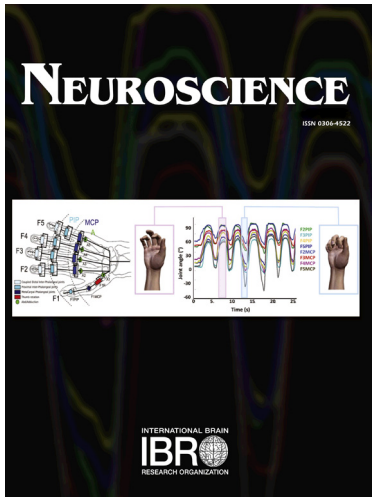
Accepted Manuscript



Adversity in early adolescence promotes an enduring anxious phenotype and increases serotonergic innervation of the infralimbic medial prefrontal cortex

Cindy S. Tao, Prateek Dhamija, Linda Booij, Janet L. Menard

PII: S0306-4522(17)30638-3
DOI: http://dx.doi.org/10.1016/j.neuroscience.2017.09.004
Reference: NSC 18011

To appear in: *Neuroscience*

Received Date: 21 January 2017
Accepted Date: 1 September 2017

Please cite this article as: C.S. Tao, P. Dhamija, L. Booij, J.L. Menard, Adversity in early adolescence promotes an enduring anxious phenotype and increases serotonergic innervation of the infralimbic medial prefrontal cortex, *Neuroscience* (2017), doi: http://dx.doi.org/10.1016/j.neuroscience.2017.09.004

Adversity in early adolescence promotes an enduring anxious phenotype and increases serotonergic innervation of the infralimbic medial prefrontal cortex

Cindy S. Tao[a], Prateek Dhamija[a], Linda Booij[a,c], Janet L. Menard[a,b,*]

[a]*Department of Psychology, Queen's University, Kingston, Ontario, K7L 3N6, Canada*

[b]*Centre for Neuroscience Studies, Queen's University, Kingston, Ontario, K7L 3N6, Canada*

[c]*Department of Psychology, Concordia University, Montreal, Quebec, H4B 1R6*

*Corresponding author at: Department of Psychology, Queen's University, Kingston, Ontario, K7L 3N6, Canada. Tel: +1 613 533 3099; fax: +1 613 533 2499.

Email address: menard@queensu.ca (J. L. Menard)

Abstract

Stress during early development produces lasting effects on psychopathological outcomes. We analyzed the impact of prior intermittent, physical stress (IPS) during early adolescence (PD 22-33) on anxiety-like behaviour of female rats in adulthood. After behavioural testing, we used immunohistochemistry for the 5-HT transporter (SERT) to evaluate 5-HT innervation profiles in the medial prefrontal cortex (mPFC) and ventral hippocampus (VH). Administration of IPS (i.e., water immersion, elevated platform, foot shock) in early adolescence increased rats' anxiety-like behaviour in the elevated plus-maze but had no effects in the shock-probe burying test. In the social interaction test, IPS decreased social interaction, and this effect was driven by selective decreases in the frequency of playfighting with no evident changes in contact and investigative behaviours. Selective stress-induced increases in the density of SERT-*ir* positive fibres were found in the infralimbic (IL) subregion of the mPFC, but not in the cingulate or prelimbic (PL) subregions. IPS in early adolescence did not affect 5-HT innervation profiles in any sub-fields of the VH. Our findings