

### ***Sequence-based approaches to plant microbiomes***

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Plants associate with diverse microbial communities in the rhizosphere, endosphere and leaf surfaces. These can have varied effects on plant growth and health but only recently have the forces governing the assembly and maintenance of plant microbial communities begun to be systematically investigated at the level of resolution provided by high-throughput sequencing. We aim to understand how plant microbial communities can be nurtured and manipulated to promote plant growth, health and disease resistance. In multiple plant species, we find that different plant compartments (e.g. rhizosphere and root endosphere) harbor unique microbial communities heavily influenced by the soil, surrounding environment and host genotype. These plant-associated microorganisms possess characteristic genes, operons and genomic features as compared with phylogenetically related non-plant-associated isolates. I will present data from ongoing experiments and analyses characterizing the microbes that associate with model and non-model plants.