability”; Curr. Issues Intest. Microbiol.; 4; 21-32.

#### **Clinical Studies**

- Coudray C.; Bellanger J.; Castiglia-Delavaud C.; Rémesy C.; Vermorel M.; Rayssiguier Y.; 1997; “Effect of soluble or partly soluble dietary fibres supplementation on absorption and balance of calcium, magnesium, iron and zinc in healthy young men.” Eur. J. Clin. Nutr., 51(6); pp. 375-380.
- Kim Y.; Jang K.; Lee E.; Cho Y.; Kang A.; Ha W.; Choue R.; 2004; “The effect of chicory fructan fiber on calcium absorption and bone metabolism in Korean Postmenopausal women”; Nutritional Sciences; 7(3); 151-157.
- Van den Heuvel E.; Muys T.; van Dokkum W.; Schaafsma G.; 1999; “Oligofructose stimulates calcium absorption in adolescents.” Am. J. Clin. Nutr., 69; pp. 544-548.
- Van den Heuvel E.; Schaafsma G.; Muys T.; van Dokkum W.; 1998; “Nondigestible oligosaccharides do not interfere with calcium and nonheme-iron absorption in young, healthy men” Am J Clin Nutr 67, 445-451.

#### **Animal Studies**

- Delzenne N.; Aertssens J.; Verplaetse N.; Roccaro M.; Roberfroid M.; 1995; "Effect of fermentable fructo-oligosaccharides on energy and nutrients absorption in the rat." Life Science, 57(17); pp. 1579-1587.
- Levrat, M-A.; Rémy, C.; Demigné C.; 1991; "High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin." J. Nutr., 121; pp. 1730-1737.

## **DIETARY FIBRE – Inulin from Chicory 7**

### **Oligofructose-enriched inulin: Increased bone mineral density**

#### **1. Scientific support for oligofructose-enriched inulin**

##### ***Book***

- Roberfroid M.; 2005; "Inulin-type fructans and the intestinal absorption of minerals"; Inulin-type fructans; CRC Series in Modern Nutrition; ISBN 0-8493-0059-2; 183-238

##### ***Review***

- Cashman K.; 2006; "A prebiotic substance persistently enhances intestinal calcium absorption and increases bone mineralisation in young adolescents"; ILSI; Nutrition Reviews; 64; 4.
- Coxam V.; 2005; "Inulin-type fructans and bone health: state of the art and perspectives in the management of osteoporosis"; BDN; 93; S1; S111-S123.
- Franck A.; 2006; "Oligofructose-enriched inulin stimulates calcium absorption and bone mineralisation"; British Nutrition Foundation Nutrition Bulletin; 31; 341-345.
- Weaver C.; 2005; "Inulin, oligofructose and bone health: experimental approaches and mechanisms"; BDN; 93; S1; S99-S103.

##### ***Clinical Studies***

- Abrams S.; Griffin I.; Hawthorne K.; Liang L.; Gunn S.; Darlington G.; Ellis K.; 2005; "A combination of prebiotic short- and long-chain inulin-type fructans enhances calcium absorption and bone mineralisation in young adolescents"; Am J Clin Nut; 82; 471-476.
- Abrams S.; Griffin.; Hicks P.; Hawthorne K.; 2006; "Kinetic evaluation of the effects of an inulin-type fructan on Ca absorption in young adults"; Unpublished report to Orafti.
- Griffin I.; Davila P.; Abrams S.; 2002; "Non-digestible oligosaccharides and calcium absorption in girls with adequate calcium intakes"; BDN; 87; S187-S191.
- Griffin I.; Hicks P.; Heaney R.; Abrams S.; 2003; "Enriched chicory inulin increases calcium absorption mainly in girls with lower calcium absorption"; Nutrition Research; 23; 901-909.
- Holloway L.; Moynihan S.; Abrams S.; Kent K.; Hsu A.; Friedlander A.; 2007; "Effects of oligofructose enriched inulin on calcium and magnesium absorption and bone turnover markers in postmenopausal women"; BDN; 97(2); 365-372.

##### ***Animal Studies***

- Coudray C.; Tressol J.; Gueux E.; Rayssiguier Y.; 2003; « Effects of inulin-type fructans of different chain length and type of branching on intestinal absorption and balance of calcium and magnesium in rats"; Eur. J. Nutr.; 42;91-98.

- Coudray C.; Feillet-Coudray C.; Tressol J.; Gueux E.; Thien S.; Jaffrelo L.; Mazur A.; Rayssiguier; 2005a; "Stimulatory effect of inulin on intestinal absorption of calcium and magnesium in rats is modulated by dietary calcium intakes: Short- and long-term balance studies" Eur J Nutr 44, 293-302.
- Coudray C.; Rambeau M.; Feillet-Coudray C.; Tressol J.; Demigne C.; Gueux E.; Mazur A.; Rayssiguier; 2005b; "Dietary inulin intake and age can significantly affect intestinal absorption of calcium and magnesium in rats: a stable isotope approach" Nutrition Journal 4:29.
- Zafar T.; Weaver C.; Zhao., Martin B.; Wastney E.; 2003; "Nondigestible oligosaccharides increase calcium absorption and suppress bone resorption in ovariectomised rats"; J. Nutr.; 134; 399-402.
- 

## **2. Scientific support for inulin and oligofructose**

### ***Animal Studies***

- Delzenne N.; Aertssens J.; Verplaetse N.; Roccaro M.; Roberfroid M.; 1995; "Effect of fermentable fructo-oligosaccharides on energy and nutrients absorption in the rat." Life Science, 57(17); pp. 1579-1587.
- Levrat, M-A.; Rémy, C.; Demigné C.; 1991; "High propionic acid fermentations and mineral accumulation in the cecum of rats adapted to different levels of inulin." J. Nutr., 121; pp. 1730-1737.
- Lobo A.; Colli C.; Filisetti T.; 2006; "Fructooligosaccharides improve bone mass and biomechanical properties in rats"; Nutr Res 26, 413-420.
- Roberfroid M.; Cumps J.; Devogelaer J.; 2002; "Dietary Chicory Inulin Increases Whole-Body Bone Mineral Density in Growing Male Rats"; J. Nutr.; 132; 3599-3602.
- Scholz-Ahrens K.; Acil Y.; Schrezenmeir J.; 2002; "Effect of oligofructose or dietary calcium on repeated calcium and phosphorous balances, bone mineralization and trabecular structure in ovariectomised rats"; BZN; 88; 365-377.

## **3. Scientific support: BMD as a predictor for bone fracture risk & bone strength**

### ***Individual Studies***

- Cummings S.; Black D.; Nevitt M.; Browner W.; Cauly J.; Ensrud K.; Genant H.; Palermo L.; Scott J.; Vogt T.; 1993; "Bone density at various sites for prediction of hip fractures" The Lancet, 341, 72-75.
- Goulding A.; Cannan R.; Williams S.; Gold E.; Taylor R.; Lewis-Barned N.; 1998; "Bone mineral density in girls with forearm fractures"; J Bone & Min Res, 13, 143-148.
- Goulding A.; Jones I.; Taylor R.; Manning P.; Williams S.; 2000; "More broken bones: a 4-year double cohort study of young girls with and without distal forearm fractures" J Bone & Min Res, 15, 10, 2011.
- Marshall D., Johnell O., Wedel H., 1996; "Meta-analysis of how well measures of bone mineral density predict occurrence of osteoporotic fractures" BMJ 312, 1254-1259.
- Schott A.; Cormier C.; Hans D.; Favier F.; Hausherr E.; Dargent-Molina P.; Delmas P.; Ribot C.; Sebert J.; Breart G.; Meunier P.; 1998; "How hip and whole-body bone mineral density predict hip fracture in elderly women: the EPIDOS prospective study"; Osteoporosis Int 8, 247-254.

## **DIETARY FIBRE – Inulin from Chicory 8**

### **Oligofructose: Increased inner protection/resistance**

#### **Clinical Studies**

- Bunout D., Barrera G., Hirsch S.; Gattas V.; de la Maza M.; Haschke F.; Steenhout P.; Klassen P.; Hager C.; Avendano M.; Petermann M.; Munoz C.; 2004; "Effects of a Nutritional Supplement on the Immune Response and Cytokine Production in Free-Living Chilean Elderly"; *J. Parenteral & Enteral Nut.*; 28; 5; 348-354.
- Cummings J., Christie S., 2001; "A study of fructo oligosaccharides in the prevention of travellers' diarrhoea"; *aliment Pharmacol Ther*, 15, pp. 1139-1145.
- Jain P.; McNaught C.; Anderson A.; MacFie J.; Mitchell C.; 2004; "Influence of Synbiotic containing Lactobacillus acidophilus La5, Bifidobacterium Bb12, Streptococcus thermophilus, Lactobacillus bulgaricus and oligofructose on gut barrier function and sepsis in critically ill patients: a randomised controlled trial"; *Clin. Nut.*; 23; 467-475.
- Lewis S.; Burmeister S.; Brazier J.; 2005; „Effect of the Prebiotic Oligofructose on Relapse of Clostridium difficile-Associated diarrhoea: A Randomised, Controlled Study”; *Clin. Gastroent. And Hepat.*; 3; 442-448.
- Lindsay J.; Whelan K.; Stagg A.; Gobin P.; Al-Hassi H.; Rayment N.; Kamm M.; Knight S.; Forbes A.; 2006; "Clinical, microbiological, and immunological effects of fructo-oligosaccharides in patients with Crohn's disease"; *Gut*; 55; 348-355.
- Orrhage K.. Sjöstedt S.; Nord C.; 2000; "Effect of supplements with lactic acid bacteria and oligofructose on the intestinal microflora during administration of cefpodoxime proxetil"; *J. Antimicrobial Chemotherapy*; 46; 603-611.
- Saavedra J. M.; Tschernia A.; 2002; "Human studies with probiotics and prebiotics: clinical implications"; *BJN*; 87; Suppl. 2; S241-S246.
- Waligora-Dupriet A.; Campeotto F.; Nicolis I.; Bonet A.; Soulaines P.; Dupont C.; Butel M.; 2006; "Effects of oligofructose supplementation on gut microflora and well-being in young children attending a day care centre"; *Int J of Food Microbiology*; doi:10.1016/ijfoodmicro.2006.07.009.

#### **Animal Studies**

- Bomba A.; Nemcova R.; Gancarcikova S.; Herich R.; Guba P.. Mudronova D.; 2002; "Impovement of the probiotic effect of micro-organisms by their combination with maltodextrins, fructo-oligosaccharides and polyunsaturated fatty acids"; *BJN*; 88; S1; S95-S99.
- Buddington K.; DonahooJ.; Buddington, R.; 2002, "Dietary oligofructose and inulin protect mice from enteric and systemic pathogens and tumor inducers", *J Nutr*, vol. 132; pp. 472-477.
- Butel M.; Catala I.; Waligora-Dupriet A.; Taper H.; Tessedre A.; Durao J.; Szylit O.; 2001; "Protective effect of dietary oligofructose against cecitis by Clostridia in gnotobiotic quails"; *Microbial Ecology in Health & Disease*; 13; 166-172.
- Catala I., Butel M.-J., Bensaada M., Popot F., Tessedre A.C., Rimbault A., Szylit O.; 1999; "Oligofructose contributes to the protective role of bifidobacteria on experimental necrotising colitis in gnotoxenic quails.", *J. Med. Microbiology*, 48, 89-94.
- Kelly-Quagliana K.; Nelson P.; Buddington R.; 2003; "Dietary oligofructose and inulin modulate immune functions in mice"; *Nut. Research*; 23; 257-267.

- Manhart N.; Spittler A.; Bergmeister H.; Mittlböck M.; Roth E.; 2003; "Influence of fructooligosaccharides on Peyer's patch lymphocyte numbers in healthy and endotoxemic mice"; Nutrition; 19; 657-660; Elsevier.
- Oli M.; Petschow B.; Buddington R.; 1998; "Evaluation of fructooligosaccharide supplementation of oral electrolyte solutions for treatment of diarrhoea"; Digestive Disease & Science; 43, 1, 138-147.

## **DIETARY FIBRE – Fructoligosaccharides from Sucrose 1**

### **Authoritative/Scientific Bodies**

- AFSSA Report. 2005. Effects of probiotics and prebiotics on flora and immunity in adults. AFSSA, 17 February 2005.  
<http://www.afssa.fr/Object.asp?IdObj=28184&Pge=0&CCH=060314094213:26:4&cwSID=E8813D883E014BF1A75E3341A1807E1D&AID=0>
- CSHPF (Conseil supérieur d'hygiène publique de France), 2 octobre 1997, Avis relatif aux effets des fructo-oligosaccharides sur le développement des bifidobactéries

### **Reviews**

- Gibson, G. R., H. Probert, J. van Loo, R. A. Rastall, and M. B. Roberfroid. 2004. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. Nutr. Res. Rev. 17:(2) 259-275.
- Gibson, G., and M. Roberfroid. 1995. Dietary modulation of the human colonic microbiota: Introducing the concept of prebiotics. J. Nutr. 125:(6) 1401-1412.
- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL.

### **Individual Studies**

- Bouhnik, Y. et al. 1996. Effects of fructo-oligosaccharides ingestion on fecal bifidobacteria and selected metabolic indexes of colon carcinogenesis in healthy humans. Nutr. Cancer 26:(1) 21-29.
- Bouhnik, Y. et al. 1999. Short-chain fructo-oligosaccharides administration dose-dependently increases faecal bifidobacteria in healthy humans. J. Nutr. 129:(1) 113-116.
- Bouhnik, Y., L. Raskine, G. Simoneau, D. Paineau, and F. Bornet. 2006. The capacity of short-chain fructo-oligosaccharides to stimulate fecal bifidobacteria: A dose-response relationship study in healthy humans. Nutrition Journal. 5:(8).
- Bouhnik, Y. et al. 2004. The capacity of nondigestible carbohydrates to stimulate fecal bifidobacteria in healthy humans: A double-blind, randomized, placebo-controlled, parallel-group, dose-response relation study. Am. J. Clin. Nutr. 80:1658-1664.
- Buddington, R. K., C. H. Williams, S. C. Chen, and S. A. Witherly. 1996. Dietary supplement of neosugar alters the fecal flora and decreases activities of some reductive enzymes in human subjects. Am. J. Clin. Nutr. 63:(5) 709-716.
- Clavel, T. et al. 2005. Isoflavones and functional foods alter the dominant intestinal microbiota in postmenopausal women. J. Nutr. 135:(12) 2786-2792.
- Gibson, G. R., H. Probert, J. van Loo, R. A. Rastall, and M. B. Roberfroid. 2004. Dietary modulation of the human colonic microbiota: Updating the concept of prebiotics. Nutr. Res. Rev. 17:(2) 259-275.
- Gibson, G., and M. Roberfroid. 1995. Dietary modulation of the human colonic microbiota: Introducing the concept of prebiotics. J. Nutr. 125:(6) 1401-1412.

- Mitsuoka, T., H. Hidaka, and T. Eida. 1987. Effect of fructo-oligosaccharides on intestinal microflora. *Nahrung* 31:(5-6) 427-436.
- Mitsuoka, T., Y. Hata, and Y. Takahashi. 1986. Effects of long term intake of neosugar on intestinal flora and serum lipids. In: 3rd Neosugar Conference, Tokyo.
- Roberfroid, M. B. 2005. Inulin-type fructans, functional food ingredients. CRC Press, Boca Raton, FL.
- Rochat, F., N. Medjoubi, G. Rumo, and C. Heer. 1994. Effects of a fructooligosaccharides on the human intestinal microflora. In: 6ème colloque du club des bactéries lactiques
- Tokunaga, T., Y. Nakada, Y. Tashiro, M. Hirayama, and H. Hidaka. 1993. Effects of fructooligosaccharides (fos) intake on the intestinal microflora and defecation in healthy volunteers. *Bifidus*(6) 143-150.

#### ***Animal / In-vitro Studies***

- Bunce, T. J., M. D. Howard, et al. (1995). "Protective effect of fructooligosaccharide (FOS) in prevention of mortality and morbidity from infectious *E. coli* K88 challenge." *Journal of Animal Science* 73(suppl 1): 69 (Abstract).
- Cherbut, C., C. Michel, et al. (2003). "The Prebiotic Characteristics of Fructooligosaccharides Are Necessary for Reduction of TNBS-Induced Colitis in Rats." *Journal of Nutrition* 133(1): 21-27.
- Howard, M. D., D. T. Gordon, et al. (1995). "Dietary fructooligosaccharides, xylooligosaccharides and gum arabic have variable effects on cecal and colonic microbiota and epithelial cell proliferation in mice and rats." *Journal of Nutrition* 125: 2604-2609.
- Hsu, C.-K., J.-W. Liao, et al. (2004). "Xylooligosaccharides and Fructooligosaccharides Affect the Intestinal Microbiota and Precancerous Colonic Lesion Development in Rats." *Journal of Nutrition* 134(6): 1523-1528.
- Le Blay, G., C. Michel, et al. (1999). "Prolonged intake of fructo-oligosaccharides induces a short-term elevation of lactic acid-producing bacteria and a persistent increase in caecal butyrate in rats." *Journal of Nutrition* 129: 2231-2235.
- Perrin, S., M. Warchol, et al. (2001). "Fermentations of fructo-oligosaccharides and their components by *Bifidobacterium infantis* ATCC on batch culture in semi-synthetic medium." *Journal of Applied Microbiology* 90: 859-865.
- Respondek, F., A. G. Goachet, et al. (2007). "Effects of short-chain fructo-oligosaccharides on the microbial and biochemical profiles of different segments of the gastrointestinal tract of horses." *Pferdeheilkunde* 22(2/2007): 146-150.
- Rycroft, C. E., M. R. Jones, et al. (2001). "A comparative in vitro evaluation of the fermentation properties of prebiotic oligosaccharides." *Journal of Applied Microbiology* 91: 878-887.
- Sparkes, A. H., K. Papasouliotis, et al. (1998). "Effect of dietary supplementation with fructooligosaccharides on fecal flora of healthy cats." *American Journal of Veterinary Research* 59(4): 436-440.
- Swanson, K., C. Grieshop, et al. (2002). "Supplemental Fructooligosaccharides and Mannanoligosaccharides influence immune function, ileal and tract nutrient digestibilities, microbial populations and concentrations of protein catabolites in the large bowel of dogs." *Journal of Nutrition* 132(suppl): 980S-989S.
- Swanson, K., C. Grieshop, et al. (2002). "Fructooligosaccharides and *Lactobacillus acidophilus* modify gut microbial populations, total tract digestibilities and fecal protein catabolite in healthy adult dogs." *Journal of Nutrition* 132(suppl): 3721S-3731S.

- Xu, Z. R., C. H. Hu, et al. (2003). "Effects of dietary fructooligosaccharides on digestive enzyme activities, intestinal microflora and morphology of male broilers." *Poultry Science* 82(6): 1030-1036.

## **DIETARY FIBRE – Fructoligosaccharides from Sucrose 2**

### **Authoritative/Scientific Bodies**

- AFSSA Report. 2005. Effects of probiotics and prebiotics on flora and immunity in adults. AFSSA, 17 February 2005.  
<http://www.afssa.fr/Object.asp?IdObj=28184&Pge=0&CCH=060314094213:26:4&cwSID=E8813D883E014BF1A75E3341A1807E1D&AID=0>

### **Reviews**

- Bornet, F., and F. Brouns. 2002. Immune-stimulating and gut health-promoting properties of short-chain fructo-oligosaccharides. *Nutr. Rev.* 60:326-334.
- Bornet, F., K. Meflah, and J. Menanteau. 2002. Enhancement of gut immune functions by short-chain fructo-oligosaccharides and reduction of colon cancer risk. *Bioscience Microflora* 21:(1) 55-62.
- Frank, A. 2002. Prébiotiques. In: *Aliments fonctionnels*. M. B. Roberfroid (ed.). p 105-123. Lavoisier, Paris.
- Gibson, G. R., H. Probert, et al. (2004). "Dietary modulation of the human colonic microbiota: updating the concept of prebiotics." *Nutrition Research Reviews* 17(2): 259-275.
- Macfarlane, S., G. T. Macfarlane, et al. (2006). "Prebiotics in the gastrointestinal tract." *Aliment. Pharmacol. Ther.* 24(5): 701-714.
- Roberfroid, M. 2002. Functional foods: Concepts and application to inulin and oligofructose. *B. J. Nutr.* 87:(suppl.2) S139-S143.

### **Individual Studies**

- Bouhnik, Y. et al. 1996. Effects of fructo-oligosaccharides ingestion on fecal bifidobacteria and selected metabolic indexes of colon carcinogenesis in healthy humans. *Nutr. Cancer* 26:(1) 21-29.
- Boutron-Ruault, M. C. et al. 2005. Effects of a 3-mo consumption of short-chain fructo-oligosaccharides on parameters of colorectal carcinogenesis in patients with or without small large colorectal adenomas. *Nutr. Canc.* 53:(2) 160-168.
- Bornet, F., and F. Brouns. 2002. Immune-stimulating and gut health-promoting properties of short-chain fructo-oligosaccharides. *Nutr. Rev.* 60:326-334.
- Bornet, F., K. Meflah, and J. Menanteau. 2002. Enhancement of gut immune functions by short-chain fructo-oligosaccharides and reduction of colon cancer risk. *Bioscience Microflora* 21:(1) 55-62.
- Frank, A. 2002. Prébiotiques. In: *Aliments fonctionnels*. M. B. Roberfroid (ed.). p 105-123. Lavoisier, Paris.
- Roberfroid, M. 2002. Functional foods: Concepts and application to inulin and oligofructose. *B. J. Nutr.* 87:(suppl.2) S139-S143.

### **Human Studies**

- Bouhnik, Y. et al. 1996. Effects of fructo-oligosaccharides ingestion on fecal bifidobacteria and selected metabolic indexes of colon carcinogenesis in healthy humans. *Nutr. Cancer* 26:(1) 21-29.

- Boutron-Ruault, M. C. et al. 2005. Effects of a 3-mo consumption of short-chain fructooligosaccharides on parameters of colorectal carcinogenesis in patients with or without small large colorectal adenomas. *Nutr. Canc.* 53:(2) 160-168.
- Colecchia, A., A. Vestito, et al. (2006). "Effect of a symbiotic preparation on the clinical manifestations of irritable bowel syndrome, constipation-variant." *Minerva Gastroenterol Dietol* 52: 349-358.
- Hidaka, H., Y. Tashiro, et al. (1991). "Proliferation of bifidobacteria by oligosaccharides and their useful effects on human health." *Bifidobacteria Microflora* 10(1): 65-79.
- Paineau, D., F. Payen, et al. (Under publication). Regular consumption of short-chain fructooligosaccharides improves digestive comfort with minor functional bowel disorders.
- Tahiri, M., J. C. Tressol, et al. (2001). "Five-week intake of short-chain fructo-oligosaccharides increases intestinal absorption and status of magnesium in postmenopausal women." *Journal of Bone Mineral Research* 11(16): 2152-60.
- Tokunaga, T., Y. Nakada, et al. (1993). "Effects of fructo-oligosaccharides (FOS) intake on the intestinal microflora and defecation in healthy volunteers." *Bifidus*(6): 143-150.

#### **Animal / In-vitro Studies**

- Hashizume, K., T. Tsukahara, et al. (2003). "Megasphaera elsdenii JCM 1772 normalizes hyperlactate production in the large intestine of fructooligosaccharide-fed rats by stimulating butyrate production." *Journal of Nutrition* 133: 3187-3190.
- Le Blay, G., C. Michel, et al. (1999). "Prolonged intake of fructo-oligosaccharides induces a short-term elevation of lactic acid-producing bacteria and a persistent increase in caecal butyrate in rats." *Journal of Nutrition* 129: 2231-2235.
- Luo, J., S. W. Rizkalla, et al. (1996). "Chronic consumption of short-chain fructooligosaccharides by healthy subjects decreased basal hepatic glucose production but had no effect on insulin-stimulated glucose metabolism." *American Journal of Clinical Nutrition* 63(6): 939-945.
- Perrin, P., F. Pierre, et al. (2001). "Only fibers promoting a stable butyrate producing colonic ecosystem decrease the rate of aberrant crypt foci in rats." *Gut* 48: 53-61.
- Perrin, S., M. Warchol, et al. (2001). "Fermentations of fructo-oligosaccharides and their components by *Bifidobacterium infantis* ATCC on batch culture in semi-synthetic medium." *Journal of Applied Microbiology* 90: 859-865.
- Pierre, F., P. Perrin, et al. (1997). "Short-chain fructooligosaccharides reduce the occurrence of colon tumors and develop gut-associated lymphoid tissue in min mice." *Cancer Research* 57: 225-228.
- Sunvold, G., G. Fahey, et al. (1995). "Dietary fiber for dogs: IV In vitro fermentation of selected fiber sources by dog fecal inoculum and in vivo digestion and metabolism of fiber-supplemented diets." *Journal of Animal Science* 73: 1099-1109.
- Swanson, K., C. Grieshop, et al. (2002). "Fructooligosaccharides and *Lactobacillus acidophilus* modify gut microbial populations, total tract digestibilities and fecal protein catabolite in healthy adult dogs." *Journal of Nutrition* 132(suppl): 3721S-3731S.
- Tsukahara, T., Y. Iwasaki, et al. (2003). "Stimulation of butyrate production in the large intestine of weaning piglets by dietary fructooligosaccharides and its influence on the histological variables of the large intestinal mucosa." *Journal of Nutritional Science and Vitaminology* 49: 414-421.

## **DIETARY FIBRE – Fructooligosaccharides from Sucrose 3**

### **Reviews**

- Coxam, V. 2005. Inulin-type fructans and bone health: State of the art and perspectives in the management of osteoporosis. *British journal of Nutrition* 93: S111-S123.
- Scholz-Ahrens, K. E., G. Schaafsma, et al. (2001). "Effects of prebiotics on mineral metabolism." *American Journal of Clinical Nutrition* 73(suppl2): 459S-464S

### **Individual Studies**

- Ducros, V., J. Arnaud, et al. (2005). "Influence of short-chain fructo-oligosaccharides on absorption of Cu, Zn and Se in healthy postmenopausal women." *Journal of the American College of Nutrition* 24(1): 30-37.
- Tahiri, M. et al. 2003. Effect of short-chain fructooligosaccharides on intestinal calcium absorption and calcium status in postmenopausal women: A stable-isotope study. *American Journal of Clinical Nutrition* 77: 449-457.
- Tahiri, M. et al. 2001. Five-week intake of short-chain fructo-oligosaccharides increases intestinal absorption and status of magnesium in postmenopausal women. *Journal of Bone Mineral Research* 11: 2152-2160.
- van den Heuvel, E. G.H.M. et al. Effect of short chain fructo-oligosaccharides on calcium and magnesium absorption in adolescent girls with a low calcium intake. (Submitted)

### **Supporting Data**

- Mathey, J. et al. 2004. Fructooligosaccharides maximize bone-sparing effects of soy isoflavone-enriched diet in the ovariectomized rat. *Calcified Tissue International* 75: 169-179.
- Mathey, J. et al., 2007. Modulation of soy isoflafones bioavailability and subsequent effects on bone health in ovariectomized rats: the case for equol. *Osteoporos Int.* 2007. Feb 28
- Ohta, A., M. Ohtsuki, M. Baba, M. Hirayama, and A. Adachi. 1998. Comparison of the nutritionnal effects of fructooligosaccharides of different sugar chain length in rats. *Nutrition Research* 18: 109-120.
- Ohta, A. et al. 1998. Dietary fructo-oligosaccharides increase calcium absorption and levels of mucosal calbindin-d9k in the large intestine of gastrectomized rats. *Scandinavian Journal of Gastroenterology* 33: 1062-1068.
- Ohta, A. et al. 1995. Calcium and magnesium absorption from the colon and rectum are increased in rats fed fructo-oligosaccharides. *Journal of Nutrition* 125: 2417-2424.

## **DIETARY FIBRE – Fructooligosaccharides from Sucrose 4**

### **Review**

- Delzenne, N. M. and N. Kok (2001). "Effects of fructans-type prebiotics on lipid metabolism." *American Journal of Clinical Nutrition* 73(2): 456S-458.

### **Individual Studies**

- Bouchnik, Y. et al. Four-week short chain fructo-oligosaccharides ingestion leads to an increase in faecal bifidobacteria and cholesterol excretion elderly volunteers. Unpublished data.
- Giacco, R., G. Clemente, et al. (2004). "Effects of short-chain fructo-oligosaccharides on glucose and lipid metabolism in mild hypercholesterolaemic individuals." *Clinical Nutrition* 23: 331-340.

- Hidaka, H., Y. Tashiro, and T. Eida. 1991. Proliferation of bifidobacteria by oligosaccharides and their useful effects on human health. *Bifidobacteria Microflora* 10: 65-79.
- Luo, J., M. Van Yperselle, et al. (2000). "Chronic Consumption of Short-Chain Fructooligosaccharides Does Not affect Basal Hepatic Glucose Production or Insulin Resistance in Type 2 Diabetics." *Journal of Nutrition* 130: 1572-1577.
- Luo, J., S. W. Rizkalla, et al. (1996). "Chronic consumption of short-chain fructooligosaccharides by healthy subjects decreased basal hepatic glucose production but had no effect on insulin-stimulated glucose metabolism." *American Journal of Clinical Nutrition* 63(6): 939-945.
- Yamashita, N., K. Kawai, and M. Itakura. 1984. Effects of fructo-oligosaccharides on blood glucose and serum lipids in diabetic subjects. *Nutrition Research* 4: 961-966.

### **Animal Studies**

- Agheli, N. et al. 1998. Plasma lipids and fatty acid synthase activity are regulated by short-chain fructo-oligosaccharides in sucrose-fed insulin-resistant rats. *Journal of Nutrition* 128: 1283-1288.
- Jeusette, I. (2004). PhD thesis: Contribution to the study of obesity and lipid metabolism in the dog: relations between nutritional treatments, body weight loss and blood parameters. Faculty of Veterinary Medicine. Liege, University of Liege: 297p.
- Jeusette, I. et al. 2004. Hypercholesterolaemia in a family of rough collie dogs. *Journal of Small Animal Practices* 45: 319-324
- Zdunczyk, Z., B. krol, et al. (2005). "Biological properties of fructooligosaccharides with different contents of kestose and nystose in rats." *Archives of Animal Nutrition* 59(4): 247-256.

### **DIETARY FIBRE – Galacto-Oligosaccharides and Prebiotic Action**

#### **Reviews**

- Boehm G et al. Oligosaccharides. In: Functional dairy products. Sandholm TM & Saarela M (eds) Woodhead Publishing Ltd. Cambridge England. 2003, 203-43.
- Dombo M, Yamamoto H, Nakajima H. Production, health benefits and applications of galacto-oligosaccharides. In: New technologies for healthy foods & nutraceuticals. Yalpani M (ed.) ATL Press. 1997, 143-56
- Matsumoto K et al. Galactooligosaccharides. In: Nakakuki T, editor. Oligosaccharides, productions, properties and applciations. Japanese Technology Reviews. Geneva: Gordon & Breach Science. 1994
- Sako, T., et al. Recent progress on research and applications of non-digestible galacto-oligosaccharides. *International Dairy Journal*.1999, 9: 69-80.
- Schoterman, H.C. Chapter 42 Galacto-oligosaccharides: Properties and health aspects. In: Advanced Dietary Fibre Technology. Eds: McCleary, B.V. & Prosky, L. Blackwell Science Ltd. 2001, 494-502.
- Tanaka R et al. Recent progress on prebiotics in Japan, including galactooligosacharides. *Bull IDF*, 1998, 336:21-27.

#### **Individual Human Studies**

- Ben XM, Zhou XY, Zhao WH, Yu WL, Pan W, Zhang WL, Wu SM, Van Beusekom CM, Schaafsma A. Supplementation of milk formula with galacto-oligosaccharides improves intestinal micro-flora and fermentation in term infants. *Chin Med J (Engl)*. 2004 Jun;117(6):927-31.

- Bouhnik Y, Raskine L, Simoneau G, Vicaut E, Neut C, Flourié B, Brouns F, Bornet FR. The capacity of nondigestible carbohydrates to stimulate fecal bifidobacteria in healthy humans: a double-blind, randomized, placebo-controlled, parallel-group, dose-response relation study. *Am J Clin Nutr.* 2004 Dec;80(6):1658-64.
- Bouhnik Y, Flourié B, D'Agay-Abensour L, Pochart P, Gramet G, Durand M, Rambaud JC. Administration of transgalacto-oligosaccharides increases fecal bifidobacteria and modifies colonic fermentation metabolism in healthy humans. *J Nutr.* 1997 Mar;127(3):444-8.
- Ito, M., et al. Effects of administration of galactooligosaccharides on the human faecal microflora, stool weight and abdominal sensation. *Microb. Ecol. Health Dis.* 19990, 3:285-292.
- Ito M, Kimura M, Deguchi Y, Miyamori-Watabe A, Yajima T, Kan T. Effects of transgalactosylated disaccharides on the human intestinal microflora and their metabolism. *J Nutr Sci Vitaminol (Tokyo).* 1993 Jun;39(3):279-88.
- Ito M, Deguchi Y, Matsumoto K, Kimura M, Onodera N, Yajima T. Influence of galactooligosaccharides on the human fecal microflora. *J Nutr Sci Vitaminol (Tokyo).* 1993 Dec;39(6):635-40.
- Napoli JE, Brand-Miller JC, Conway P. Bifidogenic effects of feeding infant formula containing galacto-oligosaccharides in healthy formula-fed infants. *Asia Pac J Clin Nutr.* 2003 Nov;12(Suppl):S60.
- Tanaka, R., et al. Effects of administration of TOS and bifidobacterium breve 4006 on the human fecal flora. *Bifidobacteria Microflora.* 1983, 2:17-24.

## **DIETARY FIBRE – Xylooligosaccharides and Prebiotic Action**

### ***Authoritative/Scientific Body***

- AFSSA Report - Effects of prebiotics and prebiotics on flora and immunity in adults, Report, February 2005:25

### ***Reviews***

- Drakoularakou A., McCartney A.L., Rastall R.A. and Gibson G.R. Established and emerging prebiotics and their effects on the gut microflora. *Agro Food Ind Hi Tec* 15, 18-20 (2004)
- Tuohy KM, Rouzaud GC, Bruck WM, Gibson GR. Modulation of the human gut microflora towards improved health using prebiotics--assessment of efficacy. *Curr Pharm Des.* 2005;11(1):75-90.

### ***Clinical Studies***

- Iino T, Nishijima Y, Sawada S, Sasaki H, Harada H, Suwa Y, Kiso Y. Improvement of Constipation by a Small Amount of xylooligosaccharides Ingestion in Adult Women. *Jounal of Japanese Association for Dietary Fiber Research,* 1997 Vol.1 No.1 19-24
- Kobayashi T, Okasaki M, Fujikawa S, Koka K. Effects of xylooligosaccharides on feces of men. *J. Jap. Soc. Food Sci. Nutr.* (1991) 43(6):395-401
- Lu ZX, Walker KZ, Muir JG and O'Dea K. Arabinoxylan fibre improves metabolic control in people with Type II diabetes.
- Mikio Kajihara. Shinzo Kato, Masahiro Konishi, Yoshinori Yamagishi, Yoshinori Horie, and Hiromasa Ishii. Xylooligosaccharide decreases blood ammonia levels in patients with liver cirrhosis. *The American journal of Gastroenterology - September 2000, Vol 95, n°9*
- Okazaki M, Fujikawa S, Matsutomo N. Effects of xylooligosaccharides on growth of Bifidobacteria. *Bifidobacteria Microflora* (1990) 9, 77-86

- Tateyama I, Hashii K, Johno I, Iino T, Hirai K, Suwa Y, Kiso Y. Effect of xylooligosaccharide intake on severe constipation in pregnant women. *J Nutr Sci Vitaminol (Tokyo)*. 2005 Dec;51(6):445-8.

### **Animal Studies**

- Campbell JM, Fahey GC Jr, Wolf BW. Selected indigestible oligosaccharides affect large bowel mass, cecal and fecal short-chain fatty acids, pH and microflora in rats. *J Nutr*. 1997 Jan;127(1):130-6.
- Howard MD, Gordon DT, Garleb KA, Kerley MS. Dietary fructooligosaccharide, xylooligosaccharide and gum arabic have variable effects on cecal and colonic microbiota and epithelial cell proliferation in mice and rats. *J Nutr*. 1995 Oct;125(10):2604-9.
- Hsu CK, Liao JW, Chung YC, Hsieh CP, Chan YC. Xylooligosaccharides and fructooligosaccharides affect the intestinal microbiota and precancerous colonic lesion development in rats. *J Nutr*. 2004 Jun;134(6):1523-8.
- Santos, A; M. San Mauron, D Marquina Diaz. Prebiotics and their long term influence on the microbial populations of the mouse bowel. *Food Microbiology* 23 ( 2006) 498-503

### **In Vitro Studies**

- Bo-Kyoung Rhew; Lee Ji-Wan ; Lee Chang-Seung; Hyun Seung-II; Park Youn-Je; Ahn Jun-Bae; Yang Chang-Kun; Yoon Sewang. Effects of xylooligosaccharides on the growth of intestinal microflora. *Korean journal of applied microbiology and biotechnology*, 2002, vol. 30, no4, pp. 380-387 (in Korean)
- Katrien M. J. Van Laere, Ralf Hartemink, Margaret Bosveld, Henk A. Schols, and Alphons G. J. Voragen. Fermentation of Plant Cell Wall Derived Polysaccharides and Their Corresponding Oligosaccharides by Intestinal Bacteria. *J. Agric. Food Chem.*, 48 (5), 1644 -1652, 2000.
- Palframan RJ, Gibson GR, Rastall RA. Carbohydrate preferences of *Bifidobacterium* species isolated from the human gut. *Curr Issues Intest Microbiol*. 2003 Sep;4(2):71-5.
- Rycroft CE, Jones MR, Gibson GR, Rastall RA. A comparative in vitro evaluation of the fermentation properties of prebiotic oligosaccharides. *J Appl Microbiol*. 2001 Nov;91(5):878-87.
- Smiricky-Tjardes MR, Flickinger EA, Grieshop CM, Bauer LL, Murphy MR, Fahey GC Jr. In vitro fermentation characteristics of selected oligosaccharides by swine fecal microflora. *J Anim Sci*. 2003 Oct;81(10):2505-14.

### **DIETARY FIBRE – Resistant Starch 1**

#### **Individual Studies**

- Bauer-Marinovic M, Florian S, Muller-Schmehl K, Glatt H, Jacobasch G. Dietary resistant starch type 3 prevents tumor induction by 1,2-dimethylhydrazine and alters proliferation, apoptosis and dedifferentiation in rat colon. *Carcinogenesis* 2006;27:1849-59.
- Birkett A, Muir J, Phillips J, Jones G, O'Dea K. Resistant starch lowers fecal concentrations of ammonia and phenols in humans. *Am J Clin Nutr* 1996;63:766-72.
- Cassand P, Maziere S, Champ M, Meflah K, Bornet F, Narbonne JF. Effects of resistant starch- and vitamin A-supplemented diets on the promotion of precursor lesions of colon cancer in rats. *Nutr Cancer* 1997;27:53-9.
- Champ MM. Physiological aspects of resistant starch and in vivo measurements. *J AOAC Int* 2004;87:749-55.

