



NAME  
許重義  
Hsu, Chung Y.

POSITION TITLE  
Chair Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
National Taiwan University School of Medicine	M.D.	1970	Medicine
University of Virginia School of Medicine	Ph.D.	1975	Neuropharmacology

**CURRENT POSITIONS**

05/08 - Chaired Professor, China Medical University, Taichung, Taiwan  
05/08 - Chief Executive Officer, China Medical University Healthcare System, Taichung, Taiwan  
01/09 - Editor-in-Chief, Mid-Taiwan Journal of Medicine

**RESEARCH INTEREST**

Ischemic (stroke) and traumatic (spinal cord injury) injuries of the nervous system and age-dependent degeneration of the cerebral blood vessels.

**HONORS**

1991-1998, Javits Neuroscience Investigator Award (NIH-NINDS)  
1993-, Dana Alliance for Brain Initiatives, Member  
1997, Taiwanese-American Foundation Science and Technology Award  
1996, Leadership Award (Awarded to The Stroke Management and Rehabilitation Team which is directed by CY Hsu), Barnes-Jewish Hospital  
1993-1994, Vivian L. Smith Foundation Distinguished Research Award  
1983-88, NINDS Teacher-Investigator Development Award  
1978,1980, National Research Service Award  
1975-77, NIH Fellowship  
1971-75, Graduate Fellowship, Department of Pharmacology, University of Virginia  
1985, Nominated for MUSC Golden Apple Award (Excellence in Teaching)  
1986, August, Selected by Patient Representatives and Honored by MUSC for Excellence in Patient Service

**EDITORIAL BOARD**

**Book or Monograph Editor:**

- Hsu CY (ed.): Cerebral Ischemia: From basic mechanisms to new drug developments, Karger, AG, Basel, 1998.
- Choi DW (ed), Dacey R, Hsu CY, Powers WJ (co-eds): Proceeding of the 21<sup>st</sup> Princeton Conference on Cerebrovascular Disease, 1998, American Heart Association,
- Anderson DK, Hsu CY, Michel MB, Stokes BT (eds): NIH Workshop on Experimental Spinal Cord Injury: Modeling and Criteria, J Neurotrauma, Vol. 9, Issue #2, 1992.
- Wei YH, Lee HM, Hsu CY (eds.): The role of mitochondria in human aging and disease. Ann NY Acad Sci, Vol 1042, 2005.

**Journal Editorial Boards:**

1993-2006, Stroke  
1996-, Journal of Cerebral Blood Flow and Metabolism  
2002-2005, Brain Research  
1989, Journal of Neurotrauma  
1997-2003, Clinical Neuropharmacology  
2003-, Current Neurovascular Research  
1993-, Journal Formosan Medical Association (Guest Editorial Board)

2000-, Journal of Medical Ethics and Humanities (Taiwan)  
2002-, Acta Neurologica Taiwanica  
2002-, Cerebrovascular Diseases Foreign Medical Sciences  
2008-, Surgical Neurology, Taiwan Supplement

### **REVIEWER**

Reviewer, Neuroscience Grant Proposals Administered by the Catalan Agency for Health Technology Assessment and Research (CAHTA), Spain, 2006

Reviewer, Biomedical Research Council and National Medical Research Council, Singapore, 2005

Reviewer, Swiss National Science Foundation, 2002.

Reviewer, Scientific Program Abstracts, International Advisory Board, the 19<sup>th</sup>, 20<sup>th</sup> and 21st International Symposium on Cerebral Blood Flow and Metabolism (Brain 1999, Brain 2001 and Brain 2005).

External Reviewer, International Human Frontier Science Program, Bureaux Europe, Strasbourg, France, 1998-

International Reviewer, New Zealand Neurological Foundation, 1998-

Ad Hoc Abstract Reviewer: American Academy of Neurology Meeting, 1991-1998.

