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SPOTLIGHT

Articles of Significant Interest in This Issue

Microbial Interactions Modulate Shiga Toxin Expression

Shiga toxins, the major virulence factors of enterohemorrhagic *Escherichia coli* (EHEC) strains, are encoded within temperate bacteriophage genomes. Their expression is coupled to prophage induction, which can be stimulated by interactions with other microbes in the intestinal environment. Nawrocki et al. (e00509-20) review the effects of microbial communities on Shiga toxin production, focusing on phage induction by DNA-damaging molecules and phage replication in susceptible host strains. These influences may contribute to severe systemic complications by increasing Shiga toxin levels in EHEC infections.

Burkholderia thailandensis Methylated Hydroxyalkylquinolines

For soil-dwelling bacteria, many natural products have antimicrobial properties; these products have important applications in industry and medicine. Klaus et al. (e01452-20) investigated a natural product of the soil bacterium *Burkholderia thailandensis*, 4-hydroxy-3-methyl-2-alkenylquinolines (HMAQs). Some of these, particularly *N*-oxidated HMAQs, have antimicrobial activity against other bacterial species. The authors show that HMAQ production allows *B. thailandensis* to outcompete another soil bacterium, *Bacillus subtilis*. The results support the idea that HMAQs are used by *B. thailandensis* to survive in complex polymicrobial soil communities. These molecules might also have useful industry applications.

Effects of Bacterial Herbicide Resistance on Efficiency of Antibiotics

Pesticides are common environmental contaminants that can affect sensitivity of bacteria to antibiotics by triggering a nonspecific transient stress response and tolerance response. Pöppe et al. (e01204-20) demonstrate that selection for resistance to a glyphosate-containing herbicide in *Salmonella* is uncommon and does not result in a constitutive activation of the tolerance response or changes in susceptibilities to clinically important antibiotics. These findings are a useful addition to the antimicrobial resistance risk assessment of the world's most used herbicide.

Risk Factors for Detection of Resistant Bacteria in Hospital Plumbing

Hospital plumbing elements have been associated with nosocomial outbreaks of antimicrobial-resistant Gram-negative bacteria. Park et al. (e01715-20) identify clinical and environmental risk factors related to hospital room and patient characteristics that increase likelihood of detecting *Klebsiella pneumoniae* carbapenemase-producing organisms in hospital sinks and toilets. Findings include genomically confirmed patient seeding of premise plumbing with antimicrobial-resistant bacteria. This work highlights several aspects of plumbing usage that could be targeted for prevention of hospital environmental colonization by antibiotic-resistant Gram-negative bacteria.

Substrate Preferences of a Novel *Paraburkholderia* Species in Soil Solution

Soil solution presents a myriad of possible carbon substrates to support microbial growth, many at micromolar concentrations. Cyle and colleagues (e01851-20) used a novel species of *Paraburkholderia* as a model organism and a combination of time-resolved metabolic footprinting methods to test hypotheses about substrate preferences during aerobic growth in soil extract. The study found this bacterial isolate to coutilize substrates in distinct temporal clusters with no clear relationship with substrate energy content or a preference for substrates that maximize growth rate.

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Reducing Fish Odor from Salmon Protein Hydrolysates by use of Flavin-Containing Monooxygenases

The demand for dietary proteins is increasing, and marine-sourced proteins have the potential to lower environmental impacts and provide health benefits. Salmon protein hydrolysates made from aquaculture by-products are of high nutritious quality but are currently limited in their use due to a strong, fishy malodor caused by trimethylamine (TMA). Goris et al. (e02105-20) screened a panel of trimethylamine monooxygenases (Tmms) and showed that Tmms can convert TMA in salmon hydrolysates to its odorless counterpart, trimethylamine *n*-oxide. This work serves as a starting point for the exploration of an enzymatic solution to improve the organoleptic quality of marine protein hydrolysates.