

Key brain gene shows evolution in humans

December 12 2005

Duke University researchers say they've discovered the first brain regulatory gene that shows clear evidence of evolution from lower primates to humans.

They said the evolution of humans might well have depended in part on hyperactivation of the gene, called prodynorphin, or PDYN, that plays critical roles in regulating perception, behavior and memory.

They reported that, compared with lower primates, humans possess a distinctive variant in a regulatory segment of the prodynorphin gene, which is a precursor molecule for a range of regulatory proteins called "neuropeptides." This variant increases the amount of prodynorphin produced in the brain.

While the researchers do not understand the physiological implications of the activated PDYN gene in humans, they said their finding offers an important and intriguing piece of a puzzle of the mechanism by which humans evolved from lower primates. They also said the discovery of the first evolutionarily selected gene is likely only the beginning of a new pathway of exploring how the pressure of natural selection influenced evolution of other genes.

The study appears in the December issue of the Public Library of Science.

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