Microbial Metabolites and Neuroactive Compounds Dysbiosis induced by NCSs may have functional consequences for host physiology through an altered microbial ecosystem.Since B. fragilis has been identified as a GABA-producing bacterium [46,47], its proliferation under NCSs exposure may help explain the observed increases in appetite, body weight, and altered glucose metabolism.Specifically, NCS-induced changes have been associated with (1) a reduction in the production of SCFAs such as butyrate and propi onate [38]; (2) increased intestinal permeability, potentially due to loss of mucin-degrading andtight-junction-stabilizing microbial species [13,39,40]; (3) elevated circulating endotoxin Int.Mechanistically, GM-derived GABA is hypothesized to inhibit satiety hormone secretion, which, through the vagus nerve, disinhibits orexigenic hypotha lamic neuropeptide Y (NPY) and the Agouti-related protein (AgRP) neurons (NPY/AgRP), thereby enhancing appetite [44].Similarly, germ-free mice colonized with microbiota from saccharin-exposed donors exhibited a marked increase in B. fragilis, mir roring the donor profile [13].J. Mol.Sci.

Summarized by © lakhasly.com