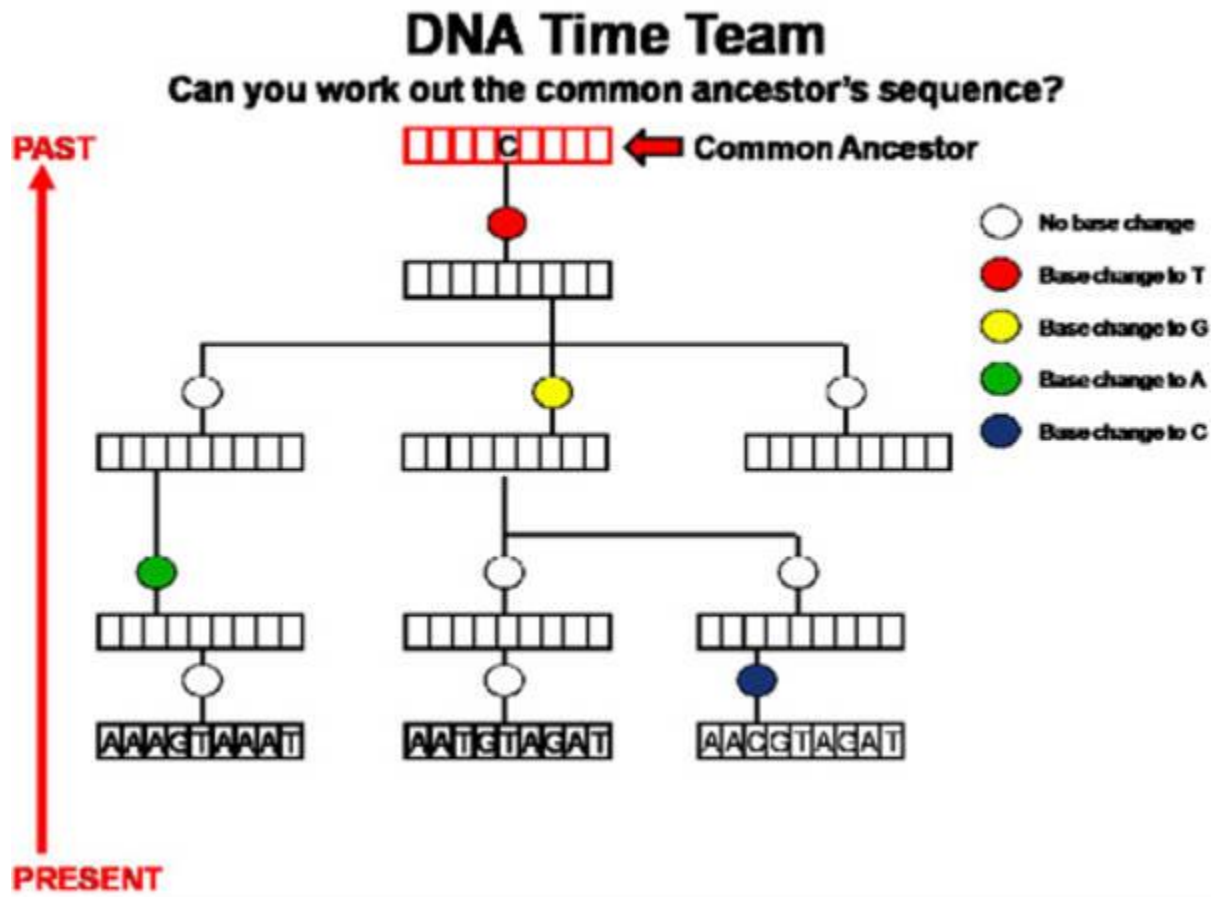


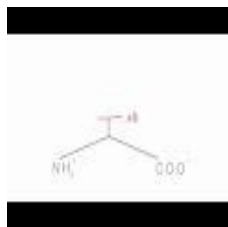
New and intriguing clues to the origin of life on Earth

Ottawa : [Canada](#) | May 05, 2013 at 12:47 AM PDT

By [fibonacci](#)



DNA Time Team
From: dullhunk



The results obtained so far in an exciting line of research supports the idea that 10 amino acids, which are thought to have existed at the Earth some 4000 million years, could alone form proteins with the ability to fold into a saline.

Proteins "halophilic" as these may be able to provide sufficient metabolic activity that makes between 3,500 and 3,900 million years, the first organisms arose qualify as living planet.

Given the complex chemistry of DNA, many biologists consider the likelihood that arise spontaneously from the primordial soup that existed on the early Earth, are very slim. RNA, simpler for a time may be the only transmitter of the genetic code, as predecessor of the DNA. According to the hypothesis of "RNA world", first appeared on earth RNA, serving as both storage material of genetic information as organic molecule catalysing chemical reactions.

However, the RNA is still very complex, so that the scientific community remains open to find simpler precursors that may have been the first step toward forging biochemical evolution that allowed life as we know it today.

Without the ability to fold, proteins would not be able to form specific structures that are essential for functions that make life possible as we know it. The folding allows proteins to assume a globular form with which they can interact with other proteins to perform specific chemical reactions and adapt to allow organisms to exploit a given environment.

Fragments of meteorites and comets have provided strong evidence of the arrival of amino acids to Earth. Some of these objects harboring amino acids are older than the Earth, and therefore the possibility exists that objects of that class which were brought to Earth by a set of 10 amino acids prebiotics (prior to the emergence of life) , whose origins date back to the time of the formation of our solar system.

Today, the human body uses 20 common amino acids to make all your protein. Ten of them arose by biosynthetic pathways (the way living systems evolve). The remaining ten (prebiotic assembly) can be created by chemical reactions, without any living system or biosynthetic pathway, without even needing our planet stage.

The results obtained by the team of Michael Blaber, a structural biologist at Florida State University, states that the aforementioned set of amino acids produced by simple chemical processes capable of enabling the production of proteins with the ability to fold. This supports the idea of a stage of life where the first key component to emerge was a set of primitive proteins. Another widely accepted theory holds that a high temperature environment like environments populated by thermophilic life forms, an example of which are the hydrothermal vents in the deep ocean, might be the birthplace of the origin of life. Generally, it has been considered that life (part of it) was adapted to halophilic environment, not that life arose in him, then adapted to other media. However, research on team Blaber prebiotic amino acids and protein formation with adequate capacity to fold, have been found quite strong evidence to suggest the opposite. Blaber's lab has managed to identify small peptides that can be assembled spontaneously to form specific protein and complex architectures. Its recent work has explored whether those peptides can be formed by only the 10 amino acids and still folded prebiotics. Blaber team obtained proteins with the ability to fold from only 12 amino acids. Now I have to try with 11, and if achieved, with 10. If Blaber finally validated theory, scientists may have to rethink their beliefs about where and how life began on Earth.