Odds and Ends from the 2010 General Meeting

• *Cronobacter sakazakii* (formerly *Enterobacter sakazakii*) and other species in this genus are foodborne pathogens that can cause rare but serious and often fatal infections among premature and newborn infants, according to Angelika Lehner of the University of Zurich in Switzerland and her collaborators; she spoke during the symposium, “Persistence of Foodborne Pathogens from Farm to Fork.” Curiously, this desiccation-resistant and biofilm-forming opportunistic pathogen produces cellulose, which she considers a “virulence factor,” mainly because it renders these bacteria resistant to chloride-containing cleaning agents. These bacteria contaminate powdered milk, likely through additions of plant-derived supplements and fortifiers. The bacteria may persist in such dried milk products for several years before they are reconstituted with water and given to premature infants via feeding tubes, she says. Infections typically cause severe inflammation of the intestinal tract and, less often, meningitis or sepsis.

• Mice fed with live *Mycobacterium vaccae*, a soil bacterium, navigated mazes more efficiently, according to Dorothy Matthews of the Sage Colleges in Troy, N.Y., and her collaborators; she reported their findings during the session “Microbial Interactions with Plants or Animals.” That exposure, which apparently also reduces anxiety levels among mice, seems to be “temporary,” and could be due to the bacteria stimulating serotonin production in the central nervous system of the animals, she says.

• Bacteria in the gastrointestinal (GI) tracts of obese children living in Switzerland produce higher levels of short-chain fatty acids than do the otherwise indistinguishable GI-dwelling microorganisms of their leaner classmates, according to Amanda Payne of the Institute of Food, Health, and Nutrition, ETH in Zurich, Switzerland and her collaborators; she spoke during a “Microbial Sciences” session. Among a genetically “closed” population of Old-World Amish in Pennsylvania, there is little or no correlation in terms of GI microbiome differences with obesity, adds Margaret Zupancic of the University of Maryland Medical School in Baltimore, who spoke during the same session. However, when host obesity-predisposing genetic factors are taken into account, “intriguing patterns” in GI bacterial population composition begin to emerge, she says. Although the analysis is at an early stage, those patterns “hold up” and those correlations may make it possible to determine who is more “at risk” for becoming obese. Both studies point to the “multifactorial” character underlying epidemic obesity, both researchers point out.

Jeffrey L. Fox

**Peroxisomes Mount First-Line Antiviral Defense**

In addition to metabolizing fatty acids and ridding cells of toxic substances, peroxisomes help cells fend off viruses, acting alone and in concert with mitochondria. Both cases involve the antiviral signaling (MAVS) protein, which induces both peroxisomes and mitochondria to release other antiviral agents, according to Jonathan Kagan of Harvard Medical School in Boston, Mass., and his collaborators. “This is the first demonstration that peroxisomes are involved in innate immunity,” he says. Thus, peroxisomes are more than metabolic organelles within cells. Details appear in the May 14, 2010 *Cell.*

Discovered about five years ago, the MAVS protein, also called interferon-β promoter stimulator (IPS)-1, was thought to act solely on mitochondria. However, after reovirus infects various types of mouse cells, including embryonic fibroblasts and macrophages, or human hepatocytes, MAVS attaches to membranes of peroxisomes and then induces antiviral signaling, Kagan and his collaborators report.