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

Jessica Andrews

*University of Wollongong*, ja393@uowmail.edu.au

Kelly Newell

*University of Wollongong*, knewell@uow.edu.au

Xu-Feng Huang

*University of Wollongong*, xhuang@uow.edu.au

Francesca Fernandez-Enright

*University of Wollongong*, fernande@uow.edu.au

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

### Abstract

Abstract of a poster that was presented at the 69th Annual Scientific Convention and Meeting of the Society of Biological Psychiatry, 8-10 May, 2014, New York city, NY.

### Keywords

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### Disciplines

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## Presentation Abstract

Session: 105-Poster Session 2 - Friday

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

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

Location: Americas Hall I - 3rd Floor

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

Category: Cellular and molecular neurobiology

Keywords: Lingo-1 Signaling; Post-Mortem Human Tissue; DLPFC; Hippocampus; Schizophrenia

Author(s): **Jessica L. Andrews**<sup>1,2</sup>, Kelly A. Newell<sup>1,2</sup>, Xu-Feng Huang<sup>1,2</sup>, Francesca Fernandez-Enright<sup>1,2</sup>

<sup>1</sup>Illawarra Health and Medical Research Institute, Faculty of Science, Medicine and Health, University of Wollongong, NSW, Australia, <sup>2</sup>Centre for Translational Neuroscience, Schizophrenia Research Institute, Sydney, NSW, Australia

**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.