# LATE-LIFE DEPRESSION IS ABLE TO ACCELERATE LEARNING AND MEMORY IMPAIRMENT IN A MOUSE MODEL OF ALZHEIMER´S DISEASE

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Clinical studies suggest that depression could be considered an important risk factor for the future development of cognitive impairment and Alzheimer's disease (AD). In fact, there is a strong association between late-life depression and AD. The age of AD onset has been shown to be accelerated in patients with mild cognitive impairment (MCI) with a history of depression, and women appear to be particularly more vulnerable to this condition. In addition, individuals with MCI who present depressive symptoms have an elevated burden of amyloid-beta (Aβ), the main toxic protein associated with Alzheimer's pathology, and a higher risk of developing AD compared to non-depressed MCI patients. Although it has been described that some transgenic models of AD can develop signs similar to depression in advanced stages, the induction of Alzheimer's pathology due to a depressive process has not been studied under experimental conditions to emulate late-life depression as a risk factor for AD. The objective of this study is to determine, by inducing unpredictable mild chronic stress (CUMS) in tau transgenic P301S mice, whether depression is a cause, rather than a consequence, of AD development. The results of our study indicate that the induction of CUMS in transgenic animals induces phenotypic changes related to a depressive state. Behavioral and histological studies suggest that depression-like induction can worse AD pathology. The findings generated in this project could provide evidence of depression as a risk factor for AD.