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### **Is there extra-terrestrial life exist?**

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One of the most popular questions today is “Are we alone in the universe?” You are in the minority if you believe that absolutely no intelligent life exists outside our planet. In the United States alone, at least half of all Americans say that we’re not alone in the universe.

Fifty percent of Americans already believe that there is some form of life on other planets, while only seventeen percent believe there is not. Another 33 percent said they aren’t sure. A quarter of Americans believe that intelligent extraterrestrial visitors have already come to Earth and have been doing so for a long time [1].

Our knowledge is limited to the Earth, and when people are talking about life they mean life as we know it: carbon based organic life forms that need liquid water to exist. So, logically, if we were able to find liquid water on other planets, we could expect to find life in them.

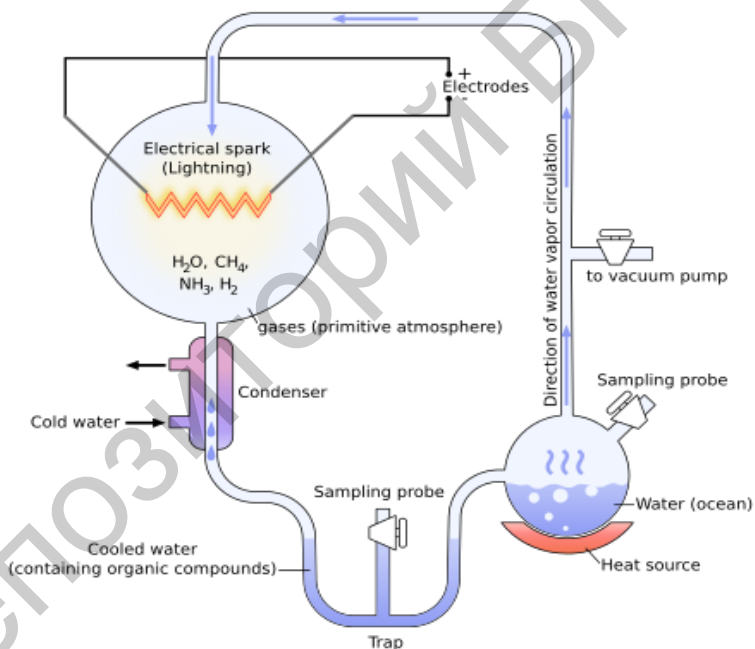
But, does it mean that a life form we have never encountered fits into our standards of water life. Could it possibly be made of silicone, as silicone is only one away from carbon on the periodic table. Surely, it is possible.

When we speak about extra-terrestrial life, normally people think about ET, Predator, Aliens, Men in black, green men, UFO’s, or even aliens invading our planet. The list goes on and on.

Now of course, there is no scientific evidence for extra-terrestrial life, even though many argue this. However, we are

making great efforts and investing resources to know if it is possible to find life outside the Earth and to find out what kind of life there may be.

There are many theories about the origin of life. For example Miller-Urey experiment. It was conducted in 1952. Stanley Miller and Harold Urey used gases found in Earth's atmosphere and electrical sparks to simulate lightning. The energy caused the production of sugars, lipids, and over a dozen amino acids through chemical reactions. These molecules are the building blocks of DNA.



Another theory is abiogenesis, which is a plausible explanation for the origin of life. The theory states that chemical reactions are capable of producing organic molecules. These molecules spontaneously bond to form self-replicating molecules, it means life [2].

Now, there is a question about Earth-like planets. And the first stop we are going to do is on Mars. Today NASA's rover Curiosity is working on Mars surface and it is giving us fantastic landscapes from Mars. But the main target of Curiosity's mission is to find life or evidences of life on Mars [3]. In fact, while life was beginning on Earth, Mars was covered by oceans, lakes and flowing liquid water on its surface, so if life began on Earth, why not on Mars with the same conditions?

Actually, not only Mars is a potential habitable world in the Universe. Research shows that there are about 100 planets within 30 light years of our solar system that have Earth-like qualities that could support life.

Now we only try to find life outside the Earth. So, what kind of life it may be. For example it can be extremophiles. They were discovered by biologists in the 1970s. Extremophiles live in environments once thought inhabitable. Planets which were once considered "too extreme" for life forms may be host to alien life. There are Acidophil extremophiles (inhabit very acidic and basic environment), Thermophile (inhabit very cold or hot environments,  $-20^{\circ}\text{C}$  to  $122^{\circ}\text{C}$ ) and Anaerobe (can survive without oxygen) [4].

Also, there is a theory that the Universe is huge. Counting the stars in the universe is like trying to count the number of sand grains on a beach, which is impossible. It is estimated that there are 200 billion galaxies in the universe and 300 quintillion stars. The Universe is 14.6 billion years old and will be habitable for several billion years more.

How often do you look up into the night sky and wonder just how many stars and planets are out there? Space has always fascinated us. From scientists and philosophers to artists and poets, we all want to know what's out there. What is it about deep space that so ignites our collective imagination?

Thinking about just how big the universe is can really put things into perspective.

This year scientists have announced the discovery of a warm, rocky “second Earth” circling a distant star called Gliese 581, about 20 light years away in the constellation of Libra. Crucial measurements of the planet’s surface temperature range revealed it was able to hold liquid water, believed to be a prerequisite for life.

Obviously, there are many theories of the existence of aliens like the size of the Universe, the evidence of UFO’s, mass media attention, personal experience, video footage and others, but the truth is they are just theories. So, it’s your choice whether to believe in the existence of life out our planet or not.

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