



PRESS RELEASE

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Impulsive Versus Controlled Men: Disinhibited Brains and Disinhibited Behavior

New York, November 3rd, 2011 -- Impulsive individuals tend to display aggressive behavior and have challenges ranging from drug and alcohol abuse, to problem gambling and difficult relationships. They are less able to adapt to different social situations. Impulsivity is also a common feature of psychiatric disorders. New research in *Biological Psychiatry* shows that people may react this way, in part, because they have lower levels of GABA (gamma-aminobutyric acid), the most important inhibitory neurotransmitter, in a specific part of their brain involved in regulating self-control.

“Advances in brain imaging techniques mean we are able to investigate different and specific areas of the human brain and see how they regulate people’s behavior,” explained Dr. Frederic Boy, who led the research. “What is clear is that the way people behave results from a complex interaction between a number of genetic, social, and environmental factors.”

The scientists studied males with no history of psychiatric disorders or substance dependence, who completed a questionnaire that helped assess different aspects of impulsivity, an important component of self-control. They underwent a specialized magnetic resonance spectroscopy brain scan, an imaging technique that allows measurement of the amount of GABA in small regions of the brain.

The team found that men with more GABA in their dorsolateral prefrontal cortex had lower scores in one aspect of impulsivity called the “feeling of urgency,” the tendency to act rashly in response to distress or other strong emotions and urges. Inversely, men with lower GABA tended to have higher urgency ratings. These findings add to evidence that “low GABA may be a risk factor for cortical dysfunction across a number of disorders, as depression and panic disorder are associated with low cortical GABA,” commented Dr. John Krystal, Editor of *Biological Psychiatry*, which published the research. These findings may also hold true in women, but women were not included in this study due to the possible effect of natural hormonal fluctuations.

The authors note that the next stages of research need to focus on further disentangling this relationship between GABA and the dorsolateral prefrontal cortex. “After that we can start evaluating whether there's any way in which we could treat a GABA deficit in this area. I suspect this could be

difficult, as GABA is present throughout the brain, and raising the level indiscriminately may have all sorts of unforeseen consequences," said Dr. Boy. "The other area which needs further research is whether GABA levels in the dorsolateral prefrontal cortex fluctuate over time, as this study is simply a snapshot of levels on one given day." This future research will be important to help further uncover the links between behavior and possible cortical dysfunction.

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Notes to Editors:

The article is "Dorsolateral Prefrontal γ -Aminobutyric Acid in Men Predicts Individual Differences in Rash Impulsivity" by Frederic Boy, C. John Evans, Richard A.E. Edden, Andrew D. Lawrence, Krish D. Singh, Masud Husain, and Petroc Sumner. Boy, Evans, Lawrence, Singh, and Sumner are affiliated with Cardiff University, Cardiff, United Kingdom. Husain is affiliated with University College London, London, United Kingdom. Edden is affiliated with The Johns Hopkins University and Kennedy Krieger Institute, both in Baltimore, Maryland. The article appears in *Biological Psychiatry*, Volume 70, Number 9 (November 1, 2011), published by Elsevier.

The authors' disclosures of financial and conflicts of interests are available in the article.

John H. Krystal, M.D., is Chairman of the Department of Psychiatry at the Yale University School of Medicine and a research psychiatrist at the VA Connecticut Healthcare System. His disclosures of financial and conflicts of interests are available [here](#).

Full text of the article mentioned above is available upon request. Contact Donna Santaromita at d.santaromita@elsevier.com to obtain a copy or to schedule an interview.

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The journal publishes novel results of original research which represent an important new lead or significant impact on the field, particularly those addressing genetic and environmental risk factors, neural circuitry and neurochemistry, and important new therapeutic approaches. Reviews and commentaries that focus on topics of current research and interest are also encouraged.

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