



Search:

Home U.S. Business World Entertainment Sports Tech Politics Elections Science Health Most Popular

Science Video Weather News Space & Astronomy Animals & Pets Dinosaurs & Fossils Biotech Energy Environment

Search: All News [Advanced](#)

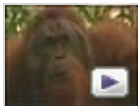
Life's Ingredients May Have 'Sprinkled' on Earth



SCIENCE VIDEO



I-Robots saving lives
CNN



Apes lead race to extinction
BBC

[» All news video](#)



ELSEWHERE ON THE WEB

Time.com: [Hyper Kids? Cut Out Preservatives](#)

USATODAY.com: [Virus linked to destruction of honeybee hives](#)

ADVERTISEMENT

PANDA WRESTLERS

ASSIGNMENT EARTH

Planet Profiled
Explore the world's

Dave Mosher
Staff Writer
SPACE.com

Tue Sep 11, 7:15 AM ET

Some crucial ingredients for life on Earth may have formed in interstellar space, rather than on the planet's surface.

A new computer model indicates clouds of adenine molecules, a basic component of DNA, can form and survive the harsh conditions of space, and possibly sprinkle [onto planets](#) as the stars they orbit travel through a galaxy.

"There may be only a few molecules of adenine per square foot of space, but over millions of years, enough could have accumulated to help [make way for life](#)," said study co-author Rainer Glaser, a molecular chemist at the [University of Missouri-Columbia](#).

Glaser and his team's findings are detailed in a recent issue of the journal *Astrobiology*.

Spacey chemistry

Adenine is one of four "letters" of DNA's alphabet used to store an organism's genetic code. Glaser said the idea that large, two-ringed organic molecules like adenine formed in space may seem outrageous, but current evidence leaves the possibility wide open.

"You can find large molecules [in meteorites](#), including adenine," Glaser said. "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?"

Using computer simulations of the cold vacuum of space, Glaser and his colleagues found that hydrogen cyanide (HCN) gas can build adenine. Like pieces in a set of tinker toys, hydrogen cyanide serves as adenine's building blocks; the small molecules bond together into chains and, with a little wiggling, eventually assemble into rings.

ADVERTISEMENT

House Payments Fall Again
\$90,000 Mortgage for Under \$499/Month!

Think you pay too much for your mortgage? The sad news is, you probably are.

In fact, you may be paying more than your neighbors even though you live in the same neighborhood, and their house looks identical to yours. Why should you pay more?

Find out what your lowest monthly payment could be. [Click here to calculate your new payment today](#) or select your state below.

Select Your State:



wonders and the battle to save them.

Although adenine's first ring needs a tiny energy boost from starlight to form, Glaser said the second ring of the molecule self-assembles without any outside help.

MOST POPULAR



Popular Science

The most popular science news stories and photos.

[» All Most Popular](#)

Add headlines to your personalized My Yahoo! page
([About My Yahoo!](#) and [RSS](#))

Science - SPACE.com

[» More news feeds](#)

NEWS ALERTS

Get an alert when there are new stories about:

University of Missouri-Columbia

Add Selected Alerts

[» More alerts](#)

"When you want to have a reaction, you usually need to heat it up," Glaser said. "It's remarkable to find a reaction that doesn't require activation energy. If you do this reaction in space, this is a huge advantage because it takes a long time for a molecule to be hit by a piece of light."

Seasoned for life?

Glaser said adenine's ringed shape helps it absorb and release any excess energy without breaking apart, making it stable enough to form concentrated clouds that planets can drift through.

While getting adenine safely onto a rocky planet's surface is a less developed idea, Glaser said many chemists have barely toyed with the notion that life's basic ingredients formed off of the planet's surface.

"We're at a very early stage of anybody even thinking about these things," he said. "The discussion of life's origin has been highly focused on the idea of a warm pool of liquid on the planet's surface." But Glaser said recent [discoveries of planets](#) around distant stars is changing that focus.

"Chemistry in space isn't the chemistry most of us are trained for," Glaser said. "We should take a much bigger approach: Where are all the chemicals in the galaxy and its solar systems, and what can you do with them?"

Antonio Lazcano, an evolutionary biologist at the National Autonomous University of Mexico who has studied life origins for the past 30 years, said Glaser and his colleagues' work is compelling.

