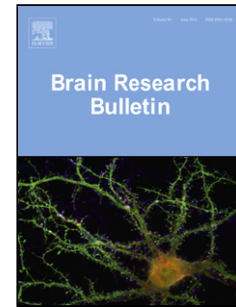


## Accepted Manuscript

Title: Rosmarinic acid reverses the deleterious effects of repetitive stress and tat protein

Authors: Khayelihle B. Makhathini, Musa V. Mabandla, William M.U. Daniels



PII: S0166-4328(17)31814-4  
DOI: <https://doi.org/10.1016/j.bbr.2018.07.010>  
Reference: BBR 11503

To appear in: *Behavioural Brain Research*

Received date: 7-11-2017  
Revised date: 29-6-2018  
Accepted date: 17-7-2018

Please cite this article as: Makhathini KB, Mabandla MV, Daniels WMU, Rosmarinic acid reverses the deleterious effects of repetitive stress and tat protein, *Behavioural Brain Research* (2018), <https://doi.org/10.1016/j.bbr.2018.07.010>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

**Rosmarinic acid reverses the deleterious effects of repetitive stress and tat protein****Khayelihle B Makhathini<sup>1\*</sup>, Musa V Mabandla<sup>1</sup> and William MU Daniels<sup>2</sup>**

<sup>1</sup>*Department of Human Physiology, College of Health Sciences, University of KwaZulu- Natal, Durban, South Africa*

<sup>2</sup>*School of Physiology, University of the Witwatersrand, Johannesburg, South Africa*

**Corresponding author:**

Khayelihle B Makhathini, Department of Human Physiology, College of Health Sciences, University of KwaZulu-Natal, University Drive, Westville, Durban, 4000, South Africa.  
Makhathini.kb@gmail.com

**Highlights**

- (1) The rosmarinic acid attenuated anxiety-like behaviour induced by tat and stress
- (2) The rosmarinic acid has anxiolytic potential that produce the ability to neutralise stress-induced alterations to the HPA axis and BDNF
- (3) The rosmarinic acid is neuroprotective with respect to tat-mediated toxicity

**Abstract**

Human immunodeficiency virus type 1 (HIV) has infected more than 40 million people worldwide and is associated with central nervous system (CNS) disruption in at least 30% of these persons. The use of highly active antiretroviral therapy (HAART) has significantly reduced the systemic immunopathology associated with HIV, but the occurrence of neurological disorders continues to be reported in notable numbers. The present study evaluated the potential of rosmarinic acid to reverse the detrimental effects of an intracerebral injection of the viral protein tat. Control and tat-injected rats were also subjected to repetitive restraint stress (RRS) for 28 days, 6 hours per day, to investigate whether subsequent stress exposure would worsen the effects of tat. 14 days after the initiation of RRS, animals were treated with rosmarinic acid (10 mg/kg given intraperitoneally) daily until the end of the stress exposure period. We assessed locomotor activity and anxiety-like behavioral changes. We also measured plasma corticosterone levels and quantified the expression of mineralocorticoid receptors (MR), glucocorticoid receptors (GR) and brain-derived neurotrophic factor (BDNF) in the hippocampus. Rosmarinic acid attenuated anxiety-like behavior induced by tat and stress, reduced plasma corticosterone levels and increased the expression of hippocampal GR, MR and BDNF when compared to controls. These results suggest that rosmarinic acid may reverse

Download English Version:

<https://daneshyari.com/en/article/8837634>

Download Persian Version:

<https://daneshyari.com/article/8837634>

[Daneshyari.com](https://daneshyari.com)