

Researcher says 'We are going to find life in space this century'

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Are we alone in the universe? It's a question that has always fired the human imagination. The more we learn, the more unlikely it seems that Earth is a lone miracle inhabiting life amid galaxies of lifeless planets. Many eminent scientists are positive that it is just a matter of time before we find other life in the universe . But exactly how we'll encounter our inter-galactic neighbours, and whether they'll be just a few cells or full-blown ET lookalikes, they are less sure.

'We are going to find [life](#) in space in this century,' Dr. Seth Shostak, Senior Astronomer at the Search for Extra-Terrestrial Intelligence Institute (SETI) said emphatically at last week's European Commission Innovation Convention. 'There are 150 billion galaxies other than our

own, each with a few tens of billions of earth-like [planets](#). If this is the only place in the universe where anything interesting happening then this is a miracle. And 500 years of astronomy has taught us that whenever you believe in a miracle, you're probably wrong.'

How will discover life in space? Dr Shostak sees it as a 'three-horse race' which will probably be won over the next 25 years. We will either find it nearby, in microbial form, on Mars or one of the moons of Jupiter; we will find evidence for gases produced by living processes (for example photosynthesis) in the atmospheres of planets around other stars; or Dr Shostak and his team at SETI will pick up signals from intelligent life via huge antennas.

Dr. Suzanne Aigrain, Lecturer in Astrophysics at Oxford University, who studies [extrasolar planets](#) or exoplanets (planets around other stars than the sun), represents horse number two in the race. Speaking at the Convention, Dr Aigrain noted that, based on her studies, she would also bet that we are not alone. 'We are very close to being able to say with a good degree of certainty that planets like the Earth, what we call [habitable planets](#), are quite common [in the universe] ... That's why when asked if I believe there's life on other planets, I raise my hand and I do so as a scientist because the balance of probability is overwhelmingly high.'

Dr. Aigrain, and the groups that she works with, have so far been using light - electromagnetic radiation - as their primary tool to look for planets around stars other than the sun. Habitable planets are defined as those that are roughly the size of the earth where the surface temperature is suitable for liquid water to exist on the surface. The life 'biomarkers' that Dr. Aigrain and her colleagues look for are trace gases in the atmospheres of the exoplanets that they think can only be there if they are being produced by a biological source like photosynthesis.

Dr Shostak and SETI, meanwhile, seek evidence of life in the universe by looking for some signature of its technology. If his team does discover radio transmissions from space, Dr Shostak is quite certain that they will be coming from a civilisation more advanced than our own. 'Why do I insist that if we find ET, he/she/it will be more advanced than we are? The answer is that you're not going to hear the Neanderthals. The Neanderthal Klingons are not building radio transmitters that will allow you to get in touch.'

If we do find life on other planets or intercept a radio signal, what are the consequences? Finding a microbe that isn't an earthly microbe will tell us a lot about biology, but there will also be huge philosophical consequences. In Dr Shostak's words, 'It literally changes everything.'

More information: [ec.europa.eu/research/innovati ...
/ic2014/index_en.cfm](https://ec.europa.eu/research/innovati.../ic2014/index_en.cfm)

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