

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

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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*)