

A microbiome transplantation technique aims to enhance coral heat tolerance

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Abstract

Coral reefs are unique hotspots of marine biodiversity, and millions of humans rely on them. However, ocean warming is causing reef-building corals to bleach, or expel their symbiotic algae, and die at unprecedented rates. Severe bleaching events are accelerating, so strategies to enhance coral stress resistance are needed. One possible strategy involves manipulation of corals' rich and diverse microbiomes. A recent study investigated the effects of a new method, coral microbiome transplantation, on heat resistance in *Pocillopora* and *Porites* corals. The researchers used homogenized tissues from heat-tolerant donor corals to inoculate heat-sensitive recipient corals of the same species. They found that the recipients bleached less than seawater-inoculated control corals during short-term heat stress, indicating improved heat tolerance. And 16S rRNA gene metabarcoding revealed several donor-specific bacterial species, indicating that microbe transmission took place in both corals, *Pocillopora* and *Porites*. Based on their taxa, most of the detected donor-derived bacteria were putative symbionts. These heat resistance-promoting symbionts should thus be considered in future coral protection strategies. Although the long-term effects and specific mechanisms underlying this manipulative technique still need to be clarified, the results suggest that coral microbiome transplantation is a promising technique for supporting coral health in the field and in the laboratory.