Insights: Publications

Salinivibrio sp. EAGSL as a halophilic and ectoine-producing bacteria for broad microbial electrochemistry applications

Cell Reports Physical Science 4 (6)

June 21, 2023

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Salinivibrio sp. EAGSL (S. EAGSL) is an extremophile that was isolated from the Great Salt Lake (UT, USA) in 2017, and this strain has since been the focus of promising research in the field of microbial electrochemistry. Namely, S. EAGSL is an organism with both halotolerance and electroactivity, giving this microbe the unique ability to bridge the gap between power output and halotolerance in microbial fuel cells. While studying the genome, a biosynthetic gene for ectoine was identified. Ectoine is an osmolyte that is deemed a value-added chemical due to its ability to stabilize proteins and other biomolecules in varying conditions, proving its importance for the biochemical and cosmetic industries. Other halophilic bacteria, including Halomonas elongata, have been previously used for industrial production of ectoine. Herein, we evaluate the ectoine production from S. EAGSL, demonstrate proof of concept for S. EAGSL-based microbial fuel cells, and offer discussion for future electrosynthesis applications.