"Nature's Dirty Little Secret: Rhizosphere Natural Products as Targeted Antibacterial Agents"

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The importance of natural products as anticancer and antibiotic compounds is undisputed due to their wide application as potent and effective pharmaceuticals. In contrast to broad-spectrum agents, the development of species-specific, "narrow-spectrum" antibacterials would be of interest to the medical community serving as novel therapeutics and also to microbiologists as chemical probes to deconvolute complex bacterial communities. Over the past six years, Dr. Wuest's group has looked to Nature for inspiring chemical scaffolds and has leveraged diverted total synthesis (DTS) to study bacteria.

Dr. Wuest's talk will highlight his lab's recent efforts, which have focused on the rhizosphere, the area immediately surrounding the root system of plants, where Gram-negative organisms produce defense compounds to aid in their survival. Promysalin is one such molecule, which specifically targets P. aeruginosa over other Pseudomonads. They have recently synthesized the natural product, confirmed its structure and biological activity, and identified its biological target.