Reviewer for Quality Standards Subcommittee, Practice Committee, American Academy of Neurology on practice parameter of t-PA therapy for ischemic stroke, April, 1996 and on prevention of stroke in patients with nonvalvular atrial fibrillation, October, 1996.

Member, Abstract Review Panel, the International Joint Conferences on Stroke and Cerebral Circulation. 1996-1997, 1997-1998, 1998-1999, 1999, 2000 - 2002.

### **Ad Hoc Journal Reviewer:**

American Journal of Physiology, Annals of Neurology, Archives of Neurology, Behavioral Brain Research, Brain Research, Clinical Biochemistry, Circulation, Circulation Research, Critical Care Medicine, European Journal of Neuroscience, Experimental Neurology, FASEB Journal, Glia, Journal of Cell Physiology, Journal of Applied Physiology, Journal of Clinical Investigation, Journal of Comparative Neurology, Journal of Neurochemistry, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Neuroscience Research, Journal of Neurosurgery, Journal of Pharmacology and Experimental Therapeutics, Journal of Thoracic and Cardiovascular Surgery, Life Sciences, Molecular Brain Research, Molecular and Chemical Neuropathology, Molecular Medicine, Neurobiology of Disease, Neurology, Neuron, Neuroscience Letters, Neuroscience Research, Restorative Neurology and Neuroscience, Proceeding National Academy of Science USA, Science.

### **AD HOC GRANT REVIEW ASSIGNMENTS**

Ad Hoc Member: NIH Neurological Disorder Program Project Review B Committee, NIH Immunological Sciences Study Section, Neurology B Study Section, Neurological Science - 1 Study Section. NIH-NICHD National Center for Medical Rehabilitation and Research Special Review Committee, NIH/NHLB Special Review Committee, VA Merit Review, Paralyzed Veterans of America, American Paralysis Association, Alzheimer's Association, Henry Ford Hospital Stroke Research Projects, State of Virginia Biotechnology Research Project, Army neurotrauma research projects and neurotoxin exposure rescue program 1997 - 2000 (conducted by American Institute of Biological Sciences), Allegheny University of the Health Sciences, New Zealand Neuroscience Foundation, Human Frontier Science Program.

Member, Ad Hoc Committee on Scientific Conduct, University of California, San Francisco, May 1989.

### **PUBLICATIONS (Selected from 265 research articles, 4 books):**

#### **1. Selected Basic Science Articles:**

1. Hsu CY, Brooker G, Peach MJ, Westfall TC: Inhibition of catecholamine release by tolbutamide. **Science** 187:1086-88, 1975.
2. Gibbs JBN, Hsu CY, Terasaki WL, Brooker G: Calcium sensitivity and microtubular dependence of ornithine decarboxylase induction by cyclic AMP and independent mechanisms. **Proc Nat Acad Sci USA** 77:995-99, 1980.
3. An G, Lin TN, Liu JS, He YY, Xue JJ, Hsu CY: Expression of c-fos and c-jun after cerebral ischemia. **Ann Neurol** 33:457-464, 1993.
4. Liu PK, Salminen A, He YY, Jiang MH, Xue JJ, Liu JS, Hsu CY: Suppression of ischemia-induced Fos expression and AP-1 activity by an antisense oligodeoxynucleotide to c-fos mRNA. **Ann Neurol** 36:566-576, 1994.
5. Koh JY, Suh SW, Gwag BJ, He YY, Hsu CY, Choi DW: The role of zinc in neuronal death after transient global cerebral ischemia. **Science**, 272:1013-1016, 1996.
6. Liu PK, Hsu CY, Dizdaroglu M, Floyd RA, Kow YW, Karakaya A, Rabow LE, Cui JK: Damage, repair, and mutagenesis in nuclear gene after mouse forebrain ischemia and reperfusion. **J Neurosci**, 16(21):6795-6806, 1996.

