First characterization of Antarctic cryptoendolithic bacteria

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Video Byte

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Abstract

Microorganisms exist in nearly every part of our planet, including areas that can barely support life. The McMurdo Dry Valleys of Antarctica were considered lifeless until microbial communities were found inside porous rocks. Little is known about the evolution, diversity, and genetics of these exclusive cryptoendolithic life-forms. Recently, researchers used sequencing technology to generate microbial metagenomes from Antarctic rocks. They obtained 497 bacterial genomes from 269 previously uncharacterized candidate species. “*Candidatus Jiangella antarctica*” may be adapted to severe conditions, as it was found in all samples and contained additional genes. Most of the new species diverged from their known relatives 1.2 billion to 410 million years ago, long before the origin of modern Antarctica, and the Antarctic bacteria are functionally distinct from their closest known relatives, suggesting that groups of cold-adapted bacteria arrived when Antarctica became cold, spread, and diversified. Learning more about the mechanisms that let these bacteria survive extreme conditions could help predict the results of climate change and desertification, and if life exists beyond the Earth, it may be hiding inside rocks.