- Cummings JH, Beatty ER, Kingman SM, Bingham SA, Englyst HN. Digestion and physiological properties of resistant starch in the human large bowel. *Br J Nutr* 1996;75:733-47.
- Dongowski G, Jacobasch G, Schmiedl D. Structural stability and prebiotic properties of resistant starch type 3 increase bile acid turnover and lower secondary bile acid formation. *J Agric Food Chem* 2005;53:9257-67.
- Ferguson LR, Zhu S, Kestell P. Contrasting effects of non-starch polysaccharide and resistant starch-based diets on the disposition and excretion of the food carcinogen, 2-amino-3-methylimidazo[4,5-f]quinoline (IQ), in a rat model. *Food Chem Toxicol* 2003;41:785-92.
- Grubben MJ, van den Braak CC, Essenberg M et al. Effect of resistant starch on potential biomarkers for colonic cancer risk in patients with colonic adenomas: a controlled trial. *Dig Dis Sci* 2001;46:750-6.
- Heijnen ML, Beynen AC. Consumption of retrograded (RS3) but not uncooked (RS2) resistant starch shifts nitrogen excretion from urine to feces in cannulated piglets. *J Nutr* 1997;127:1828-32.
- Heijnen ML, van Amelsvoort JM, Deurenberg P, Beynen AC. Limited effect of consumption of uncooked (RS2) or retrograded (RS3) resistant starch on putative risk factors for colon cancer in healthy men. *Am J Clin Nutr* 1998;67:322-31.
- Jacobasch G, Dongowski G, Schmiedl D, Muller-Schmehl K. Hydrothermal treatment of Novelose 330 results in high yield of resistant starch type 3 with beneficial prebiotic properties and decreased secondary bile acid formation in rats. *Br J Nutr* 2006;95:1063-74.
- Jacobasch G, Schmiedl D, Kruschewski M, Schmehl K. Dietary resistant starch and chronic inflammatory bowel diseases. *Int J Colorectal Dis* 1999;14:201-11.
- Jenkins DJ, Vuksan V, Kendall CW et al. Physiological effects of resistant starches on fecal bulk, short chain fatty acids, blood lipids and glycemic index. *J Am Coll Nutr* 1998;17:609-16.
- Le Leu RK, Brown IL, Hu Y et al. A synbiotic combination of resistant starch and *Bifidobacterium lactis* facilitates apoptotic deletion of carcinogen-damaged cells in rat colon. *J Nutr* 2005;135:996-1001.
- Maziere S, Meflah K, Tavan E, Champ M, Narbonne JF, Cassand P. Effect of resistant starch and/or fat-soluble vitamins A and E on the initiation stage of aberrant crypts in rat colon. *Nutr Cancer* 1998;31:168-77.
- Morita T, Hayashi J, Motoi H et al. In Vitro and In Vivo Digestibility of recrystallized Amylose and Its Application for Low Glycemic Foods. *J Food Sci* 2005;70:S179-S185.
- Muir JG, Yeow EG, Keogh J et al. Combining wheat bran with resistant starch has more beneficial effects on fecal indexes than does wheat bran alone. *Am J Clin Nutr* 2004;79:1020-8.
- Noakes M, Clifton PM, Nestel PJ, Le LR, McIntosh G. Effect of high-amylose starch and oat bran on metabolic variables and bowel function in subjects with hypertriglyceridemia. *Am J Clin Nutr* 1996;64:944-51.
- Nugent A 2005 Health Properties of Resistant Starch. British Nutrition Foundation Nutrition Bulletin, 30: 27-54
- Pierre F, Perrin P, Champ M, Bornet F, Meflah K, Menanteau J. Short-chain fructooligosaccharides reduce the occurrence of colon tumors and develop gut-associated lymphoid tissue in Min mice. *Cancer Res* 1997;57:225-8.
- Perrin P, Pierre F, Patry Y et al. Only fibres promoting a stable butyrate producing colonic ecosystem decrease the rate of aberrant crypt foci in rats. *Gut* 2001;48:53-61.
- Phillips J, Muir JG, Birkett A et al. Effect of resistant starch on fecal bulk and fermentation-dependent events in humans. *Am J Clin Nutr* 1995;62:121-30.

- Raben A, Tagliabue A, Christensen NJ, Madsen J, Holst JJ, Astrup A. Resistant starch: the effect on postprandial glycemia, hormonal response, and satiety. *Am J Clin Nutr* 1994;60:544-51.
- Raghupathy P, Ramakrishna BS, Oommen SP et al. Amylase-resistant starch as adjunct to oral rehydration therapy in children with diarrhea. *J Pediatr Gastroenterol Nutr* 2006;42:362-8.
- Sakamoto J, Nakaji S, Sugawara K, Iwane S, Munakata A. Comparison of resistant starch with cellulose diet on 1,2-dimethylhydrazine-induced colonic carcinogenesis in rats. *Gastroenterology* 1996;110:116-20.
- Silvi S, Rumney CJ, Cresci A, Rowland IR. Resistant starch modifies gut microflora and microbial metabolism in human flora-associated rats inoculated with faeces from Italian and UK donors. *J Appl Microbiol* 1999;86:521-30.
- Thorup I, Meyer O, Kristiansen E. Effect of potato starch, cornstarch and sucrose on aberrant crypt foci in rats exposed to azoxymethane. *Anticancer Res* 1995;15:2101-5.
- Toden S, Bird AR, Topping DL, Conlon MA. Resistant starch attenuates colonic DNA damage induced by higher dietary protein in rats. *Nutr Cancer* 2005;51:45-51.
- Van M, I, Tangerman A, Nagengast FM. Effect of resistant starch on colonic fermentation, bile acid metabolism, and mucosal proliferation. *Dig Dis Sci* 1994;39:834-42.
- Wacker M, Wanek P, Eder E, Hylla S, Gostner A, Scheppach W. Effect of enzyme-resistant starch on formation of 1,N(2)-propanodeoxyguanosine adducts of trans-4-hydroxy-2-nonenal and cell proliferation in the colonic mucosa of healthy volunteers. *Cancer Epidemiol Biomarkers Prev* 2002;11:915-20.
- Weststrate JA, van Amelsvoort JM. Effects of the amylose content of breakfast and lunch on postprandial variables in male volunteers. *Am J Clin Nutr* 1993;58:180-6.
- Williamson SL, Kartheuser A, Coaker J et al. Intestinal tumorigenesis in the Apc1638N mouse treated with aspirin and resistant starch for up to 5 months. *Carcinogenesis* 1999;20:805-10.
- Young GP, Le Leu RK. Resistant starch and colorectal neoplasia. *J AOAC Int* 2004;87:775-86.
- Young GP, McIntyre A, Albert V, Folino M, Muir JG, Gibson PR. Wheat bran suppresses potato starch-potentiated colorectal tumorigenesis at the aberrant crypt stage in a rat model. *Gastroenterology* 1996;110:508-14.

## **DIETARY FIBRE – Sugar Beet Fibre 1**

### ***Human Studies***

- Hagander, B; Holm, J; Asp, N G; Efendic, S; Lundquist, I; Nilsson-Ehle, P; Scherstén, B (1988): Metabolic response to beet fibre test meals. *Journal of Human Nutrition and Dietetics*, 1, 239-246.
- Hagander, B; Holm, J; Asp, N G; Efendic, S; Lundquist, I; Nilsson-Ehle, P; Scherstén, B (1988): Dietary fibre decreases fasting blood glucose levels and plasma LDL concentration in non-insulin-dependent diabetes mellitus patients. *American Journal of Clinical Nutrition*, 47, 852-858.
- Hagander, B; Asp, N G; Efendic, S; Nilsson-Ehle, P; Lundquist, I; Scherstén, B (1986): Reduced glycemic response to beet fibre meal in non-insulin-dependent diabetics and its relation to plasma levels of pancreatic and gastrointestinal hormones. *Diabetes Research*, 3, 91-96.

## **DIETARY FIBRE – Sugar Beet Fibre 2**

### ***Human Studies***

- Cossack, Z T; Musaiger, A O (1991): Effect on lipid metabolism of beet fibre in desert nomads with low habitual fibre intake. European Journal of Clinical Nutrition, 45, 105-110.
- Hagander, B; Asp, N G; Ekman, R; Nilsson-Ehle, P; Scherstén, B (1989): Dietary fibre enrichment, blood pressure, lipoprotein profile and gut hormones in NIDDM patients. European Journal of Clinical Nutrition, 43, 35-44.
- Israelsson, B; Järnblad, G; Persson, K (1993): Serum Cholesterol Reduced with FIBREX®, a sugar-beet fibre preparation. Scandinavian Journal of Nutrition/Näringsforskning, 37, 146-149.
- Langkilde, A-M; Andersson, H; Bosaeus, I (1993): Sugar-beet fibre increases cholesterol and reduces bile acid excretion from the small bowel. British Journal of Nutrition, 70, 757-766.

### **Animal Studies**

- Klopfenstein, C (1990): Nutritional properties of coarse and fine sugar-beet fibre and hard red wheat bran. I. Effects on rat serum and liver cholesterol and triglycerides and on fecal characteristics. Cereal Chemistry, 67, 538-541.

## **DIETARY FIBRE – Polydextrose and Bowel Function**

### **Authoritative/Scientific Bodies**

- Österreichische Agentur für Gesundheit und Ernährungssicherheit GMBH. Institut für Lebensmitteluntersuchung. November 18, 2005

### **Reviews**

- Craig, SAS, Holden, JF, Troup, JP, Auerbach, MH, Frier, HI. (1998) Polydextrose as soluble fibre: physiological and analytical aspects. Cereal Foods World 43, 370-376.
- Craig, SAS, Holden, JF, Troup, JP, Auerbach, MH, Frier, HI. (1999) Polydextrose as soluble fibre and complex carbohydrate. In: Complex Carbohydrates in Foods, S.S. Cho, L. Proska, M. Dreher, eds. Marcel Dekker Inc., New York.
- Craig, SAS. (2001) Polydextrose: Analysis and Physiological Benefits In: Advanced dietary Fibre Technology B.V. McCleary, L. Proska, Eds Blackwell Science, Oxford.

### **Animal Studies**

- Ishizuka, S., Nagai, T., Hara, H. (2003) Reduction of aberrant crypt foci by ingestion of polydextrose in the rat colorectum. Nutr Res 23, 117-122.
- Peuranen, S., Tiihonen, K., Apajalahti, J., Kettunen, A., Saarinen, M., Rautonen, (2004) Combination of polydextrose and lactitol affects microbial ecosystem and immune responses in rat gastrointestinal tract. Br J Nutr 91, 905-914.

### **Human Studies**

- Endo, K., Kumemura, M., Nakamura, K., Fujisawa, T., Suzuki, K., Benno, Y., Mitsuoka, T. (1991) Effect of high cholesterol diet and polydextrose supplementation on the microflora, bacterial enzyme activity, putrefactive products, volatile fatty acid (VFA) profile, weight, and pH of the feces in healthy volunteers. Bifidobact Microflora 10, 53
- Jie, Z., Bang-yao, L., Ming-jie, X., Hai-wie, L., Ting-song, W. Craig, SAS (2000) Studies on the effects of polydextrose intake on physiological functions in Chinese people. Am J Clin Nutr 72, 503-9

- Saku K, Yoshinaga K, Okura Y, Ying H, Harada R, Arakawa K (1991). Effects of polydextrose on serum lipids, lipoproteins, and apolipoproteins in healthy subjects. Clin Therapeutics; 13/2: 254-258.

## **1. POLYDEXTROSE and Butyrogenic Action**

### ***Human Study***

- Liu S, Tsai CE (1994). Effects of biotechnically synthetized oligosaccharides and polydextrose on serum lipids in the human. J. Chinese Nutr Soc; 20:1-12.

### ***In Vitro Study***

- Probert, H.M., Apajalahti, J., Rautonen, N., Stowell, J., Gibson, G. (2004) Polydextrose, lactitol and fructo-oligosaccharide fermentation by colonic bacteria in a three stage continuous culture system. Appl Environ Microbiol 70, 4504-4511

## **DIETARY FIBRE – Polydextrose and Prebiotic Action**

### ***Review***

- Mitchell Helen (2005) Prebiotics: The use of speciality carbohydrates. AgroFOOD, 2005, 4, 25-27

### ***Human Study***

- Jie, Z., Bang-yao, L., Ming-jie, X., Hai-wie, L., Ting-song, W. Craig, SAS (2000) Studies on the effects of polydextrose intake on physiological functions in Chinese people. Am J Clin Nutr 72, 503-9

### ***In Vitro Study***

- Probert, H.M., Apajalahti, J., Rautonen, N., Stowell, J., Gibson, G. (2004) Polydextrose, lactitol and fructo-oligosaccharide fermentation by colonic bacteria in a three stage continuous culture system. Appl Environ Microbiol 70, 4504-4511

## **DIETARY FIBRE – Pectins 1**

### ***Individual Studies***

- Brown L, Rosner B, Willett W W, Sacks F M, Cholesterol-lowering effects of dietary fiber: a meta-analysis, Am. J. Clin. Nutr. 1999, 69, 30-42
- Behall K, Reiser S, Effects of Pectin on Human Metabolism, in Fishmen, Yen (Eds) Chemistry and Function of Pectins, ACS Symposium Series 310 Washington DC 1986, pp 248-65
- Reiser S, Metabolic effects of dietary pectins related to human health, Food Technol. 1987, 41, 91-99

## **DIETARY FIBRE – Pectins 2**

### ***Individual Studies***

- Behall K, Reiser S, Effects of Pectin on Human Metabolism, in Fishmen, Yen (Eds) Chemistry and Function of Pectins, ACS Symposium Series 310 Washington DC 1986, pp 248-65
- Reiser S, Metabolic effects of dietary pectins related to human health, Food Technol. 1987, 41, 91-99.

## **PROBIOTIC 1 - Bacillus Subtilis BP6 and Intestinal / Digestive Health**

### **Reviews**

- Hong HA, Duc LH, and Cutting SM. The use of bacterial spore formers as probiotics. FEMS Microbiology Reviews 2005; 29: 813-835.
- Mazza M. The use of *Bacillus subtilis* as an antidiarrhoeal microorganism. Boll. Chim. Farmaceutico 1994; 133(1): 3-18.
- Sanders ME, Morelli L, and Tompkins TA. Sporeformers as human probiotics: *Bacillus*, *Sporolactobacillus*, and *Brevibacillus*. Comprehensive Reviews in Food Science and Food Safety 2003; 2: 101-110.

### **Textbook**

- Sensei S, In Bacterial spore formers. Probiotics and emerging applications, Chapter 11, pp. 131-141. Eds. Ricca D, Henriques AO and Cutting SM. Horizon Bioscience, Wymondham (UK).

### **Animal and In Vitro Studies**

- Pinchuk IV, Bressollier P, Verneuil B, Fenet B, et al. In vitro anti-*Helicobacter pylori* activity of the probiotic strain *Bacillus subtilis* 3 is due to secretion of antibiotics. Antimicrobial Agents and Chemotherapy 2001; 45(11): 3156-3161.
- Teo AY and Tan HM. Inhibition of *Clostridium perfringens* by a novel strain of *Bacillus subtilis* isolated from the gastrointestinal tracts of healthy chickens. Applied and Environmental Microbiology 2005; 71(8): 4185-4190.

## **PROBIOTIC 2 - Bifidobacterium Animalis Lafti B94 (CBS118.529) and Intestinal Flora**

### **Individual Human Study**

- Su P et al. (2005) Detection and Quantification of *Bifidobacterium lactis* LAFTI® B94 in human faecal samples from a consumption trial. FEMS Microbiology Letters 244:99-103.

### **Animal Studies**

- Crittenden R et al. (2005) Probiotic Research in Australia, New Zealand and the Asia-Pacific Region. Current Pharmaceutical Design, 11, 37-53
- Mahoney M et al. (2003) The effect of processed meat and meat starter cultures on gastro-intestinal colonization and virulence of *Listeria monocytogenes* in mice. International Journal of Food Microbiology 84:255-261
- The effect of LAFTI probiotics on the inhibition of *Helicobacter pylori* infection the stomach of mice by Li et al – Internal DSM report
- The effect of LAFTI probiotics on the inhibition of *Helicobacter pylori* infection in the stomach of mice by Su et al. – Internal DSM report
- Welin A et al. (2000) The effects of synbiotics on Characteristics of the gastro-intestinal Microbiota of mice – Poster

### **In Vitro Studies**

- Crittenden RG et al. (2001) Selection of a bifidobacterium strain to complement resistant starch in a synbiotic yoghurt. Journal of Applied Microbiology 90: 268-278

- In vitro study on inhibition of Helicobacter pylori by probiotic cultures, conducted at the UNSW – Internal DSM report

## **PROBIOTIC 3 - Bifidobacterium Animalis ssp. lactis Bb-12 ® and Intestinal Flora**

### ***Individual Human Studies***

- Alander M, Matto J, Kneifel W et al. Effect of galacto-oligosaccharide supplementation on human faecal microflora and on survival and persistence of *Bifidobacterium lactis* Bb-12 in the gastrointestinal tract International Dairy Journal 2001;11:817-25.
- Malinen E, Matto J, Salmitie M, Alander M, Saarela M, Palva A. PCR-ELISA II: Analysis of *Bifidobacterium* populations in human faecal samples from a consumption trial with *Bifidobacterium lactis* Bb-12 and a galacto-oligosaccharide preparation. Syst Appl Microbiol. 2002 Aug;25(2):249-58. Erratum in: Syst Appl Microbiol. 2003 Mar;26(1):154-5.
- Masako Shioya, Keisuke Nakaoka, Rei Igarashi, Naomine Iizuka, Tadashi Abe and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora and fecal properties in healthy female volunteers. Journal of Nutritional Food 3 (1), 7-18, 2000. Japanese studies, basis for FOSHU approval in Japan.
- Masako Shioya, Keisuke Nakaoka, Naomine Iizuka and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora, with special reference to *Bifidobacterium* species, and the fecal properties in healthy volunteers. Journal of Nutritional Food 3 (1), 19-32, 2000. Japanese studies, basis for FOSHU approval in Japan
- Masako Shioya, Keisuke Nakaoka, Naomine Iizuka, Mutsuku Sato and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora, with special reference to *Bifidobacterium* species, and the fecal properties in elderly volunteers. Journal of Nutritional Food 3 (1), 33-44, 2000. Japanese studies, basis for FOSHU approval in Japan
- Matsumoto, M., Tadenuma, T., Nakamure, K., Kume, H., Imai, T., Kihara, R., Watanabe, M., and Benno, Effect of *Bifidobacterium lactis* LKM 512 Yogurt on Fecal Microflora in Middle to Old Aged Persons Y. Microbial Ecol Health Dis 12, 77-80. 2000.
- Matsumoto M. and Benno Y. Consumption of *Bifidobacterium lactis* LKM512 yogurt reduces gut mutagenicity by increasing gut polyamine contents in healthy adult subjects. Mutation Research 2004. 568; 147-153
- Matsumoto M, Ohishi H, Benno Y. Impact of LKM512 yogurt on improvement of intestinal environment of the elderly FEMS Immunol.Med Microbiol. 2001;31:181-6.
- Ouwehand AC, Kurvinen T, Rissanen P. Use of a probiotic *Bifidobacterium* in a dry food matrix, an in vivo study. Int J Food Microbiol. 2004 Aug 15;95(1):103-6.
- Satokari RM, Vaughan EE, Akkermans AD, Saarela M, de Vos WM. Polymerase chain reaction and denaturing gradient gel electrophoresis monitoring of fecal bifidobacterium populations in a prebiotic and probiotic feeding trial. Syst.Appl.Microbiol.2001;24:227-31.
- Schiffrin E.J., F. Rochat, H. Link-Amster, J. M. Aeschlimann, and A. Donnet-Hughes. Immunomodulation of Human Blood Cells Following the Ingestion of Lactic Acid Bacteria. J. Dairy Sci. 1995 78: 491-497

### ***In Vitro Studies***

- Matsumoto, M., H. Tani, H. Ono, Y. Benno. 2002. Adhesive property of *Bifidobacterium lactis* LKM512 and predominant bacteria of intestinal microflora to human intestinal mucin. Current Microbiology, 44, 212-215.

- Vinderola CG, Reinheimer JA. 2003. Lactic acid starter and probiotic bacteria: a comparative "in vitro" study of probiotic characteristics and biological barrier resistance. Food research International 36: 895-904.

#### **PROBIOTIC 4 - *Bifidobacterium Animalis* ssp. *Lactis* BB-12® and *Lactobacillus LA-5®* and Digestive System**

##### ***Individual Human Studies***

- Alm, L., Ryd-Kjellen, E., Setterberg, G., Blomquist, L. Effect of a new fermented milk product "CULTURA" on constipation in geriatric patients. 1993. 1st Lactic Acid Bacteria Computer Conference Proceedings. Horizon Scientific Press, Norfolk, England.
- Black, F.T., Einarsson, K., Lidbeck, A., Orrhage, K., Nord, C.E. Effect of lactic acid producing bacteria on the human intestinal microflora during ampicillin treatment. 1991. Scand. J. Infect. Dis., 23: 247-254
- Laake, K.O., Bjørneklett, A., Bakka, A., Midtvedt, T., Norin, K.E., Eide, T.J., Jacobsen, M.B., Lingaa, E., Axelsen, A.K., Lotveit, T., Vatn, M.H. Influence of fermented milk on clinical state, fecal bacterial counts and biochemical characteristics in patients with ileal- pouch- anal-anastomosis. 1999. Microbial Ecology in Health and Disease, 11: 211-217.
- Laake KO, Line PD, Aabakken L, Løtveit T, Bakka A, Eide J, Røseth A, Grzyb K, Bjørneklett A, Vatn MH. 2003. Assessment of Mucosal inflammation and circulation in response to probiotics in patients operated with ileal pouch anal anastomosis for ulcerative colitis. Scand J Gastroenterol.: 4; 409-414.
- Laake, K.O., P.D. Line, K. Grzyb, G. Aamodt, L. Aabakken, A. Røset, A.B. Hvinden, A. Bakka, J. Eide, A. Bjørneklett, M.H. Vatn. 2004. Assessment of mucosal inflammation and blood flow in response to four weeks intervention with probiotics in patients operated with a J-configurated Ileal-Pouch-Anal-Anastomosis (IPAA). Scand. J. Gastroenterol. (12) 1228-1235.
- Laake K.O., Bjørneklett A., Aamodt G., Aabakken L., Jacobsen, M., Bakka, A., Vatn, M.H. 2005. Outcome of four weeks intervention with probiotics on symptoms and endoscopic appearance after surgical reconstruction with a J-configurated ileal-pouch-anal-anastomosis in ulcerative colitis. Scandinavian Journal of Gastroenterology (40) 43-51.
- Masako Shioya, Keisuke Nakaoka, Rei Igarashi, Naomine Iizuka, Tadashi Abe and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora and fecal properties in healthy female volunteers. Journal of Nutritional Food 3 (1), 7-18, 2000.
- Masako Shioya, Keisuke Nakaoka, Naomine Iizuka and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora, with special reference to *Bifidobacterium* species, and the fecal properties in healthy volunteers. Journal of Nutritional Food 3 (1), 19-32, 2000.
- Masako Shioya, Keisuke Nakaoka, Naomine Iizuka, Mutsuku Sato and Yoshimi Benno. Effect of fermented milk containing *Bifidobacterium lactis* FK 120 on the fecal flora, with special reference to *Bifidobacterium* species, and the fecal properties in elderly volunteers. Journal of Nutritional Food 3 (1), 33-44, 2000.
- Nord, C.E., Lidbeck, A., Orrhage, K., Sjostedt, S. Oral supplementation with lactic acid bacteria during intake of clindamycin. 1997. Clinical Microbiology and Infection, 3 (1): 124-132.
- Sheu BS, J Wu, CY Lo, HW Wu, JH Chen, YS Lin & MD Lin. 2002. Impact of supplement with *Lactobacillus*- and *Bifidobacterium*-containing yoghurt on triple therapy for *Helicobacter pylori* eradication. Aliment. Pharmacol. Ther. 16, 1669-1675

- Wildt S, Munck LK, Vinter-Jensen L, Hansen BF, Nordgaard-Lassen I, Christensen S, Avnstroem S, Rasmussen SN, Rumessen J. 2006. Probiotic treatment of collagenous colitis: A randomized, double-blind, placebo-controlled trial with *L. acidophilus* and *Bifidobacterium animalis* subsp. *lactis*. *Inflamm Bowel Dis* 12 (5): 395-401.

### **PROBIOTIC 5 - *Bifidobacterium Animalis* ssp. *Lactis* BB-12® and *Lactobacillus Paracasei* ssp. *Paracasei* CRL-431® and Digestive System**

#### ***Individual Human Study***

- Larsen CN, Nielsen S, Kæstel P, Brockmann E, Bennedsen M, Christensen HR, Eskesen DC, Jacobsen BL, Michaelsen KF. 2006. Dose-response study of probiotic bacteria *Bifidobacterium animalis* subsp. *lactis* BB-12 and *Lactobacillus paracasei* subsp. *paracasei* CRL-341 in healthy young adults. *European Journal of Clinical Nutrition* 60 : 1284-1293.

#### ***In Vitro Study***

- Zeuthen LH, Christensen HR, Frøkiær H. 2006. Lactic acid bacteria inducing a weak interleukin-12 and Tumour Necrosis Factor Alpha response in human dendritic cells inhibit strongly stimulating lactic acid bacteria but act synergistically with Gram-Negative bacteria. *Clinical and Vaccine Immunology*. 13 (3): 365-375.

### **PROBIOTIC 6 - *Bifidobacterium Animalis* ssp. *lactis* BB-12®, *Lactobacillus Acidophilus* LA-5®, *Lactbacillus Bulgaricus* LBY-27® and *Streptococcus Thermophilus* STY-31® and Gut Flora**

#### ***Review***

- Lewis, S.J., Freedman, A.R. Review article: The use of biotherapeutic agents in the prevention and treatment of gastrointestinal disease. 1998. *Aliment Pharmacol Ther*, 12: 807-822.

#### ***Clinical Trials***

- Anderson ADG, McNaught CE, Jain PK, MacFie J. 2004. Randomised clinical trial of synbiotic therapy in elective surgical patients. *Gut*, 53, 241-245
- Anderson ADG, McNaught CE, MacFie J, Tring I, Barker P, Mitchell CJ. 2003. Randomized clinical trial of multimodal optimization and standard perioperative surgical care. *British Journal of Surgery*, 90; 1497-1504.
- Gatt M, Anderson ADG, Reddy BS, Hayward-Sampson P, tring IC, MacFie J. 2005. Randomized clinical trial of multimodal optimization of surgical care in patients undergoing major colonic resection. *British Journal of Surgery*, 92, 1354-1362
- Jain PK, McNaught CE, Anderson ADG, MacFie J, Mitchell CJ. 2004. Influence of synbiotic containing *Lactobacillus acidophilus* La5, *Bifidobacterium lactic* Bb12, *Streptococcus thermophilus*, *Lactobacillus bulgaricus* and oligofructose on gut barrier function and sepsis in critically ill patients: a randomised controlled trial. *Clinical Nutrition* 23; 467-475

#### ***Individual Human Study***

- Black, F.T., Anderson, P.L., Orskov J., Orskov, F., Gaarslev, K., Laulund, S. Prophylactic efficacy of lactobacilli on traveler's diarrhea. 1989. *Travel Medicine*, 333-335.

### **PROBIOTIC 7 – *Bifidobacterium Animalis* ssp. *Lactis* CNCM I-2494 / DN-173 010 and Intestinal Transit**

#### ***Authoritative/Scientific Bodies***

- Afssa report – Jean-Christophe Boclé & Carole Thomann - Effect of prebiotics and probiotics on flora and immunity in adults – February 2005
- Brazilian official approval Agencia Nacional de Vigilancia Sanitaria (Brazil) approval 15/01/2004
- Netherland Official approval = The Netherlands Nutrition Centre- Assessment Report 13-4-2004

### **Reviews**

- Cummings JH, Macfarlane GT. Role of intestinal bacteria in nutrient metabolism. *Clinical Nutrition* 1997; 16: 3-11.
- Cummings JH, Antoine JM, Azpiroz F, Bourdet-Sicard R, Brandtzaeg P, Calder PC, Gibson GR, Guarner F, Isolauri E, Pannemans D, Shortt C, Tuijtelaars S, Watzl B. gut health and immunity. *Eur J Nutr.* 2004 Jun;43 Suppl 2:II118-II173. Review
- De Roos NM, Katan MB. Effects of probiotic bacteria on diarrhea, lipid metabolism, and carcinogenesis: a review of papers published between 1988 and 1998. *Am J Clin Nutr* 2000;71(2):405-11.
- Goldin BR. Health benefits of probiotics. *Br J Nutr* 1998;80(4):S203-7.
- Locke GR, Pemberton JH, Phillips SF. American Gastroenterological Association Technical review on constipation. *Gastroenterology* 2000;119(6):1766-78.
- Mitsuoka, T. Bifidobacteria and their role in human health. *J Ind Microbiol* 1990; 6: 263-8.
- Picard C. Review article : bifidobacteria as probiotic agents – physiological effects and clinical benefits. *Aliment Pharmacol Ther* 2005;22: 495-512

### **Individual Human Studies**

- Berrada N, Lemeland JF, Laroche G, Thouvenot P, Piaia M. Bifidobacterium from fermented milks: survival during gastric transit. *J Dairy Sci* 1991;74(2):409-13.
- Bouvier M, Meance S, Bouley C, Berta J-L, Grimaud J-C. Effects of consumption of a milk fermented by the probiotic strain Bifidobacterium animalis DN-173 010 on colonic transit times in healthy humans. *Bioscience Microflora* 2001;20 (2):43-8.
- Duez H, Pelletier C, Cools S, Aissi E, Cayuela C, Gavini F, Bouquelet S, Neut C, Mengaud J. A colony immunoblotting method for quantitative detection of a Bifidobacterium animalis probiotic strain in human faeces. *J Appl Microbiol* 2000;88(6):1019-27.
- De Paula JA, Carmuega E S y Weill R Efecto de la ingesta de un probiotico sobre el habito evacuatorio en mujeres con constipación funcional. Congresso Argentino de Gastroenterología, Buenos Aires, Argentina, October 2006 and Congresso de la Sociedad Argentina de Nutrición, Mendoza, Argentina, November 2006
- De Paula JA, Carmuega E S y Weill R. El Bifidobacterium animalis DN-173 010 aumenta la frecuencia de las deposiciones y disminuye la severidad de los síntomas asociados con la constipación funcional. Congresso de la Sociedad Chilena de Nutrición, Iquique, Chile, November 2006
- Marteau P, Cuillerier E, Meance S, Gerhardt MF, Myara A, Bouvier M, Bouley C, Tondu F, Bommelaer G, Grimaud JC. Bifidobacterium animalis strain DN-173 010 shortens the colonic transit time in healthy women: a double-blind, randomized, controlled study. *Aliment Pharmacol Ther* 2002;16(3):587-93.
- Meance S, Cayuela C, Raimondi A, Turchet P, Lucas C, Antoine J-M. Recent advances in the use of functional foods: effects of the commercial fermented milk with Bifidobacterium animalis strain

DN-173 010 and yoghurt strains on gut transit time in the elderly. Microbial Ecology in Health and Disease 2003;15:15-22.

- Meance S, Cayuela C, Turchet P, Raimondi A, Lucas C, Antoine J-M. A fermented milk with a *Bifidobacterium* probiotic strain DN-173 010 shortened oro-fecal gut transit time in elderly. Microbial Ecology in Health and Disease 2001;13:217-22.
- Pochart P, Marteau P, Bisetti N, Goderel I, Bourlioux P, Rambaud JC. Isolement des bifidobactéries dans les selles après ingestion prolongée de lait au bifidus (LB). Méd Mal Infect 1990; 20:75-8.
- Pochart P, Marteau P, Bouhnik Y, Goderel I, Bourlioux P, Rambaud JC. Survival of bifidobacteria ingested via fermented milk during their passage through the human small intestine: an in vivo study using intestinal perfusion. Am J Clin Nutr. 1992 Jan;55(1):78-80.

#### ***Additional Human Studies***

- Cummings JH, Bingham SA, Heaton KW, Eastwood MA.. Fecal weight, colon cancer risk, and dietary intake of nonstarch polysaccharides (dietary fiber). Gastroenterology. 1992 Dec;103(6):1783-9. Gastroenterol 1992; 103:1783-9.
- De Paula JA, Carmuega E S y Weill R. El *Bifidobacterium animalis* DN-173 010 aumenta la frecuencia de las deposiciones y disminuye la severidad de los síntomas asociados con la constipación funcional. Congresso de la Sociedad Chilena de Nutricion, Iquique, Chile, November 2006
- Hopkins MJ, Sharp R, MacFarlane GT. Age and disease related changes in intestinal bacterial populations assessed by cell culture, 16S rRNA abundance, and community cellular fatty acid profiles. Gut 2001; 48: 198-205.
- Lampe JW, Fredstrom SB, Slavin JL, Potter JD. Sex differences in colonic function: a randomised trial. Gut. 1993 Apr;34(4):531-6.
- Lewis SJ, Heaton KW. The metabolic consequences of slow colonic transit. Am J Gastroenterol. 1999;94(8):2010-6.
- Probert CJ, Emmett PM, Heaton KW. Intestinal transit time in the population calculated from self made observations of defecation. J Epidemiol Community Health. 1993 Aug;47(4):331-3.
- Probert CS, Emmett PM, Cripps HA, Heaton KW. Evidence for the ambiguity of the term constipation: the role of irritable bowel syndrome. Gut. 1994 Oct;35(10):1455-8.

### **PROBIOTIC 8 – *Bifidobacterium Bifidum CNCM I-373* and Digestive Health**

#### ***Textbook***

- Shils, Shike, et al. (2005). Modern Nutrition in Health and Disease. Lippincott Williams & Wilkins (LWW).

#### ***Reviews***

- Naidu, A. S., W. R. Bidlack, et al. (1999). "Probiotic spectra of lactic acid bacteria (LAB)." Crit Rev Food Sci Nutr 39(1): 13-126.
- Roberfroid, M. B. (2000). "Prebiotics and probiotics: are they functional foods?" Am J Clin Nutr 71(6 Suppl): 1682S-7S; discussion 1688S-90S.

## **PROBIOTIC 9 – Bifidobacterium Bifidum I-3426 and Digestive Health**

### **Reviews**

- Collins MD, Gibson GR. Probiotics, prebiotics, and synbiotics: approaches for modulating the microbial ecology of the gut. *Am J Clin Nutr.* 1999 May;69(5):1052S-1057S.
- Kramer S, Bischoff SC. Therapeutic possibilities of probiotics in antibiotic-related diarrhea. *MMW Fortschr Med.* 2006 Aug 31;148(35-36):28-30.
- Szajewska H, Mrukowicz JZ. Probiotics in the treatment and prevention of acute infectious diarrhea in infants and children: a systematic review of published randomized, double-blind, placebo-controlled trials. *J Pediatr Gastroenterol Nutr.* 2001 Oct;33 Suppl 2:S17-25.

### ***Individual Human Study***

- Saavedra JM, Bauman NA, Oung I, Perman JA, Yolken RH. Feeding of *Bifidobacterium bifidum* and *Streptococcus thermophilus* to infants in hospital for prevention of diarrhoea and shedding of rotavirus. *Lancet.* 1994 Oct 15;344(8929):1046-9

## **PROBIOTIC 10 – Bifidobacterium Breve I-3425 and Digestive Health**

### ***Individual Human Studies***

- Kajander K, Korpela R. Clinical studies on alleviating the symptoms of irritable bowel syndrome. *Asia Pac J Clin Nutr.* 2006;15(4):576-80.
- Myllyluoma E, Veijola L, Ahlroos T, Tynkkynen S, Kankuri E, Vapaatalo H, Rautelin H, Korpela R. Probiotic supplementation improves tolerance to *Helicobacter pylori* eradication therapy--a placebo-controlled, double-blind randomized pilot study. *Aliment Pharmacol Ther.* 2005 May 15;21(10):1263-72.
- Uchida K, Takahashi T, Inoue M, Morotomi M, Otake K, Nakazawa M, Tsukamoto Y, Miki C, Kusunoki M. Immunonutritional effects during synbiotics therapy in pediatric patients with short bowel syndrome. *Pediatr Surg Int.* 2007 Jan 5; [Epub ahead of print]

## **PROBIOTIC 11 - Bifidobacterium Breve Yakult (BbY) and Digestive System / Intestinal Flora**

### **Reviews**

- Nomoto K. (2005); Prevention of infection by probiotics. *J. bioscience and bioengineering* 100: 583-592.
- Tanaka, R. Clinical applications of *Bifidobacterium* in humans *Research of Bifidobacteria*, T. Mitsuoka (editor), 221-228 (1994)

### ***Individual Human Studies***

- Asahara, T. et al, The effects of *Bifidobacteria*-fermented milk on human urinary mutagenicity, which increases following ingestion of cooked ground beef. *Journal of Intestinal Bacteriology*, 12, 89-96 (1999)
- Kado Y. et al. Survival of a probiotic *Bifidobacterium breve* strain Yakult in the human gastrointestinal tract. *Journal of Intestinal Microbiology*, 1992, 15, 9-14.
- Kitajima, H., et al. Early administration of *Bifidobacterium breve* to preterm infants: randomised controlled trial. *Arch Dis Child Fetal Neonatal Ed.* 76(2): F101-7. (1997)

- Matsui, T. et al Effect of Bifidus yogurt on the defecation frequency of the elderly. *Journal of Nutrition*, 58, 213-218 (2000)
- Takano, K. et al Effect of intestinal bacteria on the secretory immunological competence of the digestive tract. *Pediatrics*, 77, 1081-1086 (1986)
- Tanaka, R. et al. Effects of administration of TOS and *Bifidobacterium breve* 4006 on the human fecal flora. *Bifid. Microflora*, 2, 17-24 (1983)
- Tanaka, R. et al. Investigation of the stool frequency in elderly who are bed ridden and its improvements by ingesting of Bifidus yogurt. *Japanese Journal of Geriatric Gerontology Society*, 19, 577-582 (1982)
- Tanaka, R. et al. Research relating to the implantation of *Bifidobacterium* - Administration effects of *B.bifidum* 4007 and *B.breve* 4006 in infants and adults *Clinical Pediatrics*, 33, 2483-2492 (1980)
- Tohyama K (1993); Suppression of intestinal putrefactive fermentation by *Bifidobacterium breve*. *Bifidobacteria*, 6, 151-160.
- Yasui, H. et al. Detection of *Bifidobacterium* strains that induce large quantities of IgA. *Microbial Ecol. Health Dis.*, 5, 155-162 (1992)
- Yasui, H. et al. Enhancement of immune response in Peyer's patch cells cultured with *Bifidobacterium breve*. *J. Dairy Sci.*, 74, 1187-1195 (1991)
- Yasui, H. et al. Immunogenicity of *Bifidobacterium breve* and change in antibody production in Peyer's patches after oral administration. *J. Dairy Sci.*, 72, 30-35 (1989)

#### **Additional Human Studies**

- Horita, M. Intestinal flora and infection of newborn infants, *Journal of infection*, 57, 405-418 (1983)
- Hotta M. et al. Clinical effects of *Bifidobacterium* preparations on pediatric intractable diarrhea. *Keio J. Med.* 36: 298-314 (1987)
- Ishikawa, H. et al. Randomized controlled trial of the effect of *Bifidobacterium*-fermented milk on ulcerative colitis. *J. Amer. Coll. Nutr.*, 22, 56-63 (2002)
- Kan, T. et al. Research relating to the implantation of *Bifidobacterium* - Administration effects of *B.bifidum* 4002 in bottle-fed infants, *Clinical Pediatrics*, 30, 1947-1953 (1977)
- Kanamori, Y., et al. A novel synbiotic therapy dramatically improved the intestinal function of a pediatric patient with laryngotracheo-esophageal cleft (LTEC) in the intensive care unit. *Clin Nutr.* 21:527-30 (2002)
- Kanamori, Y., et al. Anaerobic dominant flora was reconstructed by synbiotics in an infant with MRSA enteritis. *Pediatr Int.* 45(3): 359-62 (2003)
- Kanamori, Y., et al. Combination therapy with *Bifidobacterium breve*, *Lactobacillus casei*, and gakactooligosaccharides dramatically improved the intestinal function in a girl with short bowel syndrome: A novel synbiotics therapy for intestinal failure. *Digestive Diseases and Science* 46: 2010-2016 (2001)
- Kitajima, H., et al. Early administration of *Bifidobacterium breve* to preterm infants: randomised controlled trial. *Arch Dis Child Fetal Neonatal Ed.* 76(2): F101-7. (1997)
- Koizumi, T. et al Effect of *Bifidobacterium breve* administration on endotoxic in cirrhosis patients and its assessment Tomotari Mitsuoka (editor), *Intestinal flora and adult diseases*, p. 155-173, Japan Scientific Societies Press (1985)

- Koizumi, T. et al Effect of Bifidobacterium preparation BBG02 on hepatic encephalopathy. *Sougou Rinshou* 29(9): 2473-2478 (1980)
- Tanaka, R. et al Effect of Bifidobacterium preparation administration on antibiotic-associated intractable diarrhea. Tomotari Mitsuoka (editor), *Intestinal flora and infection*, p. 43-64, Japan Scientific Societies Press (1986)
- Tojo, M. et al. The effect of Bifidobacterium breve administration on *Campylobacter enteritis*. *Acta Paediatr. Jpn.*, 29, 160-167 (1987)

#### **Animal Studies**

- Asahara, T. et al., Antibacterial effect of fermented milk containing *Bifidobacterium breve*, *Bifidobacterium bifidum* and *Lactobacillus acidophilus* against indigenous *Escherichia coli* infection in mice. *Microb. Ecol. Health Dis.*, 13, 16-24 (2001)
- Asahara, T. et al., Increased resistance of mice to *Salmonella enterica* serovar *Typhimurium* infection by synbiotic administration of *Bifidobacteria* and transgalactosylated oligosaccharides, *J. Appl. Microbiol.*, 91, 985-996 (2001)
- Asahara, T. et al., Intestinal colonization by probiotic *Bifidobacteria* protects mice from lethal infection with Shiga-toxin producing *Escherichia coli* O157:H7. *Infect. Immun.*, in press.
- Matsumoto, S. et al. Preventive effects of *Bifidobacterium*- and *Lactobacillus*-fermented milk on the development of inflammatory bowel disease in senescence-accelerated mouse P1/Yit strain mice. *Digestion*, 64, 92-99 (2001)
- Yasui, H. et al. Passive protection against rotavirus-induced diarrhea of mouse pups born to and nursed by dams fed *Bifidobacterium breve* YIT4064. *J. Infect. Dis.*, 172, 403-409 (1995)

#### **In Vitro Study**

- Morotomi, M. et al. In vitro binding of potent mutagenic pyrolyzates to intestinal bacteria. *J. Natl. Cancer Inst.*, 77, 195-201 (1986).

