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Manipulating the Gut Microbiome for Human Health

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MANIPULATING THE GUT MICROBIOME FOR HUMAN HEALTH

MODERATORS

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Microbes R Us
The second genome

1. Your body is mostly microbes

Bacterial cells outnumber your body cells 10:1 and comprise up to 4-6 lbs of your body mass
Microbiome: Role in Health and Disease

- Bowel diseases
- Carcinogenesis
- Obesity

Gut microbial balance

Host physiology

Metabolism

Immune function

CMR

CENTER FOR MICROBIOME RESEARCH
Discovering novel microbials for disease prevention and treatment

Director: Beth A. McCormick, Ph.D. UMass-Worcester
Co-Director: Jeffrey Blanchard, Ph.D. UMass-Amherst
Co-Director: Randall Pellish, M.D. UMass-Worcester
CMR Mission

- Define the interactions between the host, the microbes, and the unique environments that drive these ecological systems
- Discovery of novel microbials for disease prevention and treatment
Natural synergy
Gut microbiome and its role in health and disease

• *C. difficile* infection:
  – Clinical gut manipulation: Dr. Randy Pellish, MD
    Department of Medicine (Division of Gastroenterology), UMMS
  – Fecal Transplantation

  – Basic research approach: Dr. Vanni Bucci, Ph.D.
    Department of Biology, UMass-Dartmouth
  – Antibiotic Treatment

• Intestinal Disease:
  – Clinical gut manipulation: Barbara Olendzki, R.D., L.D.N.
    Center of Applied Nutrition, UMMS
  - Dietary Interventions

  – Basic research approach: David Sela, Ph.D
    Department of Food Science, UMass-Amherst
  - Probiotic Delivery