

Video: Ancient virus could explain how human memories are formed

The particulars surrounding how our memory works has baffled neuroscientists for decades. Turns out, it's a very sophisticated process involving several brain systems.

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Recently, an international collaboration of researchers from the University of Utah, the University of Copenhagen, and the MRC Laboratory of Molecular Biology in the UK, discovered something strange about a protein called Arc. This is essential to long-term memory formation. What they found was that it has [very similar properties to how a virus infects its host](#). Their findings were published in the journal [Cell](#).

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Researchers were intrigued by the idea that a protein could behave like a virus and serve as the platform through which neurons communicate. What Arc does is open a window through which memories can become solidified. Without Arc, the window cannot be opened.

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[Researcher Jason] Shepherd and colleagues now believe that 350-400 million years ago, the ancestor to the retrovirus, the retrotransposon, injected its genetic material into a land-based, four-limbed creature. This led to the development of the Arc protein, as it operates in our neurochemistry today. According to a recent University of Massachusetts study, the same process developed in fruit flies, independently, sometime later, around 150 million years ago.

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The study is changing how we view the evolutionary process. Rather than random mutations, it suggests that organisms may borrow from one another in order to develop.

Read full, original post: [Our memory comes from an ancient virus, neuroscientists say](#)