Do we have the answer to the origin of life?

There's a problem at the heart of biology. It is: No one knows why all complex life is so similar. The history of life on Earth used to look fairly straightforward, but in the last few decades, it's become obvious that something very weird is going on, and it's not clear why. Nick Lane, a professor of evolutionary biochemistry at UCL and author of a new book called The Vital-Question, thinks he has the answer.

"You think of evolution as being adaptation to a particular lifestyle, to a particular set of circumstances," he continues. "But a mushroom and a human being have completely different sets of circumstances, and yet our cells are exactly the same, give or take. Why is that?"

If a burst of oxygen into the atmosphere suddenly allowed life to explode into all the complex forms you see in the world, says Lane, then you'd expect to see lots of different kinds of complex life springing up all over the place, taking advantage of this new source of energy. But instead, it looks very much like all complex life – everything from amoebae to elephants – comes from one common ancestor. "There's this weird single origin of all complex life, all of which has these strikingly complex traits which we all share, you and me and the fungus," says Lane.

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