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### Research Interest:

My primary research focus is on neuroprotection in retinal and cerebral ischemic injury. We aim to develop and use animal models for understanding the underlying mechanisms of retinal and cerebral ischemic injury as well as providing a platform for screening of various pharmacological and natural agents, with a long-term goal of developing new therapeutic targets and novel neuroprotective agents of clinical efficacy in the treatment of ischemic retinopathy and cerebral ischemia.

The current research focus includes:

1. Manipulation of the mouse genome as animal models for human diseases.
2. Gene therapy in eye diseases including diabetic and ischemic retinopathy.
3. Pathogenesis of stroke using various transgenic and knockout mouse models.

### Selected Publications

1. Lo ACY, Chen AYS, Hung VKL, Yaw LP, Fung MKL, Ho MCY, Tsang MCS, Chung SSM, and Chung SK: Endothelin-1 over-expression leads to further water accumulation and brain edema after middle cerebral artery occlusion via aquaporin 4 expression in astrocytic end-feet. *J Cereb Blood Flow Metab* 25:998-1011, 2005.
2. Cheung AKH, Fung MKL, Lo ACY, Lam TTL, So KF, Chung SSM, and Chung SK: Aldose reductase deficiency prevents diabetes-induced blood retinal barrier breakdown, apoptosis and glial reactivation in the retina of *db/db* mice. *Diabetes* 54:3119-25, 2005.
3. Tsang MCS, Lo ACY, Chan TSK, Chung SSM, and Chung SK: Expression of a neuropeptide, endothelin-1, in the pons and medulla of prenatal and perinatal mouse brains. *Int J Neurosci* 115:1485-1501, 2005.
4. Lo ACY, Fung MKL, Au CL, Chan TSK, Sauer B, Chung SSM, and Chung SK: Transgenic mice over-expressing endothelin-1 in testis transactivated by a Cre/loxP system showed decreased testicular capillary blood flow. *Transgenic Res* 13:119-134, 2004.
5. Leung JWC, Ho MCY, Lo ACY, Chung SSM, and SK Chung: Endothelial cell-specific over-expression of endothelin-1 leads to more severe cerebral damage following transient middle cerebral artery occlusion. *J Cardiovasc Pharmacol* 44 (Suppl 1):S293-300, 2004.

6. Lam BYH, Lo ACY, Sun X, Luo HW, Chung SK, and Sucher NJ: Neuroprotective effects of tanshinones in transient focal cerebral ischemia in mice. *Phytomedicine* 10:286-2901, 2003.
7. Ho MCY, Lo ACY, Kurihara H, Yu ACH, Chung SSM, and Chung SK: Endothelin-1 protects astrocytes from hypoxic/ischemic injury. *FASEB J* 15: 618-626, 2001.
8. Tsang MCS, Lo ACY, Cheung PT, Chung SSM, and Chung SK: Perinatal hypoxia/ischemia induced endothelin-1 mRNA in astrocyte-like and endothelial cells. *NeuroReport* 12: 2265-2270, 2001.
9. Xu H, Sweeney D, Wang R, Thinakaran G, Lo ACY, Sisodia SS, Greengard P, and Gandy S: Generation of Alzheimer  $\beta$ -amyloid protein in *trans*-Golgi network in the absence of vesicle formation. *Proc Natl Acad Sci USA*, 94: 3748-3752, 1997.
10. Marquez-Sterling NR, Lo ACY, Sisodia SS, and Koo EH: Trafficking of cell-surface  $\beta$ -amyloid precursor protein: evidence that a sorting intermediate participates in synaptic vesicle recycling. *J Neurosci* 17: 140-151, 1997.
11. Lo ACY, Thinakaran G, Slunt HH, and Sisodia SS: Metabolism of the amyloid precursor-like protein-2 (APLP2) in MDCK cells: polarized trafficking occurs independent of the chondroitin sulfate glycosaminoglycan chains. *J. Biol. Chem.* 270: 12641-12645, 1995.
12. Sharp AH, Loev SJ, Schilling G, Li S-H, Li X-J, Bao J, Wagster MV, Kotzuk JA, Steiner JP, Lo A, Hedreen J, Sisodia S, Snyder SH, Dawson TM, Ryugo DK, and Ross CA: Widespread expression of Huntington's disease gene (IT-15) protein product. *Neuron* 14: 1065-1074, 1995.
13. Lo ACY, Haass C, Wagner SL, Teplow DB, and Sisodia SS: Metabolism of the Swedish amyloid precursor protein variant in Madin-Darby canine kidney (MDCK) cells. *J. Biol. Chem.* 269: 30966-30973, 1994.
14. Slunt HH, Thinakaran G, Von Koch C, Lo ACY, Tanzi RE, and Sisodia SS: Expression of a ubiquitous, cross-reactive homologue of the mouse  $\beta$ -amyloid precursor protein (APP). *J. Biol. Chem.* 269: 2637-2644, 1994.