### **PROBIOTIC 12 – *Bifidobacterium Infantis I-3424 (Rosell-33)* and Digestive Health**

#### **Review**

- Bruzzese E, Canani RB, De Marco G, Guarino A. Microflora in inflammatory bowel diseases: a pediatric perspective. *J Clin Gastroenterol*. 2004 Jul;38(6 Suppl):S91-3

#### **Individual human Study**

- Kostrzynska M, Dixon J and Lepp D. Glycosphingolipid and carbohydrate binding specificities of *Bifidobacterium infantis* R0033. Presented at the Symposium International de Montréal: "La Santé par les probiotiques perspectives biofonctionnelles". Organized by La Fondation des Gouverneurs in Montréal Québec: October 2002.

### **PROBIOTIC 13 – *Bifidobacterium Longum I-3470* and Digestive Health**

#### **Individual human Study**

- Haskey N, Dahl W. Synbiotic therapy: A promising new adjunctive therapy for ulcerative colitis. *Nutrition review* 2006, 64(3): 132-138

#### **Additional Human Studies**

- Benno Y, Mitsuoka T. Impact of *Bifidobacterium longum* on human fecal microflora. *Microbiol Immunol.* 1992;36(7):683-94.
- Colecchia A, Vestito A, La Rocca A, Pasqui F, Nikiforaki A, Festi D. Effect of a symbiotic preparation on the clinical manifestations of irritable bowel syndrome, constipation-variant. Results of an open, uncontrolled multicenter study. *Minerva Gastroenterol Dietol.* 2006 Dec;52(4):349-58.
- Puccio G, Cajozzo C, Meli F, Rochat F, Grathwohl D, Steenhout P. Clinical evaluation of a new starter formula for infants containing live *Bifidobacterium longum* BL999 and prebiotics. *Nutrition.* 2007 Jan;23(1):1-8

### **PROBIOTIC 14 – *Lactobacillus Acidophilus CNCM I-1722* and Digestive Health**

#### ***Textbook***

- Shils, Shike, et al. (2005). *Modern Nutrition in Health and Disease.* Lippincott Williams & Wilkins (LWW).

#### ***Reviews***

- Naidu, A. S., W. R. Bidlack, et al. (1999). "Probiotic spectra of lactic acid bacteria (LAB)." *Crit Rev Food Sci Nutr* 39(1): 13-126.
- Roberfroid, M. B. (2000). "Prebiotics and probiotics: are they functional foods?" *Am J Clin Nutr* 71(6 Suppl): 1682S-7S; discussion 1688S-90S.

### **PROBIOTIC 15 – *Lactobacillus Acidophilus CUL21 NCIMB 30156, Lactobacillus Acidophilus CUL 60 NCIMB 30157, Bifidobacterium Adolescentis CUL 17 NCIMB 30153, Bifidobacterium Lactis (animalis ssp. lactis) CUL 34 NCIMB 30172 and Gut Flora***

#### ***Individual Human Studies***

- Can Probiotics play a role in antibiotic resistance? 2nd International Symposium Resistant Gram-Positive Infections 2004, December 10-12, Berlin, Germany. Peer reviewed abstract.
- Madden JA, Plummer SF, Tang J, Garaiova I, Plummer NT, Herbison M, Hunter JO, Shimada T, Cheng L, Shirakawa T. Effect of probiotics on preventing disruption of the intestinal microflora following antibiotic therapy: A double blind, placebo controlled pilot study. *International Immunopharmacology* 2005; 5: 1091-1097
- Plummer SF, Garaiova I, Sarvotham T, Cottrell SL, Le Scouiller S, Weaver MA, Tang J, Dee P, Hunter J. Effects of Probiotics on the composition of the intestinal microbiota following antibiotic therapy. *International Journal of Antimicrobial Agents* 2005; 26: 69-74.
- Plummer S, Garaiova I, Cottrell S, Weaver M, Sarvotham T, Tang J, Dee P, Hunter J.
- Plummer S, Cottrell SL, Weaver MA, Garaiova I, Sarvotham T, Tang J, Dee P, Hunter J. The Potential Role of combined Antibiotic and Probiotic Therapy. 44th Interscience Conference on Antimicrobial Agents and Chemotherapy 2004, October 30th- November 2nd, Washington, USA. Peer reviewed abstract.

### **PROBIOTIC 16 – *Lactobacillus Acidophilus Lafti L10 (CBS 116.411)* and Digestive Health**

#### ***Individual Human Study***

- Survival of Lactobacillus acidophilus LAFTI® L10 and L. casei LAFTI® L26 in the human gastrointestinal tract and perceived effects on health, conducted at the UNSW by Welin A and Henriksson A – Internal DSM report

### **Animal Studies**

- Elahi et al. (2005) Enhanced clearance of Candida albicans from the oral cavities of mice following oral administration of Lactobacillus acidophilus Clinical and Experimental Immunology 141:29-36
- Mahoney M et al. (2003) The effect of processed meat and meat starter cultures on gastro-intestinal colonization and virulence of Listeria monocytogenes in mice. International Journal of Food Microbiology 84:255-261.

### **In Vitro Studies**

- Gastro-intestinal survival test with LAFTI® L10 CG, conducted at the University of New South Wales (UNSW), Australia - Internal DSM report
- Dung et al. (Data on file) Survival of LAFTI® L10 in human gastric juice, conducted at the University of New South Wales – Internal DSM report
- In vitro study on inhibition of Helicobacter pylori by probiotic cultures, conducted at the UNSW – Internal DSM report
- Adhesion of probiotic cultures to Caco-2 cells, conducted at the UNSW - Internal DSM report

## **PROBIOTIC 17 – Lactobacillus Acidophilus Lafti L10 (CBS 116.411) and Intestinal Flora**

### **Individual Human Study**

- Survival of Lactobacillus acidophilus LAFTI® L10 and L. casei LAFTI® L26 in the human gastrointestinal tract and perceived effects on health, conducted at the UNSW by Welin A and Henriksson A – Internal DSM report

### **Animal Study**

- Mahoney M et al. (2003) The effect of processed meat and meat starter cultures on gastro-intestinal colonization and virulence of Listeria monocytogenes in mice. International Journal of Food Microbiology 84:255-261

### **In Vitro Studies**

- Gastro-intestinal survival test with LAFTI® L10 CG, conducted at the University of New South Wales (UNSW), Australia - Internal DSM report
- In vitro study on inhibition of Helicobacter pylori by probiotic cultures, conducted at the UNSW – Internal DSM report
- Survival of LAFTI® L10 in human gastric juice, conducted at the University of New South Wales by Dung et al. – Internal DSM report

## **PROBIOTIC 18 - Lactobacillus Acidophilus NCFM ATCC SD5221 and Gut Health**

### **Reviews**

- Sanders, M. E. and T. R. Klaenhammer. 2001. Invited Review: The scientific basis of Lactobacillus acidophilus NCFM functionality as a probiotic. J. Dairy Sci. 84:319-331.

### **Individual Human Studies**

- Goldin, B. R., L. Swenson, J. Dwyer, M. Sexton, and S. L. Gorbach. 1980. Effect of diet and *Lactobacillus acidophilus* supplements on human fecal bacterial enzymes. *J. Natl. Cancer Inst.* 64:255-261.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of milk and *lactobacillus* feeding on human intestinal bacterial enzyme activity. *Amer. J. Clin. Nutr.* 39:756-761.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of oral administration of *Lactobacillus* and antibiotics on intestinal bacterial activity and chemical induction of large bowel tumors. *Dev. Indus. Microbiol.* 25:139-150.
- Kim H. S., and S. E. Gilliland. 1983. *Lactobacillus acidophilus* as a dietary adjunct for milk to aid lactose digestion in humans. *J. Dairy Sci.* 66:959-966.
- Lin, M-Y. D. Savaiano, and S. Harlander. 1991. Influence of nonfermented dairy products containing bacterial starter cultures on lactose maldigestion in humans. *J. Dairy Sci.* 74:87-95.
- Newcomer, A. D., H. S. Park, P. C. O'Brien, and D. B. McGill. 1983. Response of patients with irritable bowel syndrome and lactase deficiency using unfermented acidophilus milk. *Amer. J. Clin. Nutr.* 38:257-263.
- Savaiano, D. A., A. AbouElAnouar, D. E. Smith, and M. D. Lewitt. 1984. Lactose malabsorption from yoghurt, pasteurized yogurt, sweet acidophilus milk, and cultured milk in lactase-deficient individuals. *Amer. J. Clin. Nutr.* 40:1219-1223.
- Sui, J., Leighton, S., Busta, F., Brady, L. 2002. 16S ribosomal DNA analysis of the faecal *lactobacilli* composition of human subjects consuming a probiotic strain *Lactobacillus acidophilus* NCFM. *J. Appl. Microb.* 93:907-912.

### ***Additional Human Studies***

- Dunn, S. R., M. L. Simenhoff, K. E. Ahmed, W. J. Gaughan, B. O. Eltayeb, M.-E. D. Fitzpatrick, S. M. Emery, J. W. Ayres, and K. E. Holt. 1998. Effect of oral administration of freeze-dried *Lactobacillus acidophilus* on small bowel bacterial overgrowth in patients with end stage kidney disease: reducing uremic toxins and improving nutrition. *Int. Dairy J.* 8:545-553.
- Montes, R. G., T. M. Bayless, J. M. Saavedra, and J. A. Perman. 1995. Effect of milks inoculated with *Lactobacillus acidophilus* or a yogurt starter culture in lactose-malabsorbing children. *J. Dairy Sci.* 78:1657-1664.
- Simenhoff, M. L., S. R. Dunn, G. P. Zollner, M.-E. D. Fitzpatrick, S. M. Emery, W. E. Sandine, and J. W. Ayres. 1996. Biomodulation of the toxic and nutritional effects of small bowel bacterial overgrowth in end-stage kidney disease using freeze-dried *Lactobacillus acidophilus*. *Mineral Electrolyte Metab.* 22:92-96.

### ***In vitro Studies***

- Daniel, C., S. Poiret, D. Goudencourt, V. Dennin, G. Leyer, and B. Pot. 2006. Selecting lactic acid bacteria for their safety and functionality by use of a mouse colitis model. *Appl. Environ. Microbiol.* 72 :5799-5805
- Foligné, B., S. Nutten, C. Granette, V. Dennin, D. Goudercourt, S. Poiret, J. Dewulf, D. Brassard, A. Mercenier, and B. Pot. Correlation between in vitro and in vivo immunomodulatory properties of lactic acid bacteria. *World J. Gastroenterology.* 13:236-243
- Goldin, B. R. and S. L. Gorbach. 1977. Alterations in fecal microflora enzymes related to diet, age, *lactobacillus* supplements, and dimethylhydrazine. *Cancer* 40:2421-2426.

- Goldin, B. R. and S. L. Gorbach. 1980. Effect of *Lactobacillus acidophilus* dietary supplements on 1,2-dimethylhydrazine dihydrochloride-induced intestinal cancer in rats. *J. Nat. Cancer Inst.* 64:263-265.
- Goldin, B. R. and S. L. Gorbach. 1984. Alterations of the intestinal microflora by diet, oral antibiotics, and *Lactobacillus*: decreased production of free amines from aromatic nitro compounds, azo dyes, and glucuronides. *J. Nat. Cancer Inst.* 73:689-695.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of oral administration of *Lactobacillus* and antibiotics on intestinal bacterial activity and chemical induction of large bowel tumors. *Dev. Indus. Microbiol.* 25:139-150.
- Rao, C. V., M. E. Sanders, C. Indranie, B. Simi, and B. S. Reddy. 1999. Prevention of colonic preneoplastic lesions by the probiotic *Lactobacillus acidophilus* NCFMTM in F344 rats. *Int. J. Oncol.* 14:939-944.
- Varcoe, J. J., G. Krejcarek, F. Busta, and L. Brady. 2003. Prophylactic feeding of *Lactobacillus acidophilus* NCFM to mice attenuates overt colonic hyperplasia. *J. Food Prot.* 66:457-65.

## **PROBIOTIC 19 – *Lactobacillus helveticus* I-1722 and Digestive Health**

### ***Individual Human Studies***

- Easo JG, Measham JD, Munroe J. and Green-Johnson JM. Immunostimulatory actions of *Lactobacilli*: Mitogenic induction of antibody production and spleen cell proliferation by *Lactobacillus delbrueckii* subsp. *bulgaricus* and *Lactobacillus acidophilus*. *Food and Agricultural Immunology* 2002, 14: 73-83
- Johnson-Henry KC, Nadjafi M, Avitzur Y, Mictchell DJ, Ngan B-Y, Galindo-Mata E, Jones NL, Sherman PM. Amelioration of the effects of *Citrobacter rodentium* infection in mice by pretreatment with probiotics. *Journal of Infectious Disease* 2005, 191: 2106-2117
- Tlaskal P, Michkova E, Klayarova H, Jerabkova L, Nevoral J, Balackova J, Tejnecka, Valtrova V, Simandlova M, Kejvalova L. *Lactobacillus acidophilus* in the treatment of children with gastrointestinal tract illness. *Cesko-Slovenska Pediatrie* 1995, 51: 615-619
- Wallace TD, Bradley S, Buckley ND, Green-Johnson JM. Interactions of Lactic acid bacteria with human intestinal epithelial cells: effects on cytokine production. *Journal of Food Protection* 2003, 66(3): 466-472

### ***Review***

- Bruzzese E, Canani RB, De Marco G, Guarino A. Microflora in inflammatory bowel diseases: a pediatric perspective. *J Clin Gastroenterol.* 2004 Jul;38(6 Suppl):S91-3

### ***Additionnal Individual Human Studies***

- Bausserman M, Michail S. The use of *Lactobacillus GG* in irritable bowel syndrome in children: a double-blind randomized control trial. *J Pediatr.* 2005 Aug;147(2):197-201.
- Donnet-Hugues A, Rochat F, Serrant P, Aeschlimann JM, Schiffrin EJ. Modulation of non specific mechanism of defenses by lactic acid bacteria: effective dose. *J Dairy Sci.* 1999 May;82(5):863-9.
- Hatakka K, Savilahti E, Ponka A, Meurman JH, Poussa T, Nase L, Saxelin M, Korpeala R. Effect of long term consumption of probiotic milk on infections in children attending day care centres: double blind, randomised trial. *BMJ.* 2001 Jun 2;322(7298):1327

## **PROBIOTIC 20 – Lactobacillus Casei Lafti L26 (CBS 116.412) and Intestinal Flora**

### ***Individual Human Study***

- Survival of Lactobacillus acidophilus LAFTI® L10 and L. casei LAFTI® L26 in the human gastrointestinal tract and perceived effects on health, conducted at the UNSW by Welin A and Henriksson A – Internal DSM report

### ***Animal Studies***

- Mahoney M et al. (2003) The effect of processed meat and meat starter cultures on gastrointestinal colonization and virulence of *Listeria monocytogenes* in mice. International Journal of Food Microbiology 84:255-261
- The effect of LAFTI probiotics on the inhibition of *Helicobacter pylori* infection in the stomach of mice by Li et al – Internal DSM report– Internal DSM report
- The effect of LAFTI probiotics on the inhibition of *Helicobacter pylori* infection in the stomach of mice by Su et al. – Internal DSM report.
- Welin A et al. (2000) The effects of synbiotics on Characteristics of the gastro-intestinal Microbiota of mice – Poster

### ***In Vitro Study***

- In vitro study on inhibition of *Helicobacter pylori* by probiotic cultures, conducted at the UNSW – Internal DSM report

## **PROBIOTIC 21 – Lactobacillus Casei I-3429 and Digestive Health**

### ***Individual Human Studies***

- Oozeer R, Leplingard A, Mater DD, Mogenet A, Michelin R, Seksek I, Marteau P, Dore J, Bresson JL, Corthier G. Survival of Lactobacillus casei in the human digestive tract after consumption of fermented milk. Appl Environ Microbiol. 2006 Aug;72(8):5615-7.
- Sykora J, Valeckova K, Amlerova J, Siala K, Dedek P, Watkins S, Varvarovska J, Stozicky F, Pazdiora P, Schwarz J. Effects of a specially designed fermented milk product containing probiotic Lactobacillus casei DN-114 001 and the eradication of *H. pylori* in children: a prospective randomized double-blind study. J Clin Gastroenterol. 2005 Sep;39(8):692-8.
- Tormo Carnicer R, Infante Pina D, Rosello Mayans E, Bartolome Comas R. Intake of fermented milk containing Lactobacillus casei DN-114 001 and its effect on gut flora. An Pediatr (Barc). 2006 Nov;65(5):448-53.

## **PROBIOTIC 22 - Lactobacillus Casei Shirota (LcS) and Gut Health**

### ***Reviews***

- Borriello SP, Hammes WP, Holzapfel W et al. Safety of probiotics that contain lactobacilli or bifidobacteria. Clin Infect Dis 2003;36(6):775-80.
- Gibson GR, Rouzaud G, Brostoff J et al. An evaluation of probiotic effects in the human gut: microbial aspects. FSA 2005; ref G01022, 2-22. <http://www.food.gov.uk/multimedia/pdfs/probioticreport.pdf>

- Marteau P, Shanahan F. Basic aspects and pharmacology of probiotics: an overview of pharmacokinetics, mechanisms of action and side-effects. *Best Practice & Research Clinical Gastroenterology* 2003;17:725-740.
- Mitsuoka T. Bifidobacteria and their role in human health. *J Ind Microbiol* 1990;6:263-8.
- Nomoto K. Prevention of infection by probiotics. *J. bioscience and bioengineering* 2005; 100: 583-592.

### **Individual Human Studies**

- Asahara T, Takahashi M, Nomoto K et al. Assessment of safety of lactobacillus strains based on resistance to host innate defense mechanisms. *Clin Diagn Lab Immunol* 2003;10:169-73.
- Cats A, Kuipers EJ, Bosschaert MAR, Pot RGJ, Vandenbroucke-Grauls CMJE, Kusters JG (2003); Effect of frequent consumption of a Lactobacillus casei-containing milk drink in Helicobacter pylori-colonized subjects". *Aliment Pharmacol Ther* 17, 429-35.
- De Preter V, Geboes K, Verbrugghe K et al. The in vivo use of the stable isotope-labelled biomarkers lactose-[15N]ureide and [2H4]tyrosine to assess the effects of pro- and pre-biotics on the intestinal flora of healthy human volunteers. *Br J Nutr* 2004;92:439-446.
- De Preter V (2006) Biomarkers to study the in vivo efficacy of pre- and/or probiotics on the colonic fate of ammonia and p-cresol in healthy volunteers. Doctor thesis at Katholieke Universiteit Leuven. 2006 Apr. Belgium.
- Jacalne AV, Jacalne RR, Hirano H, Suetomi T, Villahermosa CG, Castaneda I (1990) In-vivo studies on the use of lactobacillus casei (Yakult strain) as biological agent for the prevention and control of diarrhea. *Acta Medica Philippina* 26, 116-122.
- Kikuchi K (1962) Fluctuation of number of *E. coli* and Lactobacilli in human stool by peroral administration of Yakult. *Teishan Igaku* 14, 64-66 (in Japanese).
- Kanazawa H, et al (2005); Synbiotics reduce postoperative infectious complications: a randomized controlled trial in biliary cancer patients undergoing hepatectomy". *Langenbecks Arch Surg* 390, 104-13.
- Koebnick C, Wagner I, Leitzmann P et al. Probiotic beverage containing Lactobacillus casei Shirota improves gastrointestinal symptoms in patients with chronic constipation. *Can J Gastroenterol* 2003;17:655-659.
- Matsumoto K, Takada T, Shimizu K et al. The effect of a probiotic milk product containing Lactobacillus casei strain Shirota on defecation frequency and the intestinal microflora of sub-optimal health state volunteers: a randomized placebo-controlled cross-over study. To be published in *Bioscience and Microflora* April 2006;25(2).
- Shioiri T, et al (2006); "The effects of a symbiotic fermented milk beverage containing Lactobacillus casei strain Shirota and transgalactosylated oligosaccharides on defecation frequency, intestinal microflora, organic acid concentrations, and putrefactive metabolites of sub-optimal health state volunteers: A randomized placebo-controlled cross-over study". *Bioscience Microflora* 25 (4), 137-46.
- Spanhaak S, Havenga R, Schaafsma G. The effect of consumption of milk fermented by Lactobacillus casei strain Shirota on the intestinal microflora and immune parameters in humans. *Eur J Clin Nutr* 1998;52(12):899-907.
- Sugawara G, et al (2006); "Perioperative symbiotic treatment to prevent postoperative infectious complications in biliary cancer surgery-A randomized controlled trial", *Annals of surgery* 244 (5), 706-14.

- Tanaka R, Tohyama K, Morotomi M, Takayama H, Nanno M, Kuroshima T, Mutai M (1981) Effect on the fecal flora and urinary metabolites by the administration of Lactobacillus casei and Bifidobacterium breve strain Yakult. In Proceedings of I RIKEN Symposium on Intestinal Flora: Intestinal Flora and Carcinogenesis, pp. 79-103 [T Mitsuoka, editor]. Tokyo: Japan scientific Societies Press. (in Japanese).
- Tanaka R, Ohwaki M. A controlled study of the effects of the ingestion of Lactobacillus casei-fermented milk on the intestinal microflora, its microbial metabolism and the immune system of healthy humans. In: Mitsuoka T (Ed) Proceedings of XII RIKEN Symposium on Intestinal Flora: Intestinal Flora and Diet Tokyo, Japan Scientific Societies Press 1993, p85-104.
- Tohyama K, Kobayashi Y, Kan T, Yazawa K, Terashima T, Mutai M (1981) Effect of lactobacilli on urinary indican excretion in gnotobiotic rats and in man. Microbiology Immunology 25, 101-112.
- Tuohy KM, Pinart-Gilberga M, Jones M, Hoyle L, McCartney AL, Gibson G. (2006); Survivability of a probiotic Lactobacillus casei in the gastrointestinal tract of healthy human volunteers and its impact on the faecal microflora. Accepted for publication in J. Applied Microbiology
- Yamagishi T, Serikawa T, Morita R, Takahashi K, Nishida S (1974) Effect of lactobacillus product administration on the anaerobic intestinal flora of aged adults. Japan. J. Microbiology 18, 211-216.
- Yuki N, Watanabe K, Mike A et al. (1999); Survival of a probiotic, Lactobacillus casei strain Shirota, in the gastrointestinal tract: selective isolation from faeces and identification using monoclonal antibodies. Int J Food Microbiol;48:51-7.

#### **Additional Human Studies**

- Alm L, Humble D, Ryd-Kjellen E, Setterberg G (1983) The effect of acidophilus milk in the treatment of constipation in hospitalised geriatric patients. Symposia of Swedish Nutrition Foundation xv, 131-138.
- Bongaerts GPA, et al (2006); "Latobacillus fermentum bateremia in a seriously ill premature short small bowel patient during probiotic Lactobacillus casei therapy. Intern J Probiotics and Prebiotics. 1 (2) 145-8.
- Candy DCA, et al (2000); Effect of administration of Lactobacillus casei Shirota on sodium balance in an infant with short bowel syndrome". J Pediatric Gastroenterology and Nutrition 32, 506-8
- Numata K (1973) Clinical effect of a high concentrate Lactobacilli preparation on chronic constipation. The Clinical Report 7, 1856-1857.
- Ogawa T, Hirai R, Nakakuni H, Sato Y, Wakisaka S, Tachibana M, Tominaga H, Kurata M, Matsubayashi K (1974) Clinical experience with the use of the high-concentration lactic acid bacteria preparation LP-201 to treat habitual constipation. The Clinical Report 8, 1085-1092 (Japanese).
- Shimizu S and Shibamoto G (1964) Clinical observation of the effects of a strain of acidophilic lactic acid bacteria (Yakult strain) on the intestinal gas production. Proceedings of Tokyo Medical College 21, 1-5.
- Shirota M, Aso K, Iwabuchi A (1966) Study on microflora of human intestine. I. Alteration of the constitution of intestinal flora by oral administration of L. acidophilus strain Shirota to healthy infants. Japanese Journal of Bacteriology 21, 274-283 (in Japanese).

#### **Animal Studies**

- Asahara T, Nomoto K, Watanuki M and Yokokura T. (2001). Antimicrobial activity of intraurethrally administered probiotic Lactobacillus casei in a murine model of Escherichia coli urinary tract infection. Antibicrob. Agents Chemother. 45: 1751-1760.

- Lee YK, Lim CY, Teng WL, Ouwehand AC, Tuolola EM and Salminen S (2000): Quantitative approach in the study of adhesion of lactic acid bacteria to intestinal cells and their competition with enterobacteria. *Appl. Environ. Microbiol.*, 66: 3692-3697.
- Miake S, Nomoto K, Yokokura T, Mutai M. Nomoto K. (1985). Protective effect of Lactobacillus casei on Psoudomonas aeruginasa infection in mice. *Infect. Immun.*, 48: 480-485.
- Ogawa M, Shimizu K, Nomoto K, Takahashi M, Watanuki M, Tanaka R, Tanaka T, Hamabata T, Yamasaki S, Takeda Y (2001) Protective effect of lactobacillus casei strain shirota on shiga toxin-producing escherichia coli 0157: H7 infection in infant rabbits. *Infection and Immunity* 69, 1101-1108.
- Tohyama K, Kobayashi Y, Kan T, Yazawa K, Terashima T, Mutai M (1981) Effect of lactobacilli on urinary indican excretion in gnotobiotic rats and in man. *Microbiology Immunology* 25, 101-112.
- Tsunoda A, Shibusawa M, Tsunoda Y, Watanabe M, Nomoto K and Kusano M (2002): Effect of Lacgtobacillus casei on a novel murine model of abdominal spsis. *J. Surg. Res.* 107: 37-43.
- Yokokura T, Nomoto K, Shimizu T, and Nomoto K (1986). Enhancement of hematopoietic response of mice by subcutaneous administration of Lactobacillus casei. *Infect. Immun.*, 52, 156-160

### ***In vitro Study***

- Hendriks H, Nauta N, Koninkx J, Swennenhuis J, van Asten F, van Dijk J (1999) Decrease in adherence and invasion of *Salmonella enteritidis* 857 to Caco-2 cells after simultaneous incubation with Lactobacillus casei Shirota. *The Host-Microflora Interface in Health & Disease Symposium Proceedings*, The Netherlands.

## **PROBIOTIC 23 - Lactobacillus Casei Shirota (LcS) and Digestive System / Bowel Habit**

### ***Review***

- Nomoto K. Prevention of infection by probiotics. *J. bioscience and bioengineering* 2005; 100: 583-592

### ***Individual Human Studies***

- Koebnick C, Wagner I, Leitzmann P et al. Probiotic beverage containing Lactobacillus casei Shirota improves gastrointestinal symptoms in patients with chronic constipation. *Can J Gastroenterol* 2003;17:655-659.
- Matsumoto K, Takada T, Shimizu K et al. The effect of a probiotic milk product containing Lactobacillus casei strain Shirota on de defecation frequency and the intestinal microflora of sub-optimal health state volunteers: a randomized placebo-controlled cross-over study. To be published in *Bioscience and Microflora* April 2006;25(2).
- Spanhaak S, Havenga R, Schaafsma G. The effect of consumption of milk fermented by Lactobacillus casei strain Shirota on the intestinal microflora and immune parameters in humans. *Eur J Clin Nutr* 1998;52(12):899-907

### ***Additional Human Studies***

- Alm L, Humble D, Ryd-Kjellen E, Setterberg G (1983) The effect of acidophilus milk in the treatment of constipation in hospitalised geriatric patients. *Symposia of Swedish Nutrition Foundation xv*, 131-138.
- Numata K (1973) Clinical effect of a high concentrate Lactobacilli preparation on chronic constipation. *The Clinical Report* 7, 1856-1857

- Ogawa T, Hirai R, Nakakuni H, Sato Y, Wakisaka S, Tachibana M, Tominaga H, Kurata M, Matsubayashi K (1974) Clinical experience with the use of the high-concentration lactic acid bacteria preparation LP-201 to treat habitual constipation. The Clinical Report 8, 1085-1092 (Japanese).
- Shimizu S and Shibamoto G (1964) Clinical observation of the effects of a strain of acidophilic lactic acid bacteria (Yakult strain) on the intestinal gas production. Proceedings of Tokyo Medical College 21, 1-5.
- Shirota M, Aso K, Iwabuchi A (1966) Study on microflora of human intestine. I. Alteration of the constitution of intestinal flora by oral administration of *L. acidophilus* strain Shirota to healthy infants. Japanese Journal of Bacteriology 21, 274-283 (in Japanese).

## **PROBIOTIC 24 - *Lactobacillus Gasseri PA 16/8* and *Bifidobacterium Bifidum MF 20/5* and Intestinal Flora / Digestive Health**

### ***Individual Human Studies***

- Honma N. On effect of lactic acid bacteria, Clinical effects. Part II. New Medicines and Clinics 36 (1): 75 (1987)
- Willard T. Kyo-Dophilus use in the reduction of *Candida albicans* symptoms. Chiron consultants inc., Calgary, Canada (1989)

### ***Animal Studies***

- Isa Y, Ohgushi H, Yamashita M, Ishihara Y, Sakutani W, Shimakawa M, Arai T, Ohno H., Effects of *Bifidobacterium Bifidum MF 20/5* on experimental constipation models. Medicine and Pharmaceuticals 49 (5): 745-51 (2003)
- Kitada Y, Shimakawa M, Isa Y, Hosokawa Y, Mizuguchi Y, Ohno H, Yamamura H., Effects of *Bifidobacterium Bifidum MF 20/5* on experimental constipation model and diarrhea model. J New Rem & Clin. 52 (6): 761-9 (2203)
- Yamashita, M. et al., Ecological study of effects of administration of three kinds of lactic acid bacteria on suppression of intestinal decomposed substance. Clinics and Microorganisms 13 (b): 87 (1987)
- Yoneda, K., Biological study on live bacteria products in the market. Medicine and Pharmacology 17 (6): 1529-1534 (1987)

### ***In vitro Study***

- Yamamoto, T., Effect of lactic acid bacteria on intestinal putrefactive substance producing bacteria of human source. Basics and Clinics 20 (14): 20 (1986)

## **PROBIOTIC 25 - *Lactobacillus Gasseri CECT5714* and *Lactobacillus Coryniformis CECT5711* and Intestinal Flora and Intestinal Transit**

### ***Individual Human Studies***

- Lara-Villoslada F, Sierra S, Boza J, Xaus J, Olivares M. Beneficial effects of consumption of a dairy product containing two probiotic strains, *Lactobacillus coryniformis CECT5711* and *Lactobacillus gasseri CECT5714* in healthy children. Nutr. Hosp. In Press, 2006.
- Lara-Villoslada F, Sierra S, Díaz-Ropero MP, Maldonado J, Boza J, Xaus J, Olivares M. El consumo en niños de una leche fermentada con *L. gasseri CECT5714* y *L. coryniformis CECT5711* mejora parámetros involucrados en mecanismos de defensa frente a infecciones

intestinales (Children consumption of a fermented milk with *L. gasseri* CECT5714 and *L. coryniformis* CECT5711 improve some mechanisms involved in the defence against intestinal infections). *Anales de Pediatría*. 64: 267. 2006.

- Martin R., Langa S., Reviriego C., Marin ML., Fernandez L., Xaus J., Rodriguez JM. Transferencia de bacterias lácticas del intestino de la madre al intestino del lactante a través de la leche materna (lactic acid bacteria transfer from the mother's gut to the lactating intestine through breast-feeding. II spanish congress of lactation). II Congreso español de Lactancia Materna. Sevilla (Spain). 2002
- Martin R., Langa S., Reviriego C., Jimenez E., Marin ML., Xaus J., Fernandez L., Rodriguez JM. Human milk is a source of lactic acid bacteria to the infant gut. *J. Pediatrics*. 143: 754-758. 2003
- Olivares M., Díaz-Ropero MP., Lara-Villoslada., Rodriguez JM., Xaus J. Probiotic effectiveness in allergy: Child game or adult affair?. *Nutrafoods*. 4: 59-64. 2005.
- Olivares M., Diaz-Ropero MP., Gomez N., Lara-Villoslada F., Sierra S., Maldonado JA., Martin R., Lopez-Huertas E., Rodriguez JM., Xaus J. Oral administration of two probiotic strains, *Lactobacillus gasseri* CECT5714 and *Lactobacillus coryniformis* CECT5711, enhances the intestinal function of healthy adults. *Int. J. Food Microbiol.* 107: 104-111.. 2006.
- Olivares M., Diaz-Ropero MP., Gomez N., Sierra S., Lara-Villoslada., Martin R., Rodriguez JM., Xaus J. The deprivation of fermented foods in diet causes a fall in innate immune response. Lactic acid bacteria can counteract the immunological effect of this deprivation. *J. Dairy Res.* 21: 1-7. 2006.
- Olivares M., Diaz-Ropero MP., Gomez N., Sierra S., Lara-Villoslada F., Maldonado JA., Martin R., Rodriguez JM., Xaus J. The consumption of two probiotic strains, *Lactobacillus gasseri* CECT5714 and *Lactobacillus coryniformis* CECT5711, boost the immune system of healthy adults. *Int. Microbiol.* 9: 47-52. 2006

### **Animal Studies**

- Lara-Villoslada F, Sierra S, martin R, delgado S, Rodríguez JM, Olivares M, Xaus J. Safety assesment of two probiotic strains, *Lactobacillus coryniformis* CECT5711 and *Lactobacillus gasseri* CECT5714. *J. Appl. Microbiol.* In Press. 2006
- Olivares M., Díaz-Ropero MP., Lara-Villoslada., Rodriguez JM., Xaus J. Probiotic effectiveness in allergy: Child game or adult affair?. *Nutrafoods*. 4: 59-64. 2005.
- Olivares M., Díaz-Ropero MP., Martin R., Rodriguez JM., Xaus J. Antimicrobial potential of four *lactobacillus* strains isolated from breast milk. *J. Appl. Microbiol.* 101: 72-79. 2006.

### **In Vitro Studies**

- Martin R., Olivares M., Marin ML., Fernandez L., Xaus J., Rodriguez JM. Probiotic potential of three *lactobacilli* strains isolated from human breast milk. *J. Hum. Lactation*. 21: 8-17. 2005.
- Martin R., Olivares M., Marin ML., Xaus J., Fernandez L., Rodriguez JM. Characterization of a reuterin-producing *Lactobacillus coryniformis* strain isolated from an artisan goat's milk cheese. *J. Food. Microbiol.* 104: 267-277. 2005.
- Olivares M., Díaz-Ropero MP., Martin R., Rodriguez JM., Xaus J. Antimicrobial potential of four *lactobacillus* strains isolated from breast milk. *J. Appl. Microbiol.* 101: 72-79. 2006.

## **PROBIOTIC 26 – *Lactobacillus helveticus* CNCM I-1722 and *Bifidobacterium longum* CNCM I-3470 and Digestive System**

### **Review**

- Haskey, N. and Dahl, W. Synbiotic therapy: A promising new adjunctive therapy for ulcerative colitis. Nutrition review 2006, Vol 64 (3): 132-138.

#### ***Individual Human Study***

- Diop L, Guillou S, Durand H et al. Evaluation of the probiotic food supplement on stress-induced symptoms in volunteers: a double-blind, placebo-controlled randomized trial. 2006, submitted to Nutrition Research.

#### ***In Vitro Study***

- Johnson-Henry, K C, Hagen, K E, Gordonpour, M, Tompkins T and P M Sherman. Surface-layer protein extracts from *Lactobacillus helveticus* inhibit enterohaemorrhagic *Escherichia coli* O157:H7 adhesion to epithelial cells. Cellular Microbiology 2006 Vol 9 (2): 356-357.

### **PROBIOTIC 27 – *Lactobacillus Helveticus* CNCM I-1722 and *Lactobacillus Rhamnosus* CNCM I-1720 and Digestive System**

#### ***Individual Human Studies***

- Benes Z, Krtek V and T Tompkins. A probiotic combination for IBS- A pilot Clinical Study, Nutrafoods 2006 5(1) 20-27.
- Bielanski W, Ziemiak W, Plonka M, et al. Improvement of anti-*Helicobacter pylori* therapy by the use of commercially available probiotics. Presented at the European Helicobacter Study Group, XV International Workshop, Athens, Greece, Sept. 11-14, 2002, Gut 51, Sept. 2002, suppl. 11, A98.

#### ***Additional Human Study***

- Tlaskal, P, Michkova, E, Klayarová, H, Jerabkova, L, Nevoral, J, Balackova, J, Tejnecka, Valtrova, V, Simandlova, M and L Kejvalova. *Lactobacillus acidophilus* in the treatment of children with gastrointestinal tract illness. Cesko-Slovenska Pediatrie 1995, vol 51: 615-619.

#### ***In Vitro Study***

- Johnson-Henry, K C, Hagen, K E, Gordonpour, M, Tompkins T and P M Sherman. Surface-layer protein extracts from *Lactobacillus helveticus* inhibit enterohaemorrhagic *Escherichia coli* O157:H7 adhesion to epithelial cells. Cellular Microbiology 2006 Vol 9 (2): 356-357.

### **PROBIOTIC 28 - *Lactobacillus Johnsonii* La-19/CLbA5 and *Bifidobacterium Animalis* ssp. *Lactis* Bf-6/Bif-6/CB111 (Biogarde®/Bioghurt®/Bigarde®/Bighurt®-Cultures) and Intestinal Flora / Digestive Health**

#### ***Authoritative/Scientific Bodies***

- DGE (Deutsche Gesellschaft für Ernährung) - Ernährungsbericht 2004. Beeinflussung der Darmflora durch Ernährung. 287-323.
- Prosafe-Projekt Report (Results on species identification & antibiotic susceptibility testing).
- [www.effca.com/anglais/pages/statique/11\\_list\\_of\\_microorg.htm](http://www.effca.com/anglais/pages/statique/11_list_of_microorg.htm)

#### ***Textbooks***

- Brock, TD et al. (1994). Biology of Microorganisms, Prentices-Hall International. 403-405.

- Ebersdorfer, HF/Meyer, AH (2000). Praxishandbuch Functional Food. Behr's Verlag, Probiotika (7), 7.1.8, 7.4.4, 7.4.9.
- Rutloff, H et al. (1997). Lebensmittel-Biotechnologie und Ernährung. Springer-Verlag. 6-13, 59-60, 154-157.

