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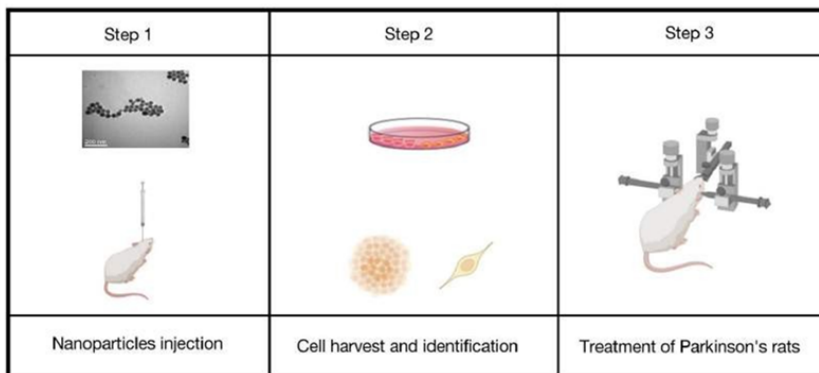
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Autologous Neural Stem Cell (NSCs) harvest: Precision cell therapies for Neurodegeneration in an animal model of Parkinson’s disease

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Parkinson's disease (PD) is a movement disorder that affects middle-aged and elderly people and poses a serious health risk due to its high prevalence and disability rate. The treatment of PD and the improvement of motor function and quality of life in PD patients have become a focus of attention. In this study, a PD rat model was established using 6-hydroxydopamine (6-OHDA), and apomorphine hydrochloride was injected at 2 weeks, 3 months and 6 months to induce a rotation test. As well as an open field, rotarod and stepping tests to detect behavioral differences between PD rats and normal rats. It was verified by histological and other experiments that show our PD model was successful. Also, for better autologous neural stem cells (NSCs) transplantation, we evaluated the pharmacological toxicity of the nanomaterial ferric tetroxide. Various indicators of functional observation battery (FOB) were conducted in rats at 2 days, 2 weeks, 3 months and 6 months time points, and the results showed that the method of extracting autologous stem cells using nanoparticles as a carrier is safe and effective. Based on this, the study also performed a series of characterizations of stemness of NSCs extracted by this method in preparation for subsequent transplantation of NSCs for the treatment of PD in rats



Recent Publication

1. Lin, K., Zhang, Z., Zhang, Z., Zhu, P., Jiang, X., Wang, Y., ... & Zhang, S. (2022). Oleonic Acid Alleviates Cerebral Ischemia/Reperfusion Injury via Regulation of theGSK-3β/HO-1 Signaling Pathway. *Pharmaceuticals*, 15(1), 1.
2. Lin, K., Sze, S. C. W., Liu, B., Zhang, Z., Zhang, Z., Zhu, P., ... & Zhang, S. (2021). 20 (S)-protopanaxadiol and oleonic acid ameliorate cognitive deficits inAPP/PS1 transgenic mice by enhancing hippocampal neurogenesis. *Journal of ginseng research*, 45(2), 325-333.

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3. Zhang, S., Jiang, X., Wang, Y., Lin, K., Zhang, Z., Zhang, Z., ... & Yung, K. K. L. (2021). Protective effect of An-Gong-Niu-Huang wan pre-treatment against experimental cerebral ischemia injury via regulating GSK-3 β /HO-1 pathway. *Frontiers in pharmacology*, 12.

Biography

Zhang Zhang received the B.S. degree in clinical medicine from Hubei University of Arts and Science, Xiangyang, China in 2017 and the M.S. degree in environmental and public health management from Hong Kong Baptist University, HongKong, China in 2018. She is currently working toward the Ph.D. degree in neuroscience with the Department of biology, Hong Kong Baptist University, Hong Kong, China. Her research interests include neurodegenerative disease and neurotoxicity.

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