

Abstract View**CHANGES IN MGLUR5 IMMUNOREACTIVITY IN CNS OF TRANSGENIC MICE OVEREXPRESSING ALPHA-SYNUCLEIN**

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Glutamatergic system components are well positioned within the CNS to play important roles in the pathogenesis of neurodegenerative disorders. Potential neuroprotective effects of mGluR5 antagonism in Parkinson's disease (PD) have received interest as a therapeutic target for PD-associated motor dysfunction via restoration of dopamine-glutamatergic homeostasis. Transgenic mice overexpressing wild-type human alpha-synuclein (α -syn) exhibit α -syn immunopositive inclusions and neurites in multiple regions of the brain including the hippocampus, cerebellum and cortex. We are using multi-scale imaging methods together with database tools to characterize this animal model, and explore changes in molecular constituents that may be associated with increased α -syn immunolabeling in specific brain regions. We conducted large scale mapping studies of mGluR5 immunoreactivity in regions of the brain previously shown to contain α -syn immunopositive inclusions. Overall increased mGluR5 immunoreactivity was observed in the CNS of α -syn transgenic mice. Moreover, focal regions of mGluR5 immunoreactivity are laminar in distribution and correspond to α -syn immunolabeling patterns in hippocampal and cortical regions. Studies are currently underway to examine mGluR5 in additional brain regions. Our findings highlight the advantages of using more broad characterization of brain regions affected by a given manipulation rather than focusing on selected brain regions known to be involved in the disease process. Furthermore, these data will be used to explore the role of mGluR5 receptors in the CNS regions vulnerable to formation of protein aggregations in this and other transgenic mouse models of PD.

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