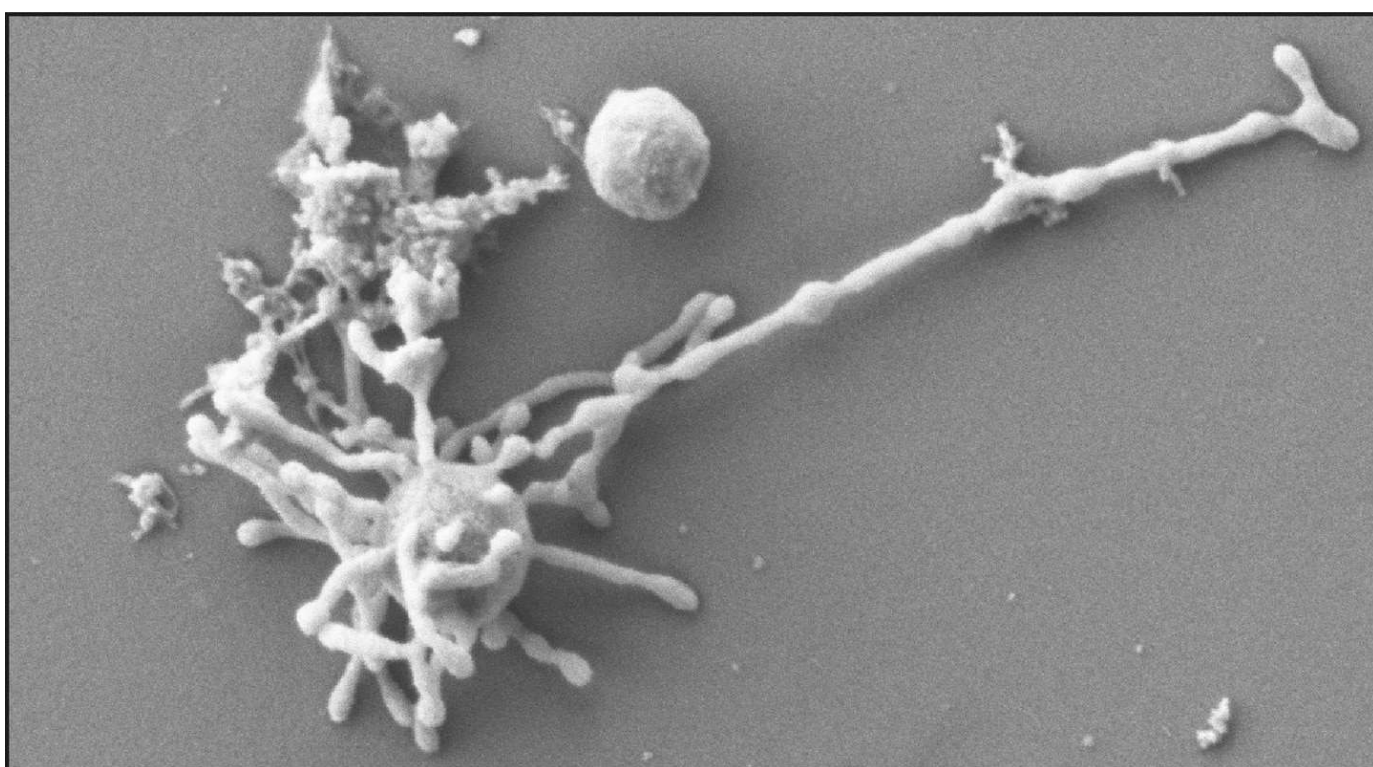


IDEAS

# The search for your missing single-cell ancestor is heating up

Microbes that look like strange deep-sea creatures are turning out to be a missing link in the story of how we got here.

By **Veronique Greenwood** Updated April 18, 2023, 3:00 a.m.



An image from a scanning electron microscope shows archaea cells with protusions that hint at an aspect of our deepest evolutionary history. ANDREAS KLINGL, LMU MUNICH

**T**here's a mystery at the roots of the tree of life. There is a hole in the story. You, the mushrooms in your lawn, and your golden retriever, as well as many other forms of life, are all eukaryotes, which means our cells have a nucleus. That makes us unlike prokaryotes — more simple creatures like bacteria.

For us to be here today, some prokaryotic ancestor must have evolved a nucleus to store its DNA and adopted a system of small sacs, or organelles, in each cell. It must

have absorbed a bacterium so long ago that the details are unknown and transformed it into our mitochondria, which are organelles that power our cells.

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