### **Reviews**

- Buttriss, J (1997). Nutritional properties of fermented milk products. International Journal of Dairy Technology 50 (1), 21-27.
- Cummings, JH et al. (2004). Passclaim - Gut Health and Immunity. Eur. J. Nutr. 43 (2). 119-122, 131-132
- Fooks, LJ, Fuller, R, Gibson, GR (1999). Prebiotics, Probiotics and Human Gut Microbiology. International Dairy Journal 9, 53-61.
- Kneifel, W, Bonaparte, C (1998). Novel trends related to health-relevant foods: 1. Probiotics. Nutrition 22 (9), 357-363.
- Mitsuoka, T (1990). Bifidobacteria and their Role in Human Health. Journal of Industrial Microbiology and Biotechnology 6 (4), 263-267.
- Rasic, JL, Kurmann, JA (1983). Bifidobacteria and their Role. Microbiological, Nutritional-Physiological, Medical and Technological Aspects and Bibliography. Experientia Suppl. 39, 1-295.

### **Individual Human Studies**

- Heidt, PJ (1989). Gnotobiotics and bone marrow transplantation. Publication of the Radiobiological Institute Rijswijk, Netherlands. S. 96-97
- Kullen, MJ et al. (1996). Differentiation of ingested and endogenous Bifidobacteria by DNA fingerprinting demonstrates the survival of an unmodified strain in the gastrointestinal tract of humans. The Journal of Nutrition 127 (1). 89-94.
- Rink, DJ et al. (1998). Consumption of exogenous L. acidophilus does alter fecal lactobacilli levels. Study of the University of Minnesota, USA.

### **Animal Study**

- Tejada-Simon, MW et al. (1999). Ingestion of yogurt containing L. acidophilus and Bifidobacterium to potentiate IgA responses to cholera toxin in mice. J. Dairy Science 82. 649-660

### **In Vitro Studies**

- Shin, HS et al. (2000). Growth and viability of commercial Bifidobacterium ssp. in skim milk containing Oligosacchaides and Inulin. J. Food Science 65 (5), 884-887.
- Unstunol, Z. The effect of honey on the growth of Bifidobacteria. Summary of a Research Project funded by the National Honey Board and conducted at Michigan State University, USA. [www.nhb.org](http://www.nhb.org).

## **PROBIOTIC 29 - Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Gut Health**

### **Individual Human Studies**

- Felley, C.P., Corthesy-Theulaz, I., Rivero, J.L., Sipponen, P., Kaufmann, M., Bauerfeind, P., Wiesel, P.H., Brassart, D., Pfeifer, A., Blum, A.L., Michetti, P. 2001. Favourable effect of an acidified milk (LC-1) on Helicobacter pylori gastritis in man. Eur J Gastroenterol Hepatol 13:25-29.

- Fukushima, Y., Yamano, T., Kusano, A., Takada, M., Amano, M., Iino, H. 2004. Effect of fermented milk containing *Lactobacillus johnsonii* La1 on defecation in healthy Japanese adults - a double blind placebo controlled study -. *Bioscience Microflora*. 23: 139-147.
- Garrido, D., Suau, A., Pochart, P., Cruchet, S., Gotteland, M. 2005. Modulation of the fecal microbiota by the intake of a *Lactobacillus johnsonii* La1-containing product in human volunteers. *FEMS Microbiology Letters* 248:249–256.
- Michetti, P., Dorta, G., Wiesel, P.H., Brassart, D., Verdu, E., Herranz, M., Felley, C., Porta, N., Rouvet, M., Blum, A.L., Corthesy-Theulaz, I. 1999. Effect of whey-based culture supernatant of *Lactobacillus acidophilus* (johnsonii) La1 on *Helicobacter pylori* infection in humans. *Digestion* 60:203-209.
- Pantoflickova, D., Corthesy-Theulaz, I., Dorta, G., Stolte, M., Isler, P., Rochat, F., Enslen, M., Blum, A.L. 2003. Favourable effect of regular intake of fermented milk containing *Lactobacillus johnsonii* on *Helicobacter pylori* associated gastritis. *Aliment Pharmacol Ther* 18:805-813.
- Yamano T, Iino H, Takada M, Blum S, Rochat F, Fukushima Y (2006) Improvement of the human intestinal flora by ingestion of the probiotic strain *Lactobacillus johnsonii* La1. *Br J Nutr*. 2006 Feb;95(2):303-12.
- Yamano, T., Takada, M., Fukushima, Y., Iino, H. 2004. Effect of fermented milk containing *Lactobacillus johnsonii* La1 on the intestinal microflora and fecal characteristics in young Japanese wom.

#### ***Additional Human Study***

- Cruchet, S., Obregon, M.C., Salazar, G., Diaz, E., Gotteland, M. 2003. Effect of the ingestion of a dietary product containing *Lactobacillus johnsonii* La1 on *Helicobacter pylori* colonization in children. *Nutrition* 19:716-721.

#### ***Animal Studies***

- Bernet-Camard, M.F., Liévin, V., Brassart, D., Neeser, J.R., Servin, A.L., Hudault S. 1997. The human *Lactobacillus acidophilus* strain LA1 secretes a nonbacteriocin antibacterial substance(s) active in vitro and in vivo. *Appl Environ Microbiol* 63:2747-2753.
- Humen, M.A., De Antoni, G.L., Benyacoub, J., Costas, M.E., Cardozo, M.I., Kozubsky, L., Saudan, K.-Y., Boenzli-Bruand, A., Blum, S., Schiffrin, E.J., Pérez, P.F. 2005. *Lactobacillus johnsonii* La1 antagonizes *Giardia intestinalis* in vivo. *Infection and Immunity*, 73:1265–1269.
- Ibnou-Zekri, N., Blum, S., Schiffrin, E.J., von der Weid, T. 2003. Divergent patterns of colonization and immune response elicited from two intestinal *Lactobacillus* strains that display similar properties in vitro. *Infect Immun* 71:428-436.
- Link, H., Rochat, F., Saudan, K.Y., Schiffrin, E. 1995. Immunomodulation of the gnotobiotic mouse through colonization with lactic acid bacteria. *Adv Exp Med Biol* 371A:465-467.
- Prioult, G., Fliss, I. and Pecquet, S. (2003). Effect of probiotic bacteria on induction and maintenance of oral tolerance to beta-lactoglobulin in gnotobiotic mice. *Clin Diagn Lab Immunol* 10:787-792.
- Verdu EF, Bercik P, Bergonzelli GE, Huang XX, Blennerhasset P, Rochat F, Fiaux M, Mansourian R, Corthesy-Theulaz I, Collins SM (2004). *Lactobacillus paracasei* normalizes muscle hypercontractility in a murine model of postinfective gut dysfunction. *Gastroenterology*. 2004 Sep;127(3):826-37.

#### ***In Vitro Studies***

- Avonts, L., De Vuyst, L. (2001). Antimicrobial potential of probiotic lactic acid bacteria. *Med. Fac. Landbouww. Univ. Gent.* 66:543-550.
- Bernet, M.F., Brassart, D., Neeser, J.R., Servin, A.L. 1994. *Lactobacillus acidophilus* LA 1 binds to cultured human intestinal cell lines and inhibits cell attachment and cell invasion by enterovirulent bacteria. *Gut* 35(4):483-489.
- Bernet-Camard, M.F., Liévin, V., Brassart, D., Neeser, J.R., Servin, A.L., Hudault S. 1997. The human *Lactobacillus acidophilus* strain LA1 secretes a nonbacteriocin antibacterial substance(s) active in vitro and in vivo. *Appl Environ Microbiol* 63:2747-2753.
- De Vuyst, L., Makras, L., Avonts, L., Holo, H., Yi, Q., Servin, A., Fayol-Messaoudi, D., Berger, C., Zoumpopoulou, G., Tsakalidou, E., Sgouras, D., Martinez-Gonzales, B., Panayotopoulou, E., Mentis, A., Smarandache, D., Savu, L., Thonart, P., Nes. I. (2004) Antimicrobial potential of probiotic or potentially probiotic lactic acid bacteria, the first results of the International European research project PROPATH of the PROEUHEALTH cluster. *Microbes in Health and Disease*, 16:125-130
- Fayol-Messaoudi, D. et al. pH, Lactic Acid, and Non-Lactic Acid-Dependant Activities of Probiotic *Lactobacilli* against *Salmonella enterica* Serovar Typhimurium. *Applied and Environmental Microbiology* 2005, 6008-6013.
- Pérez, P.F., Minnaard, J., Rouvet, M., Knabenhans, C., Brassart, D., De Antoni, G.L., Schiffri, E.J. (2001). Inhibition of *Giardia intestinalis* by extracellular factors from *Lactobacilli*: an in vitro study. *Appl Environ Microbiol* 67:5037-5042.

### **PROBIOTIC 30 - *Lactobacillus Paracasei* NCC 2461 (ST11) (Pasteur Culture Collection CNCM I-2116) and Gut Health**

#### ***Individual Human Study***

- Rochat F., Bergonzelli G.E. Efficacy of a formula containing *Lactobacillus paracasei* to improve symptoms in patients with IBS. Internal Report..

#### ***Additional Human Studies***

- Baumgartner M., Rochat F., ST11-99 study: first preliminary statistical analysis, NRC/FSP MBA/FL/sc, May 12, 1999 Mamin O., Microbial analysis of the 1st study with NCC 2461 in Guatemala. NRC/NT OMA/MAO, July 20, 2000
- Bulux J. Final Report of a Sponsored Research Study N° 00.11.NRC. Evaluation of the effect of probiotics (NCC 2461) on the incidence of diarrhea in toddlers. February 26, 2001. Parreno F. Diarrhea aguda y su prevencion con probioticos en Guatemala, Madrid University Tesis Doctoral. 2002. Parreno F., Bulux J. Anthropometric status is not a predictor of risk of diarrheal morbidity during the tropical rainy season in a peri-urban Guatemalan community. FASEB abstracts 2000. Solomons N.W., Bulux J., Parreno F., Romero-Abal M. -E., Klassen P. Incidence of diarrhea cases and diarrheal episodes with or without daily feeding of *Lactobacillus paracasei* NCC 2461. World Congress of Pediatric Gastroenterology, Hepatology and Nutrition, August 5-9, 2000. Solomons N.W., Bulux, J., Evaluation of the effect of probiotics (ST11) on the incidence of diarrhea in young children, Final report, Feb. 17, 2000.
- Sarker SA, Sultana S, Fuchs GJ, Alam NH, Azim T, Brüssow H, Hammarström L, *Lactobacillus paracasei* strain ST11 has no effect on rotavirus but ameliorates the outcome of non rotavirus diarrhea in children from Bangladesh, *Pediatrics*, 2005;116: e221-e228

#### ***Animal Studies***

- Eutamene H, F. Lamine, C. Chabo, V. Theodorou, F. Rochat, G. E. Bergonzelli, I. Corthésy-Theulaz, J. Fioramonti and L. Bueno. Synergy between *Lactobacillus paracasei* and its bacterial products to counteract stress increased gut permeability and sensitivity in rats. (submitted).
- Eutamene H., V. Theodorou, G. E. Bergonzelli, F. Rochat, I. Corthésy-Theulaz, J. Fioramonti and L. Bueno. Prevention of acute stress-induced visceral hypersensitivity by *Lactobacillus paracasei* requires the presence of both live bacteria and the metabolites produced during fermentation. Abstract to ESPGHAN, 2006.
- Ibnou-Zekri N., Blum S., Schiffriin EJ., von der Weid T., Divergent Patterns of Colonization and Immune Response Elicited from Two Intestinal *Lactobacillus* Strains That Display Similar Properties In Vitro. *Infection and Immunity*, 2003, p. 428-436.
- Lamine F, Eutamene H, Theodorou V, Rochat F, Corthesy-Theulaz I, Fioramonti J, Bueno L, Comparative effects of 3 probiotics on colonic hypersensitivity induced by acute restraint stress in rats, Abstract to UEGW 2004
- Lamine F, Eutamene H, Theodorou V, Rochat F, Corthesy-Theulaz I, Fioramonti J, Bueno L, *Lactobacillus paracasei* NCC 2461 alleviates the increased colonic sensitivity to distension in rats that were stressed neonatally, Abstract to UEGW 2004
- Lamine F., H. Eutamene, V. Theodorou, F. Rochat, G.E. Bergonzelli, I. Corthesy-Theulaz, J. Fioramonti and L. Bueno. *Lactobacillus paracasei* NCC 2461 treatment alleviates both the increased gut paracellular permeability and colorectal hypersensitivity to distension in adult rats that were stressed neonatally. Abstract to AGA 2005.
- Verdú E. F., P. Bercik, G. Bergonzelli, X-X. Huang, P. Blennerhasset, F. Rochat, M. Fiaux, R. Mansourian, I. Corthésy-Theulaz, S. M. Collins. *Lactobacillus paracasei* normalizes muscle hypercontractility in a murine model of post-infective gut dysfunction. *Gastroenterology* 2004 127 (3): 826-837.
- Verdu E.F., Gabriela E. Bergonzelli, Premysl Bercik, Luisa V. Lopes, Andreas Fürholz, Florence Rochat, Irene Corthésy-Theulaz and Stephen M. Collins. *Lactobacillus paracasei* normalizes post-infective dysmotility in vivo - Potential mechanisms involved. Abstract to ESPGHAN, 2006.
- Verdú E.F., P Bercik, M Verma-Gandhu, X-X Huang, P Blennerhassett, W Jackson, Y Mao, L Wang, F Rochat and S M Collins. Specific probiotic therapy attenuates antibiotic induced visceral hypersensitivity in mice. 2006, Gut;55;182-190.
- Verdu E.F., P. Bercik, X-X Huang, P. Blennerhassett, G. Bergonzelli, F. Rochat, I. Corthesy-Theulaz and S. M. Collins. *Lactobacillus paracasei* Normalizes Post-Infective Dysmotility In Vivo and Induces a Sustained Attenuation of Inflammatory Mediators. Abstract to AGA 2004.

### ***In Vitro Studies***

- Bahr D. Development and optimisation of ST11 culture powder with retained probiotic activity. May 2001.
- Bergonzelli G., Corthésy I., Didlon C.; Anti-H. pylori activity of milk and cereal base media fermented by Lj1 or ST11, NRC/NT GBi-ICT/kti, October 30, 2001.
- Cavardini Ch., Vacarello V., Investigation of the resistance of spray-dried *Lactobacillus paracasei* NCC2461 (ST11) to gastrointestinal conditions of adults and infants in concentrated form and incorporated in a practical food matrix, NRC/BS ChC/cit, August 10, 2000.
- Conway P. L., Gorbach S. L., Goldin B. R., Survival of lactic acid bacteria in the human stomach and adhesion to intestinal cells, *J Dairy Sci* 1987; 70: 1-12
- Servin A. L., Rapport sur activité antimicrobienne de la souche NESTEC *Lactobacillus casei* NCC 2461, "Pathogènes et fonctions des cellules épithéliales polarisées", 1998.

- Sidoti J., Blum S., Zbinden I., Brüssow H., Screening of lactic acid bacteria from the Nestec Culture Collection (NCC) for anti-rotavirus activity in a human intestinal cell culture model. RE-RD980022, Feb. 05, 1998.
- Zink R., Dossier: Lb. paracasei NCC 2461 (ST11), Resistance to different pH-conditions in the challenge-test with SGJ/BA, 2000.

## **PROBIOTIC 31 – Lactobacillus Plantarum and Natural Defences / Digestive Health**

### ***Individual Human Studies***

- Anderson AD, McNaught CE, Jain PK, MacFie J. Randomised clinical trial of synbiotic therapy in elective surgical patients. Gut. 2004 Feb;53(2):241-5.
- Goossens DA, Jonkers DM, Russel MG, Stoberingh EE, Stockbrugger RW. The effect of a probiotic drink with *Lactobacillus plantarum* 299v on the bacterial composition in faeces and mucosal biopsies of rectum and ascending colon. Aliment Pharmacol Ther. 2006 Jan 15;23(2):255-63.
- Koll-Klais P, Mandar R, Leibur E, Marcotte H, Hammarstrom L, Mikelsaar M. Oral lactobacilli in chronic periodontitis and periodontal health: species composition and antimicrobial activity. Oral Microbiol Immunol. 2005 Dec;20(6):354-61

### ***In Vitro Study***

- Brink M, Todorov SD, Martin JH, Senekal M, Dicks LM. The effect of prebiotics on production of antimicrobial compounds, resistance to growth at low pH and in the presence of bile, and adhesion of probiotic cells to intestinal mucus. J Appl Microbiol. 2006 Apr;100(4):813-20.

## **PROBIOTIC 32 – Lactobacillus Plantarum 299v and Digestive System**

### ***Authoritative/Scientific Body***

- Swedish Nutrition Foundation, Statement concerning the evaluation of the scientific documentation behind a product specific health claim, Proviva Fruit Drink with *Lactobacillus plantarum* 299v. 12 September 2003.

### ***Individual Human Studies***

- Johansson, ML, Nobaek S, Berggren A. Survival of *Lactobacillus plantarum* DSM 9843 (299v) and effect on the short-chain fatty acid content of faeces after ingestion of a rose-hip drink with fermented oats. Int J Food Microbiol 1998, Vol 42, 29-38.
- Niedzielin, K., Kordecki, H. and B. Birkenfeld. A controlled, double-blind, randomized study on the efficacy of *Lactobacillus plantarum* 299v in patients with irritable bowel syndrome. European Journal of Gastroenterology & Hepatology, 2001, Vol 13 (10): 1143-1147.
- Nobaek, S., Johansson, M-L., Molin, G., Ahrne, S., and B. Jeppsson. Alteration of Intestinal Microflora is associated with reduction in abdominal bloating and pain in patients with Irritable Bowel Syndrome. The American Journal of Gastroenterology, 2000, Vol 95 (5): 1231-1238.

### ***Additional Human Studies***

- Cunningham Rundles, S, Ahrné, S, Bengmark, S, Hohann-Liang, R, Marshall, F, Metakis, L, Califano, C, Dunn, A-M, Grassey, C, Hinds, G and J Cervia. Probiotics and Immune Response. The American Journal of Gastroenterology 2000, Vol 95 (1) Suppl: S22-S25.

- Goossens, D, Jonkers, D, Russel, M, Stobberingh, E, Van Den Bogaard and R StockbrUgger. The effect of *Lactobacillus plantarum* 299v on the bacterial composition and metabolic activity in faeces of healthy volunteers: a placebo-controlled study on the onset and duration of effects. *Aliment Pharmacol Ther*, 2003, Vol 18 (5): 495-505.
- Goossens, D, Jonkers DM, Russel MG, Stobberingh EE, and RW StockbrUgger. The effect of a probiotic drink with *Lactobacillus plantarum* 299v on the bacterial composition in faeces and mucosal biopsies of rectum and ascending colon. *Aliment Pharmacol Ther*, 2006, Vol 23 (2): 255-263.
- Johansson, M-L, Molin, G, Jeppsson, B, Nobaek, S, Ahrné, S and S Bengmark. Administration of different *Lactobacillus* strains in fermented oatmeal soup: *in vivo* colonization of human intestinal mucosa and effect on indigenous flora. *Applied and Environmental Microbiology* 1993, Vol 59 (1): 15-20.
- Klarin B, Johansson M-L, Molin G, Larsoon A and B Jeppsson. Adhesion of the probiotic bacterium *Lactobacillus plantarum* 299v onto the gut mucosa in critically ill patients: a randomized open trial. *Critical Care* 2005, Vol 9 (3): R285-R293.
- Onning, G, Berggren, A, Drevelius, M, Jeppsson, B, Lindberg, A M and M-L Johansson. Influence of a drink containing different antioxidants and *Lactobacillus plantarum* 299v on plasma total antioxidant capacity, selenium status and faecal microbial flora. *Int J Sci Nutr* 2003, Vol 54 (4): 281-289.
- Wullt, M, Johansson, M-L and I Odenholt. *Lactobacillus plantarum* 299v for the treatment of Recurrent Clostridium difficile-associated Diarrhoea: A double-blind, placebo controlled trial. *Scand J Infect Dis* 2003, Vol 35: 365-367.

### ***Animal Study***

- Mangell P, Lennernas, P, Wang, M, Olsson, C, Arhne, S, Molin, G, Thorlacius, H and B Jeppsson. Adhesive capability of *Lactobacillus plantarum* 299v is important for preventing bacterial translocation in endotoxemic rats. *APMIS* 2006, Vol 114 (9): 611-618.

### ***In Vitro Studies***

- Hutt, P, Shchepetova, J, Loivukene, K, Kullisaar, T and M Mikelsaar. Antagonistic activity of probiotic *Lactobacilli* and *Bifidobacteria* against entero and uropathogens. *J Appl Microbiol* 2006, Vol 100 (6): 1324-1332.
- Mangell P, Jacobsen, C N, Rosenfeldt, N, Hayford, A E, Moller, P L, Michaelsen, K F, Paerregaard, A, Sandstrom, B, Tvece, M and M Jakobsen. Screening of probiotic activities of forty-seven strains of *Lactobacillus* spp by *in vitro* techniques and evaluation of the colonization ability of five selected strains in human. *Applied and Env Microbiology* 1999, Vol 65 (11): 4949-4956.
- Michail S. and F Abernathy. *Lactobacillus plantarum* reduces the *in vitro* secretory response of intestinal epithelial cells to enteropathogenic *Escherichia coli* infection. *J Pediatr Gastroenterol Nutr* Sept 2002, 35 (3):350-355.

### **PROBIOTIC 33 - *Lactobacillus Reuteri* ATCC 55730 and Intestinal Flora**

#### **Reviews**

- Casas IA, Dobrogosz WJ. Validation of the probiotic concept: *Lactobacillus reuteri* confers broadspectrum protection against disease in humans and animals. *Microbial Ecology in Health and Disease* 2006; 12:247-285.

- Connolly E. Lactobacillus reuteri ATCC 55730 – A clinically proven probiotic. Nutrafoods 2004; 3:15-22.
- Dobrogosz WJ. Enhancement of human health with Lactobacillus reuteri. A probiotic, immunobiotic and immunoprotective. Nutrafoods 2005;4:15-28.
- Gibson GR, Rouzaud G, Brostoff J, Rayment N. An evaluation of probiotic effects in the human gut: microbial aspects. Final Technical report for Food Standards Agency (FSA) 2005 project ref G01022. <http://www.food.gov.uk/multimedia/pdfs/probioticreport.pdf>

#### **Individual Human Studies**

- Björkman P. Colonization of the human gastrointestinal tract by the lactic acid bacteria Lactobacillus reuteri (1999) M.Sc. thesis, Dept. of Food Technology, University of Helsinki, Finland
- Valeur N, Engel P, Carbajal N, Connolly E, Ladefoged K. Colonization and immunomodulation by Lactobacillus reuteri ATCC 55730 in the human gastrointestinal tract. Appl. Environ. Microbiol. 2004;70:1176-81.
- Wolf B.W., Galeb K.A., Ataya D.G. and Casas I.A. (1995) Safety and tolerance of lactobacillus reuteri in healthy adult subjects. Microbial Ecol Health Dis 8, 41-50.

#### **Additional Human Studies**

- Caglar E., Cildir S.K., Ergeneli S., Sandalli N., Twetman S. Salivary mutans streptococci and lactobacilli levels after ingestion of the probiotic bacterium Lactobacillus reuteri ATCC 55730 by straws or tablets. Acta Odontol. Scan. 2006; 64:314-318
- Imase K, Tanaka A, Tokunaga K, Sugano H, Takahashi S. Lactobacillus reuteri tablets can suppress Helicobacter pylori infection: a double-blind, randomised, placebo-controlled cross-over clinical study. Am J Gastroenterol 2005; 100(S9): abstract No. 98.
- Krasse P, Carlsson B, Dahl C, Paulsson A, Nilsson Å, Sinkiewicz G. Decreased gum bleeding and reduced gingivitis by the probiotic Lactobacillus reuteri. Swed Dent J 2006; 30:55-60
- Nikawa H, Makihira S, Fukushima H et al. Lactobacillus reuteri in bovine milk fermented decreases the oral carriage of mutans streptococci. Int.J.Food Microbiol. 2004;95:219-23.
- Niv E., Naftali T., Hallak R. and Vaisman N. (2005) The efficacy of Lactobacillus reuteri ATCC 55730 in the treatment of patients with irritable bowel syndrome--a double blind, placebo-controlled, randomized study. Clin.Nutr 24, 925-931.
- Saggioro A, Caroli M, Pasini M, Bortoluzzi F, Girardi L, Pilone G. Helicobacter pylori eradication with Lactobacillus reuteri. A double blind placebo-controlled study. Dig Liver Dis 37(suppl 1) 2005; S88, abstr. PO1.49
- Shornikova AV, Casas IA, Isolauri E, Mykkanen H, Vesikari T. Lactobacillus reuteri as a therapeutic agent in acute diarrhea in young children. J Pediatr.Gastroenterol.Nutr. 1997;24:399-404.
- Shornikova AV, Casas IA, Mykkanen H, Salo E, Vesikari T. Bacteriotherapy with Lactobacillus reuteri in rotavirus gastroenteritis. Pediatr Infect Dis J 1997;16:1103-7.
- Tubelius P, Stan V, Zachrisson A. Increasing work-place healthiness with the probiotic Lactobacillus reuteri: A randomised, double-blind placebo-controlled study. Environ.Health 2005;4:25.
- Weizman Z, Asli G, Alsheikh A. Effect of a probiotic infant formula on infections in child care centers: comparison of two probiotic agents. Pediatrics 2005;115:5-9.

- Wolf B.W., Wheeler K.B., Ataya D.G. and Garleb K.A. (1998) Safety and tolerance of Lactobacillus reuteri supplementation to a population infected with the human immunodeficiency virus. *Food Chem.Toxicol.* 36, 1085-1094.

## **PROBIOTIC 34 - Lactobacillus Rhamnosus ATCC53103 (LGG®) and Gastro-Intestinal Health**

### ***Authoritative/Scientific Bodies***

- Ministry of Health and Welfare in Japan, approval as a functional ingredient for FOSHU granted in March 1994, and approval for an LGG®-fermented milk as a FOSHU product granted in May 1996.
- The Netherlands Nutrition Centre, Assessment report Vifit 14-8-2006

### ***Reviews***

- Doron S, Snydman DR, Gorbach SL. 2005. Lactobacillus GG: Bacteriology and clinical applications. *Gastroenterol Clin N Am* 34: 483-498.
- Saxelin M. 2004. Lactobacillus GG und akute Diarrhöe. *Sweitz Zschr. Ganzheits Medizine Jg.* 16, Heft 5, September 2004.
- Saxelin M, Korpela R, Mäyrä-Mäkinen A. 2003. Classifying functional dairy products. In eds. Mattila-Sandholm T and Saarela M. *Functional Dairy Products*. Woodhead Publishing Ltd. pp. 1-16.
- Servin AL. 2004. Antagonistic activities of lactobacilli and bifidobacteria against microbial pathogens. *FEMS Microbiol Rev.* 28(4): 405-40.

### ***Meta-Analyses and Systematic Reviews***

- D'Souza AL, Rajkumar C, Cooke J, Bulpitt CJ. Probiotics in prevention of antibiotic-associated diarrhoea: meta-analysis. 2002. *BMJ* 324(7350):1361-
- Hawrelak JA, Whitten DL, Myers SP. 2005. Is Lactobacillus rhamnosus GG effective in preventing the onset of antibiotic-associated diarrhoea: a systematic review. *Digestion* 72(1):51-56.
- Huang JS, Bousvaros A, Lee JW et al. 2002. Efficacy of probiotic use in acute diarrhea in children: a meta-analyses. *Dig Dis Sci* 47(11): 2625-34.
- Mc Farland LV. 2006. Meta-analyses of probiotics for the prevention of antibiotic associated diarrhoea and the treatment of Clostridium difficile disease. *Am J Gastroenterol* 101(4): 812-22.
- Sazawal S, Hiremath G, Dhingra U, Malik P, Deb S, Black RE. 2006. Efficacy of probiotics in prevention of acute diarrhoea: a meta-analysis of masked, randomised, placebo-controlled trials. *Lancet Infect Dis* 6: 374-82.

### ***Individual Human Studies***

- Alander M, Korpela R, Saxelin M, Vilpponen-Salmela T, Mattila-Sandholm T, and Von Wright A. 1997. Recovery of Lactobacillus rhamnosus GG from human colonic biopsies. *Lett Appl Microb.* 24 (5): 361-364.
- Alander M, Satokari R, Korpela R, Saxelin M, Vilpponen-Salmela T, Mattila-Sandholm T, and Von Wright A. 1999. Persistence of colonization of human colonic mucosa by a probiotic strain, Lactobacillus rhamnosus GG, after oral consumption. *Appl Environm Microbiol* 65 (1): 351-354.
- Apostolou E, Pelto L, Kirjavainen PV, Isolauri E, Salminen S, and Gibson GR. 2001. Differences in the gut bacterial flora of healthy and milk-hypersensitive adults, as measured by fluorescence in situ hybridization. *FEMS Immunol Med Microbiol* 30(3):217-21.

- Armuzzi A, Cremonini F, Bartolozzi F, Canducci F, Candelli M, Ojetty V, Cammarota G, Anti M, De Lorenzo A, Pola P, Gasbarrini G, and Gasbarrini A. 2001. The effect of oral administration of Lactobacillus GG on antibiotic-associated gastrointestinal side-effects during Helicobacter pylori eradication therapy. *Aliment Pharmacol Ther* 15(2):163-169.
- Armuzzi A, Cremonini F, Ojetty V, Bartolozzi F, Canducci F, Candelli M, Santarelli L, Cammarota G, De Lorenzo A, Pola P, Gasbarrini G, and Gasbarrini A. 2001. The effect of Lactobacillus GG supplementation on antibiotic-associated gastrointestinal side-effects during Helicobacter pylori eradication therapy: A pilot study. *Digestion* 63(1): 1-7.
- Benno Y, He F, Hosoda M, Hashimoto H, Kojima T, Yamazaki K, Iino H, Mykkänen H, and Salminen S. 1996. Effect of Lactobacillus GG yoghurt on human intestinal microecology in Japanese subjects. *Nutrition Today* 31 (6) Suppl. 1: 9S-11S.
- Cremonini F, Di Caro S, Covino M, Armuzzi A, Gabrielli M, Santarelli L, Nista EC, Cammarota G, Garbarrini G, Gasbarrini A. 2002. Effect of different probiotic preparations on anti-Helicobacter pylori therapy-related side effects: a parallel group, triple blind, placebo-controlled study. *Am J Gastroenterol* 97(11):2744-9.
- Glück U and Gebbers JO. 2003. Ingested probiotics reduce nasal colonization with pathogenic bacteria (*Staphylococcus aureus*, *Streptococcus pneumoniae*, and beta-hemolytic streptococci). *Am J Clin Nutr* 77 (2): 517-520.
- Goldin BR, Gorbach SL, Saxelin M, Barakat S, Gualtieri L, and Salminen S. 1992. Survival of Lactobacillus species (strain GG) in human gastrointestinal tract. *Dig Dis Sci* 37 (1): 121-128.
- Gotteland M, Cruchet S and Verbeke S. 2001. Effect of Lactobacillus ingestion on the gastrointestinal mucosa barrier alterations induced by indometacin in humans. *Aliment Pharmacol Ther.* 15:11-17.
- Hilton E, Kolakovski P, Smith M, and Singer C. 1997 Efficacy of Lactobacillus GG as a diarrheal preventative in travelers. *J Travel Med* 4: 41-43.
- Hongisto SM, Paajanen L, Saxelin M & Korpela R. 2006. A combination of fibre-rich rye bread and yoghurt containing Lactobacillus GG improves bowel function in women with self-reported constipation. *Eur J Clin Nutr*, 60(3):319-24.
- Hosoda M, He F, Hiramatu M, Hashimoto H, Benno Y. 1994. Effects of Lactobacillus GG strain intake on fecal microflora and defecation in healthy volunteers. *Bifidus* (Japan Bifidus Foundation) 8:21-2.
- Hosoda M, He F, Kojima T, Hashimoto H, Iino H. 1998. Effects of fermented milk with Lactobacillus rhamnosus GG strain administration on defecation, putrefactive metabolites and fecal microflora of healthy volunteers. *J Nutritional Food* 1:1-9.
- Ling WH, Hänninen O, Mykkänen H, Heikura M, Salminen S, and Von Wright A. 1992. Colonization and fecal enzyme activities after oral Lactobacillus GG administration in elderly nursing home residents. *Ann Nutr Metab* 36: 162-166.
- Ling WH, Korpela R, Mykkänen H, Salminen S, and Hänninen O. 1994. Lactobacillus strain GG supplementation decreases colonic hydrolytic and reductive enzyme activities in healthy female adults. *J Nutr* 124: 18-23.
- Oksanen P, Salminen S, Sacelin M, Hämäläinen P, Ihantola-Vormisto A, Muurasniemi-Isoviita L, Nikkari S, Oksanen T, Pörsti I, Salminen E, Siitonen S, Stuckey H, Toppila A, and Vapaatalo H. 1990. Prevention of traveller's diarrhoea by Lactobacillus GG. *Ann Med* 22: 53-56.
- Saxelin M, Ahokas M, and Salminen S. 1993. Dose response on the faecal colonization of Lactobacillus strain GG administered in two different formulations. *Microb Ecol Health Dis* 6: 119-122.

- Saxelin M, Elo S, Salminen S, and Vapaatalo H. 1991. Dose response colonization of faeces after oral administration of *Lactobacillus casei* strain GG. *Microb Ecol Health Dis* 4: 209-214.
- Saxelin M, Pessi T, and Salminen S. 1995. Fecal recovery following oral administration of *Lactobacillus* strain GG (ATCC 53103) in gelatine capsules to healthy volunteers. *Int J Food Microbiol* 25: 199-203.
- Siitonen S, Vapaatalo H, Salminen S, Gordin A, Saxelin M, Wikberg R, and Kirkkola A-L. 1990. Effect of *Lactobacillus* GG yoghurt in prevention of antibiotic associated diarrhoea. *Ann Med* 22: 57-59.
- Thomas MR, Liton SC, Osmon DR, Corr AP, Weaver AL and Lohse CM. 2001. Lack of effect of *Lactobacillus* GG on antibiotic-associated diarrhea: a randomized, placebo-controlled trial. *Mayo Clin Proc* 76(9): 883-889.
- Yli-Knuuttila H, Snall J, Kari K, and Meurman JH. 2006. Colonization of *Lactobacillus rhamnosus* GG in the oral cavity. *Oral Microbiol Immunol* 21:129-31.

#### **Additional Human Studies**

- Agarwal R, Sharma N, Chaudhry R, Deorari A, Paul VK, Gewolb IH, and Panigrahi P. 2003. Effectis of oral *Lactobacillus* GG on enteric microflora in low-birth-weight neonates. *J Pediatr Gastroenterol Nutr.* 36(3):397-402.
- Arvola T, Laiho K, Torkkeli S, Mykkänen H, Salminen S, Maunula L, and Isolauri E. 1999. Prophylactic *Lactobacillus* GG reduces antibiotic-associated diarrhoea in children with respiratory infections: a randomized study. *Pediatrics* 104(5): e64.
- Gueimonde M, Kalliomaki M, Isolauri E and Salminen S. 2006. Probiotic intervention in neonates-will permanent colonization ensue? *J Pediatr Gastroenterol Nutr.* 42: 604-606.
- Guandalini S, Pensabene L, Abu Zikri M, Amil Dias J, Gobio Casali L, Hoekstra A, Salazar De Sousa J, Sandhu B, Szajewska H, and Weizman Z. 2000. *Lactobacillus* GG administered in oral rehydration solution to children with acute diarrhoea: A multicenter European trial. *J Ped Gastroent Nutr.* 30: 54-60.
- Guarino A, Berni Canani R, Spagnuolo MI, Albano F, and Di Benedetto L. 1997. Oral bacterial therapy reduces the duration of symptoms and of viral excretion in children with mild diarrhoea. *J Pediatr Gastroenterol Nutr* 25: 516-519.
- Gueimonde M, Sakata S, Kalliomaki M, Isolauri E, Benno Y and Salminen S. 2006. Effect of maternal consumption of *Lactobacillus* GG on transfer and establishment of fecal bifidobacterial microbiota in neonates. *J Pediatr Gastroenterol Nutr.* 42: 166-170.
- Isolauri E, Juntunen M, Rautanen T, Sillanaukee P, and Koivula T. 1991. A human *Lactobacillus* strain (*Lactobacillus casei* sp. strain GG) promotes recovery from acute diarrhoea in children. *Pediatrics* 88: 90-97.
- Isolauri E, Kaila M, Mykkänen H, Ling WH, and Salminen S. 1994. Oral bacteriotherapy for viral gastroenteritis. *Dig Dis Sci* 39 (12): 2595-2600.
- Jasinski C, Tanzi MN, Schelotto F, Varela G, Zanetta E, Acuña AM, Arenas C, Gadea P, Sirok A, Beramcor L, Grotiuz G, Sandin A, Combola A, Xavier B, Vignoli R, and Nairac A. 2002. Efecto del *Lactobacillus casei* administrado en el suero de rehidratación oral, en el tratamiento de la enfermedad diarreica aguda. *Pediátrica* 22(7) : 231-243.
- Kaila M Isolauri E, Sepp E, Mikelsaar M, and Salminen S. 1998. Fecal recovery of a human *Lactobacillus* strain (ATCC 53103) during dietary therapy of rotavirus diarrhea in infants. *Biosci Microflora* 17 (2): 149-151.

- Majamaa H, Isolauri E, Saxelin M, and Vesikari T. 1995. Lactic acid bacteria in the treatment of acute rotavirus gastroenteritis. *J Pediatr Gastroent Nutr* 20: 333-338.
- Malin M, Verronen P, Mykkänen H, Salminen S, and Isolauri E. 1996. Increased bacterial urease activity in faeces in juvenile chronic arthritis: evidence of altered intestinal microflora? *Br J Rheumatol.* 35: 689-694.
- Manzoni P, Mostert M, Leonessa ML, Priolo C, Farina D, Monetti C, Latino MA, Gomirato G. 2006. Oral supplementation with *Lactobacillus casei* subspecies *rhamnosus* prevents enteric colonization by *Candida* species in preterm neonates: a randomized study. *Clin Infect Dis.* 42(12):1735-42.
- Marini A, Negretti F, Boehm G, Li Destri M, Clerici-Bagozzi D, Mosca F and Agosti M. 2003. Pro- and pre-biotics administration in preterm infants: colonization and influence on faecal flora. *Acta Paediatr Suppl.* 441: 80-81.
- Millar MR, Bacon C, Smith SL, Walker V, and Hall MA. 1993. Enteral feeding of premature infants with *Lactobacillus GG*. *Arch Dis Child.* 69: 483-487.
- Millar MR, Linton CJ, Cade A, Gancy D, Hall M and Jalal H. 1996. Application of 16S rRNA gene PCR to study bowel flora of preterm infants with and without necrotizing enterocolitis. *J Clin Microbiol.* 34(10):2506-10.
- Oberhelman RA, Gilman RH, Sheen P, Taylor DN, Black RE, Cabrera L, Lescano G, Meza R, and Madico G. 1999. A placebo-controlled trial of *Lactobacillus GG* to prevent diarrhea in undernourished Peruvian children. *J Pediatr* 134: 15-20.
- Pant AR, Graham SM, Allen SJ, Harikul S, Sabchareom A, Cuevas L, and Hart CA. 1996. *Lactobacillus GG* and acute diarrhoea in young children in the tropics. *J Tropic Pediatrics* 42: 162-165.
- Petschow BW, Figueiroa R, Harris CL, Beck LB, Ziegler E & Goldin B. 2005. Effects of feeding an infant formula containing *Lactobacillus GG* on the colonization of the intestine: a dose-response study in healthy infants. *J Clin Gastroenterol* 39:786-790.
- Rautanen T, Isolauri E, and Vesikari T. 1998. Management of acute diarrhoea with low osmolarity oral rehydration solutions and *Lactobacillus GG*. *Arch Dis Child* 79: 157-160.
- Raza S, Graham SM, Allen SJ, Sultana S, Cuevas L, and Hart CA. 1995. *Lactobacillus GG* promotes recovery from acute nonbloody diarrhea in Pakistan. *Pediatr Infect Dis J* 14: 107-111.
- Rinne M, Kalliomaki M, Arvilommi H, Salminen S, and Isolauri E. 2005. Effect of probiotics and breastfeeding on the bifidobacterium and lactobacillus/enterococcus microbiota and humoral immune responses. *J Pediatr* 147:186-191.
- Rinne M, Kalliomaki M, Salminen S and Isolauri E. 2006. Probiotic intervention in the first months of life: short-term effects on gastrointestinal symptoms and long-term effects on gut microbiota. *J Pediatr Gastroenterol Nutr.* 43: 200-205.
- Salazar-Lindo E, Miranda-Langschwager P, Campos-Sanchez M, Chea-Woo E, and Sack RB. 2004. *Lactobacillus casei* strain GG in the treatment of infants with acute watery diarrhea: a randomized, double-blind, placebo controlled clinical trial. *BMC Pediatr.* 4(1):18.
- Schultz M, Gottl C, Young RJ, Iwen P, and Vanderhoof JA. 2004. Administration of oral probiotic bacteria to pregnant women causes temporary infantile colonization. *J Pediatr Gastroenterol Nutr.* 38(3):293-297.
- Sepp E, Mikelsaar M, and Salminen S. 1993. Effect of administration of *Lactobacillus casei* strain GG on the gastrointestinal microbiota of newborns. *Microb Ecol Health Dis.* 6: 309-314.
- Sepp E, Tamm E, Torm S, Lutras I, Mikelsaar M, and Salminen S. 1995. Impact of a *Lactobacillus* probiotic on the faecal microflora in children with shigellosis. *Microecol Therapy.* 23: 74-80.

