



## Articles of Significant Interest in This Issue

### Impact of Various Pig Husbandry Conditions on Antimicrobial Resistance

Vast quantities of antimicrobials are used in agriculture to ensure animal welfare and productivity and are arguably a driving force for the persistence of environmental and foodborne resistant bacteria. Poulin-Laprade et al. (e02612-20) demonstrate that resistance to third-generation cephalosporins was more frequent in antibiotic-free animals, while the bacteria isolated from penicillin-administered animals were resistant to a greater number of antibiotics on average. Furthermore, there is a clear coselection between genes conferring resistance to antibiotics relevant to human health and antibiotics commonly used as curative treatments in Canadian pig operations.

### Engineering More-Efficient Bacteria for Lignin Valorization

By combining genomics, genetics, and enzyme studies, Perez et al. (e02794-20) identified additional enzymes responsible for aromatic ring-opening and *O*-demethylation reactions involved in the catabolism of lignin-derived aromatic compounds in *Novosphingobium aromaticivorans* DSM 12444. With the discovery of previously uncharacterized enzymes and pathways in this bacterium, the authors engineered a new, more-efficient biocatalyst for lignin-derived aromatics.

### Extracellular Serine Protease from Haloarchaea Involved in Antagonistic Interaction

Microbial communities are shaped by interactions among their constituent members. Numerous studies indicated that only halocin from haloarchaea had antagonistic effects limiting the growth of competitors and thereby enhance their resource availability. Using a gene knockout along with complementation experiments, Chen et al. (e02889-20) demonstrated that halolysin R4 (HlyR4), an extracellular serine protease from *Haloferax mediterranei* ATCC 33500 that is encoded by *hlyR4*, is involved in conferring antihaloarchaeal and defensive activities. These activities are both directly correlated to this protease's proteolytic activity. This study uncovered that HlyR4-mediated antagonistic interaction is a pivotal driver in shaping microbial communities in hypersaline environments.

### A Novel Deacetylase for the Acetylated Polymer Polyvinyl Alcohol

Water-soluble polymer polyvinyl alcohol (PVA) is widely used in the textile and paper industries but has considerable accumulation in the environment. Microbial degradation of PVA has been well studied with regard to carbon backbone cleavage, but the genetics and biochemistry of PVA deacetylation remain largely unknown. Yin et al. (e03016-20) identified a unique PVA deacetylase (DacA<sub>pva</sub>) from newly isolated *Comamonas* sp. strain NyZ500 that is also active against acetylated xylan and the antibiotic intermediate 7-aminocephalosporanic acid. DacA<sub>pva</sub> has potential for use in the bioremediation of PVA-polluted environments and industrial eco-friendly biodeacetylation.