

Closing a loophole in the RNA World Hypothesis

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New scientific research may close a major loophole in the RNA world hypothesis, the idea that ribonucleic acid -- not the fabled DNA that makes up genes in people and other animals -- was the key to life's emergence on Earth 4.6 billion years ago.

That hypothesis states that RNA catalyzed all the biochemical reactions necessary to produce living organisms. Only later were those self-replicating RNA units joined by organisms based on DNA, which evolved into more advanced forms of life.

But how did ribonucleic acid appear? Scientists have shown that other organic compounds can form spontaneously under conditions believed to exist on the primordial Earth.

The University of Manchester's John D. Sutherland and colleagues point out, however, that no plausible prebiotic synthesis of ribonucleotides, the components of RNA, has been reported. His group offers the large part of such a potential synthesis in an article scheduled for the Jan. 17 issue of the *Journal of the American Chemical Society*, a weekly publication.

The researchers describe a process in which each of the two components for a ribonucleotide form in different locations on the primordial Earth. They combine when one evaporates and is delivered to the location of the second component in rainfall.

Source: American Chemical Society

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