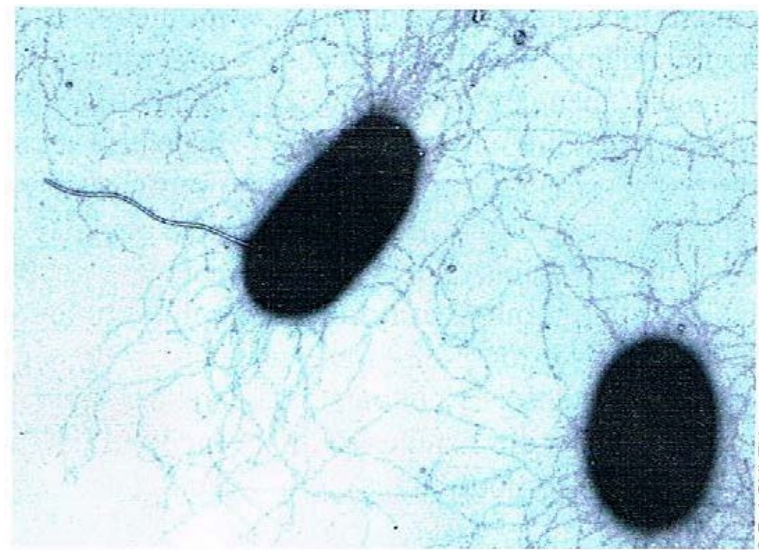


Bioelectricity

Aware of bacteria

Bacteria of the genus *Geobacter* carry out anaerobic respiration process involving redox reactions and movements of extracellular electrons. A team of biologists led by American Derek Lovley, Department of Microbiology at the University of Massachusetts, has drilled to date the mechanism that makes these bacteria conductors of electricity.

Researchers have studied this for a population of *G. sulfurreducens*, endowed with bacteria nanometric filaments (pili) that enable them to extracellular electrons transfer. So far we did not know what confers to these filaments their conductive properties, Derek Lovley and colleagues emitted the idea that they contain aromatic amines acids that are responsible. To verify this hypothesis, they genetically modified bacteria to replace in the pili, these amino acids with alanine, aliphatic*. Result: the genetically changed bacteria does drive more electricity. Aromatic amino acids are



Bacteria of the genus *Geobacter* and electrical nanowires.

therefore essential to electronic transfers. Thanks to this discovery, the researchers hope to be able to take advantage of the amazing properties of *Geobacter* to realize conductive biofilms.

Helene Perrin

*Non aromatic

Vargas M *et al.* (2013) *mBio* 4 (2), 13-e00105

(translation by Google Translate)