

# SIMVASTATIN INCREASES nNOS PROTEIN EXPRESSION IN HIPPOCAMPUS AND CORTEX OF APP2576 TRANSGENIC MICE

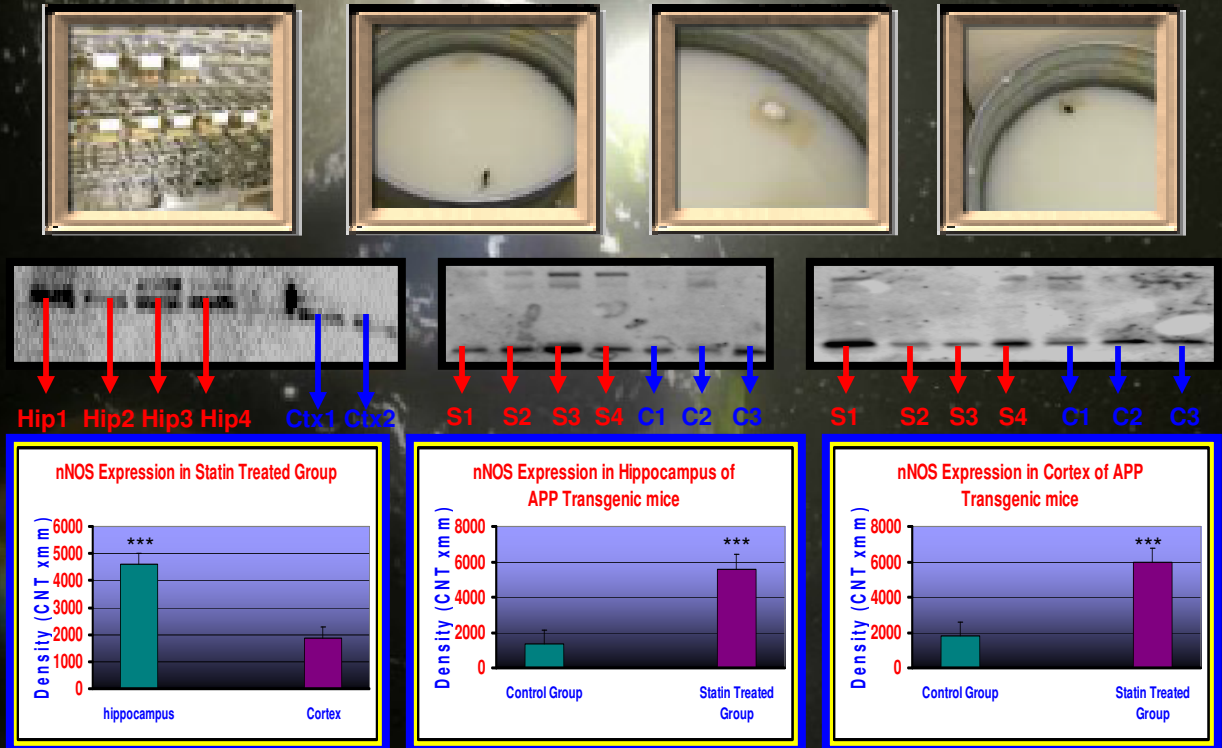
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## INTRODUCTION

Previous results obtained in our lab indicate that statin statistically improves the spatial reference memory in APP 2576 transgenic mice (carrying the gene for beta amyloid protein) and wild type (control) as tested by the Morris Water maze. The objective of the present study is to identify the neurochemical basis of the beneficial effects of statin on spatial reference memory. Animals were sacrificed after spatial memory testing and their brains immediately removed and dissected. Neuronal nitric oxide synthase (nNOS) levels were determined by Western Blot analysis in both the hippocampus and cortex. Results obtained indicate that nNOS levels were significantly higher in the hippocampus and cortex of statin treated groups as compared to controls ( $p < 0.05$ ). The levels of nNOS were also statistically higher in the hippocampus of the statin treated group when compared to those in the cortex. These results clearly indicate that simvastatin significantly increases nNOS levels in the hippocampus and cortex of treated mice. These findings suggest that increases in brain nNOS levels may play an important role in statin-induced improvement of spatial reference memory.

## MATERIALS AND METHODS

- Transgenic mice APP 2576 (n=24) were divided into 4 groups: wild type receiving statin (10mg/kg ip for 7 days), wild type receiving saline, homozygous type receiving statin (10mg/kg ip for 7 days) and homozygous receiving saline.
- Animals were sacrificed after spatial memory testing and their brains immediately removed and dissected.
- Neuronal nitric oxide synthase (nNOS) levels were determined by Western Blot analysis in both the hippocampus and cortex



## CONCLUSION

- Neuronal nitric oxide synthase (nNOS) was statistically higher in the hippocampus of the statin treated group when compared to those in the cortex.
- (nNOS) was statistically increased in both the hippocampus and cortex of statin treated group compared to control.
- Statin role in increasing (nNOS) may in part explains the beneficial effects of the drug on the memory of the Alzheimer's model mice.
- Statin could be a new approach to manage the devastating memory deficit associated with Alzheimer's disease