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Jesus Lopez B.S.

Co-author(s): -

Advisor(s): Ivan Hernandez Ph.D.

## Vascular cognitive impairment (VCI) decreases cognitive flexibility in a murine model of Alzheimer's disease

Vascular cognitive impairment (VCI) and Alzheimer's disease (AD) are neurological disorders characterized by progressive neuronal death and cognitive decline. Previously it has been hypothesized that VCI and AD may have a relationship where VCI can lead to AD; thus, the co-occurrence of vascular disease and AD is the rule (not the exception) in the context of cognitive impairment and dementia, conceptualizing VCI as an important component of AD. Therefore, we prepare a murine model using the partial occlusion of the left common carotid artery (LCCA) as a VCI model on transgenic-AD (APP/PS1) mice compared with WT animals. These mice were subjected to cognition tasks: novel object recognition (NOR) on days 33-36 and active place avoidance (APA) on days 37 and 38, and its conflict (APAc) on day 39 after the surgery. We found a trend but no statistical difference in the NOR task associated with phenotype or surgery. Whereas APA shows significant inter-trial and intra-trial differences associated with phenotype, the APAc task shows a statistically significant synergistic effect of phenotype and surgery, suggesting that hypoperfusion exacerbates cognitive problems in APP/PS1 mice. Since a decrease in performance in the APAc task has been associated with decreased cognitive flexibility and neurogenesis impairment in the dentate gyrus, we will now be comparing biogenesis of ribosomes and neurogenesis across the groups. For that, we will perform immunohistochemistry and confocal microscopy to determine whether we find differences amongst groups.