

Letter to the Editor

Longevity Gene ?

An article by Deborah Grady and her colleagues published online in *The Journal of Neuroscience* (January 2, 2013) has aroused our belated interest. It was stated in that article that a derivative of a dopamine-receptor gene, the DRD4 7R allele, could contribute to longevity. This finding was based on genetic samples from 90-year-old and older participants in the University of California, Irvine-Brookhaven. Study who showed a 66 percent increase in the number of individuals carrying the variant relative to the control group aged between 7 and 45 years. Such a finding coincides with the fact that the variant gene is part of the dopamine system, which blunts dopamine signaling, thereby enhancing individuals' reactivity to their environment and facilitating the transmission of signals among neurons responsible for attention and motivation to pursue social, intellectual and physical activities. The finding also substantiates the commonly known phenomenon whereby the more a person is involved in social and physical activities, the more likely that person will age successfully and the more likely the advancement of neurodegenerative disease will be deterred.

With regard to this letter's ambitious title on a "longevity gene," of course at this point the existence of such a gene remains merely a fond wish awaiting disclosures from future scientific research on the aging process. However, knowledge about the potency of the dopamine-receptor gene variant already has stimulated our imagination about ideas for future scientific research, such as conducting genetic studies in populations possibly exposed to the herbicide paraquat versus those not exposed; in older age populations having Parkinson's disease versus elderly peers who enjoy good health; and in populations of smokers and non-smokers. We hope that the findings of such studies would reveal more about the effects of exposure of dopaminergic neurons in the brain to paraquat and the other aforementioned challenges.

Reference

1. Grady DL, Thanos PK, Corrada MM, et al. *DRD4* genotype predicts longevity in mouse and human. *J Neurosci* 2013;33:286-91.

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