

New evolutionary research disproves living missing link theories

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Evolution is not a steady march towards ever more sophisticated beings and therefore the search for the living "missing links" is pointless, according to findings published by a team of researchers led by Dr. Hervé Philippe of the Université de Montréal's Department of Biochemistry.

"Aristotle was the first to classify organisms – from the least to the most sophisticated. Darwin's theory of evolution continued this idea, with the concept of a hierarchy of evolution. This way of thinking has led researchers and skeptics alike to look for less sophisticated ancestors in order to prove or disprove evolution," Philippe explained. "What we now know is that evolution does not happen in a single direction – when people talk about a missing link, they're generally excluding the possibility of more sophisticated ancestors."

The researchers compared the genomes of two kinds of marine worms with simple morphology – Xenoturbellida and Acoelomorpha – with those of other animals. They demonstrated that their previous position at the base of the bilateral symmetry animal group – that includes insects, mollusks and vertebrates – was inaccurate. "Instead, we determined that Xenoturbellida and Acoelomorpha are closely related to the complex deuterostomes, which is a major lineage containing sea urchins, humans and sharks," Philippe said. "I've put them in that order intentionally because it seems strange, which demonstrates our tendency to always put organisms in order of complexity." The findings mean that the worms had evolved from a more sophisticated ancestor through major

simplifications.

"We did already know that most parasitic organisms had evolved to be less sophisticated than their ancestors – they lost certain abilities that they no longer needed. The independently living Xenoturbellida and Acoelomorpha do not fall in this category," Philippe said. The research is a striking example for the important role of secondary simplification in [evolution](#) and is part of 20 year project that is nearing completion.

The findings were published in *Nature* on February 10, 2011.

Provided by University of Montreal

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