

Smallest free-living cell, small genome

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Oregon State University and Diversa Corporation have discovered that the smallest free-living cell, known as SAR11, also has the smallest genome.

SAR11, a group of bacteria so dominant that their combined weight exceeds that of all the fish in the world's oceans, thrives where most other cells would die, and plays a huge role in the cycling of carbon on Earth.

"The ocean is a very competitive environment, and these bacteria apparently won the race," said Stephen Giovannoni, an Oregon State University professor of microbiology. "Our analysis of the SAR11 genome indicates that they became the dominant life form in the oceans largely by being the simplest."

SAR11 lives in a marine environment that's low in nutrients and other resources, but it is able to survive and replicate in extraordinary numbers -- a milliliter of sea water off the Oregon coast might contain 500,000 of these cells.

The findings are published in *Science*.

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