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Brain Evolution Triggers Increased Diversification of Electric Fishes

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Abstract

Communication can contribute to the evolution of biodiversity by promoting speciation and reinforcing reproductive isolation between existing species. The evolution of species-specific signals depends on the ability of individuals to detect signal variation, which in turn relies on the capability of the brain to process signal information. Here, we show that evolutionary change in a region of the brain devoted to the analysis of communication signals in mormyrid electric fishes improved detection of subtle signal variation and resulted in enhanced rates of signal evolution and species diversification. These results show that neural innovations can drive the diversification of signals and promote speciation.

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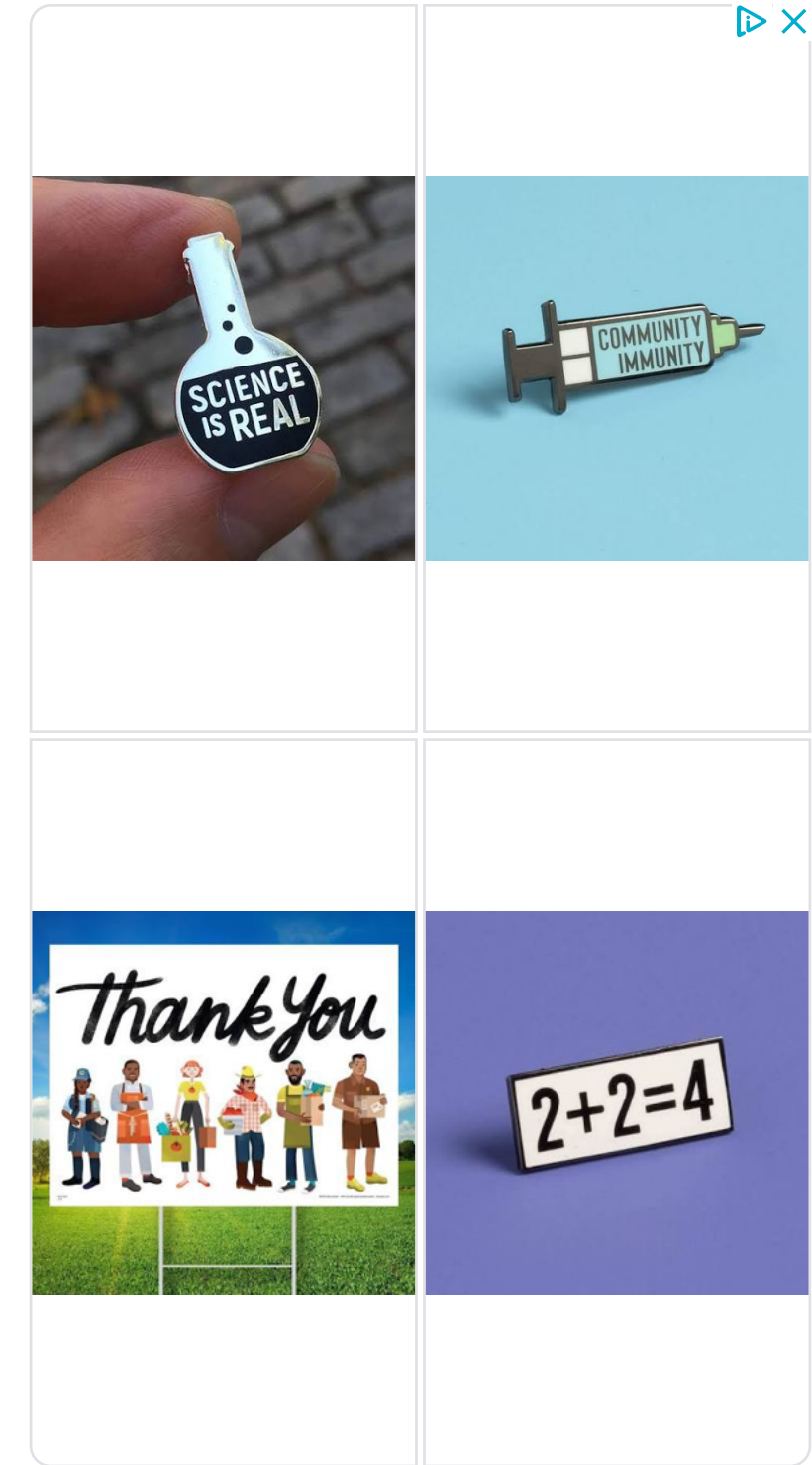
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