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Novel implications of lingo-1 signaling in the post-mortem schizophrenia brain

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Abstract

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Presentation Abstract

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Friday, May 09, 2014, 5:00 PM - 6:30 PM

Presentation: 654 - **Novel Implications of Lingo-1 Signaling in the Post-Mortem Schizophrenia Brain**

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Abstract: **Background**: Myelination and neurite outgrowth are both processes occurring during brain development that have been previously implicated in the pathophysiology of schizophrenia. Leucine-rich repeat and immunoglobulin domain-containing protein, Lingo-1, is a potent negative regulator of both axonal myelination and neurite extension. The Nogo receptor (NgR)/TNF receptor orphan Y (TROY) and/or p75 complex, With No Lysine (K) (WNK1) and Myelin transcription factor 1 (Myt1), have been reported as co-receptors or co-factors in Lingo-1 signaling in the brain. However the roles of these proteins have never been explored in the pathogenesis of schizophrenia.
Methods: We examined the relative protein expression levels of Lingo-1, NgR, TROY, p75, WNK1, and Myt1 within the post-mortem dorsolateral prefrontal cortex (DLPFC) and hippocampus (both CA1 and CA3 regions) in a matched case-control population for schizophrenia (n=37 and n=20 for DLPFC and hippocampus respectively).
Results: There were significant increases in Lingo-1 (20%; $p<0.001$) and Myt1 (14.5%; $p=0.029$) levels in the DLPFC in schizophrenia compared to controls. There were also increases in both TROY (18%; $p=0.002$) and WNK1 (30%; $p=0.021$) levels in the CA1 in schizophrenia compared to controls. Finally there was an increase in the NgR levels (25%; $p=0.019$) in the CA3 of schizophrenia subjects compared to the controls. In contrast, a significant reduction in NgR levels (18%, $p<0.001$) was found in the DLPFC in schizophrenia.
Conclusions: This is the first time that a study has shown the involvement of altered Lingo-1 signaling pathways in schizophrenia. This novel finding may present a direct application for future schizophrenia therapy.

Disclosures: **J.L. Andrews:** None.