

Is the origin of life just cosmic dust in the wind?

January 23 2018, by Karl Gruber

"The cosmos is within us. We're made of star stuff." Thanks to a new study, this famous phrase by iconic astronomer Carl Sagan, now has some more support.

Just like the wind blows dust into your house, [cosmic dust](#) can be blown across [space](#) and between planets. Cosmic dust is the stuff planets and stars are made of: carbon, oxygen, iron and other tiny particles less than 1 micrometre in size.

[A new study](#) proposes that [life](#) on Earth started from particles flying as dust from outer space.

A ride on the space dust express

The study looked at fast-moving flows of cosmic dust that constantly blast over our atmosphere. As much as 105kg of [space dust](#) reaches Earth every day.

Researchers found that small particles occurring 150km above the Earth's surface could be picked up by these streams of space dust. Then, they could travel across the universe and reach other [planets](#).

This means any microorganisms hanging out in the atmosphere at these heights could also be swept up for the inter-planetary ride. Right now, microorganisms from our planet could be colonising a new planet

somewhere far, far away.

And, by the same logic, our planet could have been colonised by alien microorganisms surfing a wave of space dust into our solar system.

But, it may not be as simple as it sounds, says Queenie Chan, a postdoctoral researcher at the UK's Open University.

Any creature travelling with space [dust](#) needs to deal with nasty travelling conditions. You think your last economy class flight was bad? Imagine travelling through deadly ionising radiation, extreme vacuum and inactivation due to super low temperatures.

It may sound like a bad trip, but bacteria may be able to travel just fine in these [cosmic dust](#) storms, hidden within tiny rocks.

"It has been shown in previous studies that bacteria can endure such stress," says Queenie. "But they have to be protected within volatile-rich bodies, or rocks of a few centimetres which can offer a shielding effect," she adds.

But Queenie recently found some exciting clues about the celestial origins of life.

Alien rocks host ingredients of life

[In a recent study](#), Queenie found liquid water, hydrocarbons and amino acids, three of the most basic and important components of life, lurking within two meteorites that crashed on Earth 20 years ago. Amino acids, for example, are the building blocks of proteins, and carbon is present in pretty much any living organism.

The meteorites contained [salt crystals](#), capable of hosting various [organic](#)

[compounds](#). To detect just what chemicals were hidden within these salt crystals, Queenie and her team used a technique which likely has the world's longest name. Are you ready? They used ultra-performance liquid chromatography fluorescence detection and quadrupole time-of-flight hybrid mass spectrometry.

The fancy technique revealed carbon and [amino acids](#) within the meteorites.

"The wide range of organic compounds found in the salt crystals tells us that this water-rich phase of the asteroid is associated with abundant and a great variety of organic materials," Queenie says.

Queenie says their findings give them hope of finding organic compounds in places like Jupiter's moon Europa, from where these meteorites likely originated. Such a finding could herald at the existence of the basic ingredients of life.

"This is really the first time we have found abundant organic matter also associated with liquid water. This is really crucial to the origin of life and the origin of complex organic compounds in space," Queenie adds.

So the next time you look up to the night sky, wondering whether we did originate in the stars, maybe somewhere out there, some other lifeform originating from Earth is pondering the same thing.

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Provided by Particle

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