Dec 20, 2013

Dr Jane Hannon

Associate Editor

JoVE

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Dear Dr Jane Hannon:

Many thanks for your invitation for submitting our work for your consideration. Our manuscript is entitled: “Real-time Imaging of Axonal Transport of Quantum dot-labeled BDNF in Primary Neurons”. In the manuscript, we describe a novel method for producing biologically active brain derived neurotrophic factor (BDNF) that is homogeneously labeled with a single biotin moiety (mBtBDNF). By conjugating to fluorescent nanocrystals (Quantum dots), mBtBDNF can be used for realtime tracking axonal transport of BDNF at the single molecule level in primary neurons that are cultured in microfluidic chambers.

Axonal trafficking of BDNF is critical for neuronal function and maintenance in the central nervous system. These technologies offer an excellent in vitro model and allow the characterization of the highly dynamic process of axonal transport of BDNF with ultra-spatial and temporal sensitivities. We believe that these technologies can be used to study and generate novel insights into the molecular and cellular events that lead to neurodegenerative disorders such as Alzheimer’s disease, Huntington’s disease.

Thank you again for your consideration. We look forward to hearing from you!

Sincerely,

Chengbiao Wu, PhD

UCSD Neurosciences