

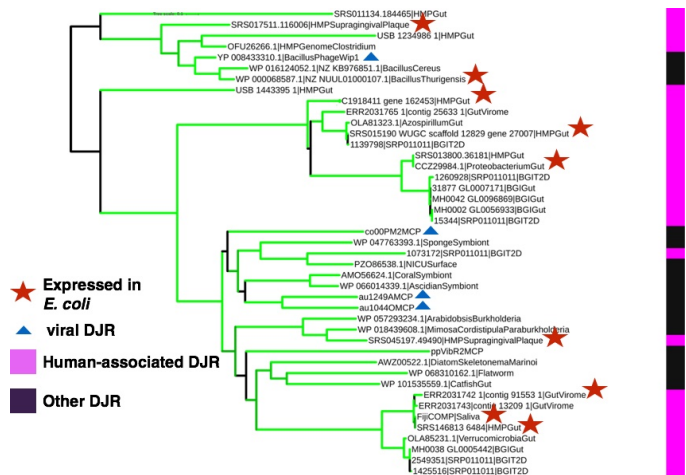
The microbial ecology of the human body



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Abstract:

Microbes are nature’s chemists, capable of producing and metabolizing a diverse array of compounds. In the human gut, microbial biochemistry can be beneficial, for example by producing vitamins or breaking down the complex carbohydrates of our diet; or detrimental, such as reactivating an inactive drug metabolite and causing patient toxicity. I will start by describing how we study and think about the human ‘microbiome’, the collective of bacteria, archaea, small eukaryotes, fungi, and viruses that live in our body, and its role in health and disease. I will comment on why it has proven so difficult to treat diseases via microbiome interventions and argue that identifying clinically relevant microbiome metabolism requires linking microbial



biochemistry and ecology with patient outcomes. I will end by discussing my lab’s work discovering how microbes metabolize drugs in the guts of human patients and how the vast, uncharacterized collective of viruses of microbes might influence ecosystem function in the human body.