



Electric Bacteria: Out of the Darkness and into the Light

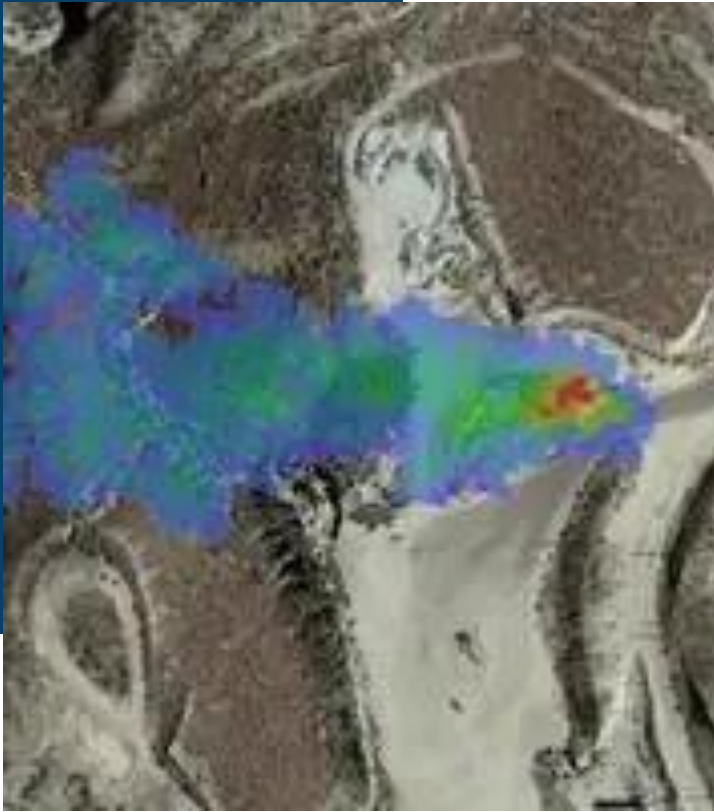
According to the research report, instead of using oxygen as the final electron acceptor for cellular respiration some bacteria can use iron or manganese effectively "breathing" metal. From the initial discoveries of *Shewanella oneidensis* and *Geobacter metallireducens* in the sediments of Oneida Lake and the Potomac River. These "electric bacteria" have risen to stardom as components of microbial fuel cells and microbial electrosynthesis for the production of fuels and other biochemical.



New Partnerships Formed!!!

FROG WITH FUNGUS

The frog identified as Rao's intermediate golden-backed frog, is native to the Western Ghats of Karnataka and Kerala and was found with a mushroom growing from its skin. Mycologists suspect that the amphibian picked up the fungus following an infection or wound.



Bacteria could help turn CO₂ to rock in extreme environments

A team of researchers have found a set of naturally occurring microbes inside Sanford Underground Research Facility(SURF) that eat carbon dioxide gas and turn it into solid rock through a process called carbon mineralization. These rocks can remain stable and out of atmospheric circulation for thousands of years. These findings may lead to new ways to permanently capture CO₂ emissions, reducing the impacts of climate change.

Major discovery improves the understanding of brain fog associated with Long COVID

After the emergence of the novel coronavirus SARS-CoV2 in late 2019, a patient-reported syndrome termed Long-COVID began to come to the fore as an enduring manifestation of acute infection. A team of scientists from Trinity College Dublin and investigators from FutureNeuro announced a major discovery that has profound importance for our understanding of brain fog and cognitive decline seen in some patients with Long COVID. In general patients report lingering symptoms such as fatigue, shortness of breath, problems with memory and thinking and joint/muscle pain. While the vast majority of people suffering from COVID-19 make a full recovery, any of these symptoms that linger for more than 12 weeks post infection can be considered Long COVID. Scientists were able to show that leaky blood vessels in the human brain, in tandem with a hyperactive immune system may be the key drivers of brain fog associated with Long COVID.

References:

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- 2) Hannah Tomasey (2024). Electric Bacteria: Out of the Darkness and into the Light. *The Scientist*. <https://www.the-scientist.com/electric-bacteria-out-of-the-darkness-and-into-the-light-71683>
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Advancements in Marine Microbiological Corrosion and Bio-Fouling Control

Recent advances in marine microbiological corrosion and bio-fouling research underscore the critical role of biofilms formed by marine microorganisms in these processes. Traditional chemical methods face challenges such as pollution and microbial resistance. To address this, novel approaches emphasize synergistic action with traditional chemicals. These include bactericide synergists dispersing biofilms, improved antifoulant-releasing coatings with self-polishing copolymers and degradable polymers, and the application of external electric fields to disrupt biofilms. Additionally, conducting polymers show promise in preventing corrosion and bio-fouling. Future research aims to develop highly efficient, long-lasting, cost-effective, and environmentally friendly methods under complex marine conditions.