Biodesign Center for Health Through Microbiomes (BCHTM)

Unbalanced microbiomes threaten human health and our economy. They lead to obesity and type 2 diabetes, altered metabolism, autism, depression, *Clostridium difficile* infections, irritable bowel syndrome, colon cancer, and unpredictable drug metabolism.

The new **Biodesign Center for Health through Microbiomes (BCHTM)** will engineer the human microbiome to transform human health in a positive way**.** With the leadership of **Dr. Rosa Krajmalnik-Brown**, the new center's research will span fundamental to applied science and will leverage strong industry collaboration. **Figure 1** Illustrates how BCHTM will establish an ecosystem of innovation in which fundamental knowledge is used to develop microbe-based health interventions and diagnostics.

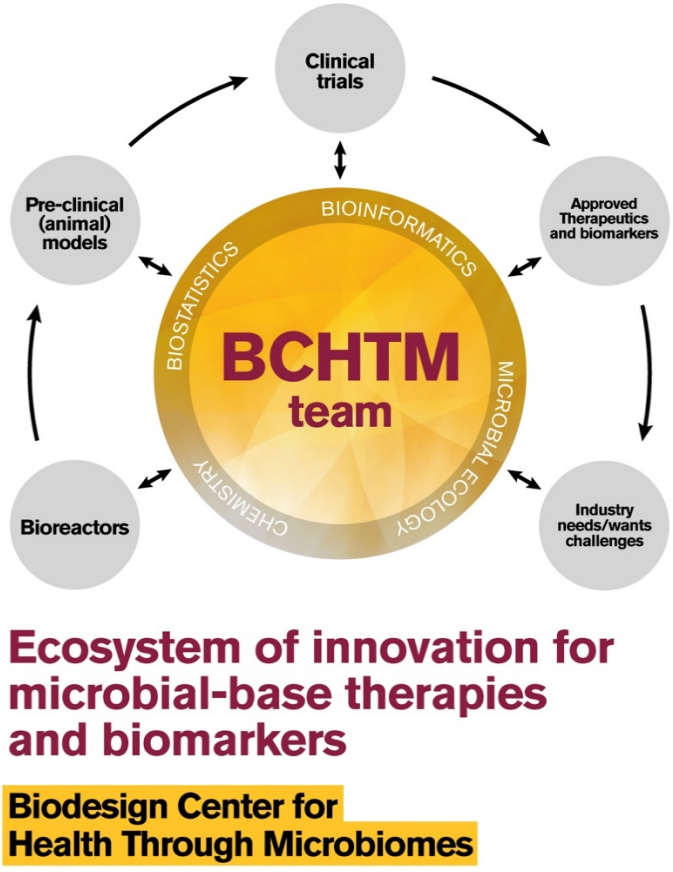

Figure 1. BCHTM ecosystem of innovation for microbial therapies and biomarkers

BCHTM will use knowledge gathered by examining microbiomes and performing microbial interventions. It will enhance fundamental knowledge and translate that fundamental knowledge into clinical applications.

For example, one long-term goal is to identify target microbes suitable as biomarkers that will lead to therapies that enable weight reduction, prevent T2 diabetes, and lead to better gut health.

The Center will grow through faculty hires with expertise in nutrition, bioinformatics, engineering, biochemistry. It will continue to grow it capability in microbial ecology, as well as in its collaborations with industry and clinicians.

Research into the microbiome, a crucial bridge between our food and our health, will revolutionize medicine. Through BCHTM, ASU will remain at the lead of autism-microbiome and microbiome interventions. Building capacity in concert with strong Industrial collaboration, the Center also will discover a range of interventions involving nutrition and gut-brain connections. This will lead to translational research towards better management of obesity, autism, and neurodegenerative diseases including Alzheimer's and Parkinson's.

BCHTH will be launched formally in August 2020. Its director, **Dr. Rosa Krajmalnik-Brown**, is a Professor in the School of Sustainable Engineering and the Built Environment, and she has been a member of the Biodesign Swette Center for Environmental Biotechnology since 2005.