

# Neurosurgery Research Laboratory

## Lab Introduction:

The overall objective of our research is to promote the clinical outcome of neurological disease, especially focus on high grade glioma , spinal cord injury and traumatic brain injury, through gene therapy or drug treatment. Accordingly, we focus on

1. To investigate the correlation of tumor suppressor gene p53 and other genes in glioma cell then evaluate the effect of gene modification in brain tumorigenesis
2. To explore the protective mechanism of ischemic pre-treatment in spinal cord ischemia-reperfusion injury
3. To elucidate the feasibility of using microRNA in the blood as traumatic brain injury biomarker in rat
4. To investigate the pathological mechanisms and therapeutic strategies in stroke.

## Principal Investigator:

● Chen Han-Jung M.D. Ph.D.	● Lu Kang M.D. Ph.D.
● Liang Jeng-Lung M.D. Ph.D.	● Liliang Po- Chou M.D
● Wang Guo-Wei M.D.	● Wang Hau- Guang M.D. Ph.D
● Chen Jui-Sheng M.D.	

## Team Members:

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## Selected Publications:

1. Restoration of HDAC1 Enzymatic Activity after Stroke Protects Neurons from Ischemia/Reperfusion Damage and Attenuates Behavioral Deficits in Rats. *Int J Mol Sci.* 2021 Sep 30;22(19):10654. doi: 10.3390/ijms221910654. PMID: 34638996; PMCID: PMC8508747. Chen JS, Wang HK, Su YT, Hsu CY, Chen JS, Liang CL, Wu CC, Kwan AL.
2. A Novel NGF Receptor Agonist B355252 Ameliorates Neuronal Loss and Inflammatory Responses in a Rat Model of Cerebral Ischemia. Wang HK, Chen JS, Hsu CY, Su YT, Sung TC, Liang CL, Kwan AL, Wu CC. *Journal of Inflammation Research* 2021;14 2363–2376

3. HDAC1 deregulation promotes neuronal loss and deficit of motor function in stroke pathogenesis. *Sci Rep* 11, 16354 (2021). <https://doi.org/10.1038/s41598-021-95837-3>. Chen, JS., Wang, HK., Hsu, CY. et al.
4. HDAC1 Dysregulation Induces Aberrant Cell Cycle Activity and DNA Damage in the Pathogenesis of TDP-43 Proteinopathies. *EMBO Molecular Medicine*, 20: e10622. Wu CC, Jin LW, Wang IF, Liu YC, Tsai KJ. (2020, Jun)
5. Successful surgical strategy for ventral thoracic spinal perimedullary spinal arteriovenous fistulas: Case report. Subramaniam SM, Ishii K, Sheng CJ, Nakatomi H, Takai K, Saito N. *Surg Neurol Int.* 2019;10:251. Published 2019 Dec 20. doi:10.25259/SNI\_516\_2019
6. Male Patients on Peritoneal Dialysis Have a Higher Risk of Sleep Apnea. Lee YC, Hung SY, Wang HK, Lin CW, Wang HH, Chang MY, Wu CF, Sung JM, Chiou YY, Lin SH. *J Clin Sleep Med.* 2019 Jul 15;15(7):937-945.
7. Simvastatin and Simvastatin- Ezetimibe improve the neurological function and attenuate the endothelial inflammatory response after spinal cord injury in rat. Liang CL, Chen HJ, Liliang PC, Wang HK, Tsai YD, Cho CL, Lu K, Wang KW. *Ann Clin Lab Sci.* 2019 Jan.
8. Is traumatic brain injury a risk factor for neurodegeneration? A meta-analysis of population-based studies. Huang CH, Lin CW, Lee YC, Huang CY, Huang RY, Tai YC, Wang KW, Yang SN, Sun YT, Wang HK. *BMC Neurol.* 2018 Nov 5;18(1):184. doi: 10.1186/s12883-018-1187-0.
9. Synthetic  $\alpha 5\beta 1$  integrin ligand PHSRN is proangiogenic and neuroprotective in cerebral ischemic stroke. Wu et al. *Biomaterials.* 2018 Sep. 185:142-154.
10. TDP-43 proteolysis is associated with astrocyte reactivity after traumatic brain injury in rodents. Wang HK et al. *Journal of Neuroimmunology* 2017 Dec. 313: 61-68
11. Comparative Cost Analysis for the Surgical and Endovascular Treatment of Ruptured Intracranial Aneurysms in Taiwan: A Nationwide Population-Based Cohort Study. Jian-Han Chen, Chih-Yuan Huang, Yi-Che Lee, Kuo-Wei Wang, Po-Chou Liliang, Cheng-Loong Liang, Kang Lu, Han-Jung Chen, Yuan-Ting Sun, Hao-Kuang Wang. *World Neurosurg.* 2018;116:e485–e490. doi:10.1016/j.wneu.2018.05.016
12. Population-based study suggests an increased risk of Alzheimer's disease in Sjögren's syndrome. Po-Chou Liliang, Cheng-Loong Liang, Kang Lu, San-Nan Yang, Meng-Tsang Hsieh, Yi-Cheng Tai, Kuo-Wei Wang. *Clin Rheumatol.* 2018;37(4):935–941. doi:10.1007/s10067-017-3940-y
13. Risk of dementia in patients with primary insomnia: a nationwide population-based case-control study. Chao-Ming Hung, Ying-Chun Li, Han-Jung Chen, Kang Lu, Cheng-Loong Liang, Po-Chou Liliang, Yu-Duan Tsai, Kuo-Wei Wang. *BMC Psychiatry.* 2018;18(1):38. Published 2018 Feb 7. doi:10.1186/s12888-018-1623-0

14. **The risk of cataractogenesis after gamma knife radiosurgery: a nationwide population based case-control study.** Liang CL, Liliang PC, Chen TB, Hsu HC, Chuang FC, Wang KW, Wang HK, Yang SN, Chen HJ. *BMC Ophthalmol.* 2017 Apr. 17:40.
15. **Analysis of Patients with Myelopathy due to Benign Intradural Spinal Tumors with Concomitant Lumbar Degenerative Diseases Misdiagnosed and Erroneously Treated with Lumbar Surgery.** Kang Lu, Hao-Kuang Wang, Po-Chou Liliang, Chih-Hui Yang, Cheng-Yo Yen, Yu-Duan Tsai, Po-Yuan Chen, Cien-Leong Chye, Kuo-Wei Wang, Cheng-Loong Liang, Han-Jung Chen. *World Neurosurg.*2017. doi:10.1016/j.wneu.2017.06.122
16. **Fluoroscopically Guided C2 Percutaneous Vertebroplasty: A Surgical Technique Note on an Anterior Ascending Approach.** Wang KW, Wang HK, Lu K, Liang CL, Chen YW, Liliang PC. *Pain Physician.* 2016 May;19: E625-629.
17. **Traumatic brain injury causes frontotemporal dementia and TDP-43 proteolysis.** Wang HK et al. *Neurosciences.* 2015 May. 300: 94-103.
18. **Reduction in adjacent-segment degeneration after multilevel posterior lumbar interbody fusion with proximal DIAM implantation.** Lu K, Liliang PC, Wang HK, Liang CL, Chen JS, Chen TB, Wang KW, Chen HJ. *J Neurosurg Spine.* 2015 Aug. 23:190-196.
19. **Repeated vertebral augmentation for new vertebral compression fractures of postvertebral augmentation patients: a nationwide cohort study.** Liang CL, Wang HK, Syu FK, Wang KW, Lu K, Liliang PC. *Clin Interv Aging.* 2015 Mar 27;10:635-642.