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Area of Expertise

My research interests focus on developing clinically relevant approaches that would help restore brain functions in cerebral ischemia, Alzheimer's disease, and traumatic brain injury. During the time I worked at Buck Institute, I dealt with a wide range of subjects related to cerebral ischemia. These included the effects of ablating neuronal stem cells, of sectioning the corpus callosum, and of superimposing a contralateral cerebral lesion on stroke outcome. At UNTHSC, I have been focusing on investigating the therapeutic effects on cerebral ischemia of a novel class of compounds, positive allosteric modulators (PAMs) of $\alpha 7$ nicotinic acetylcholine receptors ($\alpha 7$ -nAChRs). My findings that injury-elevated endogenous choline enhanced by $\alpha 7$ -PAMs augments brain resistance to ischemia thus holds a significant therapeutic promise and can be combined with long-term bioengineering approaches utilizing stem cells and various rehabilitation programs. These intriguing and potentially clinically-relevant results provide an important conceptual support and guidance to developing novel therapeutic interventions against cerebral ischemia.

Qualifications

MD in Clinical Medicine, Zhejiang University
PhD in Neurology, Zhejiang University

Recent Publications

Duration of isoflurane-based surgical anesthesia determines severity of brain injury and neurological deficits after a transient focal ischemia in young adult rats

Gaidhani, N., Sun, F., Schreihofner, D. & Uteshev, V. V., Sep 2017, In: Brain Research Bulletin. 134, p. 168-176 9 p.

Boosting Endogenous Resistance of Brain to Ischemia

Sun, F., Johnson, S. R., Jin, K. & Uteshev, V. V., 1 Apr 2017, In: Molecular Neurobiology. 54, 3, p. 2045-2059 15 p.

Combining injectable plasma scaffold with mesenchymal stem/stromal cells for repairing infarct cavity after ischemic stroke

Zhang, H., Sun, F., Wang, J., Xie, L., Pan, M., Shao, B., Yang, G. Y., Yang, S. H., ZhuGe, Q. & Jin, K., 2017, In: Aging and Disease. 8, 2, p. 203-214 12 p.

Pgrmc1/BDNF signaling plays a critical role in mediating glia-neuron cross talk

Sun, F., Nguyen, T., Jin, X., Huang, R., Chen, Z., Cunningham, R. L., Singh, M. & Su, C., May 2016, In: Endocrinology. 157, 5, p. 2067-2079 13 p.

ERK5/KLF4 signaling as a common mediator of the neuroprotective effects of both nerve growth factor and hydrogen peroxide preconditioning

Su, C., Sun, F., Cunningham, R. L., Rybalchenko, N. & Singh, M., Aug 2014, In: Age. 36, 4, 9685.

MTOR Signaling inhibition modulates macrophage/microglia-mediated neuroinflammation and secondary injury via regulatory T cells after focal ischemia

Xie, L., Sun, F., Wang, J., Mao, X. O., Xie, L., Yang, S. H., Su, D. M., Simpkins, J. W., Greenberg, D. A. & Jin, K., 15 Jun 2014, In: Journal of Immunology. 192, 12, p. 6009-6019 11 p.

Involvement of p38 MAPK in reactive astrogliosis induced by ischemic stroke

Roy Choudhury, G., Ryou, M. G., Poteet, E., Wen, Y., He, R., Sun, F., Yuan, F., Jin, K. & Yang, S. H., 10 Mar 2014, In: Brain Research. 1551, p. 45-58 14 p.

Glial scar formation occurs in the human brain after ischemic stroke

Huang, L., Wu, Z. B., ZhuGe, Q., Zheng, W. M., Shao, B., Wang, B., Sun, F. & Jin, K., 11 Feb 2014, In: International Journal of Medical Sciences. 11, 4, p. 344-348 5 p.

Notch1 signaling modulates neuronal progenitor activity in the subventricular zone in response to aging and focal ischemia

Sun, F., Mao, X., Xie, L., Ding, M., Shao, B. & Jin, K., Dec 2013, In: Aging cell. 12, 6, p. 978-987 10 p.

A Type-II Positive Allosteric Modulator of $\alpha 7$ nAChRs Reduces Brain Injury and Improves Neurological Function after Focal Cerebral Ischemia in Rats

Sun, F., Jin, K. & Uteshev, V. V., 9 Aug 2013, In: PLoS ONE. 8, 8, e73581.