- Shornikova A-V, Isolauri E, Burkanova L, Lukovnikova S, and Vesikari T. 1997. A trial in the Karelian Republic of oral rehydration and Lactobacillus GG for treatment of acute diarrhoea. *Acta Paediatr* 86: 460-465.
- Siigur U, Tamm E, Torm S, Lutrsar I, Salminen S, and Midtvedt T. 1996. Effect of bacterial infection and administration of a probiotic on faecal short-chain fatty acids. *Microbial Ecol Health Dis.* 9: 271-277.
- Szajecka H, Kotowska M, Mrukowicz JZ, Armanska M, and Mikolajczyk W. 2001. Efficacy of Lactobacillus GG in prevention of nosocomial diarrhea in infants. *J Pediatr* 138(3): 361-365.
- Vanderhoof JA, Whitney DB, Antonson DL, Hanner TL, Lupo JV, and Young RJ. 1999. Lactobacillus GG in the prevention of antibiotic-associated diarrhoea in children. *J Pediatr* 135: 564-568.
- Vendt N, Grunberg H, Tuure T, Malminniemi O, Wuolijoki E, Tillmann V, Sepp E and Korpela R. 2006. Growth during the first 6 months of life in infants using formula enriched with Lactobacillus rhamnosus GG: double-blind, randomized trial. *J Hum Nutr Diet*, 19, 51-8.

### **Animal Studies**

- Banaszak M, Norin E, Holma R, and Midtvedt T. 2002. Increased enterocyte production in gnotobiotic rats mono-associated with Lactobacillus rhamnosus GG. *Appl Environ Microbiol* 68(6): 3031-3034.
- Broccali G, Berti M, Pistoletti E, and Cestaro B. 2000. Study of the effect of Lactobacillus GG supplementation in combination with and without arginine aspartate on lipoproteins and liver peroxidation in cholesterol-fed rats. *Int J Food Sci Nutr* 51 (6): 475-482.
- Dong MY, Chang TW, and Gorbach SL. 1987. Effect of feeding Lactobacillus GG on lethal irradiation in mice. *Diagn Microbiol Infect Dis* 7: 1-7.
- El-Nezami H, Mykkänen H, Kankaanpää P, Salminen S, and Ahokas J. 2000. Ability of Lactobacillus and *Probionibacterium* strains to remove aflatoxin B1 from chicken duodenum. *J Food Protect* 63(4): 549-552.
- Gerbitz A, Schultz M, Wilke A, Linde HJ, Scholmerich J, Andreesen R, and Holler E. 2004. Probiotic effects on experimental graft-versus-host disease: let them eat yogurt. *Blood* 103(11):4365-7.
- Goldin BR, Gualtieri LJ, and Moore RP. 1996. The effect of Lactobacillus GG on the initiation and promotion of dimethylhydrazine-induced intestinal tumors in the rat. *Nutr Cancer* 25: 197-204.
- Gratz S, Taubel M, Juvonen R O, Viluksela M, Turner P C, Mykkänen H and El-Nezami H. 2006. Lactobacillus rhamnosus strain GG modulates intestinal absorption of aflatoxin B1 and its fecal excretion and toxicity in rats. *Appl Environ Microbiol*. e-pub September 15.
- Hudault S, Lievin V, Bernet-Camard M-F, and Servin A. 1997. Antagonistic activity exerted in vitro and in vivo by Lactobacillus casei (strain GG) against *Salmonella typhimurium* C5 infection. *Appl Environ Microbiol* 63: 513-518.
- Isolauri E, Kaila M, Arvola T, Majamaa H, Rantala I, Virtanen E, and Arvilommi H. 1993. Diet during rotavirus enteritis affects jejunal permeability to macromolecules in suckling rats. *Pediatr Res* 33: 548-553.
- Isolauri E, Majamaa H, Arvola T, Rantala I, Virtanen E, and Arvilommi H. 1993. Lactobacillus casei strain GG reverses increased intestinal permeability induced by cow milk in suckling rats. *Gastroenterol* 105: 1643-1650.

- Lim BK, Mahendran R Lee YK, and Bay BH. 2002. Chemopreventive effect of *Lactobacillus rhamnosus* on growth of a subcutaneously implanted bladder cancer cell line in the mouse. *Jpn J Cancer Res* 93(1): 36-41.
- Pessi T, Sütas Y, Marttinen A, and Isolauri E. 1998. Probiotics reinforce mucosal degradation of antigens in rats: implications for therapeutic use of probiotics. *J Nutr* 128: 2313-2318.
- Seow SW, Rahmat JN, Mohamed AA, Mahendran R, Lee YK, and Bay BH. 2002. *Lactobacillus* species is more cytotoxic to human bladder cancer cells than *Mycobacterium Bovis* (bacillus Calmette-Guerin). *J Urol* 168(5):2236-2239.
- Sherman MP, Bennett SH, Hwang FF, and Yu C. 2004. Neonatal small bowel epithelia: enhancing anti-bacterial defense with lactoferrin and *Lactobacillus GG*. *Biometals* 17(3):285-9.
- Tabuchi M, Tamura A, Yamada N, Ishida T, Hosoda M, and Hosono A. 2003. Hypocholesterolemic effect of *Lactobacillus GG* in hypercholesterolemic rat. *Milchwissenschaft* 58(5/6): 246-9.
- Tabuchi M, Tamura A, Yamada N, Ishida T, Hosoda M, Hosono A. 2004. Hypocholesterolemic effects of viable and heat-sterilized cells of *Lactobacillus GG* in rats fed a high-cholesterol diet. *Milchwissenschaft* 59(5/6):249-53.
- Wagner RD, Pierson C, Warner T, Dohnalek M, Farmer J, Roberts L, Hilty M, and Balish E. 1997. Biotherapeutic effects of probiotic bacteria on Candidiasis in immunodeficient mice. *Infect Immun* 65: 4165-4172.

### ***In Vitro Studies***

- Hirano J, Yoshida T, Sugiyama T, Koide N, Mori I, and Yokochi T. 2003. The effect of *Lactobacillus rhamnosus* on enterohemorrhagic *Escherichia coli* infection of human intestinal cells in vitro. *Microbiol Immunol* 47(6): 405-9.
- Hutt P, Shchepetova J, Loivukene K, Kullisaat T and Mikelsaar M. 2006. Antagonistic activity of probiotic lactobacilli and bifidobacteria against entero- and uropathogens. *J Appl Microbiol* 100: 1324-32.
- Korhonen R, Korpela R, and Moilanen E. 2002. Signalling mechanisms involved in the induction of inducible nitric oxide synthase by *Lactobacillus rhamnosus GG*, endotoxin, and lipoteichoic acid. *Inflammation* 26(5):207-214.
- Korhonen R, Korpela R, Saxelin M, Mäki M, Kankaanranta H, and Moilanen E. 2001. Induction of nitric oxide synthesis by probiotic *Lactobacillus rhamnosus GG* in J774 macrophages and human T84 intestinal epithelial cells. *Inflammation* 25(4): 223-232.
- Mack DR, Ahrne S, Hyde L, Wei S, and Hollingsworth MA. 2003. Extracellular MUC3 mucin secretion follows adherence of *Lactobacillus* strains to intestinal epithelial cells in vitro. *Gut* 52(6):827-33.
- Mack DR, McDonald TL, Larson MA, Wei S and Weber MA. 2003. The conserved TFLK motif of mammary-associated serum amyloid A3 is responsible for up-regulation of intestinal MUC3 mucin expression in vitro. *Pediatr Res* 53(1): 137-142.
- Mack DR, Michail S, Wei S, McDougall L, and Hollingsworth MA. 1999. Probiotics inhibit enteropathogenis *E. coli* adherence in vitro by inducing intestinal mucin gene expression. *Am J Physiol* 276 (Gastrointest. Liver Physiol. 39): G941-950.
- Mattar AF, Teitelbaum DH, Drongowski RA, Yongyi F, Harmon CM, and Coran AG. 2002. Probiotics up-regulate MUC-2 mucin gene expression in a Caco-2 cell-culture model. *Pediatr Surg Int* 18(7):586-590.

- Ouwehand AC, Isolauri E, Kirjavainen PV, Tölkö S, and Salminen S. 2000. The mucus binding of *Bifidobacterium lactis* Bb12 is enhanced in the presence of *Lactobacillus GG* and *Lact. delbrueckii* subsp. *bulgaricus*. *Lett Appl Microbiol* 30: 10-13.
- Ouwehand AC, Niemi P, and Salminen S. 1999. The normal faecal flora does not affect the adhesion of probiotic bacteria in vitro. *FEMS Microbiol Lett* 177: 35-38.
- Ouwehand AC, Parhiala R, Salminen S, Rantala A, Huhtinen H, Sarparanta H, and Salminen E. 2004. Influence of the endogenous mucosal microbiota on the adhesion of probiotic bacteria in vitro. *Microbial Ecol Health Dis* 16: 202-4.

### **PROBIOTIC 35 – *Lactobacillus Rhamnosus* I-1720 and Digestive Health**

#### **Review**

- Reid G, Sanders ME, Gaskins HR, Gibson GR, Mercenier A, Rastall R, Roberfroid M, Rowland I, Cherbut C, Klaenhammer TR. New scientific paradigms for probiotics and prebiotics. *J Clin Gastroenterol*. 2003 Aug;37(2):105-18

#### **Individual Human Studies**

- Guandalini S, Pensabene L, Zikri MA, Dias JA, Casali LG, Hoekstra H, Kolacek S, Massar K, Micetic-Turk D, Papadopoulou A, de Sousa JS, Sandhu B, Szajewska H, Weizman Z. *Lactobacillus GG* administered in oral rehydration solution to children with acute diarrhea: a multicenter European trial. *J Pediatr Gastroenterol Nutr*. 2000 Jan;30(1):54-60.
- Majamaa H, Isolauri E, Saxelin M, Vesikari T. Lactic acid bacteria in the treatment of acute rotavirus gastroenteritis. *J Pediatr Gastroenterol Nutr*. 1995 Apr;20(3):333-8.

### **PROBIOTIC 36 - *Propionibacterium Freudenreichii* SI 41 and *Propionibacterium Freudenreichii* SI 26 Propio-Fidus® and Intestinal Flora**

#### **Individual Human Studies**

- Bouglé D, Roland N, Lebeurrier F, Arhan P (1999). Effect of propionibacteria supplementation on fecal bifidobacteria and segmental colonic transit time in healthy human subjects. *Scand J Gastroenterol* 34, 144-148.
- Hervé C, Fondrevez M, Chéron A, Barloy-Hubler F, Jan G (déc 2006). Transcarboxylase mRNA: a marker which evidences *P. freudenreichii* survival and metabolic activity during its transit in the human gut. *Int. J Food Microbiol*, in publication.
- Jan G, Leverrier P, Proud Y, Roland N (2002). Survival and beneficial effects of propionibacteria in the human gut: *in vivo* and *in vitro* investigations. *Lait* 82, 131-144.

### **PROBIOTIC 37 – *Saccharomyces Boulardii* (trade name PXN68) and Digestive Health**

#### **Meta-Analysis**

- McFarland LV. Meta-analysis of probiotics for the prevention of traveler's diarrhea. *Travel Med Infect Dis*. 2007 Mar;5(2):97-105. Epub 2005 Dec 5.

#### **Individual Human Studies**

- Kirchhelle A, Fruhwein N, Toburen D. Treatment of persistent diarrhea with *S. boulardii* in returning travelers. Results of a prospective study. *Fortschr Med*. 1996 Apr 20;114(11):136-40.

- Kollaritsch H, Holst H, Grobara P, Wiedermann G. Prevention of traveler's diarrhea with *Saccharomyces boulardii*. Results of a placebo controlled double-blind study. *Fortschr Med.* 1993 Mar 30;111(9):152-6.
- Villarruel G, Rubio DM, Lopez F, Cintioni J, Gurevech R, Romero G, Vandenplas Y. *Saccharomyces boulardii* in acute childhood diarrhoea: a randomized, placebo-controlled study. *Acta Paediatr.* 2007 Feb 13; [Epub ahead of print]

## **PROBIOTIC 38 – *Sacharomyces Cerevisiae* Var *Boulardii* and Digestive System**

### ***Meta-Analysis***

- D'Souza et al, Probiotics in prevention of Antibiotic associated diarrhea: meta-analysis, *British Medical Journal* 2002 June, 324: 1-6
- H Szajewska and J.Mrukowicz, Meta-Analysis: non pathogenic yeast *Saccharomyces boulardii* in the prevention of Antibiotic-Associated Diarrhea, *Alimentary Pharmacology & Therapeutics*, 2005 Sept, 22(5): 365-371
- Mc Farland, L.V. Meta-Analysis of Probiotics for the Prevention of Antibiotic Associated Diarrhea and the Treatment of *Clostridium difficile* Disease, *Am J Gastroenterol*, 2006 Apr, 101 : 812-822

### ***In Vitro Studies***

- Czerucka D et al. *Saccharomyces boulardii* preserves the barrier function and modulates the signal transduction pathway induced in EPEC-infected T84 cells. *Infection and Immunity* 2000, 68 (10): 5998-6004.
- Dahan S et al. *Saccharomyces boulardii* interferes with Enterohaemorrhagic Escherichia coli-induced signaling pathways in T84 cells. *Infection and Immunity*. 2003, 71(2): 766-73.
- Gedek B.R et al. Adherence of Escherichia coli serogroup 0157 and the *Salmonella typhimurium* mutant DT 104 to the surface of *Saccharomyces boulardii*. *Mycoses* 1999, (42): 261-264.

## **PROBIOTIC 39 – *Streptococcus Thermophilus* I-3428 and Digestive Health**

### ***Individual Human Studies***

- Elli M, Callegari ML, Ferrari S, Bessi E, Cattivelli D, Soldi S, Morelli L, Goupil Feuillerat N, Antoine JM. Survival of yogurt bacteria in the human gut. *Appl Environ Microbiol.* 2006 Jul;72(7):5113-7.
- Majamaa H, Isolauri E, Saxelin M, Vesikari T. Lactic acid bacteria in the treatment of acute rotavirus gastroenteritis. *J Pediatr Gastroenterol Nutr.* 1995 Apr;20(3):333-8.
- Saavedra JM, Bauman NA, Oung I, Perman JA, Yolken RH. Feeding of *Bifidobacterium bifidum* and *Streptococcus thermophilus* to infants in hospital for prevention of diarrhoea and shedding of rotavirus. *Lancet.* 1994 Oct 15;344(8929):1046-9.
- Thibault H, Aubert-Jacquin C, Goulet O. Effects of long-term consumption of a fermented infant formula (with *Bifidobacterium breve* c50 and *Streptococcus thermophilus* 065) on acute diarrhea in healthy infants. *J Pediatr Gastroenterol Nutr.* 2004 Aug;39(2):147-52.

## **PROBIOTIC 40 - *Bifidobacterium Animalis* ssp. *Lactis* Bb-12® and Natural Defence/ Immune System**

### ***Individual Human Studies***

- Fukushima, Y., Kawata, Y., Hara, H., Terada, A., Mitsuoka, T. Effect of a probiotic formula on intestinal immunoglobulin A production in healthy children. 1998. International Journal of Food Microbiology, 42: 39-44.
- Isolauri, E., Arvola, T., Sutas, Y., Moilanen, E., Salminen, S. Probiotics in the management of atopic eczema. 2000. Clinical and Experimental Allergy, 30: 1604-1610.
- Link-Amster, H., Rochat, F., Saudan, K.Y., Mignot, O., Aeschlimann, J.M. Modulation of a specific humoral immune response and changes in intestinal flora mediated through fermented milk intake. 1994. FEMS Immunology and Medical Microbiology, 10: 55-64.
- Schiffrin, E.J., Rochat, F., Link-Amster, H., Aeschlimann, J.M., Donnet-Hughes, A. Immunomodulation of human blood cells following the ingestion of lactic acid bacteria. 1995. Journal of Dairy Science, 78: 491-497.

### ***Animal Studies***

- Miettinen, M., Alander, M., von Wright, A., Buopio-Varkila, J., Marteau, P., Veld, J., Mattila-Sandholm, T. The survival of and cytokine induction by lactic acid bacteria after passage through a gastrointestinal model. 1998. Microbial Ecology in Health and Disease, 10: 141-147.
- Wagner, R.D., Pierson, C., Warner, T., Dohnalek, M., Farmer, J., Roberts, L., Hilty, M., Balish, E. Biotherapeutic effects of probiotic bacteria on candidiasis in immunodeficient mice. 1997. Infection and Immunity, 65(10): 4165-4172.

### ***In Vitro Studies***

- Commane D.M., Shortt C.T., Silvi S., Cresci A., Hughes R.M., Rowland I.R. 2005. Effects of fermentation products of pro- and prebiotics on trans-epithelial electrical resistance in an in vitro model of the colon. Nutrition and Cancer. 51(1): 102-109
- Kankaanpaa P, Sütas Y, Salminen S, Isolauri. 2003. Homogenates derived from probiotic bacteria provide down-regulatory signals for peripheral blood mononuclear cells. Food Chemistry 83, 269-277.
- Matsumoto M, Benno Y. 2006. Anti-inflammatory metabolite production in the gut from the consumption of probiotic yoghurt containing *Bifidobacterium animalis* subsp. *lactis* LKM 512. Biosci. Biotechnol. Biochem. 70(6), 1287-1292.
- Miettinen, M., Alander, M., von Wright, A., Buopio-Varkila, J., Marteau, P., Veld, J., Mattila-Sandholm, T. The survival of and cytokine induction by lactic acid bacteria after passage through a gastrointestinal model. 1998. Microbial Ecology in Health and Disease, 10: 141-147.
- Pessi T, Sütas Y, Saxelin M, Kallionen H, Isolauri E. 1999. Antiproliferative effects of homogenates derived from five strains of candidate probiotic bacteria. Applied and Environmental Microbiology, 65 (11), 4725-4728.
- Zeuthen LH, Christensen HR, Frøkiær H. 2006. Lactic acid bacteria inducing a weak interleukin-12 and Tumour Necrosis Factor Alpha response in human dendritic cells inhibit strongly stimulating lactic acid bacteria but act synergistically with Gram-Negative bacteria. Clinical and Vaccine Immunology. 13 (3): 365-375

### **PROBIOTIC 41 - *Bifidobacterium Animalis* ssp. *Lactis* BB-12, *Lactobacillus Acidophilus* LA-5, *Lactbacillus Bulgaricus* LBY-27 and *Streptococcus Thermophilus* STY-31 and Natural Defence / Immune System**

### ***Review***

- Lewis, S.J., Freedman, A.R. Review article: The use of biotherapeutic agents in the prevention and treatment of gastrointestinal disease. 1998. *Aliment Pharmacol Ther*, 12: 807-822.

### **Clinical Trials**

- Anderson ADG, McNaught CE, Jain PK, MacFie J. 2004. Randomised clinical trial of synbiotic therapy in elective surgical patients. *Gut*, 53, 241-245
- Anderson ADG, McNaught CE, MacFie J, Tring I, Barker P, Mitchell CJ. 2003. Randomized clinical trial of multimodal optimization and standard perioperative surgical care. *British Journal of Surgery*, 90; 1497-1504.
- Gatt M, Anderson ADG, Reddy BS, Hayward-Sampson P, Tring IC, MacFie J. 2005. Randomized clinical trial of multimodal optimization of surgical care in patients undergoing major colonic resection. *British Journal of Surgery*, 92, 1354-1362
- Jain PK, McNaught CE, Anderson ADG, MacFie J, Mitchell CJ. 2004. Influence of synbiotic containing Lactobacillus acidophilus La5, Bifidobacterium lactic Bb12, Streptococcus thermophilus, Lactobacillus bulgaricus and oligofructose on gut barrier function and sepsis in critically ill patients: a randomised controlled trial. *Clinical Nutrition* 23; 467-475

### **Individual Human Study**

- Black, F.T., Anderson, P.L., Orskov J., Orskov, F., Gaarslev, K., Laulund, S. Prophylactic efficacy of lactobacilli on traveler's diarrhea. 1989. *Travel Medicine*, 333-335.

## **PROBIOTIC 42 - Bifidobacterium Animalis ssp. Lactis BB-12® and Lactobacillus Acidophilus La-5® and Natural Defence / Immune System**

### **Individual Human Studies**

- Black, F.T., Einarsson, K., Lidbeck, A., Orrhage, K., Nord, C.E. Effect of lactic acid producing bacteria on the human intestinal microflora during ampicillin treatment. 1991. *Scand. J. Infect. Dis.*, 23: 247-254.
- Juntunen, M., Kirjavainen, P.V., Ouwehand, A.C., Salminen, S.J., Isolauri, E. Adherence of probiotic bacteria to human intestinal mucus in healthy infants and during rotavirus infection. 2001. *Clinical and Diagnostic Laboratory Immunology* 8: 293-296.
- Sheu BY, Cheng H-C, Kao A-W, Wang S-T, Yang Y-J, Yang H-B, Wu J-J. 2006. Pretreatment with Lactobacillus- and Bifidobacterium-containing yogurt can improve the efficacy of Quadruple therapy in eradicating residual Helicobacter pylori infection after failed triple therapy. *Am J Clin Nutr* 83: 864-9.
- Wang KY, Li SN, Liu CS, Perng DS, Su YC, Wu DC, Jan CM, Lai CH, Wang TN, Wang WM. 2004. Effects of ingesting Lactobacillus- and Bifidobacterium-containing yoghurt in subjects with colonized Helicobacter pylori. *Am. J. Clin. Nutr.* 80; 737-41.

### **Animal Study**

- Tejada-Simon, M.V., Lee, J.H., Ustunol, Z., Pestka, J.J. Ingestion of yogurt containing Lactobacillus acidophilus and Bifidobacterium to potentiate Immunoglobulin A responses to cholera toxin in mice. 1999. *Journal of Dairy Science*, 82: 649-660.

### **In Vitro Study**

- Hütt P, Shchepetova J, Loivukene K, Kullisaar T, Mikelsaar M. 2006. Antagonistic activity of probiotic lactobacilli and bifidobacteria against enteric- and uropathogens. *Journal of Applied Microbiology* 100: 1324-1332.

## **PROBIOTIC 43 – Bifidobacterium Bifidum I-3426 and Immune Defenses / Support of Immunity**

### **Reviews**

- Bruzzese E, Canani RB, De Marco G, Guarino A. Microflora in inflammatory bowel diseases: a pediatric perspective. *J Clin Gastroenterol*. 2004 Jul;38(6 Suppl):S91-3.
- Szajewska H, Mrukowicz JZ. Probiotics in the treatment and prevention of acute infectious diarrhea in infants and children: a systematic review of published randomized, double-blind, placebo-controlled trials. *J Pediatr Gastroenterol Nutr*. 2001 Oct;33 Suppl 2:S17-25.

### **Individual Human Studies**

- Kalliomaki M, Salminen S, Arvilommi H, Kero P, Koskinen P, Isolauri E. Probiotics in primary prevention of atopic disease: a randomised placebo-controlled trial. *Lancet*. 2001 Apr 7;357(9262):1076-9.
- Weston S, Halbert A, Richmond P, Prescott SL. Effects of probiotics on atopic dermatitis: a randomised controlled trial. *Arch Dis Child*. 2005 Sep;90(9):892-7. Epub 2005 Apr 29.

## **PROBIOTIC 44 – Bifidobacterium Breve I-3425 and Immune Defenses / Support of Immunity**

### **Individual Human Study**

- Uchida K, Takahashi T, Inoue M, Morotomi M, Otake K, Nakazawa M, Tsukamoto Y, Miki C, Kusunoki M. Immunonutritional effects during synbiotics therapy in pediatric patients with short bowel syndrome. *Pediatr Surg Int*. 2007 Jan 5; [Epub ahead of print]

## **PROBIOTIC 45 – Bifidobacterium Infantis I-3424 (Rosell-33) and Immune Defenses / Support of Immunity**

### **Review**

- Bruzzese E, Canani RB, De Marco G, Guarino A. Microflora in inflammatory bowel diseases: a pediatric perspective. *J Clin Gastroenterol*. 2004 Jul;38(6 Suppl):S91-3.

### **Individual Human Study**

- Mullie C, Yazourh A, Thibault H, Odou MF, Singer E, Kalach N, Kremp O, Romond MB. Increased poliovirus-specific intestinal antibody response coincides with promotion of *Bifidobacterium longum*-*infantis* and *Bifidobacterium breve* in infants: a randomized, double-blind, placebo-controlled trial. *Pediatr Res*. 2004 Nov;56(5):791-5. Epub 2004 Sep 3.

## **PROBIOTIC 46 - Bifidobacterium Lactis HNO19 AGAL NM97/09513 and Natural Defence/Immune System**

### **Reviews**

- Gill, H. S. 1999. Potential of using dietary lactic acid bacteria for enhancement of immunity. *Dialogue* 32:6-11.
- Ouwehand, A. C., and S. Philipp. 2004. *Bifidobacterium lactis* HN019; the good taste of health. *Agrofood Ind. Hi-Tech* 15:10-12.

- Sanders, M. E. 2006. Summary of probiotic activities of *Bifidobacterium lactis* HN019. *J Clin Gastroenterol.* 40:776-783.
- Shu, Q., F. Qu, H. Lin, K. Rutherford, J. Zhou, and H. Gill. 1999. *Bifidobacterium lactis* HN019 enhances host immunity and resistance to gastrointestinal pathogens. In Tuijtelaars, Samson, Rombouts, and Notermans (eds.), *Food microbiology and food safety into the next millennium*. Foundation Food Micro '99, Wageningen, the Netherlands. p. 858-861.

#### ***Individual Human Studies***

- Arunachalam, K., H. S. Gill, and R. K. Chandra. 2000. Enhancement of natural immune function by dietary consumption of *Bifidobacterium lactis* (HN019). *Eur. J. Clin. Nutr.* 54:263-267.
- Chiang, B. L., Y. H. Sheih, L. H. Wang, C. K. Liao, H. S. Gill. 2000. Enhancing immunity by dietary consumption of a probiotic lactic acid bacterium (*Bifidobacterium lactis* HN019): optimisation and definition of cellular immune responses. *Eur. J. Clin. Nutr.* 54:849-855.
- Gill, H. S., K. J. Rutherford, and M. L. Cross. 2001. Dietary probiotic supplementation enhances natural killer cell activity in the elderly: an investigation of age-related immunological changes. *J. Clin. Immunol.* 21:264-271.
- Gill, H. S., K. J. Rutherford, , M. L. Cross, and P. K. Gopal. 2001. Enhancement of immunity in the elderly by dietary supplementation with the probiotic *Bifidobacterium lactis* HN019. *Am. J. Clin. Nutr.* 74:833-839.
- Gopal, P. K., J. Prasad, and H. S. Gill. 2003. Effects of the consumption of *Bifidobacterium lactis* HN019 (DR10TM) and galacto-oligosaccharides on the microflora of the gastrointestinal tract in human subjects. *Nutr. Res.* 23:1313-1328.
- Sazawal, S., U. Dhingra, A. Sarkar, P. Dhingra, S. Deb, D. Marwah, V. P. Menon, J. Kumar, and R.E. Black. 2004. Efficacy of milk fortified with a probiotic *Bifidobacterium lactis* (DR-10TM) and prebiotic galacto-oligosaccharides in prevention of morbidity and on nutritional status. *Asia Pac. J. Clin. Nutr.* 13:S28.
- Sistek, D., R. Kelly, K. Wickens, T. Stanley, P. Fitzharris, and J. Crane. 2006. Is the effect of probiotics on atopic dermatitis confined to food sensitized children? *Clin. Exp. Allergy* 36:629-633

#### ***Animal Studies***

- Gill, H. S., K. J. Rutherford, J. Prasad, and P. K. Gopal. 2000. Enhancement of natural and acquired immunity by *Lactobacillus rhamnosus* (HN001), *Lactobacillus acidophilus* (HN017) and *Bifidobacterium lactis* (HN019). *Br. J. Nutr.* 83:167-176.
- Shu, Q., J. S. Zhou, K. J. Rutherford, M. J. Britles, J. Prasad, P. K. Gopal, and H. S. Gill. 1999. Probiotic lactic acid bacteria (*Lactobacillus acidophilus* HN017, *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019) have no adverse effects on the health of mice. *Int. Dairy J.* 9:831-836.
- Shu, Q., L. Hai, K. J. Rutherford, S. G. Fenwick, J. Prasad, P. K. Gopal, and H. S. Gill. 2000. Dietary *Bifidobacterium lactis* (HN019) enhances resistance to oral *Salmonella typhimurium* infection in mice. *Microbiol. Immunol.* 44:213-222.
- Shu, Q. and H. S. Gill. 2001. A dietary probiotic (*Bifidobacterium lactis* HN019) reduces the severity of *Escherichia coli* O157:H7 infection in mice. *Med. Microbiol. Immunol.* 189:147-152.
- Shu, Q., F. Qu, and H. S. Gill. 2001. Probiotic treatment using *Bifidobacterium lactis* HN019 reduces weanling diarrhea associated with rotavirus and *Escherichia coli* infection in a piglet model. *J. Ped. Gastroenterol. Nutr.* 33:171-177.

- Zhou, J. S., Q. Shu, K. J. Rutherford, J. Prasad, P. K. Gopal, and H. S. Gill. 2000. Acute oral toxicity and bacterial translocation studies on potentially probiotic strains of lactic acid bacteria. *Food Chem. Toxicol.* 38:153-161.
- Zhou, J. S., Q. Shu, K. J. Rutherford, J. Prasad, M. J. Britles, P. K. Gopal, and H. S. Gill. 2000. Safety assessment of potential probiotic lactic acid bacteria strains *Lactobacillus rhamnosus* HN001, *Lb. acidophilus* HN017, and *Bifidobacterium lactis* HN019 in BALB/c mice. *Int. J. Food Microbiol.* 56:87-96.
- Zhou, J. S. and H. S. Gill. 2005. Immunostimulatory probiotic *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019 do not induce pathological inflammation in mouse model of experimental autoimmune thyroiditis. *Int. J. Food Microbiol.* 103:97-104

### ***In Vitro Studies***

- Gopal, P. K., P. A. Sullivan, and B. J. Smart. 2001. Utilisation of galacto-oligosaccharides as selective substrates for growth by lactic acid bacteria including *Bifidobacterium lactis* DR10 and *Lactobacillus rhamnosus* DR20. *Int. Dairy Journal* 11:19-25.
- Gopal, P. K., J. Prasad, J. Smart, and H. S. Gill. 2001. In vitro adherence properties of *Lactobacillus rhamnosus* DR20 and *Bifidobacterium lactis* DR10 strains and their antagonistic activity against an enterotoxigenic *Escherichia coli*. *Int. J. Food Microbiol.* 67:207-216.
- Prasad, J., H. S. Gill, J. Smart, and P. K. Gopal. 1998. Selection and characterisation of *Lactobacillus* and *Bifidobacterium* strains for use as probiotics. *Int. Dairy J.* 8:993-1002.
- Zhou, J. S., P. K. Gopal, and H. S. Gill. 2001. Potential probiotic lactic acid bacteria *Lactobacillus rhamnosus* (HN001), *Lactobacillus acidophilus* (HN017) and *Bifidobacterium lactis* (HN019) do not degrade gastric mucin in vitro. *Int. J. Food Microbiol* 63:81-90.
- Zhou, J. S., C. J. Pillidge, P. K. Gopal, and H. S. Gill. 2005. Antibiotic susceptibility profiles of new probiotic *Lactobacillus* and *Bifidobacterium* strains. *Int. J. Food Microbiol* 98:211-217.
- Zhou, J. S., K. J. Rutherford, and H. S. Gill. 2005. Inability of probiotic bacterial strains *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019 to induce human platelet aggregation in vitro. *J. Food Protection* 68:2459-2464.

### **PROBIOTIC 47 – *Bifidobacterium Longum* I-3470 and Immune Defenses / Support of Immunity**

#### ***Individual Human Studies***

- Benno Y, Mitsuoka T. Impact of *Bifidobacterium longum* on human fecal microflora. *Microbiol Immunol.* 1992;36(7):683-94.
- Xiao JZ, Kondo S, Yanagisawa N, Takahashi N, Odamaki T, Iwabuchi N, Iwatsuki K, Kokubo S, Togashi H, Enomoto K, Enomoto T. Effect of probiotic *Bifidobacterium longum* BB536 [corrected] in relieving clinical symptoms and modulating plasma cytokine levels of Japanese cedar pollinosis during the pollen season. A randomized double-blind, placebo-controlled trial. *J Investig Allergol Clin Immunol.* 2006;16(2):86-93.

### **PROBIOTIC 48 – *Lactobacillus Acidophilus* CUL21 NCIMB 30156, *Lactobacillus Acidophilus* CUL 60 NCIMB 30157, *Bifidobacterium Adolescentis* CUL 17 NCIMB 30153, *Bifidobacterium Lactis* (animalis ssp. *lactis*) CUL 34 NCIMB 30172 and Natural Defence/Immune System**

#### ***Individual Human Studies***

- Plummer S, Weaver MA, Harris JC, Dee P, Hunter J. *Clostridium difficile* pilot study: effects of probiotic supplementation on the incidence of *C. difficile* diarrhoea. International Microbiology 2004;7:59-62.
- Plummer SF, Garaiova I, Sarvotham T, Cottrell SL, Le Scouiller S, Weaver MA, Tang J, Dee P, Hunter J. Effects of Probiotics on the composition of the intestinal microbiota following antibiotic therapy. International Journal of Antimicrobial Agents 2005; 26: 69-74.

## **PROBIOTIC 49 – Lactobacillus Acidophilus Lafti L10 (CBS 116.411) and Natural Defence / Immune System**

### ***Individual Human Studies***

- Clancy RL et al. (2005) Reversal of reduced interferon-g secretion on fatigued athletes following consumption of LAFTI L10 (Lactobacillus acidophilus) Br J Sports Med 40: 351-354.
- Effect of the probiotic Lactobacillus acidophilus LAFTI L10 on winter infections in otherwise healthy adults: a randomised, controlled pilot study. Manuscript in preparation

### ***Additional Human Study***

- Survival of Lactobacillus acidophilus LAFTI® L10 and L. casei LAFTI® L26 in the human gastrointestinal tract and perceived effects on health, conducted at the UNSW by Welin A and Henriksson A – Internal DSM report.

### ***Animal Studies***

- Elahi et al. (2005) Enhanced clearance of Candida albicans from the oral cavities of mice following oral administration of Lactobacillus acidophilus Clinical and Experimental Immunology 141:29-36.
- Mahoney M et al. (2003) The effect of processed meat and meat starter cultures on gastrointestinal colonization and virulence of Listeria monocytogenes in mice. International Journal of Food Microbiology 84:255-261.
- Patent on Compositions and methods for treatment of allergic disorders, number WO 01/37865
- The effect of LAFTI probiotics on allergy parameters in allergen treated mice by Pang et al – Internal DSM report
- The effect of LAFTI probiotics on inflammation in mice with experimentally induced IBD by Peran et al - Internal DSM report

### ***In Vitro Studies***

- Adhesion of probiotic cultures to Caco-2 cells, conducted at the UNSW - Internal DSM report
- Dung et al. (Data on file) Survival of LAFTI® L10 in human gastric juice, conducted at the University of New South Wales – Internal DSM report
- Gastro-intestinal survival test with LAFTI® L10 CG, conducted at the University of New South Wales (UNSW), Australia - Internal DSM report
- In vitro study on inhibition of Helicobacter pylori by probiotic cultures, conducted at the UNSW – Internal DSM report

## **PROBIOTIC 50 - Lactobacillus Acidophilus NCFM ATCC SD5221 and Natural Resistance / Defence**

### ***Review***

- Sanders, M. E. and T. R. Klaenhammer. 2001. Invited Review: The scientific basis of Lactobacillus acidophilus NCFM functionality as a probiotic. *J. Dairy Sci.* 84:319-331.

#### **Individual Human Studies**

- Goldin, B. R., L. Swenson, J. Dwyer, M. Sexton, and S. L. Gorbach. 1980. Effect of diet and Lactobacillus acidophilus supplements on human fecal bacterial enzymes. *J. Natl. Cancer Inst.* 64:255-261.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of milk and lactobacillus feeding on human intestinal bacterial enzyme activity. *Amer. J. Clin. Nutr.* 39:756-761.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of oral administration of Lactobacillus and antibiotics on intestinal bacterial activity and chemical induction of large bowel tumors. *Dev. Indus. Microbiol.* 25:139-150.
- Kim H. S., and S. E. Gilliland. 1983. Lactobacillus acidophilus as a dietary adjunct for milk to aid lactose digestion in humans. *J. Dairy Sci.* 66:959-966.
- Lin, M-Y. D. Savaiano, and S. Harlander. 1991. Influence of nonfermented dairy products containing bacterial starter cultures on lactose maldigestion in humans. *J. Dairy Sci.* 74:87-95.
- Newcomer, A. D., H. S. Park, P. C. O'Brien, and D. B. McGill. 1983. Response of patients with irritable bowel syndrome and lactase deficiency using unfermented acidophilus milk. *Amer. J. Clin. Nutr.* 38:257-263.
- Savaiano, D. A., A. AbouElAnouar, D. E. Smith, and M. D. Lewitt. 1984. Lactose malabsorption from yoghurt, pasteurized yogurt, sweet acidophilus milk, and cultured milk in lactase-deficient individuals. *Amer. J. Clin. Nutr.* 40:1219-1223.
- Sui, J., Leighton, S., Busta, F., Brady, L. 2002. 16S ribosomal DNA analysis of the faecal lactobacilli composition of human subjects consuming a probiotic strain Lactobacillus acidophilus NCFM. *J. Appl. Microb.* 93:907-912.

#### **Additional Human Studies**

- Dunn, S. R., M. L. Simenhoff, K. E. Ahmed, W. J. Gaughan, B. O. Eltayeb, M.-E. D. Fitzpatrick, S. M. Emery, J. W. Ayres, and K. E. Holt. 1998. Effect of oral administration of freeze-dried Lactobacillus acidophilus on small bowel bacterial overgrowth in patients with end stage kidney disease: reducing uremic toxins and improving nutrition. *Int. Dairy J.* 8:545-553.
- Montes, R. G., T. M. Bayless, J. M. Saavedra, and J. A. Perman. 1995. Effect of milks inoculated with Lactobacillus acidophilus or a yogurt starter culture in lactose-maldigesting children. *J. Dairy Sci.* 78:1657-1664.
- Simenhoff, M. L., S. R. Dunn, G. P. Zollner, M.-E. D. Fitzpatrick, S. M. Emery, W. E. Sandine, and J. W. Ayres. 1996. Biomodulation of the toxic and nutritional effects of small bowel bacterial overgrowth in end-stage kidney disease using freeze-dried Lactobacillus acidophilus. *Mineral Electrolyte Metab.* 22:92-96.

