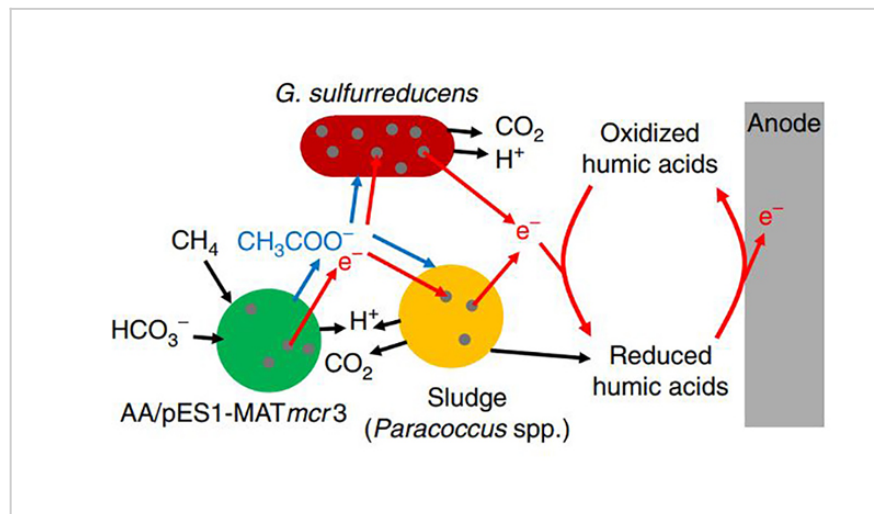


Direct Conversion of Methane to Electrical Energy Using Microbes

ID# 2016-4543



Electricity from Methane using MFCs

Technology Summary

The disclosed invention describes a process to capture methane and directly convert it to electrical current using microbial fuel cells (MFCs). The consortium used to generate the current was created from three microbial components. The first component, an engineered archaeal strain (*Methanosarcina acetivorans*) consumes the methane while the remaining two components, *Geobacter sulfurreducens* and a sewage sludge sample, perform the subsequent electron transfers that lead to current.

Application & Market Utility

Methane extracted from shale deposits could be made into an energy dense fuel with decreased carbon dioxide emissions per unit energy. Current methods to exploit methane (Fischer-Tropsch processes) are too complex and require large-scale investment. MFCs are a lower cost, easily-portable alternative. MFCs provide a method to directly convert methane into electricity in a fuel cell. They provide a means to harness methane anaerobically, and capture methane at its source. This means less leaks from transportation, distribution, and storage.

Next Steps

Prototype verified; seeking licensing opportunities.

TECHNOLOGY READINESS LEVEL

4-7

Seeking

Investment | Licensing | Research

Keywords

- shale gas
- methane
- microbial fuel cell

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