Two genes that may be associated with extremely violent behaviour have been identified in a study published online this week in *Molecular Psychiatry*.

The majority of violent crime is committed by a small group of antisocial, repeat offenders. Previous research has linked some genes to violent crime, including a variant of a gene called monoamine oxidase A (MAOA) that contributes to decreased recycling of the neurotransmitter dopamine. However, studies on MAOA's association with violence have produced conflicting results.

Jari Tiihonen and colleagues analysed the genes of 895 Finnish individuals found guilty of criminal behaviour, and classified them by crimes committed, ranging from non-violent offenses (such as drug or property crimes) to extremely violent offenses (10 or more severe violent crimes, consisting of...
varying degrees of homicide and battery). The authors found a possible link between violent offences and MAOA, with the strongest association in the extremely violent offending group. Through additional research, including a genome-wide association study, the authors identified a variant of cadherin 13 (CDH13) — a gene involved in neural connectivity that has been linked to impulse control — in extremely violent offenders. When compared to the control population, non-violent offenders were not observed to exhibit either variant to a greater degree, indicating that these genetic variants may be specific to extremely violent behaviour. The authors also suggest that the low dopamine recycling associated with the MAOA genotype may result in higher aggression levels during intoxication, increasing the risk of violent behaviour.

CONTACT
Jari Tiihonen (Karolinska Institute, Stockholm, Sweden)
Tel: +358 50 3418363; E-mail: jari.tiihonen@ki.se

Editorial contact at Molecular Psychiatry:
Julio Licinio (South Australian Health and Medical Research Institute, Adelaide, Australia)
Tel: +61 8 8116 4400; E-mail: julio.licinio@sahmri.com

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Press contacts:
For media inquiries relating to embargo policy for the journal Molecular Psychiatry:

Michael Stacey (Nature London)
Tel: +44 20 7843 4795; E-mail: michael.stacey@nature.com

Neda Afsarmanesh (Nature New York)
Tel: +1 212 726 9231; E-mail: n.afsarmanesh@us.nature.com

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