

ISAPP 2023: Discussion Group 4

Is there an effective approach to rational design and validation of prebiotics to target members of the microbiota? Bob Hutkins and Bruce Hamaker, chairs

The human gut microbiome harbors multiple genes that are required for the digestion of prebiotics and other fibers, resulting in the production of end products that mediate gastrointestinal and systemic benefits to the host. Thus, the use of prebiotic interventions has been widely adopted as a strategy to modulate the gut microbiome and improve human health. However, considerable interindividual differences in gut microbial composition have resulted in variable responses toward these interventions. The existence of responders and nonresponders to these interventions emphasizes the need for personalized approaches to effectively redirect the gut ecosystem. In this discussion group, we will review strategies to address responder and nonresponder phenotypes in prebiotic and dietary fiber interventions. In particular, we will focus on targeted approaches to identify predictive features based on knowledge of fiber and prebiotic metabolism, metagenomes, and machine learning tools.