"We already know hydrogen cyanide is abundant in interstellar clouds, and it's been suggested that comets can bring some of that material onto planets," Lazcano said. For Glaser and his team's idea to be widely supported, however, adenine needs to be detected in the deep space clouds, Lazcano said.

"The likelihood of detection is very small, but it's still possible," he said. "If astronomers can better eliminate background noise, I think we'll have equipment sensitive enough to detect adenine dust clouds."

- [The Top 10 Extrasolar Planets](#)
- [Scientists: Calculations Prove Life Began in Comet](#)
- [Greatest Mysteries: Does Alien Life Exist?](#)
- Original Story: [Life's Ingredients May Have 'Sprinkled' on Earth](#)

Visit [SPACE.com](#) and explore our huge collection of [Space Pictures](#), [Space Videos](#), [Space Image of the Day](#), [Hot Topics](#), [Top 10s](#), [Multimedia](#), [Trivia](#), [Voting](#) and [Amazing Images](#). Follow the latest developments in the search for life in our universe in our [SETI: Search for Life](#) section. Join the community, sign up for our [free daily email newsletter](#), listen to our [Podcasts](#), check out our [RSS feeds](#) and other [Reader Favorites](#) today!

[Email Story](#)

[IM Story](#)

[Printable View](#)

RECOMMEND THIS STORY

Recommend It:

Average (44 votes)



» Recommended Stories

Full Coverage: Astronomy and Space

OFF THE WIRES

Cassini in safe mode after Saturn flight AP, 12 minutes ago

NASA sought to stop astronaut meltdowns AP, Wed Sep 12, 5:56 PM ET

NEWS STORIES

Bizarre Parasitic Star Found SPACE.com via Yahoo! News, Sep 12

Mars rover dips over crater edge at BBC, Sep 12

FEATURE ARTICLES

Hubble Telescope: Solved and Unsolved Mysteries SPACE.com via Yahoo! News, Sep 10

Planetary Imagery: 30 Years From Voyager Spacecraft at Wired News, Sep 05

OPINION & EDITORIALS

30 years after Voyager launch, time to again ask who we are The Christian Science Monitor via Yahoo! News, Aug 20

Outer Space - Ukraine's prospects at Kyiv Post, Feb 22

Science News

Cassini in safe mode after Saturn flight AP

Ebola said depleting gorilla populations AP

Shrinking kilogram bewilders physicists AP

Eating less meat may slow climate change AP

Experts: Climate change puts sea at risk AP

Most Viewed - Science

'Killer bees' descend on New Orleans AP

Bizarre Parasitic Star Found SPACE.com

Cassini in safe mode after Saturn flight AP

Hope for Earth: Planet Survives Star's Death Throes SPACE.com

Coyotes Cower in Wolf Territory LiveScience.com

Science Video

I-Robots saving lives CNN - 11 minutes ago

Apes lead race to extinction BBC - Wed Sep 12, 4:10 PM ET

Northeast Forecast weather.com - Wed Sep 12, 5:30 PM ET

National Forecast weather.com - Wed Sep 12, 5:30 PM ET

Sponsored Links

(What's this?)

House Payments Fall Again

\$180,000 Mortgage for \$999/mo. See Rates - No Credit Check Required.

www.LowerMyBills.com

Refinance \$300,000 for Only \$965/Month

\$300,000 Mortgage for only \$965/month. Save \$1,000's - No obligation.

www.HomeLoanHelpLine.com

Refinance and Save \$1,000S

\$150,000 Mortgage for \$483/month. Compare up to 4 free quotes.

www.pickamortgage.com

Search:

All News

Search

Advanced

Yahoo! - My Yahoo! - Mail

[Home](#) | [U.S](#) | [Business](#) | [World](#) | [Entertainment](#) | [Sports](#) | [Tech](#) | [Politics](#) | [Science](#) | [Health](#) | [Travel](#) | [Most Popular](#) | [Odd News](#) | [Opinion](#)

Copyright © 2007 [SPACE.com](#).

Copyright © 2007 Yahoo! Inc. All rights reserved.

[Questions or Comments](#)

[Privacy Policy](#) - [Terms of Service](#) - [Copyright/IP Policy](#) - [Ad Feedback](#)