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Science Discussion Series: We're scientists from Vanderbilt studying how microbes relate to gut health and what this research means for risk of disease and developing new treatments. Let's discuss!

SCIENCEMODERATOR R/SCIENCE

Hi reddit! We've known since the 1800's that pathogenic microbes are the cause of contagious diseases that have plagued humankind. However, it has only been over the last two decades that we have gained an appreciation that the "normal" microbes that live on and around us dramatically impact many chronic and non-contagious diseases that are now the leading causes of death in the world. This is most obvious in the gastrointestinal tract, or gut, where the community of microbes that lives within our guts can affect the likelihood of developing Inflammatory Bowel Disease, Crohn's Disease, and gastrointestinal cancers. These gut microbes also contribute to metabolic diseases such as obesity and diabetes.

In this discussion, a panel of scientists and infectious disease doctors representing theVanderbilt Institute for Infection, Immunology, and Inflammation (VI4) will answer questions regarding how the microbes in your gut can impact your health and how this information is being used to design potential treatments for a variety of diseases.

Mariana Byndloss, DVM, PhD (u/Mariana_Byndloss): I have extensive experience studying the interactions between the host and intestinal microbiota during microbiota imbalance (dysbiosis). I'm particularly interested in how inflammation-mediated changes in gut epithelial metabolism lead to gut dysbiosis and increased risk of non-communicable diseases (namely IBD, obesity, cardiovascular disease, and colon cancer).

Jim Cassat, MD, PhD (u/Jim_Cassat): I am a pediatric infectious diseases physician. My research program focuses on the following: Staph aureus pathogenesis, bone infection (osteomyelitis), osteo-immune crosstalk, and how inflammatory bowel disease impacts bone health.

Jane Ferguson, PhD (u/Jane_Ferguson): I am an Assistant Professor of Medicine, in the Division of Cardiovascular Medicine. I'm particularly interested in how environment and genetics combine to determine risk of developing cardiovascular disease and diabetes. My group studies how the microbiome interacts with diet, genetic background, and other factors to influence cardiometabolic disease.

Maria Hadjifrangiskou, PhD (u/M_Hadjifrangiskou): I am fascinated by how bacteria understand their environment and respond to it and to each other. My lab works to understand mechanisms used by bacteria to sample the environment and use the info to subvert insults (like antibiotics) and persist in the host. The bacteria we study are uropathogenic E. coli, the primary cause of urinary tract infections worldwide. We have identified bacterial information systems that mediate intrinsic antibiotic resistance in this microbe, as well as mechanisms that lead to division of labor in the bacterial community in the gut, the vaginal space and the bladder. In my spare time, I spend time with my husband and 3 little girls, run, play MTG, as well as other nerdy strategy games. Follow me @BacterialTalk

You can follow our work and the work of all the researchers at VI4 on twitter:@VI4Research

We'll be around to answer your questions between 1-4 pm EST. Thanks for joining us in this discussion today!

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