Presence Of Essential Molecule In Space Could Support Life On Other Planets

Some of the elements necessary to support life on Earth are widely known - oxygen, carbon and water, to name a few. Just as important in the existence of life as any other component is the presence of adenine, an essential organic molecule. Without it, the basic building blocks of life would not come together.

Scientists have been trying to find the origin of Earth's adenine and where else it might exist in the solar system. University of Missouri-Columbia researcher Rainer Glaser may have the answer.

Life exists on Earth because of a delicate combination of chemical ingredients. Using a theoretical model, Glaser is hypothesizing the existence of adenine in interstellar dust clouds. Those same clouds may have showered young Earth with adenine as it began cooling billions of years ago, and could potentially hold the key for initiating a similar process on another planet.

"The idea that certain molecules came from space is not outrageous," said Glaser, professor of chemistry in MU's College of Arts and Science.

"You can find large molecules in meteorites, including adenine. We know that adenine can be made elsewhere in the solar system, so why should one consider it impossible to make the building blocks somewhere in interstellar dust?"

This theory describing the fusion of early life-forming chemicals is presented in the latest issue of the peer-reviewed journal "Astrobiology" and is co-authored by Brian Hodgen (Creighton University), Dean Farrelly (University of Manchester) and Elliot McKee (St. Louis University).

The paper, "Adenine Synthesis in Interstellar Space: Mechanisms of Prebiotic Pyrimidine-Ring Formation of Monocyclic HCN-Pentamers," describes the absence of a sizeable barrier that would prevent formation of the skeleton needed for adenine synthesis. The article is also featured in the Aug. 6 issue of "Chemical and Engineering News."

Glaser believes astronomers should look for interstellar dust clouds that have highly-concentrated hydrogen
cyanide (HCN), which can indicate the presence of adenine. Finding such pockets would narrow the spectrum of where life could exist within the Milky Way galaxy.

"There is a lot of sky with a few areas that have dust clouds. In those dust clouds, a few of them have HCN. A few of those have enough HCN to support the synthesis of the molecules of life. Now, we have to look for the HCN concentrations, and that's where you want to look for adenine," Glaser said.

"Chemistry in space and 'normal chemistry' can be very different because the concentrations and energy-exchange processes are different. These features make the study of chemistry in space very exciting and academically challenging; one really must think without prejudice."

---

**Latest Press Releases: Space Daily**

Sun, Sep 30, 2007

10:15 PM  Three Active Tropical Cyclones In The Atlantic

10:15 PM  Spirit Arrives At Stratigraphic Wonderland In Columbia Hills On Mars

10:15 PM  Solar Power 2007 Dazzles Exhibitors and Visitors

10:15 PM  Site For New Michigan Clean Coal Power Plant Announced

10:15 PM  Raytheon Awarded Hybrid Silicon Compound Semiconductor Contract

10:14 PM  Praxair To Participate In Spanish Clean-Coal Project

10:14 PM  North America's Northernmost Lake Affected By Global Warming

10:14 PM  New Use For Stem Cells Found In War On Terrorism

10:14 PM  Kennedy Prepares To Host Constellation Launch Vehicle

10:14 PM  Infinity Bio-Energy Wants To Make Cleanest And Greenest Production Ethanol From Sugarcane Yet

10:14 PM  GMES Space Program Reaches Important Development Milestone

10:14 PM  Duck Bay, Victoria Crater, Planet Mars

10:14 PM  Discovery At The Pad For October 23 Launch

10:14 PM  Cockroaches Are Morons In The Morning And Geniuses In The Evening

10:14 PM  Boeing-led Missile Defense Team Tout Successful Missile Defense Intercept Test

10:14 PM  Boeing Completes Eight-Hour Flight of A160T Hummingbird

10:14 PM  Blowing A Hole In A Comet: Take 2

10:14 PM  Arctic Heat Wave Stuns Climate Change Researchers

10:14 PM  Aircraft And Automobiles Thrive In Hurricane-Force Winds At Lockheed Martin

Fri, Sep 28, 2007

10:15 PM  Why Quitting May Be Good For You

10:15 PM  Towering Achievement For Goddard's Visualization Studio

10:15 PM  Spirit Makes Progress Across Home Plate

10:15 PM  Solar Power 2007 Dazzles Exhibitors And Visitors

10:15 PM  SOHO Mission Discovers Rare Comet

10:15 PM  Scientists, Policymakers, And Industry Leaders Gather To Discuss Ocean Iron Fertilization

10:15 PM  Remarkable Drop In Arctic Sea Ice Raises Questions

10:15 PM  President of Rwanda Announces Historic Forest Protection Project

10:15 PM  Northrop Grumman Completes Implementation Of Los Angeles Emergency Communication System
<table>
<thead>
<tr>
<th>Time</th>
<th>News/Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15 PM</td>
<td>New Keys To Keeping A Diverse Planet</td>
</tr>
<tr>
<td>10:15 PM</td>
<td>NASA's Dawn Spacecraft Enroute To Shed Light On Asteroid Belt</td>
</tr>
</tbody>
</table>

More Press Releases From Space Daily

Powered By: FinancialContent, Inc. (OTCBB:FCON)
Nasdaq quotes delayed at least 15 minutes, all others at least 20 minutes.
By accessing this page, you agree to the following terms and conditions.
Business Podcasts provided by StreetIQ.com
Conference calls info supplied by OpenCompany
Fundamental data supplied by Mergent, Inc.
Stock quote data supplied by Telekurs