

The contribution of CNS inflammation and Glycogen Synthase Kinase-3 (GSK-3)-cascades on adverse memory learning on mouse models of emotional stress

Citation for published version (APA):

Pavlov, D. (2020). *The contribution of CNS inflammation and Glycogen Synthase Kinase-3 (GSK-3)-cascades on adverse memory learning on mouse models of emotional stress*. [Doctoral Thesis, Maastricht University]. Maastricht University. <https://doi.org/10.26481/dis.20200305dp>

Document status and date:

Published: 01/01/2020

DOI:

[10.26481/dis.20200305dp](https://doi.org/10.26481/dis.20200305dp)

Document Version:

Publisher's PDF, also known as Version of record

Please check the document version of this publication:

- A submitted manuscript is the version of the article upon submission and before peer-review. There can be important differences between the submitted version and the official published version of record. People interested in the research are advised to contact the author for the final version of the publication, or visit the DOI to the publisher's website.
- The final author version and the galley proof are versions of the publication after peer review.
- The final published version features the final layout of the paper including the volume, issue and page numbers.

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Download date: 26 Apr. 2024

POSTULATIONS

1. In the model of ultrasound-induced “emotional stress”, brain over-expression of GSK-3 isoforms is accompanied by markers of microglia activation and oxidative stress (*this thesis*);
2. Expression of GSK-3 α and GSK-3 β is differentially altered both in the model of ultrasound stress and in the model of enhanced learning of adverse context (*this thesis*);
3. In the examined models, GSK-3 β overexpression correlates with depressive-like behavior, cytokine production, and oxidative stress markers, suggesting overlapping molecular mechanisms underlying the depressive syndrome (*this thesis*);
4. Brain upregulation of the GSK-3 cascade in a mouse model of enhanced learning of adverse memories is associated with increased production of pro-inflammatory cytokines, c-Fos and markers of oxidative stress (*this thesis*);
5. These changes are prevented by a pre-treatment with antidepressant compounds, as well as anti-oxidant vitamin B1 (thiamine) that is useful for fundamental and pre-clinical studies (*valorization*);
6. Contextual learning occurs in the presence of background stimuli;

7. Stress-linked inflammation is a coherent mechanism to enhance animal survival;
8. The majority of currently used antidepressants are discovered around half a century ago;
9. "Not everything that is faced can be changed, but nothing can be changed until it is faced" (*James Baldwin*)
10. "I take vitamins" (*Hillary Clinton*)
11. "To attain any assured knowledge about the soul is one of the most difficult things in the world" (*Aristotle*)