

# Can organisms evolve the ability to evolve?

## (Summary)

Natural selection does not select for traits that an organism might need for the future, but what the organism needs in its present environment. But a team of biologists started to wonder whether the ability to evolve quickly—which is seen in microbial species—really is selected for.

A team of biologists from the University of Pennsylvania and the University of Kentucky tackled this “highly controversial” topic by studying the bacteria *Borrelia burgdorferi*, the species that gives people Lyme disease.

Like all infectious microbes, *B. burgdorferi* microbes have proteins on their surfaces that immune systems learn to recognize and fight off. To combat immune systems, *B. burgdorferi* has in its arsenal sets of unused DNA, called “cassettes” that the microbe can activate to create proteins that the infectee’s immune system will fail to recognize.

Looking at 12 strains of *B. burgdorferi*, the scientists found evidence that “there’s strong selective pressure for the bacteria to develop a diverse collection of unused cassettes that would give them more varied surface proteins.” So it’s not natural selection ‘predicting the future’ after all—the strains of *B. burgdorferi* that have a diverse collection of DNA cassettes will survive immune system attacks, and those with a less varied set of cassettes will be killed off.

The team wrote that this trait is unlikely to appear in organisms such as animals, plants and fungi. The research was published in *PLOS Pathogens*.

Read the full, original story here: [Can Organisms Evolve The Ability To Evolve?](#)

## Additional Resources:

- [“Slow evolvers win in the end,”](#) Nature News