

Ads



Biotin Labeling Kit
Only Need 90 Minutes. No Need for Dialysis!
www.elabscience.com



Solar Power Information
Find here the latest information about Solar Power & Solar Energy!
www.solarserver.com
https://www.sciencedaily.com/releases/2016/07/160711155538.htm

Science News

from research organizations

If life can make it here, it can make it anywhere

Scientists explore the likelihood of complex life existing elsewhere in the universe

Date: July 11, 2016
Source: Washington State University
Summary: If the origin of life is common on other worlds, the universe should be a cosmic zoo full of complex multicellular organisms. Scientists use the evolution of Earth life as a model to predict what humans might find living on distant planets and moons in a new paper.
Share: Facebook Twitter Google+ LinkedIn + Email

RELATED TOPICS

Plants & Animals

- > Organic
- > Zoology

Space & Time

- > Cosmology
- > Extrasolar Planets

Earth & Climate

- > Sustainability
- > Biodiversity

RELATED TERMS

- > Extraterrestrial life
- > Timeline of evolution
- > Ultimate fate of the universe
- > Biology
- > Planetary habitability
- > NASA



Artist's rendering of an alien planet (stock illustration).

Credit: © Keith Tarrier / Fotolia

If the origin of life is common on other worlds, the universe should be a cosmic zoo full of complex multicellular organisms.

Dirk Schulze-Makuch, a Washington State University astrobiologist, uses the evolution of Earth life as a model to predict what humans might find living on distant planets and moons in a new paper published in the journal *Life*.

The results of his work, conducted in collaboration with William Bains, a biochemist working for the Massachusetts Institute of Technology, show that once life originates, the evolution of organisms functionally similar to plants or animals on Earth will naturally follow given enough time and a suitable environment.

"If the origin of life can occur rather easily, a percentage of organisms on other worlds will reach higher levels of animal- or plant-like complexity," Schulze-Makuch said. "On the other hand, if the origin of life is a rare event, then chances are we live in a rather empty universe."

Evolutionary answers

There are physical and chemical limits to how life can evolve, and scientists have determined that many of those requirements have been met on Earth. Therefore, the route Earthly lifeforms took from simple, single-celled organisms to successively more complex entities can give hints of how life might play out elsewhere in the cosmos.

In their study, Schulze-Makuch and Bains first identified the key evolutionary innovations that drove the development of Earth life from microbes to space-faring humans. These include the transition from single cell life to multicellular life, the rise of photosynthesis, the evolution of macroscopic life and the rise of intelligent life.

Then they analyzed whether or not these important evolutionary occurrences happened many times in different organisms or were due to random, isolated events.

They found that most of the critical innovations were "invented" several times. For example, photosynthesis originated independently at four different points in life's history, and multicellularity arose several times in different classes of organisms.

"Given that we have multiple examples of these key evolutionary adaptations occurring along the path from the simplest organism to humans, we must accept that they are not extremely improbable, but that it 'only' takes a long time and the proper conditions for them to arise," Schulze-Makuch said. "Therefore, in any world where life has arisen and sufficient energy flux exists, we are confident that we will find complex, animal-like life."

The one caveat is that the research doesn't address the likelihood of the origin of life occurring elsewhere or of there being aliens with human like intelligence. Earth is the only planet where life is known to exist, and humans are the only known species to have developed technology. So it is impossible to say whether this should be a common occurrence on other worlds, a very rare event or something in between, Schulze-Makuch said.

Future implications

The work has major implications for the search for life on other worlds. Schulze-Makuch and Bains write that not only should scientists expect to find microbial biosignatures on a planet with life, but also signatures resulting from large and complex, multicellular organisms such as vegetation's red edge, which is the wavelength of light suggesting the existence of plant life.

"In particular, our research is relevant to the selection of tools scientists use in searching for life on planets in other solar systems," Schulze-Makuch said. "On future missions, researchers at NASA, the SETI (search for extraterrestrial intelligence) Institute and other organizations should consider using instruments that are capable of finding signatures of a global and diverse biosphere on other worlds."

Story Source:

The above post is reprinted from materials provided by **Washington State University**. The original item was written by Will Ferguson. *Note: Materials may be edited for content and length.*

Journal Reference:

1. William Bains, Dirk Schulze-Makuch. **The Cosmic Zoo: The (Near) Inevitability of the Evolution of Complex, Macroscopic Life.** *Life*, 2016; 6 (3): 25 DOI: 10.3390/life6030025

Cite This Page:

MLA APA Chicago

Washington State University. "If life can make it here, it can make it anywhere: Scientists explore the likelihood of complex life existing elsewhere in the universe." *ScienceDaily*. ScienceDaily, 11 July 2016. <www.sciencedaily.com/releases/2016/07/160711155538.htm>.

