

2nd International Conference on **Alzheimer's Disease and Dementia** September 23-25, 2014 Valencia Convention Centre, Spain

The role of β -arrestin 2 in TNF- α stimulated inflammatory response in SH-SY5Y neuroblastoma

Siew-Ying Wong, Jasinda H Q Lee, Peter T H Wong and Mitchell K P Lai
National University of Singapore, Singapore

β -arrestins are adaptor proteins that complexes with G protein-coupled receptors (GPCRs) upon agonist binding and phosphorylation of receptor by G protein-coupled receptor kinases (GRKs). This subsequently leads to endocytosis of GPCRs via clathrin-coated pit and termination of GPCR signaling. Other than GPCRs sequestration, its role in transducing signaling has also been described. Moreover, β -arrestins has recently been suggested to involve in inflammation regulation. Being highly expressed in central nervous system, it would likely play an important role in the brain. In our previous work on brain postmortem tissue, we found that β -arrestin 2 but not 1 was downregulated in Alzheimer's patients. As neuroinflammation plays a major role in the pathology of Alzheimer's disease, we generated SH-SY5Y neuroblastomas with β -arrestin 2 knockdown to investigate its role in mediating neuroinflammation. SH-SY5Y were stimulated with tumor necrosis factor- α (TNF- α) and mRNA level of TNF- α , IL-8, CXCL10, and CXCL12 were measured using real-time PCR. Results revealed that all cytokines levels measured were significantly higher in SH-SY5Y β -arrestin 2 knockdown compared to wild types and empty vector control, indicating anti-neuroinflammatory role of β -arrestin 2. More work need to be done to elucidate the role of β -arrestin in regulating neuro-inflammation.

Biography

Siew-Ying Wong is a 4th year PhD student from National University of Singapore and her study is supported by NUS research scholarship. Having a strong interest in neuroinflammation and its implications in neurodegenerative diseases, she focused her research on neuroinflammation therapeutics. She also attended ISN-APSN Neuroscience School in 2012 and 2013 to further broaden her knowledge.

littleharmony2004@gmail.com