#### **In Vitro Studies**

- Daniel, C., S. Poiret, D. Goudencourt, V. Dennin, G. Leyer, and B. Pot. 2006. Selecting lactic acid bacteria for their safety and functionality by use of a mouse colitis model. *Appl. Environ. Microbiol.* 72 :5799-5805
- Foligné, B., S. Nutten, C. Granette, V. Dennin, D. Goudercourt, S. Poiret, J. Dewulf, D. Brassard, A. Mercenier, and B. Pot. Correlation between in vitro and in vivo immunomodulatory properties of lactic acid bacteria. *World J. Gastroenterology.* 13:236-243

- Goldin, B. R. and S. L. Gorbach. 1977. Alterations in fecal microflora enzymes related to diet, age, *Lactobacillus* supplements, and dimethylhydrazine. *Cancer* 40:2421-2426.
- Goldin, B. R. and S. L. Gorbach. 1980. Effect of *Lactobacillus acidophilus* dietary supplements on 1,2-dimethylhydrazine dihydrochloride-induced intestinal cancer in rats. *J. Nat. Cancer Inst.* 64:263-265.
- Goldin, B. R. and S. L. Gorbach. 1984. Alterations of the intestinal microflora by diet, oral antibiotics, and *Lactobacillus*: decreased production of free amines from aromatic nitro compounds, azo dyes, and glucuronides. *J. Nat. Cancer Inst.* 73:689-695.
- Goldin, B. R. and S. L. Gorbach. 1984. The effect of oral administration of *Lactobacillus* and antibiotics on intestinal bacterial activity and chemical induction of large bowel tumors. *Dev. Indus. Microbiol.* 25:139-150.
- Rao, C. V., M. E. Sanders, C. Indranie, B. Simi, and B. S. Reddy. 1999. Prevention of colonic preneoplastic lesions by the probiotic *Lactobacillus acidophilus* NCFMTM in F344 rats. *Int. J. Oncol.* 14:939-944.
- Varcoe, J. J., G. Krejcarek, F. Busta, and L. Brady. 2003. Prophylactic feeding of *Lactobacillus acidophilus* NCFM to mice attenuates overt colonic hyperplasia. *J. Food Prot.* 66:457-65.

## **PROBIOTIC 51 – *Lactobacillus Helveticus* I-1722and Immune Defenses / Support of Immunity**

### **Reviews**

- Bruzzese E, Canani RB, De Marco G, Guarino A. Microflora in inflammatory bowel diseases: a pediatric perspective. *J Clin Gastroenterol.* 2004 Jul;38(6 Suppl):S91-3.
- Kullen MJ, Bettler J. The delivery of probiotics and prebiotics to infants. *Curr Pharm Des.* 2005;11(1):55-74.

### **Individual Human Studies**

- Donnet-Hugues A, Rochat F, Serrant P, Aeschlimann JM, Schiffrin EJ. Modulation of non specific mechanism of defenses by lactic acid bacteria: effective dose. *J Dairy Sci.* 1999 May;82(5):863-9.
- Hatakka K, Savilahti E, Ponka A, Meurman JH, Poussa T, Nase L, Saxelin M, Korppela R. Effect of long term consumption of probiotic milk on infections in children attending day care centres: double blind, randomised trial. *BMJ.* 2001 Jun 2;322(7298):1327
- Kalliomaki M, Salminen S, Arvilommi H, Kero P, Koskinen P, Isolauri E. Probiotics in primary prevention of atopic disease: a randomised placebo-controlled trial. *Lancet.* 2001 Apr 7;357(9262):1076-9.
- Weston S, Halbert A, Richmond P, Prescott SL. Effects of probiotics on atopic dermatitis: a randomised controlled trial. *Arch Dis Child.* 2005 Sep;90(9):892-7. Epub 2005 Apr 29.

### **Animal Study**

- Perdigon G, Maldonado Galdeano C, Valdez JC, Medici M. Interaction of lactic acid bacteria with the gut immune system. *Eur J Clin Nutr.* 2002 Dec;56 Suppl 4:S21-6.

## **PROBIOTIC 52 – *Lactobacillus Casei* CNCM I-1518 / DN-114 001 and Natural Defence**

### **Authoritative/Scientific Body**

- AFSSA (French Food Safety Agency) hearing No 2003-SA-0200. January 23, 2004, Actimel 'helps strengthen the body's natural defenses'

### **Individual Human Studies**

- Agarwal,K.N., Bhasin,S.K., Faridi,M.M., Mathur,M. and Gupta,S. (2001) Lactobacillus casei in the control of acute diarrhea-a pilot study. Indian pediatrics; 38, 905-910.
- Cobo Sanz, J.M. Mateos J.A. Munoz Conejo A. Effect of Actimel on the incidence of infectious conditions in children. Nutr Hosp. 2006; 21(4): 547-51
- Evaluation de la survie d'une souche de Lactobacillus casei DN 114 001 dans le tube digestif - fin de l'iléon et dans les selles – chez le volontaire sain. Protocole d'étude clinique, 5 février 2002
- Guérin,D.C., Chabanet,C., Pedone,C., Popot,F., Vaissade,P., Bouley,C., Szylit,O. and Andrieux,C. (1998) Milk fermented with yogurt cultures and Lactobacillus casei compared with yogurt and gelled milk: influence on intestinal microflora in healthy infants. Am. J. Clin. Nutr. 67, 111-117.
- Leplingard,A., Oozeer, R., Michelin,R., Mogenet,A., Seksek,I., Diop,L., Doré,J., Bresson,J.L., Corthier,G. (2003) Persistance of living Lactobacillus casei in human stools after regular ingestion of fermented milk. Abstract soumis au 9ème congrès européen de nutrition, Rome, octobre 2003
- Marcos A, Wärnberg J, Nova E, Gómez S, Alvarez A, Alvarez R, Mateos JA, Cobo, JM (2004) 'The effect of milk fermented by yoghurt cultures plus Lactobacillus casei DN 114001 on the immune response of subjects under academic examination stress' Eur. J. Nutr. 43(6) : 381-9
- Marcos,A. (main researcher), Cobo, J.M. (study coordinator), CSIC (institution in charge), Danone (promoter). Nutritional and immunological evaluation of the effects of mental stress in a group of students consuming Lactobacillus casei. Final report, Barcelona, July 2002 (publication en cours de rédaction)
- Oozer,R., Leplingard,A., Michelin,R., Mogenet,A., Seksek,I., Diop,L., Doré,J., Bresson, J.L., Corthier,G. (2003) Kinetic of living Lactobacillus casei recovery in human ileal lumen after one intake of fermented milk. Abstract soumis au 9ème congrès européen de nutrition, Rome, octobre 2003
- Oozer, R. et al. Survival of L;casei in the human digestive tract after consumption of fermented milk. Applied and environmental microbiol, aug. 2006, 5615-17
- Parra, D., Martinez de Morentin, B., Cobo, J.M., Mateos, A., Martinez, J.A. (2004) 'Daily ingestion of fermented milk containing Lactobacillus casei DN-114 001 improves innate-defense capacity in healthy middle-aged people.' J. Physiol. Biochem ; vol.60, no.2, p.85-92
- Parra, D., Martinez de Morentin, B., Cobo, J.M., Mateos, A., Martinez, J.A. (2004) 'Monocyte function in healthy middle-aged people receiving fermented milk containing Lactobacillus casei'. The Journal of Nutrition, Health & Ageing ; vol.8, no.4, p.208-211
- Pedone,C.A., Arnaud,C.C., Postaire,E.R., Bouley,C.F. and Reinert,P. (2000) Multicentric study of the effect of milk fermented by Lactobacillus casei on the incidence of diarrhoea. Int. J. Clin. Pract. 54, 568-571.
- Pedone,C.A., Bernabeu,A.O., Postaire,E.R., Bouley,C.F. and Reinert,P. (1999) The effect of supplementation with milk fermented by Lactobacillus casei (strain DN 114 001) on acute diarrhoea in children attending day care centres. Int. J. Clin. Pract. 53, 179-184.
- Pereg D, KimhiO, Tirosh A, Orr N, Kayouf R, Lishner M. The effects of a fermented yogurt on the prevention of diarrhea in a healthy adult population. Am J Infect Control. 2005. Mar; 33(9): 786-90.
- Pujol, P., Huguet, J., Drobnic, F., Banquells, M., Ruiz, O., Galilea, P., Segarra, N., Aguilera, S., Burnat, A., Mateos, J. A. and Postaire, E. R. (2000) The effect of fermented milk containing Lactobacillus casei on the immune response to exercise. Sports Med., Training and Rehab. 9[3], 209-223.

- Rochet V., Rigottier-Gois L., Sutren M., Kremetscki M-N., Andrieux C., Furet J-P., Tailliez P., Levenez F., Mogenet A., Bresson J-L., Méance S., Cayuela C., Leplingard A. and Doré J. Effects of orally administrated *Lactobacillus casei* DN-114 001 on the composition or activities of the dominant faecal microbiota in healthy humans. *British Journal of Nutrition.* 2006, 95, 421-29
- Rochet,V., Sutren,M.,Rigottier-Gois,L., Kremetscki,M.N., Andrieux,C., Mogenet,A., Bresson,J.L., Méance,S., Doré,J. (2002) Effet de la prise d'un lait fermenté contenant *Lactobacillus casei* DN-114 001 sur la microflore fécale de volontaires sains. Abstract présenté lors des Journées Françaises de Nutrition, Dijon, novembre 2002
- Turchet,P.,Laurenzano,M., Auboiron,S., Antoine,J.M. (2003) Effect of fermented milk containing the probiotic *Lactobacillus casei* DN 114 001 on winter infections in free-living elderly subjects: a randomised, controlled pilot study. *J. of Nutr., Health & Aging;* 7[2], 75-77

#### ***Additional Human Study***

- Sykora,J., Valeckova,K., Amlerova,J., Siala,K., Dedek,P., Watkins,S., Varvarovska,J., Stozicky,F., Pazdiora,P. and Schwartz,J. (2005) Effects of a specially designed fermented milk product containing probiotic *Lactobacillus casei* DN-114 001 and the eradication of *H. pylori* in children. A prospective randomized double-blind study. *J. Dairy Res.* 72, 243-249

#### ***Animal Studies***

- Chapat,L., Chemin,K., Bourdet-Sicard, R., Akarid, K., Kaiserlian, D. (2002) Immunomodulatory effect of *Lactobacillus casei* DN 114 001 strain on the development of delayed-type hypersensitivity to DNFB. Abstract soumis à la Société Française d'Immunologie, Strasbourg, 27-29 novembre 2002
- Chapat, L., Chemin, K., Bourdet-Sicard, R., Akarid, K., Kaiserlian, D. (2004) 'Lactobacillus casei DN-114 001 reduces CD8+ T cell-mediated skin inflammation'. *Eur. J. Immun.*, vol. 34, no. 9, p. 2520-2528
- Llopin M, Antolin M, Guarner A, Malagelada J-R. (2005). Mucosal colonisation with *Lactobacillus casei* mitigates barrier injury induced by exposure to trinitrobenzene sulphonic acid. *Gut.* 54; 955-959
- Oozeer,R., Goupid,F.N., Alpert,C.A., van de,G.M., Anba,J., Mengaud,J. and Corthier,G. (2002) *Lactobacillus casei* is able to survive and initiate protein synthesis during its transit in the digestive tract of human flora-associated mice. *Applied. and Environmental Microbiology* 68, 3570-3574.
- Djouzi,Z., Andrieux,C., Degivry,M.C., Bouley,C. and Szylit,O. (1997) The association of yogurt starters with *Lactobacillus casei* DN 114.001 in fermented milk alters the composition and metabolism of intestinal microflora in germ-free rats and in human flora-associated rats. *J. Nutr.* 127, 2260-2266.
- Guérin,D.C., Meslin,J.C., Chambard,A., Charpilienne,A., Relano,P., Bouley,C., Cohen,J. and Andrieux,C. (2001) Food supplementation with milk fermented by *Lactobacillus casei* DN 114 001 protects suckling rats from rotavirus-associated diarrhea. *J. of Nutr.* 131, 111-117.
- Medici,M., Vinderola,C.G., Weill,R. and Perdigon,G. (2005) Effect of fermented milk containing probiotic bacteria in the prevention of an enteroinvasive *Escherichia coli* infection in mice. *J. Dairy Res.* 72, 243-249
- Oozeer R., Mater D.D.G., Goupid Feuillerat N., Corthier G. (2004) Initiation of protein synthesis by a labeled derivative of the *Lactobacillus casei* DN-114 001 strain during its transit from the stomach to the cecum in mice harboring Human Microbiota. *Applied and Environmental Microbiology* 70, 6992-6997

- Oozeer R., Furet JP., Goupi-Feuillerat N., Anba J., Mengaud J., Corthier G. (2005) Differential Activities of Four Lactobacillus casei Promoters during Bacterial Transit through the Gastrointestinal Tract of Human-Microbiota-Associated Mice. *Applied and Environmental Microbiology*. 2005 Mar; 71(3): 1356-63.
- Paubert,Braquet.M., Xiao,H.G., Gaudichon C., Hedef N., Serikoff A., Bouley C., Bonavida B. and Braquet P. (1995) Enhancement of host resistance against *Salmonella typhimurium* in mice fed a diet supplemented with yogurt or milks fermented with various Lactobacillus casei strains. *International. Journal of Immunotherapy.* ; XI, 153-161.
- Portier, A., Boyaka, N.P., Bougoudogo, F., Dubarry, M., Huneau, J.F., Tomé, D., Dodin, A., Coste, M. (1993) Fermented milks and increased antibody responses against cholera in mice. *International. journal of immunotherapy.* ; IX[4], 217-224
- Thoreux,K., Senegas,B.F., Bernard,P.F., Giannarelli,S., Denariaz,G., Bouley,C. and Balas,D. (1996) Modulation of proliferation, second messenger levels, and morphotype expression of the rat intestinal epithelial cell line IEC-6 by fermented milk. *J. Dairy Sci.* 79, 33-43.
- Thoreux,K., Balas,D., Bouley,C. and Senegas,B.F. (1998) Diet supplemented with yoghourt or milk fermented by Lactobacillus casei DN 114 001 stimulates growth and brush-border enzyme activities in mouse small intestine. *Digestion* 59, 349-359.

### ***In Vitro Studies***

- Antolin,M., Carol,M., Borruel,N., Llopis,M., Casellas,F., Bourdet-Sicard,R., Guarner,F., Malagelada,J.R. (2003) Lactobacillus casei prevents the loss of tolerance to gut flora in Crohn's disease: *in vitro* evidence. Abstract soumis à l'American Gastroenterology Association, Orlando, 17-22 mai 2003
- Borruel,N., Carol,M., Casellas,F., Antolín,M., de Lara,F., Espín,E., Naval- J, Guarner,F. and Malagelada,J.R. (2002) Increased mucosal tumour necrosis factor alpha production in Crohn's disease can be downregulated *ex vivo* by probiotic bacteria. *Gut* 51 , 659-664.
- Borruel,N., Casellas,F., Antolin,M., Llopis,M., Carol,M., Espin,E., Naval,J., Guarner,F., Malagelada,J.R. (2003) Effects of nonpathogenic bacteria on cytokine secretion by human intestinal mucosa. *Am. J. Gastro.*98 [4] , 865-870
- Carol,M., Borruel,N., Antolin,M., Casellas,F., Guarner,F., Malagelada,J.R. (2006) Modulation of apoptosis in intestinal lymphocytes by a probiotic bacteria in Crohn's disease. *Journal of Leukocyte Biology* 79:917-922
- Carol,M., Borruel,N., Antolin,M., Casellas,F., Guarner,F., Malagelada,J.R. (2003) Lactobacillus casei can overcome resistance to apoptosis in lymphocytes from patients with crohn's disease. Poster soumis à l'American Gastroenterology Association, Orlando, 17-22 mai 2003
- Freitas, M., Tavan, E., Thoreux, K., Cayuela, C., Sapin, C. and Trugnan, G. (2003) Lactobacillus casei DN 114 001 and bacteroides thetaiotaomicron VPI-5482 inhibit rotavirus infection by modulating apical glycosylation pattern of cultured human intestinal HT29-MTX cells. Abstract accepted at the DDW 2003, Orlando, 17-22 May (In press in a supplement of Gastroenterology)
- Havenaar,R., Marteau, Ph., Huis In't Veld, J.H.J. (1994) Survival of lactobacilli strains in a dynamic computer controlled *in vitro* model of the gastro-intestinal tract. *Lactic* 94, Caen, 7-9 septembre 1994
- Ingrassia I., Leplingard A., and Darfeuille-Michaud A. (2005). Lactobacillus casei DN-114 001 inhibits the ability of adherent-invasive *E. coli* isolated from Crohn's disease patients to adhere to and to invade intestinal epithelial cells (in press in Applied and Environmental Microbiology)
- Parassol N., Freitas M., Thoreux K., Dalmasso G., Bourdet-Sicard R., Rampal P. (2005). Lactobacillus casei DN-114 001 inhibits the increase of paracellular permeability in

enteropathogenic Escherichia coli-infected T84 cells Res Microbiol. 2005 Mar; 156(2): 256-62. Epub 2004 Dec 15.

- Tanabe, H., Shirafuji, Y., Thoreux, K., Freitas, M., Bourdet-Sicard, R., Ouellette, A.J (2004). Lactobacillus casei DN-114 001 induces Paneth cell secretion and is sensitive to enteric α-defensins. Gastroenterology, 126, 4, S2: A578
- Tien M-T, Girardin S, Coppée JY, Bourdet-Sicard R, Sansonetti P and Pétron T. Anti-inflammatory effect of Lactobacillus casei on Shigella-infected human intestinal epithelial cells. The journal of immunology. 1228-37

### **PROBIOTIC 53 – Lactobacillus Casei I-3429 and Immune Defenses / Support of Immunity**

#### ***Individual Human Studies***

- Sykora J, Valeckova K, Amlerova J, Siala K, Dedeck P, Watkins S, Varvarovska J, Stozicky F, Pazdiora P, Schwarz J. Effects of a specially designed fermented milk product containing probiotic Lactobacillus casei DN-114 001 and the eradication of *H. pylori* in children: a prospective randomized double-blind study. J Clin Gastroenterol. 2005 Sep;39(8):692-8.
- Tormo Carnicer R, Infante Pina D, Rosello Mayans E, Bartolome Comas R. Intake of fermented milk containing Lactobacillus casei DN-114 001 and its effect on gut flora. An Pediatr (Barc). 2006 Nov;65(5):448-53.

### **PROBIOTIC 54 - Lactobacillus Casei Shirota (LcS) and Natural Resistance / Defence**

#### ***Reviews***

- Borriello SP, Hammes WP, Holzapfel W et al. Safety of probiotics that contain lactobacilli or bifidobacteria. Clin Infect Dis 2003;36(6):775-80.
- Gibson GR, Rouzaud G, Brostoff J et al. An evaluation of probiotic effects in the human gut: microbial aspects. FSA 2005; ref G01022, 2-22.  
<http://www.food.gov.uk/multimedia/pdfs/probioticreport.pdf>
- Marteau P, Shanahan F. Basic aspects and pharmacology of probiotics: an overview of pharmacokinetics, mechanisms of action and side-effects. Best Practice & Research Clinical Gastroenterology 2003;17:725-740.
- Mitsuoka T. Bifidobacteria and their role in human health. J Ind Microbiol 1990;6:263-8.
- Nomoto K. Prevention of infection by probiotics. J. bioscience and bioengineering 2005; 100: 583-592.

#### ***Individual Human Studies***

- Asahara T, Takahashi M, Nomoto K et al. Assessment of safety of lactobacillus strains based on resistance to host innate defense mechanisms. Clin Diagn Lab Immunol 2003;10:169-73.
- Cats A, Kuipers EJ, Bosschaert MAR, Pot RGJ, Vandenbroucke-Grauls CMJE, Kusters JG (2003); Effect of frequent consumption of a Lactobacillus casei-containing milk drink in Helicobacter pylori-colonized subjects". Aliment Pharmacol Ther 17, 429-35.
- De Preter V (2006) Biomarkers to study the in vivo efficacy of pre- and/or probiotics on the colonic fate of ammonia and p-cresol in healthy volunteers. Doctor thesis at Katholieke Universiteit Leuven. 2006 Apr. Belgium.

- De Preter V, Geboes K, Verbrugghe K et al. The in vivo use of the stable isotope-labelled biomarkers lactose-[15N]ureide and [2H4]tyrosine to assess the effects of pro- and pre-biotics on the intestinal flora of healthy human volunteers. *Br J Nutr* 2004;92:439-446.
- Imai K, Matsuyama S, Miyake S, Suga K, Nakachi K (2000) Natural cytotoxic activity of peripheral-blood lymphocytes and cancer incidence: an 11-year follow-up study of a general population. *The Lancet* 356, 1795-1799.
- Jacalne AV, Jacalne RR, Hirano H, Suetomi T, Villahermosa CG, Castaneda I (1990) In-vivo studies on the use of *Lactobacillus casei* (Yakult strain) as biological agent for the prevention and control of diarrhea. *Acta Medica Philippina* 26, 116-122.
- Kanazawa H, et al (2005); Synbiotics reduce postoperative infectious complications: a randomized controlled trial in biliary cancer patients undergoing hepatectomy". *Langenbecks Arch Surg* 390, 104-13.
- Kikuchi K (1962) Fluctuation of number of *E. coli* and *Lactobacilli* in human stool by peroral administration of Yakult. *Teishan Igaku* 14, 64-66 (in Japanese).
- Koebnick C, Wagner I, Leitzmann P et al. Probiotic beverage containing *Lactobacillus casei* Shirota improves gastrointestinal symptoms in patients with chronic constipation. *Can J Gastroenterol* 2003;17:655-659.
- Matsumoto K, Takada T, Shimizu K et al. The effect of a probiotic milk product containing *Lactobacillus casei* strain Shirota on de defecation frequency and the intestinal microflora of sub-optimal health state volunteers: a randomized placebo-controlled cross-over study. To be published in *Bioscience and Microflora* April 2006;25(2).
- Nagao F, Nakayama M, Muto T, Okumura K (2000) Effects of a fermented milk drink containing *Lactobacillus casei* strain Shirota on the immune system in healthy human subjects. *Bioscience Biotechnology and Biochemistry* 64, 2706-2708.
- Sawamura et al (1994) The enhancing effect of oral *Lactobacillus casei* on the immunologic activity of colon cancer patients. *Biotherapy* 8, 1567-1572.
- Shioiri T, et al (2006); "The effects of a symbiotic fermented milk beverage containing *Lactobacillus casei* strain Shirota and transgalactosylated oligosaccharides on defecation frequency, intestinal microflora, organic acid concentrations, and putrefactive metabolites of sub-optimal health state volunteers: A randomized placebo-controlled cross-over study". *Bioscience Microflora* 25 (4), 137-46.
- Spanhaak S, Havenga R, Schaafsma G. The effect of consumption of milk fermented by *Lactobacillus casei* strain Shirota on the intestinal microflora and immune parameters in humans. *Eur J Clin Nutr* 1998;52(12):899-907.
- Sugawara G, et al (2006); "Perioperative symbiotic treatment to prevent postoperative infectious complications in biliary cancer surgery-A randomized controlled trial", *Annals of surgery* 244 (5), 706-14.
- Tanaka R, Ohwaki M. A controlled study of the effects of the ingestion of *Lactobacillus casei*-fermented milk on the intestinal microflora, its microbial metabolism and the immune system of healthy humans. In: Mitsuoka T (Ed) *Proceedings of XII RIKEN Symposium on Intestinal Flora: Intestinal Flora and Diet* Tokyo, Japan Scientific Societies Press 1993, p85-104.
- Tanaka R, Tohyama K, Morotomi M, Takayama H, Nanno M, Kuroshima T, Mutai M (1981) Effect on the fecal flora and urinary metabolites by the administration of *Lactobacillus casei* and *Bifidobacterium breve* strain Yakult. In *Proceedings of XI RIKEN Symposium on Intestinal Flora: Intestinal Flora and Carcinogenesis*, pp. 79-103 [T Mitsuoka, editor]. Tokyo: Japan scientific Societies Press. (in Japanese).

- Tohyama K, Kobayashi Y, Kan T, Yazawa K, Terashima T, Mutai M (1981) Effect of lactobacilli on urinary indican excretion in gnotobiotic rats and in man. *Microbiology Immunology* 25, 101-112.
- Tuohy KM Pinart-Gilberga M, Jones M, Hoyle L, McCartney AL, Gibson G. Survivability of a probiotic Lactobacillus casei in the gastrointestinal tract of healthy human volunteers and its impact on the faecal microflora. Accepted for publication in *J. Applied Microbiology*
- Yamagishi T, Serikawa T, Morita R, Takahashi K, Nishida S (1974) Effect of lactobacillus product administration on the anaerobic intestinal flora of aged adults. *Japan. J. Microbiology* 18, 211-216.
- Yuki N, Watanabe K, Mike A et al. Survival of a probiotic, Lactobacillus casei strain Shirota, in the gastrointestinal tract: selective isolation from faeces and identification using monoclonal antibodies. *Int J Food Microbiol* 1999;48:51-7.

#### **Additional Human Studies**

- Alm L, Humble D, Ryd-Kjellen E, Setterberg G (1983) The effect of acidophilus milk in the treatment of constipation in hospitalised geriatric patients. *Symposia of Swedish Nutrition Foundation xv*, 131-138.
- Bongaerts GPA, et al (2006); "Latobacillus fermentum bacteremia in a seriously ill premature short small bowel patient during probiotic Lactobacillus casei therapy. *Intern J Probiotics and Prebiotics*. 1 (2) 145-8
- Candy DCA, et al (2000); "Effect of administration of Lactobacillus casei Shirota on sodium balance in an infant with short bowel syndrome". *J Pediatric Gastroenterology and Nutrition* 32, 506-8.
- Numata K (1973) Clinical effect of a high concentrate Lactobacilli preparation on chronic constipation. *The Clinical Report* 7, 1856-1857.
- Ogawa T, Hirai R, Nakakuni H, Sato Y, Wakisaka S, Tachibana M, Tominaga H, Kurata M, Matsubayashi K (1974) Clinical experience with the use of the high-concentration lactic acid bacteria preparation LP-201 to treat habitual constipation. *The Clinical Report* 8, 1085-1092 (Japanese).
- Shimizu S and Shibamoto G (1964) Clinical observation of the effects of a strain of acidophilic lactic acid bacteria (Yakult strain) on the intestinal gas production. *Proceedings of Tokyo Medical College* 21, 1-5.
- Shirota M, Aso K, Iwabuchi A (1966) Study on microflora of human intestine. I. Alteration of the constitution of intestinal flora by oral administration of *L. acidophilus* strain Shirota to healthy infants. *Japanese Journal of Bacteriology* 21, 274-283 (in Japanese).

#### **Animal Studies**

- Asahara T, Nomoto K, Watanuki M and Yokokura T. (2001). Antimicrobial activity of intraurethrally administered probiotic Lactobacillus casei in a murine model of Escherichia coli urinary tract infection. *Antibicrob. Agents Chemother.* 45: 1751-1760.
- Hori T, Kiyosima J, Shida K & Yasui H (2002) Augmentation of cellular immunity and reduction of influenza virus titer in aged mice fed Lactobacillus casei strain Shirota. *Clinical Diagnostic Laboratory Immunology* 9 (1), 105-108.
- Kato I, Tanaka K, Yokokura T (1999) Lactic acid bacterium potently induces the production of interleukin-12 and interferon- $\gamma$  by mouse splenocytes. *International Journal of Immunopharmacology* 21, 121-131.
- Kato I, Yokokura T, Mutai M (1984) Augmentation of mouse natural killer cell activity by Lactobacillus casei and its surface antigens. *Microbiology Immunology* 28, 209-217

- Lee YK, Lim CY, Teng WL, Ouwehand AC, Tuolola EM and Salminen S (2000): Quantitative approach in the study of adhesion of lactic acid bacteria to intestinal cells and their competition with enterobacteria. *Appl. Environ. Microbiol.*, 66: 3692-3697.
- Matsuzaki T, Chin J (2000) Modulating immune responses with probiotic bacteria. *Immunology and Cell Biology* 78, 67-73.
- Matsuzaki T, Yokokura T (1987) Inhibition of tumor metastasis of Lewis lung carcinoma in C57BL/6 mice by intrapleural administration of *Lactobacillus casei*. *Cancer Immunology Immunotherapy* 25, 100-104.
- Matsuzaki T, Yokokura T. and Mutai M (1988) Antitumor effect of intrapleural administration of *Lactobacillus casei* in mice. *Cancer Immunology Immunotherapy* 26, 209-214.
- Miake S, Nomoto K, Yokokura T, Mutai M. Nomoto K. (1985). Protective effect of *Lactobacillus csei* on *Psoudomonas aeruginasa* infection in mice. *Infect. Immun.*, 48: 480-485.
- Ogawa M, Shimizu K, Nomoto K, Takahashi M, Watanuki M, Tanaka R, Tanaka T, Hamabata T, Yamasaki S, Takeda Y (2001) Protective effect of *lactobacillus casei* strain shirota on shiga toxin-producing *escherichia coli* 0157: H7 infection in infant rabbits. *Infection and Immunity* 69, 1101-1108.
- Takagi A, Matsuzaki T Sato M, Nomoto K, Morotomi M, Yokokura T (1999) Inhibitory effect of oral administration of *Lactobacillus casei* on 3-methylcholanthrene-induced carcinogenesis in mice. *Medical Microbiology and Immunology* 188, 111-116.
- Takahashi M, Iwata S, Yamazaki N, Fujiwara H (1991) Phagocytosis of the lactic acid bacteria by M cells in the rabbit Peyer's patches. *Journal of Clinical Electron Microscopy* 24, 5-6
- Tohyama K, Kobayashi Y, Kan T, Yazawa K, Terashima T, Mutai M (1981) Effect of lactobacilli on urinary indican excretion in gnotobiotic rats and in man. *Microbiology Immunology* 25, 101-112.
- Tsunoda A, Shibusawa M, Tsunoda Y, Watanabe M, Nomoto K and Kusano M (2002): Effect of *Lactobacillus casei* on a novel murine model of abdominal spsis. *J. Surg. Res.* 107: 37-43.
- Yokokura T, Nomoto K, Shimizu T, and Nomoto K (1986). Enhancement of hematopoietic response of mice by subcutaneous administration of *Lactobacillus casei*. *Infect. Immun.*, 52, 156-160

### ***In Vitro Study***

- Hendriks H, Nauta N, Koninkx J, Swennenhuus J, van Asten F, van Dijk J (1999) Decrease in adherence and invasion of *Salmonella enteritidis* 857 to Caco-2 cells after simultaneous incubation with *Lactobacillus casei* Shirota. *The Host-Microflora Interface in Health & Disease Symposium Proceedings*, The Netherlands.

### **PROBIOTIC 55 - *Lactobacillus Casei* Shirota (LcS) and Natural Resistance / Defence (enhance NK cell activity)**

### ***Reviews***

- Nomoto K. Prevention of infection by probiotics. *J. bioscience and bioengineering* 2005; 100: 583-592.
- Rowland IR (1996) Gut microflora and cancer. In *Gut Flora and Health – Past, Present and Future*, pp. 19-25 [A R Leeds & IR Rowland, editors]. London: The Royal Society of Medicine.

### ***Individual Human Studies***

- Imai K, Matsuyama S, Miyake S, Suga K, Nakachi K (2000) Natural cytotoxic activity of peripheral-blood lymphocytes and cancer incidence: an 11-year follow-up study of a general population. *The Lancet* 356, 1795-1799.
- Morimoto K, Takeshita T, Nanno M, Tokudame S & Nakayama K (2005) Modulation of natural killer cell activity by supplementation of fermented milk containing *Lactobacillus casei* in habitual smokers. *Preventive Medicine* 40, 589-594.
- Nagao F, Nakayama M, Muto T, Okumura K (2000) Effects of a fermented milk drink containing *Lactobacillus casei* strain Shirota on the immune system in healthy human subjects. *Bioscience Biotechnology and Biochemistry* 64, 2706-2708.
- Sawamura et al (1994) The enhancing effect of oral *Lactobacillus casei* on the immunologic activity of colon cancer patients. *Biotherapy* 8, 1567-1572.
- Sugawara G, et al (2006); "Perioperative symbiotic treatment to prevent postoperative infectious complications in biliary cancer surgery-A randomized controlled trial", *Annals of surgery* 244 (5), 706-14.

#### ***Animal Studies***

- Hori T, Kiyosima J, Shida K & Yasui H (2002) Augmentation of cellular immunity and reduction of influenza virus titer in aged mice fed *Lactobacillus casei* strain Shirota. *Clinical Diagnostic Laboratory Immunology* 9 (1), 105-108.
- Kato I, Tanaka K, Yokokura T (1999) Lactic acid bacterium potently induces the production of interleukin-12 and interferon- $\gamma$  by mouse splenocytes. *International Journal of Immunopharmacology* 21, 121-131.
- Kato I, Yokokura T, Mutai M (1984) Augmentation of mouse natural killer cell activity by *Lactobacillus casei* and its surface antigens. *Microbiology Immunology* 28, 209-217
- Matsuzaki T, Chin J (2000) Modulating immune responses with probiotic bacteria. *Immunology and Cell Biology* 78, 67-73.
- Matsuzaki T, Yokokura T (1987) Inhibition of tumor metastasis of Lewis lung carcinoma in C57BL/6 mice by intrapleural administration of *Lactobacillus casei*. *Cancer Immunology Immunotherapy* 25, 100-104.
- Matsuzaki T, Yokokura T. and Mutai M (1988) Antitumor effect of intrapleural administration of *Lactobacillus casei* in mice. *Cancer Immunology Immunotherapy* 26, 209-214.
- Takagi A, Matsuzaki T Sato M, Nomoto K, Morotomi M, Yokokura T (1999) Inhibitory effect of oral administration of *Lactobacillus casei* on 3-methylcholanthrene-induced carcinogenesis in mice. *Medical Microbiology and Immunology* 188, 111-116.
- Takahashi M, Iwata S, Yamazaki N, Fujiwara H (1991) Phagocytosis of the lactic acid bacteria by M cells in the rabbit Peyer's patches. *Journal of Clinical Electron Microscopy* 24, 5-6.

#### ***Animal Study***

- Rowland IR (1996) Gut microflora and cancer. In *Gut Flora and Health – Past, Present and Future*, pp. 19-25 [A R Leeds & IR Rowland, editors]. London: The Royal Society of Medicine.

#### **PROBIOTIC 56 - *Lactobacillus Casei Shirota (LcS)* and Natural Defence (regulation of cell development)**

#### ***Reviews***

- Matsuguchi T, Takagi A, Matsuzaki T, Nagaoka M, Ishikawa K, Yokokura T & Yoshikai Y (2003) Lipoteichoic acids from Lactobacillus strains elicit strong tumor necrosis factor alpha-inducing activities in macrophages through Toll-like receptor 2. *Clinical Diagnostic Laboratory Immunology* 10 (2), 259-266.
- Nomoto K. Prevention of infection by probiotics. *J. bioscience and bioengineering* 2005; 100: 583-592.
- Rowland IR (1996) Gut microflora and cancer. In *Gut Flora and Health – Past, Present and Future*, pp. 19-25 [A R Leeds & IR Rowland, editors]. London: The Royal Society of Medicine.

#### ***Individual Human Studies***

- Aso Y, Akaza H, Kotake T, Tsukamoto T, Imai K, Naito S, the BLP Study Group (1995) Preventive effect of a Lactobacillus casei preparation on the recurrence of superficial bladder cancer in a double-blind trial. *European Urology* 27, 104-109.
- Aso Y, Akaza H, the BLP Study Group (1992) Prophylactic effect of a Lactobacillus casei preparation on the recurrence of superficial bladder cancer. *Urologia Internationalis* 49, 125-129.
- Imai K, Matsuyama S, Miyake S, Suga K, Nakachi K (2000) Natural cytotoxic activity of peripheral-blood lymphocytes and cancer incidence: an 11-year follow-up study of a general population. *The Lancet* 356, 1795-1799.
- Ishikawa H, Akedo I, Otani T, Suzuki T, Nakamura T, Takeyama I, Ishiguro S, Miyaoka E, Sobue T, Kakizoe T (2005) Randomized trial of dietary fiber and Lactobacillus casei administration for prevention of colorectal tumors. *Int. J. Cancer* 116, 762-767
- Kato I, Tanaka K, Yokokura T (1999) Lactic acid bacterium potently induces the production of interleukin-12 and interferon- $\gamma$  by mouse splenocytes. *International Journal of Immunopharmacology* 21, 121-131.
- Morimoto K, Takeshita T, Nanno M, Tokudame S & Nakayama K (2005) Modulation of natural killer cell activity by supplementation of fermented milk containing Lactobacillus casei in habitual smokers. *Preventive Medicine* 40, 589-594.
- Nagao F, Nakayama M, Muto T, Okumura K (2000) Effects of a fermented milk drink containing Lactobacillus casei strain Shirota on the immune system in healthy human subjects. *Bioscience Biotechnology and Biochemistry* 64, 2706-2708.
- Ohashi Y, Nakai S, Tsukamoto T, Akaza H, Kitamura T, Kawabe K, Kotake T, Naito S, Saito Y, Kitagawa M, Aso Y (2000) Habitual intake of lactic acid bacteria and risk reduction of bladder cancer. *Proceedings of the American Association for Cancer Research* 41, A3561.
- Ohashi Y, Nakai S, Tsukamoto T, Masumori N, Akaza H, Miyanaga N, Kitamura T, Kawabe K, Kotake T, Kuroda M, Naito S, Koga H, Saito Y, Nomata K, Kitagawa M, Aso Y (2002) Habitual intake of lactic acid bacteria and risk reduction of bladder cancer. *Urologia Internationalis* 68, 273-280.
- Okawa T, Kita M, Arai T, Iida K, Dokya T, Takegawa Y, Hirokawa Y, Yamazaki K, Hashimoto S (1989) Phase II randomized clinical trial of LC9018 concurrently used with radiation in the treatment of carcinoma of the uterine cervix. *Cancer* 64 (9). 1769-1776.
- Okawa T, Niibe H, Arai T, Sekiba K, Noda K, Takeuchi S, Hashimoto S & Ogawa N (1993) Effect of LC 9018 combined with radiation therapy on carcinoma of the uterine cervix. A phase III, multicenter, randomized, controlled study. *Cancer* 72. 1949-1954.
- Sawamura et al (1994) The enhancing effect of oral Lactobacillus casei on the immunologic activity of colon cancer patients. *Biotherapy* 8, 1567-1572.

- Sugawara G, et al (2006); "Perioperative symbiotic treatment to prevent postoperative infectious complications in biliary cancer surgery-A randomized controlled trial", Annals of surgery 244 (5), 706-14.

#### **Additional Human Studies**

- Masuno T, Kishimoto S, Ogura T, Fukuoka M, Matsui K, Furuse K, Itaya M, Kawahara M, Ikegami H, Nakamura S, Hora H, Nishikawa H, Yoshimoto T, Ito M, Jindai H, Ogawa A (1989) The efficacy of LC9018 in patients with malignant pleural effusion of primary lung cancer. Biotherapy 3 (6), 1598-1606.
- Masuno T, Kishimoto S, Ogura T, Honma T, Niitani H, Fukuoka M & Ogawa N (1991) A comparative trial of LC9018 plus Doxorubicin and Doxorubicin alone fore the treatment of malignant pleural effusion secondary to lung cancer. Cancer 68 (7), 1495-1500.
- Masuno T, Kishimoto S, Ogura T, Honma T, Niitani H, Fukuoka M, Ogawa N (1994) Control of the carcinomatous pleural effusion with LC9018 and quality of life in lung cancer patients. Biotherapy 8, 847-856.

