

When: Friday 15:00 – 16:00

Where: ETB 1003

Speaker: Prof. Arul Jayaraman

Professor
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Title: Bacterial Communities in the Human Body: New Roles for Old Friends

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Abstract: The human gastrointestinal (GI) tract is colonized by ~1,014 microbes belonging to ~1,000 species that are collectively termed the intestinal microbiota. Recent studies show that the intestinal microbiota's function extends beyond energy regulation and digestion to a wide range of functions including development of the immune system, defense against pathogens, and inflammation. Not surprisingly, experimental and epidemiological studies have shown that several diseases and disorders such as obesity and insulin resistance, cancer, asthma, and autism are characterized by alterations in the microbiota composition, or dysbiosis. While technologies have been developed for characterizing changes in the composition of the community, it is more challenging to study the functional output of the community as several biochemical reactions and pathways are shared between the microbial community and the human host. In this talk, I will first present an example that demonstrates how the microbiota can impact the adverse effects of exposure to environmental contaminants such as phthalates. I will also discuss results from our work on developing an integrated computational-experimental pipeline for identifying metabolic products or functional output of the microbiota that may be putative biomarkers of disease or a novel source of therapeutics.

Biography: Dr. Arul Jayaraman is the Ray B. Nesbitt Chair in the Department of Chemical Engineering at Texas A&M University. He has a degree in Chemical Engineering from the Birla Institute of Technology & Sciences, Pilani (India), Masters from Tufts University, and completed his doctoral work at the University of California at Irvine with Prof. Thomas Wood. After completing his Ph.D, he trained in Prof. Martin Yarmush's group at Massachusetts General Hospital & Harvard Medical School as a postdoctoral fellow. He was an Instructor in Bioengineering at Harvard Medical School for 4 years prior to joining Texas A&M.