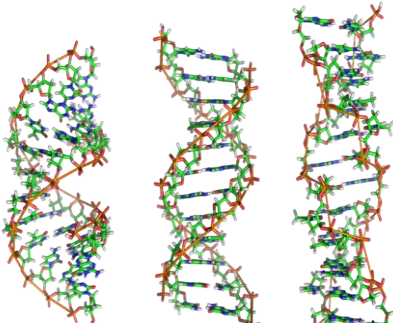


Scientists Create First Life-Form with Man-Made Genetic Code

By adding two genetic units to the DNA of *E. coli* bacteria, U.S. scientists have created an alien organism capable of producing new types of proteins.



Throughout the entire history of life on Earth, the genetic code of all organisms is composed of the same four nucleotides labeled A, C, T, and G. Researchers at Scripps Research Institute in La Jolla, California chemically synthesized two new nucleotides, X and Y, and fused them into the *E. coli* bacterium.

The organism was able to replicate its natural and synthetic components during reproduction normally with six, instead of the standard four nucleotides. This means that it genetically passed along the first combination of manmade and natural DNA.

To create a modified organism that would reproduce, the team had to first create stable enough artificial nucleotides. The creation of X and Y variants came only after 300 types were tried. The X nucleotide pairs with the Y, just as A with T and C with G in natural DNA. As far as worrying about never-before-seen strains of bacteria escaping into the wild, researchers stressed that this newly created organism could never infect anything. To continue reproducing the synthetic nucleotides, the researchers had to feed the necessary chemicals to the bacterium or else it would stop producing the X and Y pair.

Beyond those immediate applications, the next steps are figuring out if the synthesized nucleotides can be fused into the RNA of living organisms and used to produce new proteins, as well as discovering whether or not genetically engineered cells could be used to help organisms reproduce those synthetic nucleotides on their own.

Source: <http://www.cnet.com/news/scientists-create-alien-life-form-with-artificial-genetic-code/>