8. Liu XZ, Xu XM, Hu R, Du C, Shang SX, McDonald JW, Dong HX, Wu YJ, Fan GS, Jacquin MF, Hsu CY, Choi DW: Neuronal and glial apoptosis after traumatic spinal cord injury. **J Neurosci.**, 5395-5406. 1997.
9. Yamada KA, Covey DF, Hsu CY, Hu R, Hu Y, He YY: The diazoxide derivative IDRA 21 enhances ischemic hippocampal neuron injury. **Ann Neurol** 43:664-669, 1998.
10. Yeh H-J, He YY, Xu J, Hsu CY, Deuel TF: Upregulation of pleiotrophin (ptn) gene expression in microvasculature, macrophage, and astrocyte on acute ischemic brain injury in the rat. **J Neurosci** 18:3699-3707, 1998.
11. Xu J, Yeh CH, Chen SW, He L, Sensi SL, Canzoniero LMT, Choi DW, Hsu CY: Involvement of de novo ceramide biosynthesis in TNF- $\alpha$ /cycloheximide-induced cerebral endothelial cell death. **J Biol Chem** 273:16521-16526, 1998.
12. Huang SS, Huang FW, Chen SW, Xu J, Hsu CY, Huang JS: Amyloid  $\beta$ -peptide possesses a transforming growth factor- $\beta$  activity. **J Biol Chem** 273: 27640-27644, 1998.
13. Cui JK, Hsu CY, Liu PK: Suppression of post-ischemic hippocampal NGF expression by a c-fos antisense oligodeoxynucleotide. **J Neurosci**, 19:1335-1344, 1999.
14. Yan P, Chen SW, Kim GM, Xu J, Hsu CY, Xu XM: Expression of glucocorticoid receptor after traumatic spinal cord injury. **J Neurosci**, 19:9355-9363, 1999.
15. Xu J, Chen SW, Ahmed SH, Chen H, Ku G, Goldberg MP, Hsu CY: Amyloid- $\beta$  peptides are cytotoxic to oligodendrocytes. **J Neurosci** 21:RC118:1-5, 2001.
16. Holtzman DM, Han BH, He YY, Kim GM, Choi JJ, Hsu CY: Inhibition of post-ischemic brain injury by clusterin overexpression. **Nature Med** (Letter) 7:978-979, 2001.
17. Xu J, Kim GM, Ahmed SH, Xu JM, Yan P, Xu XM, Hsu CY: Glucocorticoid receptor-mediated suppression of AP-1 activation and matrix metalloproteinase expression after spinal cord injury. **J Neurosci** 21: 92-97, 2001.
18. Kim GM, Xu J, Xu JM, Song SK, Yan P, Ku G, Xu XM, Hsu CY: TNF receptor deletion reduces NF- $\kappa$ B activation, c-IAP2 expression and functional recovery after traumatic spinal cord injury. **J Neurosci** 21: 6617-6625, 2001.
19. Liu PK, Grossman RG, Hsu CY, Robertson GS: Ischemic Injury and Faulty Gene Transcripts in the Brain. **Trends Neurosci** 24:581-588, 2001.
20. Yin KJ, Lee JM, Chen SD, Xu J, Hsu CY: Amyloid beta induces Smac release via AP-1/Bim activation. **J Neurosci** 22:9764-9770, 2002.
21. Lee JM, Vo K, Hongyu, Hsu CY, Lin WL: MR cerebral metabolic rate of oxygen utilization in hyperacute patients. **Ann Neurol** 53:227-232, 2003.
22. Lee JM, Yin KJ, Hsin I, Chen, Fryer JD, Holtzman D, Hsu CY, Xu J: A Role for Matrix Metalloproteinase-9 in Cerebral Amyloid Angiopathy-related Hemorrhage. **Ann Neurol**, 54:379-382, 2003.
23. Lee JT, Xu J, Lee JM, Ku G, Han XL, Yang DI, Chen SW, Hsu CY: Amyloid- $\beta$  peptide Induces oligodendrocyte death by activating the neutral sphingomyelinase-ceramide pathway. **J Cell Biol** 164:123-131, 2004.
24. Yin KJ, Hsu CY, Hu XY, Chen H, Chen SW, Xu J, Lee JM. PP2A regulates *bim* expression via the Akt/FKHL1 signaling pathway in A $\beta$ -induced cerebrovascular endothelial cell death. **J Neurosci**, 26: 2290-2299, 2006.
25. Yan P, Hu X, Song H, Yin K, Bateman RJ, Cirrito JR, Xiao Q, Hsu FF, Turk JW, Xu J, Hsu CY, Holtzman DM, Lee JM: .Matrix metalloproteinase-9 degrades amyloid-beta fibrils in vitro and compact plaques in situ. **J Biol Chem** 281:24566-24574, 2006
26. Yin KJ, Yin KJ, Cirrito JR, Yan P, Hu X, Xiao Q, Pan X, Bateman R, Song H, Hsu FF, Turk J, Xu J, Hsu CY, Mills JC, Holtzman DM, Lee JM. Matrix metalloproteinases expressed by astrocytes mediate extracellular A $\beta$ -catabolism. **J Neurosci** 26:10939-10948, 2006
27. Hsu MJ, Hsu CY, Chen BC, Chen MC, Ou G, Lin CH. ASK1 in Amyloid  $\beta$  peptide-induced cerebral endothelial cell apoptosis. **J Neurosci**, 27:5719-5729, 2007
28. Lee JM, Yan P, Xiao Q, Chen S, Lee KY, Hsu CY, Xu J. Methylprednisolone protects oligodendrocytes but not neurons after spinal cord injury. **J Neurosci**. 28:3141-3149, 2008.

