



American College of Neuropsychopharmacology

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If you make impulsive choices you should blame your parents – it’s genetic.

“Delay discounting” is the tendency, given the choice, to take a smaller reward that is available immediately, instead of a larger reward that will be delivered in the future. According to a report presented today at the American College of Neuropsychopharmacology annual meeting in Hollywood, Florida, delay discounting is strongly influenced by our genetic makeup. That is, it is a trait that can be inherited. Identifying the “delay discounting” genes, and the proteins they code for, will be important for understanding the basis of a variety of psychiatric disorders, especially addictions and other disorders that involve impulsive decision-making.

In a study of 602 twins, Dr. Andrey Anokhin and his colleagues at Washington University School of Medicine found that delay discounting gradually improves as teens get older, such that 18 year-olds have a greater ability or tendency to wait for the larger delayed reward, as compared to younger teens. Apart from age, genes accounted for about half of the difference among individuals in their level of delay discounting. Many genes are likely to influence delay discounting; and some of Dr. Anokhin’s preliminary data suggest that these ‘impulsivity genes’ may include genes coding for enzymes that synthesize the neurotransmitter serotonin and receptors where serotonin binds in the brain.

While it is tantalizing to speculate that the associations between delay discounting and serotonin-related genes may ultimately point the way to new treatments for addictions and other disorders involving impulsive choice, Dr. Anokhin cautions that “it is very early to link this speculation to a clinical application.”

Ongoing studies by investigators across the country, including Drs. Abraham Palmer and James MacKillop, who also participated in today’s conference, involve analysis of DNA and questionnaire responses from as many as 25,000 human subjects in order to identify specific genes involved in delay discounting. These studies offer to further our understanding of a behavioral trait that can have profound effects on daily life and psychiatric well-being.

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ACNP, founded in 1961, is a professional organization of more than 1000 leading scientists, including four Nobel Laureates. The mission of ACNP is to further research and education in neuropsychopharmacology and related fields in the following ways: promoting the interaction of a broad range of scientific disciplines of brain and behavior in order to advance the understanding of prevention and treatment of disease of the nervous system including psychiatric, neurological, behavioral and addictive disorders; encouraging scientists to enter research careers in fields related to these disorders and their treatment; and ensuring the dissemination of relevant scientific advances.