

Our DNA could have come from space, says new research

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The sugars that comprise DNA could have formed on comets

Our DNA could have originally been bought from space on a comet that collided with a primitive Earth, new research from a member of Université Paris-Saclay (<https://www.universite-paris-saclay.fr/en>) has found after proving that ribose, the basic sugar from which much of our DNA is composed, is able to form on a comet.

Researchers from the Institut d'Astrophysique Spatiale and the Institut de Chimie de Nice have discovered (<https://www.universite-paris-saclay.fr/en/news/an-artificial-comet-sheds-light-on-the-emergence-of-life-on-earth>) that the nucleic acids that make up DNA, and that are formed primarily from ribose, may therefore not be terrestrial.

Initially, the young Sun was surrounded by a circumstellar disc of gas and dust. Planets then formed by aggregation of these small, frozen bodies that met violently and merged, bringing many chemical compounds.

The researchers simulated these conditions, noting that as the synthetic comet 'warmed' as though nearing the sun, ribose and a similarly structured family of sugars were detected. It was previously thought that ribose was the original sugar and precursor to DNA, yet the research exposed at least three others that may have been around at the same time or before.

This was the first occurrence of a prebiotic synthesis of ribose from the basic elements found in comets, without human interaction.

Additionally, the experiment produced a formose reaction, or the formation of sugars from formaldehyde, which was previously deemed impossible by chemists due to its complexity. Although it was known that formaldehyde can exist on comets, it was not predicted that solvated electrons, found in the ice, could act as the necessary catalyst in the creation of ribose.

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