

‘Utterly magical’: This ‘two-step dance’ may explain the origins of life

Go back far enough in time, before animals and plants and even bacteria existed, and you’d find that the precursor of all life—what scientists call a “[protocell](#)”—likely had [a] trinity of parts: RNA and proteins, in a membrane.

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Life first arose in salty oceans, and salt catastrophically destabilizes fatty-acid spheres. Also, certain ions, including magnesium and iron, cause the spheres to collapse, which is problematic since RNA—another key component of early protocells—requires these ions. How, then, could life possibly have arisen, when the compartments it needs are destroyed by the conditions in which it first emerged, and by the very ingredients it needs to thrive?

Caitlin Cornell and Sarah Keller [have an answer to this paradox](#). They’ve shown that the spheres can withstand both salt and magnesium ions, as long as they’re in the presence of amino acids—the simple molecules that are the building blocks of proteins.

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I find that utterly magical. It means that two of the essential components of life, a protocell’s membrane and its proteins, provided the conditions for each other to exist.

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From the very beginning, these partners were locked in a two-step dance that continued for 3.5 billion years.

Read full, original post: [A New Clue to How Life Originated](#)