

Scientists: Artificial life likely in 3 to 10 years

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Story Highlights

- Scientists working to create the first cell of synthetic life
- Artificial life could be used to fight diseases, climate change
- Some worried creating life could "run amok"

WASHINGTON (AP) -- Around the world, a handful of scientists are trying to create life from scratch and they're getting closer. Experts expect an announcement within three to 10 years from someone in the now little-known field of "wet artificial life."

"It's going to be a big deal and everybody's going to know about it," said Mark Bedau, chief operating officer of ProtoLife of Venice, Italy, one of those in the race. "We're talking about a technology that could change our world in pretty fundamental ways -- in fact, in ways that are impossible to predict."

That first cell of synthetic life -- made from the basic chemicals in DNA -- may not seem like much to non-scientists. For one thing, you'll have to look in a microscope to see it.

"Creating protocells has the potential to shed new life on our place in the universe," Bedau said. "This will remove one of the few fundamental mysteries about creation in the universe and our role."

And several scientists believe man-made life forms will one day offer the potential for solving a variety of problems, from fighting diseases to locking up greenhouse gases to eating toxic waste.

Bedau figures there are three major hurdles to creating synthetic life:

A container, or membrane, for the cell to keep bad molecules out, allow good ones, and the ability to multiply. A genetic system that controls the functions of the cell, enabling it to reproduce and mutate in response to environmental changes.

A metabolism that extracts raw materials from the environment as food and then changes it into energy.

One of the leaders in the field, Jack Szostak at Harvard Medical School, predicts that within the next six months, scientists will report evidence that the first step -- creating a cell membrane -- is "not a big problem." Scientists are using fatty acids in that effort. Szostak is also optimistic about the next step -- getting nucleotides, the building blocks

of DNA, to form a working genetic system.

His idea is that once the container is made, if scientists add nucleotides in the right proportions, then Darwinian evolution could simply take over. "We aren't smart enough to design things, we just let evolution do the hard work and then we figure out what happened," Szostak said.

In Gainesville, Florida, Steve Benner, a biological chemist at the Foundation for Applied Molecular Evolution is attacking that problem by going outside of natural genetics. Normal DNA consists of four bases -- adenine, cytosine, guanine and thymine (known as A,C,G,T) -- molecules that spell out the genetic code in pairs. Benner is trying to add eight new bases to the genetic alphabet.

Bedau said there are legitimate worries about creating life that could "run amok," but there are ways of addressing it, and it will be a very long time before that is a problem. "When these things are created, they're going to be so weak, it'll be a huge achievement if you can keep them alive for an hour in the lab," he said. "But them getting out and taking over, never in our imagination could this happen."