Share This Page:

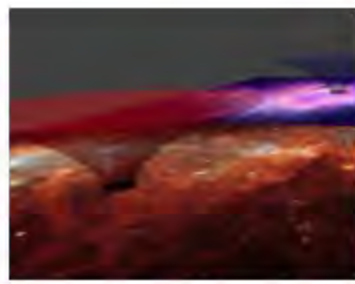


Powered by Google



How To Design A Garden

Ad gardeningenthusiast.com



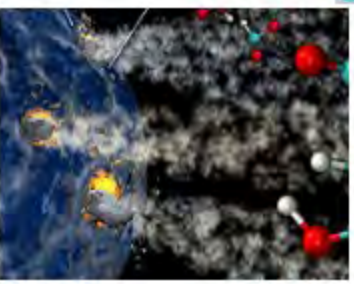
In theory, the Milky Way could be a 'galactic ...

sciencedaily.com



EMBO Conference 20-23 Nov

Ad embl.de



It's a shock: Life on Earth may have come from ...

sciencedaily.com



ဒီဗီဇျော့ဇျော့
မာကြီ
မေ့ပါလား



Related Stories

Universe's First Life Might Have Been Born on Carbon Planets

June 7, 2016 — Our Earth consists of silicate rocks and an iron core with a thin veneer of water and life. But the first potentially habitable worlds to form might have been very different. New research suggests ... **read more** »

Hunting for Hidden Life on Worlds Orbiting Old, Red Stars

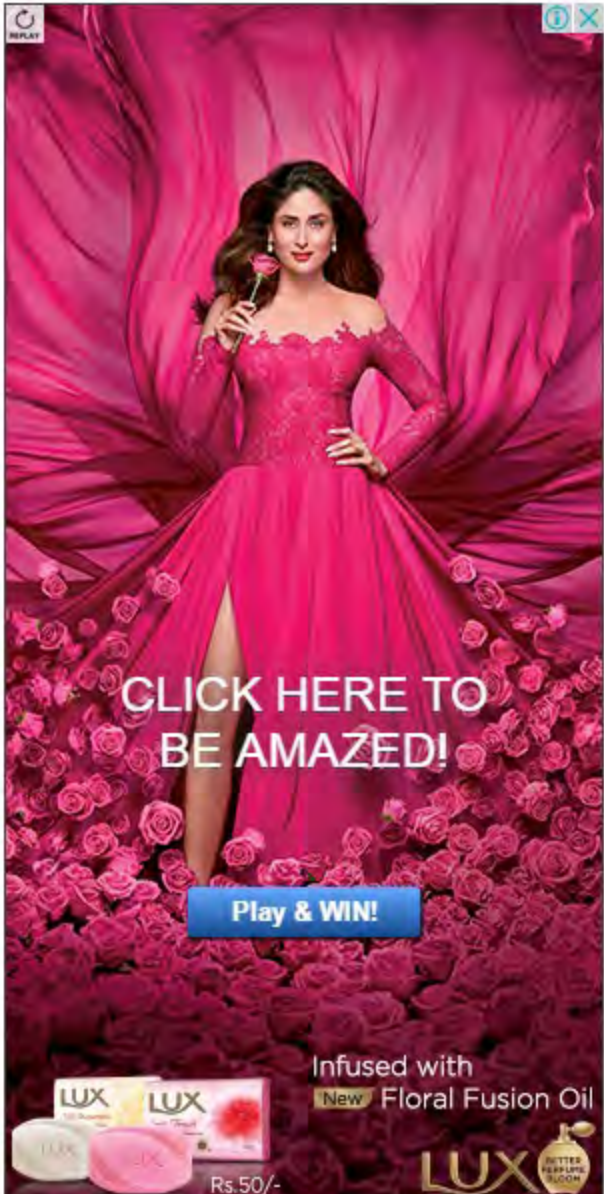
May 16, 2016 — Astronomers have modeled the locations of the habitable zones for aging stars and how long planets can stay in ... **read more** »

Colorful Life-Form Catalog Will Help Discern if We're Alone

Mar. 16, 2015 — While looking for life on planets beyond our own solar system, a group of international scientists has created a colorful catalog containing reflection signatures of Earth life forms that might be ... **read more** »

Milky Way May Bear 100 Million Life-Giving Planets

June 9, 2014 — There are some 100 million other places in the Milky Way galaxy that could support complex life, according to new research by astronomers. They have developed a new computation method to examine data ... **read more** »



Strange & Offbeat

SPACE & TIME

If Life Can Make It Here, It Can Make It Anywhere

Surprising Planet With Three Suns Discovered

Lush Venus? Searing Earth? It Could Have Happened

A Giant Impact: Solving the Mystery of How Mars' Moons Formed

MATTER & ENERGY

Germs Add Ripples to Make 'Groovy' Graphene

Nanotech 'Tattoo' Can Map Emotions and Monitor Muscle Activity

Supercomputers Fire Lasers to Shoot Gamma Ray Beam

Tiny Bacteria-Powered 'Windfarm' for Your Phone?

COMPUTERS & MATH

The Debut of a Robotic Stingray, Powered by Light-Activated Rat Cells

Robot Helps Study How First Land Animals Moved 360 Million Years Ago

Theoretical Climbing Rope Could Brake Falls

Teaching Drones About the Birds and the Bees

See fewer ads and support this site.

Contributor works on millions of sites and all of your devices.

Contributor by Google

Free Subscriptions

Get the latest science news with ScienceDaily's free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

- Email Newsletters
- RSS Feeds

Follow Us

Keep up to date with the latest news from ScienceDaily via social networks:

- Facebook
- Twitter
- Google+
- LinkedIn

Mobile Apps

Get the latest news from ScienceDaily via our free mobile apps, available for download on the following platforms:

- iPhone/iPad
- Android

Have Feedback?

Tell us what you think of ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

- Leave Feedback
- Contact Us