

TEMS TLL External Monthly Seminar

22 SEP 25 MONDAY 3PM
TLL AUDITORIUM LEVEL 1

Pathological protein transmission in neurodegenerative diseases

Pathological protein transmission is a common feature, and closely correlated with many neurodegenerative diseases, such as tau in Alzheimer's disease (AD) and α -synuclein in Parkinson's disease (PD). Yet the underlying mechanisms remain largely unknown. We have been developing cellular and animal models, and employing interdisciplinary methodologies to study the mechanisms underlying such mysterious process. In this talk, I will introduce our recent studies about how disease-related protein are initially formed as the pathogenic seeds, and what the mechanisms regulate the transmission of pathogenic seeds across neurons in AD and PD models.

Recent Publications:

1. Han, Y.#; Li, J.#; Xia, W.#; Li, Q.; Sun, Z.; Zeng, W.; Hu, Y.; Luk, K.C.; Liu, C.*; Xiang, S.*; He, Z.*, Fibril fuzzy coat is important for α -synuclein pathological transmission activity. *Neuron* 2025. PMID: 40215967.
2. Zhao X.#; Zeng W.#; Xu H.#; Sun Z.; Hu Y.; Peng B.; McBride, J.D.; Duan J.; Zhang B.; Kim S.J.; Zoll B.; Saito T.; Sasaguri H.; Saito T.C.; Ballatore C.; Yao H.; Wang Z.; Trojanowski J.Q.; Brunden K.R.; Lee V.M.Y.*; He Z.*, A microtubule stabilizer ameliorates protein pathogenesis and neurodegeneration in mouse models of repetitive traumatic brain injury. *Science Translational Medicine* 2023. PMID: 37703352.
3. He, Z.*; McBride, J. D.; Xu, H.; Changoikar, L.; Kim, S. J.; Zhang, B.; Narasimhan, S.; Gibbons, G. S.; Guo, J. L.; Kozak, M.; Schellenberg, G. D.; Trojanowski, J. Q.; Lee, V. M.*, Transmission of tauopathy strains is independent of their isoform composition. *Nature Communications* 2020. PMID: 31911587.

Speaker



Dr. He earned his Ph.D. in Neurobiology from Institute of Neuroscience, Chinese Academy of Sciences (CAS) (2012) and conducted his postdoctoral research with Dr Virginia Lee at University of Pennsylvania (2013-2019). Since 2019, Dr. He has been leading an independent research group at Interdisciplinary Research Center on Biology and Chemistry, CAS to pursue his continuous interest in neurodegenerative disease research.

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