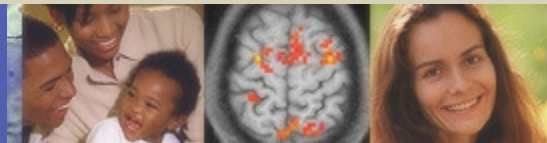




National Institute of Mental Health

Reducing the burden of mental illness and behavioral disorders through research on mind, brain, and behavior



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February 4, 2008

Gene Variants Protect Against Adult Depression Triggered by Childhood Stress

Finding Could One Day Help Identify People at Risk

Certain variations in a gene that helps regulate response to stress tend to protect adults who were abused in childhood from developing [depression](#), according to new research funded by the National Institute of Mental Health (NIMH), part of the National Institutes of Health. Adults who had been abused but didn't have the variations in the gene had twice the symptoms of moderate to severe depression, compared to those with the protective variations.

"People's biological variations set the stage for how they respond to different environmental factors, like stress, that can lead to depression," said NIMH Director Thomas R. Insel, M.D. "Knowing what those variations are eventually could help clinicians individualize care for their patients by predicting who may be at risk or suggesting more precise avenues for treatment."

Almost 15 million U.S. adults have major depression. The new report adds to evidence that a combination of gene variations and life experiences promote the disorder or protect people from it. Variations in many genes are thought to be involved, but few of them have been identified.

Results of the study were published in the February 4 issue of the *Archives of General Psychiatry*, by Kerry J. Ressler, M.D., Ph.D., of Emory University, Rebekah G. Bradley, Ph.D., of the Atlanta VA Medical Center, and others.

The study also supports previous evidence that a stress hormone, corticotropin-releasing hormone (CRH), plays a role in depression. The variations are in a gene that makes a receptor for the hormone. Receptors are proteins that act as binding sites, in or on cells, for chemical messengers that affect cell function. The receptor for CRH is called CRHR1.

CRH and its receptor are part of a larger hormone system that regulates the response to stress, in part by helping to regulate neurotransmission – the chemical messages through which brain cells communicate with each other. Extreme stress in childhood caused by factors such as abuse can hyperactivate the system, increasing risk of depression in adulthood.

"Our results suggest that genetic differences in CRH-mediated neurotransmission may change the developmental effects that childhood abuse can have on the stress hormone system – developmental effects that can raise the risk of depression in adults," said Ressler.

To conduct their research, scientists interviewed 422 adults, mostly African American, and tested their DNA. About one-third of them had the variations in the CRHR1 gene

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that appear to be somewhat protective if early-life stress has occurred. Of the people in the study who had a history of child abuse, those with certain variations had only about half the symptoms of moderate to severe depression as those who had more common variations in the same gene.

The finding was strengthened when the researchers repeated the study in 199 white adults and came up with similar results. In addition to racial differences, the two groups differed socioeconomically. The combined findings suggest that the gene variations are protective across the ethnic groups and socioeconomic levels.

Additional research funding from the National Institutes of Health was provided by the National Center for Research Resources and the National Institute on Drug Abuse. Emory University, the Emory and Grady Memorial Hospital General Clinical Research Center, and the Burroughs Wellcome Fund also contributed.

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The National Institute of Mental Health (NIMH) mission is to reduce the burden of mental and behavioral disorders through research on mind, brain, and behavior. More information is available at the [NIMH website](#).

The National Institutes of Health (NIH) — The Nation's Medical Research Agency — includes 27 Institutes and Centers and is a component of the U.S. Department of Health and Human Services. It is the primary federal agency for conducting and supporting basic, clinical and translational medical research, and it investigates the causes, treatments, and cures for both common and rare diseases. For more information about NIH and its programs, visit the [NIH website](#).

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