## 2. Selected Clinical Trial Articles:

29. Hsu CY, Faught RE, Furlan AJ, Coull BM, Huang DC, Hogan EL, Linet OI, Yatsu FM for Prostacyclin Study Group: Intravenous prostacyclin in acute non-hemorrhagic stroke--A placebo-controlled double blind trial. **Stroke** 18:353-358, 1987.
30. Hsu CY, Norris JW, Hogan EL, Bladin P, Dinsdale HB, Yatsu FM, Earnest MP, et. al: Pentoxifylline in acute nonhemorrhagic stroke--a randomized, placebo-controlled double blind trial. **Stroke** 19:716-23, 1988.
31. The American Nimodipine Study Group: Clinical trial of nimodipine in acute ischemic stroke. **Stroke** 23:3-8, 1992.
32. Publications Committee for the trial of Org 10172 in Acute Stroke Treatment(TOAST) Investigators. Low molecular weight heparinoid, Org 10172, and outcome after acute ischemic stroke. A randomized controlled trial. **JAMA** 279:474-481, 1998.

33. Clark W, Wissman S, Albers G, Jhamandas J, Madden K, Hamilton S for the ATLANTIS Study Investigators: The ATLANTIS Study: recombinant tissue plasminogen activator (alteplase) for ischemic stroke 3 to 5 hours after symptoms onset. A randomized, double-blind, placebo-controlled trial. **JAMA** 282:2019-2026, 1999
34. Sherman DG, Atkinson R, Chippendale T, Levin K, Ng K, Futrell N, Hsu CY, Levy DE for STAT Investigators: Ancrod improves functional outcome in patients with acute ischemic stroke: Results of the stroke treatment with ancrod trial (stat). **JAMA** 283:2395-2403, 2000.
35. Sacco RL, DeRosa JT, Haley EC, Levin B, Ordronneau P, Phillips SJ, Rundek T, Snipes RG, Thompson JLP for the GAIN American Investigators: Glycine antagonist in neuroprotection for patients with acute stroke: GAIN Americans: A randomized controlled trial. **JAMA** 285:1719-1728, 2001.
36. Gorelick PB, Richardson D, Kelly M, Ruland S, Hung E, Harris Y, Kittner S, Leurgans S; African American Antiplatelet Stroke Prevention Study Investigators. Aspirin and ticlopidine for prevention of recurrent stroke in black patients: a randomized trial. **JAMA** 289:2947-2957, 2003.