#### **Animal Studies**

- Asano M, Karasawa E, Takayama T (1986) Antitumor activity of Lactobacillus casei (LC9018) against experimental mouse bladder tumor (MBT-2). Journal of Urology 136, 719-721.
- Hori T, Kiyo sima J, Shida K & Yasui H (2002) Augmentation of cellular immunity and reduction of influenza virus titer in aged mice fed Lactobacillus casei strain Shirota. Clinical Diagnostic Laboratory Immunology 9 (1), 105-108.
- Kato I, Endo K, Yokokura T (1994) Effects of oral administration of Lactobacillus casei on antitumor responses induced by tumor resection in mice. International Journal of Immunopharmacology 16, 29-36.
- Kato I, Tanaka K, Yokokura T (1999) Lactic acid bacterium potently induces the production of interleukin-12 and interferon- $\gamma$  by mouse splenocytes. International Journal of Immunopharmacology 21, 121-131.
- Kato I, Yokokura T, Mutai M (1984) Augmentation of mouse natural killer cell activity by Lactobacillus casei and its surface antigens. Microbiology Immunology 28, 209-217.
- Kimura K, Nishimura H, Matsuzaki T, Yokokura T, Nimura Y, Yoshikai Y (2000) Synergistic effect of IL-15 and IL-12 on antitumor activity in a murine malignant pleurisy model. Cancer Immunology Immunotherapy 49, 71-77.
- Matsuzaki T, Chin J (2000) Modulating immune responses with probiotic bacteria. Immunology and Cell Biology 78, 67-73.
- Matsuzaki T, Yokokura T (1987) Inhibition of tumor metastasis of Lewis lung carcinoma in C57BL/6 mice by intrapleural administration of Lactobacillus casei. Cancer Immunology Immunotherapy 25, 100-104.
- Matsuzaki T, Yokokura T. and Mutai M (1988) Antitumor effect of intrapleural administration of Lactobacillus casei in mice. Cancer Immunology Immunotherapy 26, 209-214.
- Takagi A, Matsuzaki T Sato M, Nomoto K, Morotomi M, Yokokura T (1999) Inhibitory effect of oral administration of Lactobacillus casei on 3-methylcholanthrene-induced carcinogenesis in mice. Medical Microbiology and Immunology 188, 111-116.
- Takahashi M, Iwata S, Yamazaki N, Fujiwara H (1991) Phagocytosis of the lactic acid bacteria by M cells in the rabbit Peyer's patches. Journal of Clinical Electron Microscopy 24, 5-6.

- Takahashi T, Kushiro A, Nomoto K, Uchida K, Morotomi M, Yokokura T & Akaza H (2001) Re: Antitumor effects of the intravesical instillation of heat killed cells of the Lactobacillus casei strain Shirota on the murine orthotopic bladder tumor MBT-2. J Urology 166, 2506-2511.
- Uchida K, Nagata Y, Fujiwara H. et al (1992): Biotherapy 6, 1571-1579.
- Yokokura, T, Kato I and Mutai M.; "Antitumor effects of Lactobacillus casei (LC9018)" , intestinal flora and carcinogenesis, complied by Mitsuoka T., GAKKAI press center, Tokyo, p125-137, 1981

## **PROBIOTIC 57 - Lactobacillus Fermentum CECT5716 and Natural Defence / Immune System**

### ***Individual Human Studies***

- Martin R., Langa S., Reviriego C., Marin ML., Fernandez L., Xaus J., Rodriguez JM. Transferencia de bacterias lácticas del intestino de la madre al intestino del lactante a través de la leche maternal (lactic acid bacteria transfer from the mother's gut to the lactating intestine through breast-feeding. II spanish congress of lactation). II Congreso español de Lactancia Materna. Sevilla (Spain). 2002
- Martin R., Langa S., Reviriego C., Jimenez E., Marin ML., Xaus J., Fernandez L., Rodriguez JM. Human milk is a source of lactic acid bacteria to the infant gut. J. Pediatrics. 143: 754-758. 2003
- Martin R., Langa S., Reviriego C., Jimenez E., Marin ML., Olivares M., Boza J., Jimenez J., Fernandez L., Xaus J., Rodriguez JM. The commensal microflora of human milk: new perspectives for food bacteriotherapy and probiotics. Trends Food Sci Tech. 15: 121-127. 2004.
- Olivares M., Diaz-Ropero MP., Sierra S., Lara-Villoslada F., Fonolla J., Rodriguez JM., Xaus J. Coadjuvant effect of Lactobacillus fermentum CECT5716 during an influenza vaccination. e-ESPEN 1: 129. 2006
- Olivares M., Diaz-Ropero MP., Sierra S., Lara-Villoslada F., Fonolla J., Navas M., Rodriguez JM., Xaus J. Oral intake of Lactobacillus fermentum CECT5716 enhances the effect of influenza vaccination. Nutrition (In press). 2006

### ***Animal Studies***

- Díaz-Ropero MP, Martin R, Sierra S, Lara-Villoslada F, Rodríguez JM, Xaus J, Olivares M. Two Lactobacillus strains, isolated from breast milk, differently modulate the immune response. J. Appl. Microbiol. In press. 2006.
- Galvez J, Camuesco D, Peran L, Comalada M, Xaus J, Zarzuelo A. Effects of Lactobacillus fermentum and Lactobacillus reuteri on TNBS-induced colitis in rats. Falk Symposium 153: Immunoregulation in IBD, current understanding and innovation. Berlin (Germany) 2006.
- Galvez J, Peran L, Sierra S, Comalada M, Lara-Villoslada F, Bailon E, Nieto A, Concha A, Olivares M, Zarzuelo A, Xaus J. A comparative study of the preventative effects exerted by two probiotics, Lactobacillus reuteri and Lactobacillus fermentum, in the trinitrobenzensulphonic acid model of rat colitis. Br. J. Nutr. In Press. 2006.
- Loren V, Mañe J, Pedrosa E, Ojanguren I, Bartoli R, Cabre E, Xaus J, Gassull MA. La administración de Lactobacillus fermentum (LF) después de la inducción de colitis por TNBS en ratones Blab/c mejora la evolución de la lesión colónica (The administration of L. fermentum (LF) after the induction of a TNBS colitis improves the evolution of the colonic lesions). Gastroenterol Hepatol. 29: 189. 2006.
- Loren V, Mañe J, Pedrosa E, Ojanguren I, Bartoli R, Cabre E, Xaus J, Gassull MA. Pretreatment with L. fermentum (LF) decreases the short-term severity of experimental colitis in balb/c mice. e-ESPEN 1: 138-139. 2006

- Mañe J, Loren V, Pedroisa E, Ojanguren I, Cabre E, Bartoli R, Xaus J, Gassull MA. La administración de Lactobacillus fermentum (LF) previa a la inducción de colitis por TNBS reduce la lesión intestinal en ratones Blab/c (The administration of *L. fermentum* (LF) before the induction of a TNBS colitis reduces the intestinal lesions in Balb/c mice.). *Gastroenterol Hepatol.* 29: 188. 2006
- Mañe J, Loren V, Pedroisa E, Ojanguren I, Cabre E, Bartoli R, Xaus J, Gassull MA. Treatment with Lactobacillus fermentum (LF) alter the induction of experimental colitis accelerates the healing of colonic damage in Balb/c mice. *e-ESPEN* 1: 140. 2006
- Olivares M., Díaz-Ropero MP., Martín R., Rodríguez JM., Xaus J. Antimicrobial potential of four lactobacillus strains isolated from breast milk. *J. Appl. Microbiol.* 101: 72-79. 2006.
- Peran L., Camuesco D., Comalada M., Nieto A., Concha A., Adrio JL., Olivares M., Xaus J., Zarzuelo A., Galvez J. Lactobacillus fermentum, a probiotic capable to release glutathione, prevents colonic inflammation in the TNBS model of rat colitis. *Int. J. Colorectal. Dis.* On line Jul 29. 2005

#### ***In Vitro Studies***

- Díaz-Ropero MP, Martín R, Sierra S, Lara-Villoslada F, Rodríguez JM, Xaus J, Olivares M. Two Lactobacillus strains, isolated from breast milk, differently modulate the immune response. *J. Appl. Microbiol.* In press. 2006.
- Olivares M., Díaz-Ropero MP., Martín R., Rodríguez JM., Xaus J. Antimicrobial potential of four lactobacillus strains isolated from breast milk. *J. Appl. Microbiol.* 101: 72-79. 2006.

#### **PROBIOTIC 58 - Lactobacillus Gasseri CECT5714 and Lactobacillus Coryniformis CECT5711 and Natural Defence / Immune System**

#### ***Individual Human Studies***

- Lara-Villoslada F, Sierra S, Boza J, Xaus J, Olivares M. Beneficial effects of consumption of a dairy product containing two probiotic strains, *Lactobacillus coryniformis* CECT5711 and *Lactobacillus gasseri* CECT5714 in healthy children. *Nutr. Hosp.* In Press, 2006
- Lara-Villoslada F, Sierra S, Díaz-Ropero MP, Maldonado J, Boza J, Xaus J, Olivares M. El consumo en niños de una leche fermentada con *L. gasseri* CECT5714 y *L. coryniformis* CECT5711 mejora parámetros involucrados en mecanismos de defensa frente a infecciones intestinales (Children consumption of a fermented milk with *L. gasseri* CECT5714 and *L. coryniformis* CECT5711 improve some mechanisms involved in the defence against intestinal infections). *Anales de Pediatría.* 64: 267. 2006
- Martín R., Langa S., Reviriego C., Marín ML., Fernández L., Xaus J., Rodríguez JM. Transferencia de bacterias lácticas del intestino de la madre al intestino del lactante a través de la leche materna (lactic acid bacteria transfer from the mother's gut to the lactating intestine through breast-feeding. II spanish congress of lactation). *II Congreso español de Lactancia Materna. Sevilla (Spain).* 2002
- Martín R., Langa S., Reviriego C., Jiménez E., Marín ML., Xaus J., Fernández L., Rodríguez JM. Human milk is a source of lactic acid bacteria to the infant gut. *J. Pediatrics.* 143: 754-758. 2003
- Olivares M., Diaz-Ropero MP., Gomez N., Lara-Villoslada F., Sierra S., Maldonado JA., Martín R., Lopez-Huertas E., Rodríguez JM., Xaus J. Oral administration of two probiotic strains, *Lactobacillus gasseri* CECT5714 and *Lactobacillus coryniformis* CECT5711, enhances the intestinal function of healthy adults. *Int. J. Food Microbiol.* 107: 104-111.. 2006.
- Olivares M., Diaz-Ropero MP., Gomez N., Sierra S., Lara-Villoslada., Martín R., Rodríguez JM., Xaus J. The deprivation of fermented foods in diet causes a fall in innate immune response. *Lactic*

acid bacteria can counteract the immunological effect of this deprivation. J. Dairy Res. 21: 1-7. 2006.

- Olivares M., Diaz-Ropero MP., Gomez N., Sierra S., Lara-Villoslada F., Maldonado JA., Martin R., Rodriguez JM., Xaus J. The consumption of two probiotic strains, Lactobacillus gasseri CECT5714 and Lactobacillus coryniformis CECT5711, boost the immune system of healthy adults. Int. Microbiol .9: 47-52. 2006
- Sierra S, Olivares M, Lara-Villoslada F, Boza J, Xaus J. Efectos gastrointestinales e inmunológicos del consumo de una leche fermentada con *L. gasseri* CECT5714 y *L. coryniformis* CECT5711 en niños sanos (Gastrointestinal and immunological effects of the consumption of a fermented milk with *L. gasseri* CECT5714 y *L. coryniformis* CECT5711 in healthy children). Nutrición Hospitalaria. 2006

#### **Animal Studies**

- Olivares M., Díaz-Ropero MP., Lara-Villoslada., Rodriguez JM., Xaus J. Probiotic effectiveness in allergy: Child game or adult affair?. Nutrafoods. 4: 59-64. 2005
- Olivares M., Díaz-Ropero MP., Martin R., Rodriguez JM., Xaus J. Antimicrobial potential of four lactobacillus strains isolated from breast milk. J. Appl. Microbiol. 101: 72-79. 2006.

#### **In Vitro Studies**

- Martin R., Langa S., Reviriego C., Jimenez E., Marin ML., Olivares M., Boza J., Jimenez J., Fernandez L., Xaus J., Rodriguez JM. The commensal microflora of human milk: new perspectives for food bacteriotherapy and probiotics. Trends Food Sci Tech. 15: 121-127. 2004
- Olivares M., Díaz-Ropero MP., Martin R., Rodriguez JM., Xaus J. Antimicrobial potential of four lactobacillus strains isolated from breast milk. J. Appl. Microbiol. 101: 72-79. 2006.

### **PROBIOTIC 59 - *Lactobacillus Gasseri PA 16/8, Bifidobacterium Bifidum MF 20/5 and Bifidobacterium Longum SP 07/3 and Natural Defence / Immune System***

#### **Individual Human Studies**

- de Vrese, M. et al., Effect of *Lactobacillus gasseri* PA 16/8, *Bifidobacterium longum* SP 07/3, *Bifidobacterium bifidum* MF 20/5 on common cold episodes: A double blind, randomized, controlled trial. Clinical Nutrition 24: 481-491 (2005)
- de Vrese M. et al., Probiotic bacteria reduced duration and severity but not the incidence of common cold episodes in a double blind, randomized, controlled trial. Vaccine 24: 6670-6674 (2006)
- Winkler P., de Vrese M., Laue CH., Schrezenmeir J., Effect of a dietary supplement containing probiotic bacteria plus vitamins and minerals on common cold infections and cellular immune parameters. Int. Journal of Clinical Pharmacology and Therapeutics 43 (7): 318-326 (2005)

#### **Additional Human Study**

- Honma N. On effect of lactic acid bacteria, Clinical effects. Part II. New Medicines and Clinics 36 (1): 75 (1987)

#### **Animal Study**

- Honma, N., Intestinal bacteria flora of infants and infection protection. Pediatrics Clinics, 27 (11): 20 (1974)

- Honma, N., On effect of lactic acid bacteria. Part 1-Biological significance. New Medicines and Clinics 35 (12): 2687-95 (1986)
- Ohno, H. et al., Oral administration of *Bifidobacterium bifidum* MF 20/5 suppresses total and antigen specific immunoglobulin E production in mice. Biol. Pharm. Bull. 28 (8): 1462-6 (2005)

**PROBIOTIC 60 - *Lactobacillus Johnsonii La-19/CLbA5* and *Bifidobacterium Animalis ssp. Lactis Bf-6/Bif-6/CB111* (Biogarde®/Bioghurt®/Bigarde®/Bighurt®-Cultures) and Natural / Immune Defenses**

***Authoritative/Scientific Bodies***

- DGE (Deutsche Gesellschaft für Ernährung) - Ernährungsbericht 2004. Beeinflussung der Darmflora durch Ernährung. 287-323.
- Prosafe-Projekt Report (Results on species identification & antibiotic susceptibility testing).
- [www.effca.com/anglais/pages/statique/11\\_list\\_of\\_microorg.htm](http://www.effca.com/anglais/pages/statique/11_list_of_microorg.htm)

***Textbooks***

- Brock, TD et al. (1994). Biology of Microorganisms, Prentices-Hall International. 403-405.
- Ebersdorfer, HF/Meyer, AH (2000). Praxishandbuch Functional Food. Behr's Verlag, Probiotika (7), 7.1.8, 7.4.4, 7.4.9.
- Rutloff, H et al. (1997). Lebensmittel-Biotechnologie und Ernährung. Springer-Verlag. 6-13, 59-60, 154-157.

***Reviews***

- Buttriss, J (1997). Nutritional properties of fermented milk products. International Journal of Dairy Technology 50 (1), 21-27.
- Cummings, JH et al. (2004). Passclaim - Gut Health and Immunity. Eur. J. Nutr. 43 (2). 119-122, 131-132
- Fooks, LJ, Fuller, R, Gibson, GR (1999). Prebiotics, Probiotics and Human Gut Microbiology. International Dairy Journal 9, 53-61.
- Kneifel, W, Bonaparte, C (1998). Novel trends related to health-relevant foods: 1. Probiotics. Nutrition 22 (9), 357-363.
- Mitsuoka, T (1990). Bifidobacteria and their Role in Human Health. Journal of Industrial Microbiology and Biotechnology 6 (4), 263-267.
- Rasic, JL, Kurmann, JA (1983). Bifidobacteria and their Role. Microbiological, Nutritional-Physiological, Medical and Technological Aspects and Bibliography. Experientia Suppl. 39, 1-295.

***Individual Human Studies***

- Heidt, PJ (1989). Gnotobiotics and bone marrow transplantation. Publication of the Radiobiological Institute Rijswijk, Netherlands. S. 96-97
- Kullen, MJ et al. (1996). Differentiation of ingested and endogenous Bifidobacteria by DNA fingerprinting demonstrates the survival of an unmodified strain in the gastrointestinal tract of humans. The Journal of Nutrition 127 (1). 89-94.
- Rink, DJ et al. (1998). Consumption of exogenous *L. acidophilus* does alter fecal lactobacilli levels. Study of the University of Minnesota, USA.

### **Animal Study**

- Tejada-Simon, MW et al. (1999). Ingestion of yogurt containing L. acidophilus and Bifidobacterium to potentiate IgA responses to cholera toxin in mice. J. Dairy Science 82. 649-660

### **In Vitro Studies**

- Shin, HS et al. (2000). Growth and viability of commercial Bifidobacterium ssp. in skim milk containing Oligosacchaides and Inulin. J. Food Science 65 (5), 884-887.
- Unstunol, Z. The effect of honey on the growth of Bifidobacteria. Summary of a Research Project funded by the National Honey Board and conducted at Michigan State University, USA. [www.nhb.org](http://www.nhb.org)

## **PROBIOTIC 61 - Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Natural Defence / Immune System**

### **Individual Human Studies**

- Donnet-Hughes, A., Rochat, F., Serrant, P., Aeschlimann, J.M., Schiffrian, E.J. 1999. Modulation of nonspecific mechanisms of defense by lactic acid bacteria: effective dose. J Dairy Sci 82:863-869.
- Guarner, F., Malagelada, J.R. 2003. Gut flora in health and disease. Lancet 361:512-519.
- Link-Amster, H., Rochat, F., Saudan, K.Y., Mignot, O., Aeschlimann, J.M. 1994. Modulation of a specific humoral immune response and changes in intestinal flora mediated through fermented milk intake. FEMS Immunol Med Microbiol 10:55-63.
- Marteau, P., Vaerman, J.P., Dehennin, J.P., Bord, S., Brassart, D., Pochart, P., Desjeux, J.F., Rambaud, J.C. 1997. Effects of intrajejunal perfusion and chronic ingestion of *Lactobacillus johnsonii* strain La1 on serum concentrations and jejunal secretions of immunoglobulins and serum proteins in healthy humans. Gastroenterol Clin Biol 21:293-298.
- Péguel Navarro J, Dezutter-Dambuyant C, Leclaire J, Buetler T, Hans Smola, Blum S and Guéniche A. Oral Skin Probiotic™ facilitate early recovery of cutaneous immune homeostasis after UV exposure in humans, Poster for the 15th EADV Congress, Rhodes, GR, 4-8 October, 2006.
- Schiffrian, E.J., Brassart, D., Servin, A.L., Rochat, F., Donnet-Hughes, A. 1997. Immune modulation of blood leukocytes in humans by lactic acid bacteria: criteria for strain selection. Am J Clin Nutr 66:515S-520S.
- Schiffrian, E.J., Rochat, F., Link-Amster, H., Aeschlimann, J.M., Donnet-Hughes, A. 1995. Immunomodulation of human blood cells following the ingestion of lactic acid bacteria. J Dairy Sci 78:491-497..

### **Animal Studies**

- Blum, S., Schiffrian, E.J. (2003). Intestinal microflora and homeostasis of the mucosal immune response: implications for probiotic bacteria? Curr Issues Intest Microbiol 4:53-60.
- Gueniche, A., Benyacoub, J., Buetler, T. M., Smola, H. and Blum, S., Supplementation with oral probiotic bacteria maintains cutaneous immune homeostasis after UV exposure, Eur. J. Dermatol., 16: 511-7, 2006.
- Ibnou-Zekri, N., Blum, S., Schiffrian, E.J., von der Weid, T. 2003. Divergent patterns of colonization and immune response elicited from two intestinal *Lactobacillus* strains that display similar properties in vitro. Infect Immun 71:428-436.
- Inoue R., Nishio, A., Fukushima Y., and Ushida K. Oral treatment with probiotic *Lactobacillus johnsonii* NCC533 (La1) for a specific part of the weaning period prevents the development of

atopic dermatitis induced after maturation in model mice, NC/Nga, Br. J. Dermatol., 156:499-509, 2007.

- Link, H., Rochat, F., Saudan, K.Y., Schiffrian, E. 1995. Immunomodulation of the gnotobiotic mouse through colonization with lactic acid bacteria. *Adv Exp Med Biol* 371A:465-467.
- Prioult, G., Fliss, I. and Pecquet, S. (2003). Effect of probiotic bacteria on induction and maintenance of oral tolerance to beta-lactoglobulin in gnotobiotic mice. *Clin Diagn Lab Immunol* 10:787-792.

### ***In Vitro Studies***

- Haller, D., Blum, S., Bode, C., Hammes, W.P., Schiffrian, E.J. 2000. Activation of human peripheral blood mononuclear cells by nonpathogenic bacteria in vitro: evidence of NK cells as primary targets. *Infect Immun* 68:752-759.
- Haller, D., Bode, C., Hammes, W.P. 1999. Cytokine secretion by stimulated monocytes depends on the growth phase and heat treatment of bacteria: a comparative study between lactic acid bacteria and invasive pathogens. *Microbiol Immunol* 43:925-935.
- Haller, D., Bode, C., Hammes, W.P., Pfeifer, A.M., Schiffrian, E.J., Blum, S. 2000. Non-pathogenic bacteria elicit a differential cytokine response by intestinal epithelial cell/leucocyte co-cultures. *Gut* 47:79-87.
- Haller, D., Serrant, P., Granato, D., Schiffrian, E. J., Blum, S. (2002). Activation of human NK cells by Staphylococci and Lactobacilli requires cell contact-dependent costimulation by autologous monocytes. *Clinical and Diagnostic Laboratory Immunology*, 9:649–657.
- Vidal, K., Donnet-Hughes, A., Granato, D. 2002. Lipoteichoic acids from *Lactobacillus johnsonii* strain La1 and *Lactobacillus acidophilus* strain La10 antagonize the responsiveness of human intestinal epithelial HT29 cells to lipopolysaccharide and gram-negative bacteria. *Infect Immun* 70:2057-2064.

### **PROBIOTIC 62 – *Lactobacillus Paracasei NCC 2461 (ST11) (Pasteur Culture Collection CNCM I-2116)* and Natural Defence / Immune System**

#### ***Individual Human Studies***

- Bunout D., Barrera G., Hirsch S., Gattas V., de la Maza MP., Haschke F., Steenhout P., Klassen P., Hager C., Avendano M., Petermann M. and Munoz C. Effects of a Nutritional Supplement on the Immune Response and Cytokine Production in Free-Living Chilean Elderly. *J. Parental Enteral Nutrition* 2004, 28(5):348-354
- Nutten S, Mercenier A, Wassenberg J, Spertini F. Comparison of the effect of two milk-based drinks, containing or not the ST11 strain, in allergic rhinitis patients. Results in June 2007

#### ***Additional Supportive Data***

- Von der Weid T., Ibnou-Zekri N., Pfeifer A. (2002). Novel probiotics for the management of allergic inflammation. *Digest. Liv. Dis.* ;34(suppl.2):S25-S28.

#### ***Animal Studies***

- Allergy prevention with probiotic preparations and recombinant probiotics. 3rd and 4th intermediate reports, March and August 2006 (Medical University of Vienna)
- Benyacoub J, Chennoufi S, Pecquet S, Saudan KY, Kusy N, Moulin J, Mercenier A, Blum S, *Lactobacillus paracasei CNCM I-2116* antagonizes cow's milk hypersensitivity reaction in mice, Abstract, ECI, 2006

- Benyacoub J., Pecquet S., Moulin J., Saudan K-Y, Kusy N., Sanchez-Garcia J-L. Effects of oral supplementation with *Lactobacillus paracasei* ST11, *Lactobacillus rhamnosus* GG and *Bifidobacterium longum* BB536, on hypersensitivity to cow's milk proteins in mice.
- Chennoufi S., Moser M., Zuercher A., Pecquet S. 2007. Evaluation of probiotic supplementation on food hypersensitivity to  $\alpha$ -lactoglobulin in mice.
- Chibani- Chennoufi S., Ben Yacoub J., Blum S., Mercenier A., Pecquet S. 2006. Modulation of food hypersensitivity to cow's milk proteins by *L. paracasei* CNCM I-2116. European Academy of Allergology and Clinical Immunology, Vienna.
- Evaluation of ST11 effect in an animal model of asthma – 2 Reports (Period 09-2005/01-2006 and Period 02-2006/01-2007) (CHUV Lausanne)
- Ibnou-Zekri N., Blum S., Schiffrin J., von der Weild T. Divergent patterns of colonization and immune response elicited from two Intestinal *Lactobacillus* strains that display similar properties in vitro. *Infection and Immunity* 2003; 1 (73): 428-436.
- Pecquet S., S. Chibani-Chennoufi, F. Rochat & A. Mercenier. 2006. Daily oral supplementation with *L. paracasei* CNCM I-2116 leads to a down- modulation of milk protein hypersensitivity. Congress of Gut microbiology, Aberdeen.
- Pelcot C., Effect de la composés administrés par voie orale sur la reconstruction de la fonction barrière et l'irritation cutanée (exp S 132), rapport CIT, 12.12.2006
- Prioult G, Fliss I, Pecquet S. (2003) Effect of probiotic bacteria on induction and maintenance of oral: Tolerance to Lactoglobulin in Gnotobiotic mice. *Clinical Lab Immunol.* 787–92
- Prioult G., Pecquet S., Fliss I. (2004). Stimulation of interleukin-10 production by acidic  $\alpha$ -Lactoglobulin-derived peptides hydrolyzed with *Lactobacillus paracasei* NCC2461 peptidases. *Clin. Diagn. Lab. Immunol.* ;11(2):266-271.
- Vidal K, Benyacoub J, Blum S, Dietary supplementation with *Lactobacillus paracasei* NCC2461 enhanced T cell mediated immune response in aged mice, Abstract, ECI, 2006
- Von der Weid T., Ibnou-Zekri N., Pfeifer A. Induction by lactic acid bacterium of a population of CD4+ T cells with low proliferative capacity that produce transforming growth factor beta and interleukin-10. *Clinical and Diagnostic laboratory immunology* 2001; 4 (8): 695-701.

### **PROBIOTIC 63 - *Lactobacillus Paracasei* ssp. *Paracasei* CRL-431 and Natural Defence / Immune System**

#### ***Individual Human Studies***

- de Vrese M, Rautenberg P, Laue C, Koopmans M, Herremans T, Schrezenmeir J. Probiotic bacteria stimulate virus-specific neutralizing antibodies following a booster polio vaccination. *Eur J Nutr* 2004, 394
- Gaon, D., Garmendia, C., Murriello, N.O., de Cucco Games, A., Cerchio, A., Quintas, R., Gonzalez, S.N., Oliver, G. Effect of *Lactobacillus* strains (*L. casei* and *L. acidophilus* Cerela) on bacterial overgrowth-related chronic diarrhea. 2002. *Medicina*, 62: 159-163.
- Gaon, D., Dowek, Y., Zavaglia, A., Holgado, A., Oliver, G. Lactose digestion by milk fermented with human strains of *Lactobacillus acidophilus* and *Lactobacillus casei*. 1995. *Medicina (Buenos Aires)*, 55: 237-242
- Gaon D, Garcia H, Winter L, Rodriguez N, Quintas R, Gonzalez SN, Oliver G. Effect of *Lactobacillus* strains and *Saccharomyces boulardii* on persistent diarrhea in children. *Medicina*, 63: 293-298

- Gonzalez, S., Albarracin, G., Locascio de Ruiz Pesce, M., Male, M., Apella, M.C., Pesce de Ruiz Holgado, A., Oliver, G. Prevention of infantile diarrhea by fermented milk. 1990. *Microbiologie-Aliments-Nutrition*, 8:349-354
- Gonzalez, S., Cardozo, R., Apella, M., Oliver, G. Biotherapeutic role of fermented milk. 1995. *Biotherapy*, 8: 129-134.

### **Animal Studies**

- Agüero G, Villena J, Racedo S, Haro S, Alvarez S. 2006. Beneficial immunomodulatory activity of Lactobacillus casei in malnourished mice pneumonia: effect on inflammation and coagulation. *Nutrition* 22; 810-819.
- Cano, P.G., Agüero, G., Perdigón, G. Adjuvant effects of Lactobacillus casei added to a renutrition diet in a malnourished mouse model. 2002. *Biocell*, 26(1):35-48.
- Macias, M., Apella, M., Romero, N., Gonzalez, S., Oliver, G. Inhibition of Shigella sonnei by Lactobacillus casei and Lactobacillus acidophilus. 1992. *Journal of Applied Bacteriology*, 73: 407-411
- Maldonado Galdeano C and Perdigon G. 2004. Role of viability of probiotic strains in their persistence in the gut and in mucosal immune stimulation. *J. Appl. Microbiol.* 97, 673-681
- Nader de Macias, M.E., Romero, C., Apella, M.C., Gonzalez, S.N., Oliver, G. Prevention of infection produced by Escherichia coli and Listeria monocytogenes by feeding milk fermented with Lactobacilli. 1993. *Journal of Food Protection*, 56 (5): 401-405.
- Perdigon, G., Alvarez, S., Nader de Macias, M., Roux, M., Pesce de Ruiz Holgado, A. The oral administration of lactic acid bacteria increase the mucosal intestinal immunity in response to enteropathogens. 1990. *Journal of Food Protection*, 53 (5): 404-410.
- Perdigon, G., Nader de Macia, M., Alvarez, S., Oliver, G., Pesce de Ruiz Holgado, A. Prevention of gastrointestinal infection using immunobiological methods with milk fermented with Lactobacillus casei and Lactobacillus acidophilus. 1990. *Journal of Dairy Research*, 57: 255-264.
- Perdigon, G., Alvarez, S., Medici, M., Pesce de Ruiz Holgado, A. Influence of the use of Lactobacillus casei as an oral adjuvant on the levels of secretory IgA during an infection with *Salmonella typhimurium*. 1993. *Food & Agricultural Immunology*, 5: 27-37.
- Perdigon, G., Nader de Macias, M.E., Alvarez, S., Oliver, G., Pesce de Ruiz Holgado, A. Systemic augmentation of the immune response in mice by feeding fermented milk with Lactobacillus casei and Lactobacillus acidophilus. 1988. *Immunology*, 63: 17-23.
- Perdigon, G., Alvarez, S., Nader de Macias, M.E., Margini, R.A., Oliver, G., de Ruiz Holgado, A.P. Lactobacilli administered orally induce release of enzymes from peritoneal macrophages in mice. 1986. *Milchwissenschaft*, 41(6): 344-348.
- Perdigon, G., Alvarez, S., Gobbato, N., de Budeguer, M.V., de Ruiz Holgado, A.A.P. Comparative effect of the adjuvant capacity of Lactobacillus casei and lipopolysaccharide on the intestinal secretory antibody response and resistance to *Salmonella* infection in mice. 1995. *Food & Agricultural Immunology*, 7: 283-294.
- Perdigon, G., Medici, M., Bibas Bonet de Jorrat, M.E., Valverde de Budeguer, M., Pesce de Ruiz Holgado, A. Immunomodulating effects of lactic acid bacteria on mucosal and tumoral immunity. 1993. *Int. J. Immunotherapy*, IX (1): 29-52.
- Perdigon, G., Alvarez, S., Pesce de Ruiz Holgado, A. Immunoadjuvant activity of oral Lactobacillus casei: influence of dose on the secretory immune response and protective capacity in intestinal infections. 1991. *Journal of Dairy Research*, 58: 485-496.

- Perdigon, G., Nader de Macias, M.E., Alvarez, S., Oliver, G., Pesce de Ruiz Holgado, A. Effect of perorally administered lactobacilli on macrophage activation in mice. 1986. *Infection and Immunity*, 53 (2): 404-410.
- Perdigon, G., Nader de Macias, M.E., Alvarez, S., Medici, M., Oliver, G., Pesce de Ruiz Holgado, A. Effect of a mixture of *Lactobacillus casei* and *Lactobacillus acidophilus* administered orally on the immune system in mice. 1986. *Journal of Food Protection*, 49 (12): 986-989
- Perdigon G, Maldonado Galdeano C, Valdez JC, Medici M. Interaction of lactic acid bacteria with the gut immune system. *Eur J Clin Nutr*. 2002 Dec;56 Suppl 4:S21-6.
- Perdigon, G., Macias, M., Alvarez, S., Medici, M., Oliver, G., Holgado, A. Immunopotentiator activity of lactic acid bacteria administered by oral route. 1986. *Medicina (Buenos Aires)*, 46: 751-754.
- Perdigon, G., Vintini, E., Alvarez, S., Medina, M., Medici, M. Study of the possible mechanisms involved in the mucosal immune system activation by lactic acid bacteria. 1999. *Journal of Dairy Science*, 82: 1108-1114.
- Perdigon, G., Alvarez, S., Macias, M., Holgado, A. Adjuvant activity of the lactic acid bacteria: perspectives for its use in oral vaccine. 1988. *Revista Argentina de Microbiologica*, 20: 141-146.
- Petrino, S., Jorrat, M., Perdigon, G. Effect of different lactic acid bcteria on immune response in corticoid-immunosuppressed mice. 1996. *Microbiologie - Aliments - Nutrition*, 14: 227-236.
- Petrino, S., Eugenia, M., de Jorrat, B., de Buduguer, M., Perdigon, G. Influence of the oral administration of different lactic acid bacteria on intestinal microflora and IgA-secreting cells in mice treated with ampicillin. 1997. *Food and Agricultural Immunology*, 9: 265-275.
- Villena, J., Racedo S., Agüero G., Bru E., Medina M., Alvarez S. 2005. *Lactobacillus casei* improves resistance to pneumococcal respiratory infection in malnourished mice. *J. Nutr.* 135: 1462-1469
- Vitiñi, E., Alvarez, S., Medina, M., Medici, M., de Buduguer, M.V., Perdigón, G. Gut mucosal immunostimulation by lactic acid bacteria. 2000. *Biocell*, 24(3): 223-232.

### ***In Vitro Studies***

- Ambrosini, V., Gonzalez, S., Perdigon, G., Holgado, A., Oliver, G. Chemical composition of the cell wall of lactic acid bacteria and related species. 1996. *C.P. Bulletin*, 44 (12): 2263-2267.
- Ambrosini, V., Gonzalez, S., Holgado, A., Oliver, G. Study of the morphology of the cell walls of some strains of lactic acid bacteria and related species. 1998. *Journal of Food Protection*, 61 (5): 557-562.
- Ambrosini, V., Gonzalez, S., Holgado, A., Oliver, G. Cell wall sugars from strains used as starters for dairy products. 1994. *Microbiologie - Aliments - Nutrition*, 12: 17-21
- Apella, M.C., Gonzalez, S.N., Nader de Macias, M.E., Romero, N., Oliver, G. In vitro studies on the inhibition of the growth of *Shigella sonnei* by *Lactobacillus casei* and *Lactobacillus acidophilus*. 1992. *Journal of Applied Bacteriology*, 73: 480-483.
- Gonzalez, S., Apella, M., Romero, N., Macias, M., Oliver, G. Inhibition of enteropathogens by lactobacilli strains used in fermented milk. 1993. *Journal of Food Protection*, 56 (9): 773-776.
- Vinderola G, Matar C, Perdigon G. 2005. Role of intestinal epithelial cells in immune effects mediated by gram-positive probiotic bacteria: Involvement of toll-like receptors. *Clinical and Diagnostic Laboratory Immunology* (12)9: 1075-1084

## **PROBIOTIC 64 – Lactobacillus Plantarum Rosell-1012 and Immune Defenses / Support of Immunity**

### ***Individual Human Study***

- Koll-Klais P, Mandar R, Leibur E, Marcotte H, Hammarstrom L, Mikelsaar M. Oral lactobacilli in chronic periodontitis and periodontal health: species composition and antimicrobial activity. *Oral Microbiol Immunol.* 2005 Dec;20(6):354-61.

### ***In Vitro Study***

- Brink M, Todorov SD, Martin JH, Senekal M, Dicks LM. The effect of prebiotics on production of antimicrobial compounds, resistance to growth at low pH and in the presence of bile, and adhesion of probiotic cells to intestinal mucus. *J Appl Microbiol.* 2006 Apr;100(4):813-20.

## **PROBIOTIC 65 - Lactobacillus Reuteri ATCC 55730 and Natural Defence**

### ***Reviews***

- Casas IA, Dobrogosz WJ. Validation of the probiotic concept: *Lactobacillus reuteri* confers broad-spectrum protection against disease in humans and animals. *Microbial Ecology in Health and Disease* 2006; 12:247-285.
- Connolly E. *Lactobacillus reuteri* ATCC 55730 – A clinically proven probiotic. *Nutrafoods* 2004; 3:15-22.
- Dobrogosz WJ. Enhancement of human health with *Lactobacillus reuteri*. A probiotic, immunobiotic and immunoprotective. *Nutrafoods* 2005;4:15-28.

### ***Individual Human Studies***

- Caglar,E.; Cildir,S.K.; Ergeneli,S.; Sandalli,N.; Twetman,S. Salivary mutans streptococci and lactobacilli levels after ingestion of the probiotic bacterium *Lactobacillus reuteri* ATCC 55730 by straws or tablets. *Acta Odontol. Scan.*2006; 64:314-318
- Nikawa H, Makihira S, Fukushima H et al. *Lactobacillus reuteri* in bovine milk fermented decreases the oral carriage of mutans streptococci. *Int.J.Food Microbiol.* 2004;95:219-23.
- Tubelius P, Stan V, Zachrisson A. Increasing work-place healthiness with the probiotic *Lactobacillus reuteri*: A randomised, double-blind placebo-controlled study. *Environ.Health* 2005;4:25.
- Valeur N, Engel P, Carbajal N, Connolly E, Ladefoged K. Colonization and immunomodulation by *Lactobacillus reuteri* ATCC 55730 in the human gastrointestinal tract. *Appl.Environ.Microbiol.* 2004;70:1176-81.

### ***Additional Human Studies***

- Imase K, Tanaka A, Tokunaga K, Sugano H, Takahashi S. *Lactobacillus reuteri* tablets can suppress *Helicobacter pylori* infection: a double-blind, randomised, placebo-controlled cross-over clinical study. *Am J Gastroenterol* 2005; 100(S9): abstract No. 98.
- Krasse P, Carlsson B, Dahl C, Paulsson A, Nilsson Å, Sinkiewicz G. Decreased gum bleeding and reduced gingivitis by the probiotic *Lactobacillus reuteri*. *Swed Dent J* 2006; 30:55-60
- Niv E., Naftali T., Hallak R. and Vaisman N. (2005) The efficacy of *Lactobacillus reuteri* ATCC 55730 in the treatment of patients with irritable bowel syndrome—a double blind, placebo-controlled, randomized study. *Clin.Nutr* 24, 925-931.

- Saggioro A, Caroli M, Pasini M, Bortoluzzi F, Girardi L, Pilone G. Helicobacter pylori eradication with Lactobacillus reuteri. A double blind placebo-controlled study. *Dig Liver Dis* 37(suppl 1) 2005; S88, abstr. PO1.49
- Shornikova AV, Casas IA, Isolauri E, Mykkanen H, Vesikari T. Lactobacillus reuteri as a therapeutic agent in acute diarrhea in young children. *J Pediatr.Gastroenterol.Nutr.* 1997;24:399-404.
- Shornikova AV, Casas IA, Mykkanen H, Salo E, Vesikari T. Bacteriotherapy with Lactobacillus reuteri in rotavirus gastroenteritis. *Pediatr Infect Dis J* 1997;16:1103-7.
- Weizman Z, Asli G, Alsheikh A. Effect of a probiotic infant formula on infections in child care centers: comparison of two probiotic agents. *Pediatrics* 2005;115:5-9.
- Wolf B.W., Galeb K.A., Ataya D.G. and Casas I.A. (1995) Safety and tolerance of lactobacillus reuteri in healthy adult subjects. *Microbial Ecol Health Dis* 8, 41-50.
- Wolf B.W., Wheeler K.B., Ataya D.G. and Garleb K.A. (1998) Safety and tolerance of Lactobacillus reuteri supplementation to a population infected with the human immunodeficiency virus. *Food Chem.Toxicol.* 36, 1085-1094.

### **PROBIOTIC 66 - Lactobacillus Rhamnosus ATCC53103 (LGG®) and Natural Defence / Immune Response**

#### **Review**

- Vaarala O. 2003. Immunological effects of probiotics with special reference to lactobacilli. *Clin Exp Allergy* 33:1634–1640.

