



IMAGE: MPI FOR MARINE MICROBIOLOGY / BENEDIKT GEIER / MAXIMILIAN FRANKE

# DOUBLE TAKE

MAX PLANCK INSTITUTE  
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The deep-sea mussel *Bathymodiolus azoricus* is a relative of the edible blue mussel. It inhabits so-called black smokers – towering vents on the seafloor from which hot, mineral-rich water flows out at temperatures of up to 400°C. Survival under such extreme conditions requires teamwork. The mussel harbors symbiotic bacteria inside it that are able to use methane or hydrogen sulfide from the hot springs to generate energy. These microscopic subtenants transfer part of the energy to their host and in return are housed in a protected environment where they are surrounded by water containing sulfur and methane. The picture on the left provides a view under the mussel shell. On the right, researchers at the Max Planck Institute for Marine Microbiology in Bremen have made the microbes visible. They form extensive colonies inside the mussel, which glow here in fluorescent light.

