PROBIOTICS: A QUICK GUIDE TO BACTERIAL TERMS[1]

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BIFIDOBACTERIA: Bifidobacteria are found mostly in the large intestine. In breastfed infants bifidobacteria comprise more than 95% of intestinal bacteria. They are anaerobic, and unlike other probiotic bacteria, they can ferment carbohydrates to both acetic and formic acids. They also produce lactic acid, creating a healthy pH in the colon. They produce vitamins B1, B6, folic acid, and enzymes such as casein phosphatase and lysozyme.

LACTOBACILLUS GG: The most studies probiotic, with hundreds of peer review studies, Lactobacillus GG was isolated from the gut of a healthy human by a team at Tufts University. Like other Lactobacillus species, it takes up residence primarily in the wall of the small intestine, where it helps normalize pH, promote digestive function, help suppress the growth of harmful bacteria, and stimulate a healthy immune response. It can help normalize fecal enzyme and short-chain fatty acid levels and in animal studies, reduced plasma endotoxin levels.

SACCHAROMYCES BOULARDII: A non-colonizing yeast species closely related to brewer's yeast, S. boulardii "blooms" and quickly become established in the gut, where it can produce lactic acid and some B vitamins. Both extensive studies and clinical use suggest it can help displace unfriendly yeast species in the GI tract and increase levels of secretory IgA, which is crucial for gut immune function.

BACTEROIDES FRAGILIS: Bacteroids are the most common anaerobic bacteria in the gut. They preferentially process complex polysaccharides from plants, although they can use simple sugars, as well. Over 20 species in the fragilis group have been identified, and fascinating research has shown that one single sugar on the cell wall of the fragilis group—polysaccharide A (PSA)—is capable of reversing immune defects in germ-free mice bred to have no gut microbes. Scientists believe it's serving a similar purpose in humans, since sugar suppresses the production of the potent, pro-inflammatory cytokine IL-17.

LYSATE: The cell wall fragments and molecules produced by the dissolution or destruction of cells, often by enzymes. For instance, our macrophages digest bacteria and pit out lysates that signal our immune system. An abundant scientific literature shows lysates of gut and other bacteria to be profound immune stimulators.

MICROBIOTA: The microorganisms that typically inhabit a bodily organ or part; flow. Our gut contains a micrbiota as diverse and abundant as a lush rainforest.

MICROBIOME: The collective genomes of all the microbiota in our gut.

METAGENOME: Most commonly refers to our own genome plus the genome of all our microbial flora.

METABOLOME: The complete set of molecular metabolites (such as hormones and other signaling molecules) found—in this case—in the human gut. The metabolome is dynamic and ever-changing. In January 2007 scientists at the University of Alberta and the University of Calgary finished a draft of the human metabolome. They have catalogued and characterized 2,500 metabolites, 1,200 drugs and 3,500 food components that found in the human body. Metabolomics is already being used in pharmacology, pre-clinical drug trials, toxicology, and transplant monitoring.

[1]FOCUS: Allergy Research Group ® Newsletter, June 2011, Wanted Dead or Alive…How Living Gut Bacteria and Their Lysed Cell Walls Shape Our Health, pg 10.