#### **Individual Human Studies**

- de Vrese M, Rautenberg P, Laue C, Koopmans M, Herremans T, and Schrezenmeir J. 2005. Probiotic bacteria stimulate virus-specific neutralizing antibodies following a booster polio vaccination. *Eur J Nutr* 44(7):406-413.
- Di Caro S, Tao H, Grillo A, Elia C, Gasbarrini G, Sepulveda AR, Gasbarrini A. 2005. Effects of Lactobacillus GG on genes expression pattern in small bowel mucosa. *Dig Liver Dis* 37(5):320-9.
- He F, Tuomola E, Arvilommi H, and Salminen S. 2000. Modulation of humoral immune response through probiotic intake. *FEMS Immunol Med Microbiol* 29: 47-52.
- Schultz M, Linde H-L, Lehn N, Zimmermann K, Grossmann J, Falk W, and Scholmerich J. 2003. Immunomodulatory consequences of oral administration of Lactobacillus rhamnosus GG in healthy volunteers. *J Dairy Res* 70: 165-73.
- Pelto L, Isolauri E, Lilius E-M, Nuutila J, and Salminen S. 1998. Probiotic bacteria down-regulate the milk-induced inflammatory response in milk-hypersensitive subjects but have an immunostimulatory effect in healthy subjects. *Clin Experiment Allergy* 28: 1474-1479.

#### **Additional Human Studies**

- Hatakka K, Savilahti E, Pönkä A, Meurman JH, Poussa T, Näse L, Saxelin M, and Korppela R. 2001. Effect of long term consumption of probiotic milk on infections in children attending day care centres: double blind, randomised trial. *Br Med J* 322: 1327-1329.
- Isolauri E, Joensuu J, Suomalainen H, Luomala M and Vesikari T. 1995. Improved immunogenicity of oral D x RRV reassortant rotavirus vaccine by Lactobacillus casei GG. *Vaccine* 13: 310-312.

- Kaila M, Isolauri E, Soppi E, Virtanen E, Laime S and Arvilommi H. 1992. Enhancement of the circulating antibody secreting cell response in human diarrhea by a human Lactobacillus strain. *Pediatr Res* 32: 141-144.
- Majamaa H and Isolauri E. 1997. Probiotics: A novel approach in the management of food allergy. *J Allergy Clin Immunol* 99: 179-185.
- Majamaa H, Isolauri E, Saxelin M, and Vesikari T. 1995. Lactic acid bacteria in the treatment of acute rotavirus gastroenteritis. *J Pediatr Gastroent Nutr* 20: 333-338.
- Malin M., Suomalainen H, Saxelin M. and Isolauri E. 1996. Promotion of IgA immune response in patients with Crohn's disease by oral bacteriotherapy with Lactobacillus GG. *Ann Nutr Metabolism* 40: 137-145.
- Malin M, Verronen P, Korhonen H, Syväoja E-L, Salminen S, Mykkänen H, Arvilommi H, Eerola E, and Isolauri E. 1997. Dietary therapy with Lactobacillus GG, bovine colostrum or bovine immune colostrum in patients with juvenile chronic arthritis: evaluation of effect on gut defence mechanisms. *Inflammopharmacol* 5: 219-236..
- Pessi T, Sütas Y, Hurme M and Isolauri E. 2000. Interleukin-10 generation in atopic children following oral Lactobacillus rhamnosus GG. *Clin. Experim. Allergy* 30 (12): 1804-1808.
- Pohjavuori E, Viljanen M, Korpela R, Kuitunen M, Tiittanen M, Vaarala O, and Savilahti E. 2004. Lactobacillus GG effect in increasing IFN-gamma production in infants with cow's milk allergy. *J Allergy Clin Immunol* 2004;114(1):131-136.
- Rautava S, Kalliomäki M, and Isolauri E. 2002. Probiotics during pregnancy and breast-feeding might confer immunomodulatory protection against atopic disease in the infant. *J Allergy Clin Immunol* 109: 119-121.
- Rinne M, Kalliomäki M, Arvilommi H, Salminen S, and Isolauri E. 2005. Effect of probiotics and breastfeeding on the bifidobacterium and lactobacillus/enterococcus microbiota and humoral immune responses. *J Pediatr* 147, 186-191.
- Viljanen M, Kuitunen M, Haahtela T, Juntunen-Backman K, Korpela R, Savilahti E. 2005. Probiotic effects on faecal inflammatory markers and on faecal IgA in food allergic atopic eczema/dermatitis syndrome infants. *Pediatr Allergy Immunol* 16: 65-71.
- Viljanen M, Pohjavuori E, Haahtela T, Korpela R, Kuitunen M, Sarnesto A, Vaarala O and Savilahti E. 2005. Induction of inflammation as a possible mechanism of probiotic effect in atopic eczema-dermatitis syndrome. *J Allergy Clin Immunol* 115: 1254-1259

### **Animal Studies**

- Banasz M, Norin E, Holma R, and Midtvedt T. 2002. Increased enterocyte production in gnotobiotic rats mono-associated with Lactobacillus rhamnosus GG. *Appl Environm Microbiol* 68(6): 3031-3034.
- Gerbitz A, Schultz M, Wilke A, Linde HJ, Scholmerich J, Andreesen R, and Holler E. 2004. Probiotic effects on experimental graft-versus-host disease: let them eat yogurt. *Blood* 103(11):4365-7.
- Hudault S, Lievin V, Bernet-Camard M-F, and Servin A. 1997. Antagonistic activity exerted in vitro and in vivo by Lactobacillus casei (strain GG) against *Salmonella typhimurium* C5 infection. *Appl Environ Microbiol* 63: 513-518.
- Kirjavainen PV, El-Nezami H, Salminen S, Ahokas J, and Wright PFA. 1999. Effects of orally administered viable Lactobacillus rhamnosus GG and Propionibacterium freudenreichii subsp. shermanii JS on mouse lymphocyte proliferation. *Clin Diagn Labor Immunol* 6 (6): 799-802.

- Lim BK, Mahendran R Lee YK, and Bay BH. 2002. Chemopreventive effect of Lactobacillus rhamnosus on growth of a subcutaneously implanted bladder cancer cell line in the mouse. *Jpn J Cancer Res* 93(1): 36-41.
- Negretti F, Casetta P, Clerici-Bagozzi D, and Marini A. 1997. Researches on the intestinal and systemic immunoresponses after oral treatment with Lactobacillus GG in the rabbit. *Developmental Physiopathology and Clinics* 7: 15-21.
- Seow SW, Rahmat JN, Mohamed AA, Mahendran R, Lee YK, and Bay BH. 2002. Lactobacillus species is more cytotoxic to human bladder cancer cells than *Mycobacterium Bovis* (bacillus Calmette-Guerin). *J Urol* 168(5):2236-2239

### ***In Vitro Studies***

- De Léseleuc L, Chabot S, Cloutier D, Roy D, Lacroix M, and Oth D. 2002. Quantitative aspects in pro-inflammatory cytokines and gamma interferon (IFN- $\gamma$ ) production capacities among various lactic acid bacteria (LAB). *Milchwissenschaft* 57(6):316-319.
- Gerbitz A, Schultz M, Wilke A, Linde HJ, Scholmerich J, Andreesen R, and Holler E. 2004. Probiotic effects on experimental graft-versus-host disease: let them eat yogurt. *Blood* 103(11):4365-7.
- Iliev ID, Kitazawa H, Shimosato T, Katoh S, Morita H, He F, Hosoda M, Saito T. 2005. Strong immunostimulation in murine immune cells by Lactobacillus rhamnosus GG DNA containing novel oligodeoxynucleotide pattern. *Cell Microbiol* 7: 403-414.
- Kim SO, Sheikh HI, Ha SD, Martins A and Reid G. 2006. G-CSF-mediated inhibition of JNK is a key mechanism for Lactobacillus rhamnosus-induced suppression of TNF production in macrophages. *Cell Microbiol*. e-pub.
- Korhonen R, Korpela R, and Moilanen E. 2002. Signalling mechanisms involved in the induction of inducible nitric oxide synthase by Lactobacillus rhamnosus GG, endotoxin, and lipoteichoic acid. *Inflammation* 26(5):207-214.
- Korhonen R, Korpela R, Saxelin M, Mäki M, Kankaanranta H, and Moilanen E. 2001. Induction of nitric oxide synthesis by probiotic Lactobacillus rhamnosus GG in J774 macrophages and human T84 intestinal epithelial cells. *Inflammation* 25(4): 223-232.
- Lammers KM, Helwig U, Rizzello F, Venturi A, Caramelli E, Kamm MA, Brigidi P, Gionchetti P, and Campieri M. 2002. Effect of probiotic strains on interleukin 8 production by HT29/19A cells. *Am J Gastroenterol* 97(5): 1182-1186.
- Lan JG, Cruickshank SM, Singh JC, Farrar M, Lodge JP, Felsburg PJ and Carding SR 2005. Different cytokine response of primary colonic epithelial cells to commensal bacteria. *World J Gastroenterol* 11, 3375-3384.
- Mack DR, Ahrne S, Hyde L, Wei S, and Hollingsworth MA. 2003. Extracellular MUC3 mucin secretion follows adherence of Lactobacillus strains to intestinal epithelial cells in vitro. *Gut* 52(6):827-33.
- Mack DR, McDonald TL, Larson MA, Wei S and Weber MA. 2003. The conserved TFLK motif of mammary-associated serum amyloid A3 is responsible for up-regulation of intestinal MUC3 mucin expression in vitro. *Pediatr Res* 53(1): 137-142.
- Mack DR, Michail S, Wei S, McDougall L, and Hollingsworth MA. 1999. Probiotics inhibit enteropathogenic *E. coli* adherence in vitro by inducing intestinal mucin gene expression. *Am J Physiol* 276 (Gastrointest. Liver Physiol. 39): G941-950.

- Malin M, Suomalainen H, Saxelin M, and Isolauri E. 1996. Promotion of IgA immune response in patients with Crohn's disease by oral bacteriotherapy with *Lactobacillus GG*. *Ann Nutr Metabolism* 40: 137-145.
- Mattar AF, Teitelbaum DH, Drongowski RA, Yongyi F, Harmon CM, and Coran AG. 2002. Probiotics up-regulate MUC-2 mucin gene expression in a Caco-2 cell-culture model. *Pediatr Surg Int* 18(7):586-590.
- Miettinen M, Vuopio-Varkila J, and Varkila K. 1996. Production of human tumor necrosis factor alpha, interleukin-6, and interleukin-10 is induced by lactic acid bacteria. *Infection Immun.* 64 (12): 5403-5405.
- Miettinen M, Matikainen S, Vuopio-Varkila J, Pirhonen J, Varkila K, Kurimoto M, and Julkunen I. 1998. *Lactobacilli* and *streptococci* induce interleukin-12 (IL-12), IL-18, and gamma interferon production in human peripheral blood mononuclear cells. *Infect Immun* 66 (12): 6058-6062.
- Miettinen M, Lehtonen A, Julkunen I and Matikainen S. 2000. *Lactobacilli* and *streptococci* activate NF- $\kappa$ B and STAT signaling pathways in human macrophages. *J Immunol* 164: 3733-3740.
- Morita H, HE F, Fuse T, Ouwehand A, Hashimoto H, Hosoda M, Mizumachi K, and Kurisaki JI. 2002. Adhesion of lactic acid bacteria to Caco-2 cells and their effect on cytokine secretion. *Microbiol Immunol* 46(4): 293-297.
- Ouwehand AC, Isolauri E, Kirjavainen PV, Tölkö S, and Salminen S. 2000. The mucus binding of *Bifidobacterium lactis* Bb12 is enhanced in the presence of *Lactobacillus GG* and *Lact. delbrueckii* subsp. *bulgaricus*. *Lett Appl Microbiol* 30: 10-13.
- Ouwehand AC, Niemi P, and Salminen S. 1999. The normal faecal flora does not affect the adhesion of probiotic bacteria in vitro. *FEMS Microbiol Lett* 177: 35-38.
- Ouwehand AC, Parhiala R, Salminen S, Rantala A, Huhtinen H, Sarparanta H, and Salminen E. 2004. Influence of the endogenous mucosal microbiota on the adhesion of probiotic bacteria in vitro. *Microbial Ecol Health Dis* 16: 202-4.
- Pena JA, and Versalovic J. 2003. *Lactobacillus rhamnosus* GG decreases TNF-alpha production in lipopolysaccharide-activated murine macrophages by a contact-independent mechanism. *Cell Microbiol* 5(4): 277-85.
- Roselli M, Finamore A, Britti MS and Mengheri E. 2006. Probiotic bacteria *Bifidobacterium animalis* MB5 and *Lactobacillus rhamnosus* GG protect intestinal Caco-2 cells from the inflammation-associated response induced by enterotoxigenic *Escherichia coli* K88. *Br J Nutr* 95: 1177-84.
- Tao Y, Drabik KA, Waypa TS, Musch MW, Alverdy JC, Schneewind O, Chang EB and Petrof E. O. 2006. Soluble factors from *Lactobacillus GG* activate MAPKs and induce cytoprotective heat shock proteins in intestinal epithelial cells. *Am J Physiol Cell Physiol* 290:C1018-30.
- Veckman V, Miettinen M, Matikainen S, Lande R, Giacomini E, Coccia EM, et al. 2003. *Lactobacilli* and *streptococci* induce inflammatory chemokine production in human macrophages that stimulates Th1 cell chemotaxis. *J Leukoc Biol* 74(3):395-402.
- Veckman V, Miettinen M, Pirhonen J, Siren J, Matikainen S, Julkunen I. 2004. *Streptococcus pyogenes* and *Lactobacillus rhamnosus* differentially induce maturation and production of Th1-type cytokines and chemokines in human monocyte-derived dendritic cells. *J Leukoc Biol* 75(5):764-71.
- Wallace TD, Bradley S, Buckley ND, and Green-Johnson JM. 2003. Interactions of lactic acid bacteria with human intestinal epithelial cells: effects on cytokine production. *J Food Protect* 66(3): 466-472.
- Yamaguchi DJ, Yan F et al. 2003. Probiotic *Lactobacillus GG* stimulates proliferation during intestinal epithelial cell wound repair. *J Pediatr Gastroenterol Nutr* 37(3): 395 (abstract).

- Yan F, and Polk DB. 2002. Probiotic bacterium prevents cytokine-induced apoptosis in intestinal epithelial cells. *J Biol Chem.* 277(52):50959-65.
- Zhang L, Li N, Caicedo R, Neu J. 2005. Alive and dead *Lactobacillus rhamnosus* GG decrease tumor necrosis factor-alpha-induced interleukin-8 production in Caco-2 cells. *J Nutr* 135(7):1752-6.
- Zhang L, Li N, Des Robert C, Fang M, Liboni K, McManon R, Caicedo RA and Neu J. 2006. *Lactobacillus rhamnosus* GG decreases lipopolysaccharide-induced systemic inflammation in a gastrostomy-fed infant rat model. *J Pediatr Gastroenterol Nutr* 42, 545-552.

## **PROBIOTIC 67 - *Lactobacillus Rhamnosus HN001 AGAL NM97/09514* and Natural Defence / Immune System**

### **Reviews**

- Gill, H. S. 1998. Stimulation of the immune system by lactic cultures. *Int. Dairy J.* 8: 535-544.
- Gill, H. S. 1999. Potential of using dietary lactic acid bacteria for enhancement of immunity. *Dialogue* 32:6-11.

### **Individual Human Studies**

- Gill, H. S., K. J. Rutherford, and M. L. Cross. 2001. Dietary probiotic supplementation enhances natural killer cell activity in the elderly: an investigation of age-related immunological changes. *J. Clin. Immunol.* 21:264-271.
- Gill, H. S., M. L. Cross, K. J. Rutherford, and P. K. Gopal. 2001. Dietary probiotic supplementation to enhance cellular immunity in the elderly. *Br. J. Biomed. Sci.* 58: 94-96.
- Gill, H. S. and K. J. Rutherford. 2001. Probiotic supplementation to enhance natural immunity in the elderly: effects of a newly characterized immunostimulatory strain *Lactobacillus rhamnosus* HN001 (DR20TM) on leucocyte phagocytosis. *Nutr. Res.* 21: 183-189.
- Sheih, Y.-H., B.-L. Chiang, L.-H. Wang, C.-K. Liao, H. S. Gill. 2001. Systemic immunity-enhancing effects in healthy subjects following dietary consumption of the lactic acid bacterium *Lactobacillus rhamnosus* HN001. *J. Am. Coll. Nutr.* 20:149-156
- Sistek, D., R. Kelly, K. Wickens, T. Stanley, P. Fitzharris, and J. Crane. 2006. Is the effect of probiotics on atopic dermatitis confined to food sensitized children? *Clin. Exp. Allergy* 36:629-633
- Tannock, G. W., K. Munro, H. J. M. Harmsen, G. W. Welling, J. Smart, and P. K. Gopal. 2000. Analysis of the fecal microflora of human subjects consuming a probiotic product containing *Lactobacillus rhamnosus* DR20. *Appl. Environ. Microbiol.* 66: 2578-2588.

### **Animal Studies**

- Cross, M. L., R. R. Mortensen, J. Kudsk, and H. S. Gill. 2002. Dietary intake of *Lactobacillus rhamnosus* HN001 enhances production of both Th1 and Th2 cytokines in antigen-primed mice. *Med. Microbiol. Immunol.* 191: 49-53.
- Gill, H. S., K. J. Rutherford, J. Prasad, and P. K. Gopal. 2000. Enhancement of natural and acquired immunity by *Lactobacillus rhamnosus* (HN001), *Lactobacillus acidophilus* (HN017) and *Bifidobacterium lactis* (HN019). *Br. J. Nutr.* 83:167-176.
- Gill, H. S., Q. Shu, H. Lin, K. J. Rutherford, and M. L. Cross. 2001 Protection against translocating *Salmonella typhimurium* infection in mice by feeding the immuno-enhancing probiotic *Lactobacillus rhamnosus* strain HN001. *Med. Microbiol. Immunol.* 190: 97-104.
- Gill, H. S. and K. J. Rutherford. 2001. Viability and dose-response studies on the effects of the immunoenhancing lactic acid bacterium *Lactobacillus rhamnosus* in mice. *Br. J. Nutr.* 86: 285-289.

- Gill, H. S. and K. J. Rutherford. 2001. Immune enhancement conferred by oral delivery of *Lactobacillus rhamnosus* HN001 in different milk-based substrates. *Dairy Res.* 68: 611-616.
- Shu, Q., J. S. Zhou, K. J. Rutherford, M. J. Britles, J. Prasad, P. K. Gopal, and H. S. Gill. 1999. Probiotic lactic acid bacteria (*Lactobacillus acidophilus* HN017, *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019) have no adverse effects on the health of mice. *Int. Dairy J.* 9:831-836.
- Shu, Q. and H. S. Gill. 2002. Immune protection mediated by the probiotic *Lactobacillus rhamnosus* HN001 (DR20TM) against *Escherichia coli* O157:H7 infection in mice. *FEMS Immunol. Med. Microbiol.* 34: 59-64.
- Zhou, J. S., Q. Shu, K. J. Rutherford, J. Prasad, P. K. Gopal, and H. S. Gill. 2000. Acute oral toxicity and bacterial translocation studies on potentially probiotic strains of lactic acid bacteria. *Food Chem. Toxicol.* 38:153-161.
- Zhou, J. S., Q. Shu, K. J. Rutherford, J. Prasad, M. J. Britles, P. K. Gopal, and H. S. Gill. 2000. Safety assessment of potential probiotic lactic acid bacteria strains *Lactobacillus rhamnosus* HN001, *Lb. acidophilus* HN017, and *Bifidobacterium lactis* HN019 in BALB/c mice. *Int. J. Food Microbiol.* 56:87-96.
- Zhou, J. S. and H. S. Gill. 2005. Immunostimulatory probiotic *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019 do not induce pathological inflammation in mouse model of experimental autoimmune thyroiditis. *Int. J. Food Microbiol.* 103:97-104

### ***In Vitro Studies***

- Gopal, P. K., P. A. Sullivan, and B. J. Smart. 2001. Utilisation of galacto-oligosaccharides as selective substrates for growth by lactic acid bacteria including *Bifidobacterium lactis* DR10 and *Lactobacillus rhamnosus* DR20. *Int. Dairy Journal* 11:19-25
- Gopal, P. K., J. Prasad, J. Smart, and H. S. Gill. 2001. In vitro adherence properties of *Lactobacillus rhamnosus* DR20 and *Bifidobacterium lactis* DR10 strains and their antagonistic activity against an enterotoxigenic *Escherichia coli*. *Int. J. Food Microbiol.* 67:207-216
- Prasad, J., H. S. Gill, J. Smart, and P. K. Gopal. 1998. Selection and characterisation of *Lactobacillus* and *Bifidobacterium* strains for use as probiotics. *Int. Dairy J.* 8:993-1002
- Zhou, J. S., P. K. Gopal, and H. S. Gill. 2001. Potential probiotic lactic acid bacteria *Lactobacillus rhamnosus* (HN001), *Lactobacillus acidophilus* (HN017) and *Bifidobacterium lactis* (HN019) do not degrade gastric mucin in vitro. *Int. J. Food Microbiol* 63:81-90
- Zhou, J. S., C. J. Pillidge, P. K. Gopal, and H. S. Gill. 2005. Antibiotic susceptibility profiles of new probiotic *Lactobacillus* and *Bifidobacterium* strains. *Int. J. Food Microbiol* 98:211-217
- Zhou, J. S., K. J. Rutherford, and H. S. Gill. 2005. Inability of probiotic bacterial strains *Lactobacillus rhamnosus* HN001 and *Bifidobacterium lactis* HN019 to induce human platelet aggregation in vitro. *J. Food Protection* 68:2459-2464

### **PROBIOTIC 68 – *Lactobacillus Rhamnosus* I-1720 and Immune Defenses / Support of Immunity**

#### ***Individual Human Studies***

- Guandalini S, Pensabene L, Zikri MA, Dias JA, Casali LG, Hoekstra H, Kolacek S, Massar K, Micetic-Turk D, Papadopoulou A, de Sousa JS, Sandhu B, Szajewska H, Weizman Z. *Lactobacillus GG* administered in oral rehydration solution to children with acute diarrhea: a multicenter European trial. *J Pediatr Gastroenterol Nutr.* 2000 Jan;30(1):54-60.

- Majamaa H, Isolauri E. Probiotics: a novel approach in the management of food allergy. *J Allergy Clin Immunol.* 1997 Feb;99(2):179-85.
- Rosenfeldt V, Benfeldt E, Nielsen SD, Michaelsen KF, Jeppesen DL, Valerius NH, Paerregaard A. Effect of probiotic Lactobacillus strains in children with atopic dermatitis. *J Allergy Clin Immunol.* 2003 Feb;111(2):389-95.

### **PROBIOTIC 69 – Streptococcus Thermophilus I-3428 and Immune Defenses / Support of Immunity**

#### ***Individual Human Studies***

- Majamaa H, Isolauri E, Saxelin M, Vesikari T. Lactic acid bacteria in the treatment of acute rotavirus gastroenteritis. *J Pediatr Gastroenterol Nutr.* 1995 Apr;20(3):333-8.
- Saavedra JM, Bauman NA, Oung I, Perman JA, Yolken RH. Feeding of *Bifidobacterium bifidum* and *Streptococcus thermophilus* to infants in hospital for prevention of diarrhoea and shedding of rotavirus. *Lancet.* 1994 Oct 15;344(8929):1046-9.
- Thibault H, Aubert-Jacquin C, Goulet O. Effects of long-term consumption of a fermented infant formula (with *Bifidobacterium breve* c50 and *Streptococcus thermophilus* 065) on acute diarrhea in healthy infants. *J Pediatr Gastroenterol Nutr.* 2004 Aug;39(2):147-52.

### **PROBIOTIC 70 - Lactobacillus Rhamnosus GR 1 (ATCC 55826) and Lactobacillus Reuteri RC-14 (ATCC 55845) and Vaginal Health/Flora**

#### ***Individual Human Studies***

- Anukam K, Osazuwa E, Ahonkhai I, Ngwu M, Osemene G, Bruce AW, Reid G. Augmentation of antimicrobial metronidazole therapy of bacterial vaginosis with oral probiotic *Lactobacillus rhamnosus* GR-1 and *Lactobacillus reuteri* RC-14: randomized, double-blind, placebo controlled trial. *Microbes Infect.* 2006 May;8(6):1450-4.
- Anukam KC, Osazuwa E, Osemene GI, Ehigiaze F, Bruce AW, Reid G. Clinical study comparing probiotic *Lactobacillus* GR-1 and RC-14 with metronidazole vaginal gel to treat symptomatic bacterial vaginosis. *Microbes Infect.* 2006 Oct;8(12-13):2772-6.
- Bruce AW, Reid G, McGroarty JA, Taylor M, Preston C. Preliminary Study on the Prevention of Recurrent Urinary Tract Infection in Adult Woman Using Intravaginal Lactobacilli. *The International Urogynecology Journal* 3 (1992)
- Burton JP, Cadieux PA, Reid G. Improved understanding of the bacterial vaginal microbiota of women before and after probiotic instillation. *Applied and Environmental Microbiology* 2003. 69(1): 97-101
- Gardiner GE, Heinemann C, Baroja ML, Bruce AW, Beuerman D, Madrenas J, Reid G. Oral administration of the probiotic combination *Lactobacillus rhamnosus* GR-1 and *L. fermentum* RC-14 for human intestinal applications. *International Dairy Journal* 2002. 12: 191-196.
- Gardiner GE, Heinemann C, Bruce AW, Beuerman D, Reid G. Persistence of *Lactobacillus fermentum* RC-14 and *Lactobacillus rhamnosus* GR-1 but not *L. rhamnosus* GG in the human vagina as demonstrated by Randomly Amplified Polymorphic DNA. *Clinical and Diagnostic Laboratory Immunology* 2002. 9(1): 92-96.
- Morelli L, Zonenschain D, Del Piano M, Cognein P. Utilization of the intestinal tract as a delivery system for urogenital probiotics. *J Clin Gastroenterol* 2004. 38(2): S107-S110
- Reid G, Beuerman D, Heinemann C, Bruce AW. Probiotic *Lactobacillus* dose required to restore and maintain a normal vaginal flora. *FEMS Immunol Med Microbiol* 2001; 32: 37-41.

- Reid G, Bruce AW, Beuerman D, Heinemann C. Probiotic Lactobacillus dose required to restore and maintain a normal vaginal flora. FEMS Immunology and Medic Microbiology, 32 (2001) 37-41.
- Reid G, Bruce AW, Charbonneau D, Erb J, Kochanowski B, Beuerman D, Poehner R. Oral use of Lactobacillus rhamnosus GR-1 and L.fermentum RC-14 significantly alters vaginal flora: randomized, placebo-controlled trial in 64 healthy women. FEMS Immunology and Medic Microbiology, 35 (2003) 131-134.
- Reid G, Bruce AW, Fraser N, Heinemann C, Owen J, Henning B. Oral probiotics can resolve urogenital infections. FEMS Immunol Med Microbiol. 2001 Feb;30(1):49-52.
- Reid G, Hammond J-A, Bruce AW. Effect of Lactobacilli oral supplement on the vaginal microflora of antibiotic treated patients: Randomized, Placebo-Controlled study. Nutraceuticals & Food 2003. 8: 145-148
- Reid G, Hawthorn L-A, Mandatori R, Cook RL, Beg HS. Adhesion of Lactobacilli to Polymer Surfaces In vivo and In Vitro. Microbial Ecology (1988) 16
- Reid G, McGroarty JA, Domingo PA Gil, Chow AW, Bruce AW, Eisen A, Costerton W, Coaggregation of Urogenital Bacteria in Vitro and in Vivo, Current Microbiology Vol. 20 (1990), pp. 47 – 52.
- Reid G., Bruce AW, Taylor M. Instillation of Lactobacillus and stimulation of indigenous organisms to prevent recurrence of urinary tract infection. Microecology and Therapy 1995. 23: 32-45.

### ***Additional Human Study***

- Reid G, Bruce AW. Selection of Lactobacillus Strains for Urogenital Probiotic Applications. The Journal of Infectious Diseases 2001; 183 (Suppl 1): S77-80.

### ***Animal Studies***

- Anukam KC, Osazuwa EO, Reid G, Ozoluwa RI, Feeding Probiotic strains Lactobacillus rhamnosus GR-1 and Lactobacillus fermentum RC-14 does not significantly alter haematological parameters of Sprague-Dawley rats. Haema 2004; 7(4): 497-501
- Anukam KC, Osazuwa EO, Reid G, Improved Appetite of Pregnant Rats and Increased Birth Weight of Newborns Following Feeding with Probiotic Lactobacillus rhamnosus GR-1 and Lactobacillus fermentum RC-14; The Journal of Applied Research 2005, Vol.5, No. 1
- Gan BS, Kim J, Reid G, Cadieux P, Howard JC. Lactobacillus fermentum RC-14 inhibits Staphylococcus aureus infection of surgical implants in rats. J Infect Dis. 2002 May 1;185(9):1369-72.

### ***In Vitro Studies***

- Chan RC, Reid G, Irvin RT, Bruce AW, Costerton W, Competitive Exclusion of Uropathogens from Human Uroepithelial Cells by Lactobacillus Whole Cells and Cell Wall Fragments., Infection and Immunity, January 1985, p. 84-89
- Cook RL, Harris RJ, Reid G, Effect of Culture Media and Growth Phase on Morphology of Lactobacilli and Their Ability to Adhere to Epithelial Cells., Current Micobiology Vol. 17 (1988), pp. 159-166
- Eisen A, Reid G, Effect of Culture Media on Lactobacillus Hydrophobicity and Electrophoretic Mobility, Microbial Ecology (1989) 17: 17 – 25
- Geertsema-Doornbusch GI, Noordmans J, Bruce AW, Reid G, Khouri AE, van der Mei HC, Busscher HJ, Quantitation of microbial cell surface heterogeneity by microelectrophoresis and

electron microscopy – Application to lactobacilli after serial passaging, Journal of Microbiological Methods 19 (1994) 269-277

- Howard JC, Heinemann C, Thatcher BJ, Martin B, Gan BS, Reid G, Identification of Collagen-Binding Proteins in Lactobacillus spp. with Surface-Enhanced Laser Desorption/Ionization-Time of Flight ProteinChip Technology, Applied and Environmental Microbiology, (Oct. 2000), Vol. 66, No. 10, p. 4396-4400
- McGroarty JA, Chong S, Reid G, Bruce AW; Influence of spermicidal compound Nonoxynol-9 on the growth and adhesion of Urogenital bacteria in vitro; Current Microbiology vol.21 ( 1990)
- McLean NW, Rosenstein IJ, Characterisation and selection of Lactobacillus species to re-colonise the vagina of woman with recurrent bacterial vaginosis., J. Med. Microbiol. – Vol. 49 (2000), 543-552
- Millsap KW, van der Mei HC, Reid G, Busscher HJ, Physico-chemical and adhesive cell surface properties of Lactobacillus strains grown in old formula and new, standardized medium, Journal of Microbiological Methods 27 (1996) 239-242
- Reid G, Białkowska-Hobrzańska H, van der Mei HC, Busscher HJ, Correlation between genetic, physico-chemical surface characteristics and adhesion of four strains of Lactobacillus, Colloids and Surfaces B: Biointerfaces 13 (1999) 75-81
- Reid G, Bruce AW. Selection of Lactobacillus Strains for Urogenital Probiotic Applications. The Journal of Infectious Diseases 2001; 183 (Suppl 1): S77-80.
- Reid G, Burton J, Hammond J-A, Bruce A.. Nucleic acid-based diagnosis of bacterial vaginosis and improved management using probiotic lactobacilli. J. Med. Food. 2004.7(2) 223-228.
- Reid G, Cook RL, Harris RJ, Rousseau JD, Lawford H, Development of a Freeze Substitution Technique to Examine the Structure of Lactobacillus casei GR-1 Grown in Agar and under Batch and Chemostat Culture Conditions, Current Microbiology Vol. 17 (1998), pp. 151 – 158
- Reid G, Cuperus PL, Bruce AW, van der Mei HC, Tomeczek L, Khoury ah, Busscher HJ, Comparison of Contact Angles and Adhesion to Hexadecane of Urogenital, Dairy, and Poultry Lactobacilli: Effect of Serial Culture Passages, Applied and Environmental Microbiology, May, 1992, p. 1549-1553
- Reid G, Hawthorn L-A, Mandatori R, Cook RL, Beg HS. Adhesion of Lactobacilli to Polymer Surfaces In vivo and In Vitro. Microbial Ecology (1988) 16
- Reid G, Local and Diffuse Bacterial Adherence on Uroepithelial Cells, Current Microbiology Vol. 18 (1998), pp. 93-97
- Reid G, McGroarty JA, Domingue G, Chow AW, Bruce AW, Eisen A, Costerton W, Coaggregation of Urogenital Bacteria in Vitro and in Vivo, Current Microbiology Vol. 20 (1990), pp. 47 - 52
- Reid G, Soboh F, Bruce AW, Mittelman M. Effect of nutrient composition on the in vitro growth of urogenital lactobacilli and uropatogens. Can. J. Microbiology 44 (1998)
- Reid G, Tieszer C, Lam D. Influence of lactobacilli on the adhesion of *Staphylococcus aureus* and *Candida albicans* to fiber and epithelial cells. Journal of Industrial Microbiology (1995) 15, 248-253
- Reid G. In vitro testing of Lactobacillus acidophilus NCFMTM as a possible probiotic for the urogenital tract. International Dairy Journal 10 (2000).
- Tomeczek L, Reid G, Cuperus PL, McGroarty JA, van der Mei HC, Bruce AW, Khoury AE, Busscher HJ, Correlation between hydrophobicity and resistance to nonoxynol-9 and vancomycin for urogenital isolates of lactobacilli, FEMS Microbiology Letters 94 (1992) 101 – 104

- Velraeds MM, van der Mei HC, Reid G, Busscher HJ. Inhibition of initial adhesion of uropathogenic Enterococcus faecalis to solid substrata by an adsorbed biosurfactant layer from Lactobacillus acidophilus. *Urology*. 1997 May;49(5):790-4. .
- Vladimir S, Scott K, Reid G, Activity of cecropin P1 and FA-LL-37 against urogenital microflora., *Microbes and Infection*, 2, (2000), 773-777
- Zhong W, Millsap K, Bialkowska-Hobrzanska H, Reid G. Differentiation of Lactobacillus Species by Molecular Typing. *Appl Environ Microbiol*. 1998 Jul 1;64(7):2418-23. .

### **PROBIOTIC 71 – Lactobacillus Acidophilus LA14 and Urogenital Tract / Natural Vaginal Defence**

#### **Review**

- Reid G. Probiotic agents to protect the urogenital tract against infection. *Am J Clin Nutr*. 2001 Feb;73(2 Suppl):437S-443S.

#### **Individual Human Study**

- Hilton E, Isenberg HD, Alperstein P, France K, Borenstein MT. Ingestion of yogurt containing Lactobacillus acidophilus as prophylaxis for candidal vaginitis. *Ann Intern Med*. 1992 Mar 1;116(5):353-7.

### **PROBIOTIC 72 – Lactobacillus Rhamnosus and Urogenital Tract / Natural Vaginal Defence**

#### **Review**

- Marelli G, Papaleo E, Ferrari A. Lactobacilli for prevention of urogenital infections: a review. *Eur Rev Med Pharmacol Sci*. 2004 Mar-Apr;8(2):87-95.

#### **Individual Human Studies**

- Reid G, Bruce AW, Fraser N, Heinemann C, Owen J, Henning B. Oral probiotics can resolve urogenital infections. *FEMS Immunol Med Microbiol*. 2001 Feb;30(1):49-52.
- Reid G, Charbonneau D, Erb J, Kochanowski B, Beuerman D, Poehner R, Bruce AW. Oral use of Lactobacillus rhamnosus GR-1 and L. fermentum RC-14 significantly alters vaginal flora: randomized, placebo-controlled trial in 64 healthy women. *FEMS Immunol Med Microbiol*. 2003 Mar 20;35(2):131-4.

### **PROBIOTIC 73 – Lactobacillus Johnsonii NCC 533 (La1) (Pasteur Culture Collection CNCM I-1225) and Skin Health**

#### **Individual Human Studies**

- Buetler T., Blum-Sperisen S., Guéniche A. Effect of probiotic supplementation on skin protection after UV exposure - Human clinical trial, report
- Péguet Navarro J, Dezutter-Dambuyant C, Buetler T, Leclaire J, Smola H, Blum S, Bastien P., Breton L. and Guéniche A. Oral probiotic bacteria facilitate early recovery of human cutaneous immune homeostasis after UV exposure. Submitted to *J Invest Dermatol*
- Péguet Navarro J, Dezutter-Dambuyant C, Leclaire J, Buetler T, Hans Smola, Blum S and Guéniche A. Oral Skin Probiotic™ facilitate early recovery of cutaneous immune homeostasis after UV exposure in humans, Poster for the 15th EADV Congress, Rhodes, GR, 4-8 October, 2006. (Abstract)

### **Animal Studies**

- Buetler, T., Gueniche A. Effect of La1 dose, inactivated La1 and La1 in a matrix on UVR-induced immunosuppression, report RDLS-RD060002 Abstract: Guéniche A., Buetler T, Bureau I., Blum S. and Supplementation with oral probiotic bacteria *Lactobacillus johnsonii* provides protection against UVR-induced immunosuppression over a large dose range, Poster for the 21st World Congress of Dermatology, Sept 30-Oct5, 2007
- Gueniche, A., Benyacoub, J., Buetler, T. M., Smola, H. and Blum, S., Supplementation with oral probiotic bacteria maintains cutaneous immune homeostasis after UV exposure, Eur. J. Dermatol., 16: 511-7, 2006.
- Inoue R., Nishio, A., Fukushima Y., and Ushida K. Oral treatment with probiotic *Lactobacillus johnsonii* NCC533 (La1) for a specific part of the weaning period prevents the development of atopic dermatitis induced after maturation in model mice, NC/Nga, Br. J. Dermatol., 156:499-509, 2007

### **PROBIOTIC 74 – *Lactobacillus Paracasei NCC 2461 (ST11)* (Pasteur Culture Collection CNCM I-2116) and Skin Heath**

#### ***Individual Human Studies***

- A Gueniche, J Benyacoub, Breton L, Bureau-Franz I, Blum S, Leclaire J, A combination of *lactobacillus paracasei* CNCN I-2116 and *bifidobacterium lactis* CNCN I-3446 probiotics decreases skin reactivity, Abstract submitted, 2007
- A Gueniche, Benyacoub J, Breton L, Bureau-Franz I, Blum S, Leclaire J, Probiotic strain *lactobacillus paracasei* NCC2461 (ST11) decreases skin reactivity, Abstract submitted to EAACI meeting, 2007
- Evaluation de l'effet de deux compléments alimentaires versus placebo sur la sécheresse et la sensibilité cutanée, rapport Dermascan, n° 1020813, 10.02.2004
- Evaluation de l'effet de deux compléments alimentaires versus placebo sur la réactivité cutanée, rapport Dermascan, n° 1040341, 30.03.2006

### **Animal Studies**

- Gueniche A, étude préclinique (C3H/HeN) des effets d'un probiotique administré par voie orale (souche bactérienne de *lactobacillus* ; ST11/NCC2461) sur certains marqueurs importants dans l'immunité cutanée (expérience CO9904/NESTE), 3.07.2001
- Gueniche A, étude préclinique (Skh/hr1) de l'activité de 2 souches de probiotiques administrés par voie orale sur l'inhibition de l'hypersensibilité de contact au 2,4-dinitrofluorobenzène, induite par une exposition aux UV, souche bactériennes de *lactobacillus* (La1/NCC533, ST11/NCC2461) dérivés en souche vivante, morte et surnageant de culture (expérience S118), 5.07.2000
- Pelcot C, Effect de la composés administrés par voie orale sur la reconstruction de la fonction barrière et l'irritation cutanée (exp S 132), rapport CIT, 12.12.2006

### ***In Vitro Study***

- Gueniche A., J Benyacoub, N Kusy, Effets des milieux conditionnés issus de stimulation par *Lactobacillus paracasei*, *Bifidobacterium longum* et leur association sur l'inflammation et la fonction barrière cutanée, rapport AG 05/03/01, 24.02.2005