Peering back in time: Engineered synthetic organisms could help answer key evolutionary questions

Evolution is the accepted explanation for life's diversity today, but there are still some holes in the process that we don't understand. To peer back in time at certain key steps, scientists at the Scripps Research Institute have now engineered synthetic microorganisms designed to be similar to some that might have lived billions of years ago.

The team engineered two different types of synthetic microbes, each one designed to help them study a different stage in the evolution of life on Earth. The first is a chimera bacterium that has both RNA and DNA in its genome, to help study how life transitioned from one to the other. The second is a yeast species that's been modified to have a symbiotic bacterium inside its cells, which should shed light on how mitochondria – the powerhouses of living cells – evolved.

"These engineered organisms will allow us to probe two key theories about major milestones in the evolution of living organisms – the transition from the RNA world to the DNA world and the transition from prokaryotes to eukaryotes with mitochondria," says Peter Schultz, senior author on the two studies.

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The new synthetic organisms were described in two papers, the first published in the journal PNAS and the second in the Journal of the American Chemical Society.

Read full, original post: Synthetic organisms engineered to shed light on ancient evolution