### 3. Selected Monographs:

37. Hsu CY (ed.): **Cerebral Ischemia**: From basic mechanisms to new drug development, Karger, AG, Basel, 1998.
38. Wei YH, Lee HM, Hsu CY (eds.): The role of mitochondria in human aging and disease. **Ann NY Acad Sci**, Vol 1042, 2005.

### RECENT RESEARCH SUPPORT (NIH and Other government grant supports in the past 5 years in US dollars)

1. Cell-cell interactions and hypoxic brain injury, (PO-1 NS32636) PI, CY Hsu (15%), 12/1/00 - 11/30/05, US\$1,500,000 approximate total costs/year for the entire Program Project Grant, approximate total: US\$7,000,000. (Transferred to Dr. Mark Goldberg)
2. Amyloid-induced cerebroendothelial degeneration in aging (RO-1 NS40525), PI, CY Hsu (20%), 7/1/00 - 6/30/2005, US\$384,000 total costs/year, approximate total: US\$1,890,000. (Transferred to Dr. Jin-Moo Lee)
3. Methylprednisolone treatment of spinal cord injury, (RO-1, NS40162), PI, CY Hsu (20%), 11/1/00 - 10/31/05, US\$320,000 total costs/year, approximate total: US\$1,600,000. (Transferred to Dr. Jan Xu).
4. Inflammatory Apoptosis after Spinal Cord Injury, RO1, (RO-1 NS37230), PI, CY Hsu (15% effort), 9/1/97-8/31/03, US\$288,000 total costs/year, approximate total: US\$1,560,000.
5. ES Cell Transplantation After Spinal Cord Injury Program Project (PO-1 NS39577), PPG PI: Johnson EM; Core B PI: CY Hsu (10%): 12/1/99 - 11/30/04, US\$155,268 total costs/year for Core B, approximate total: US\$776,340.
6. Vitamin Intervention for Stroke Prevention (RO-1 NS 34447), PIs, JF Toole and V Howard; Wash U PI, CY Hsu (2%) 8/1/98 - 7/31/04, US\$65,000 total costs/year, approximate total: US\$260,000.
7. NIH African American Aspirin Stroke Prevention Study: PI, P. Gorelick, Wash U PI, CY Hsu (8.5% effort), approximately US\$60,000/ year direct, \$90,000/year total, 6/1/96-5/31/04, approximate total: US\$630,000
8. Stroke Prevention Center Grant, Ministry of Health (Taiwan), PI, CY Hsu (5%): 1/03 - 12/ 05, US\$ 300,000, total costs.
9. Amyloid-induced cerebral vascular degeneration PPG, National Science Council (Taiwan), PI, CY Hsu, 8/03 - 7/06, US\$400, 000, total costs.
10. Genetic mechanism of methylprednisolone neuroprotection, National Genomic Medicine PPG, National Science Council (Taiwan), PI, CY Hsu, 5/04 - 4/07, US\$ 1,500,000, total costs.
11. OxLDL cytotoxicity in cerebral endothelial cells PPG, National Science Council (Taiwan), PI, CY Hsu, 8/04 - 7/07, US \$450,000 total costs.
12. Clinical Research Center of Excellence grant, Ministry of Health (Taiwan), PI, CY Hsu, 8/05 - 7/10, US \$3,000,000, total costs.
13. Stroke Center Registry, Ministry of Health (Taiwan), PI, CY Hsu, 1/06 - 12/07, US\$ 250,000 with US\$250,000 matching funds from Dr. Chi-Chin Huang Stroke Center Foundation.
14. Topnotch Stroke Research Center, Ministry of Education (Taiwan), PI, CY Hsu, 1/1/06 - 12/07, \$3,000,000, total costs.
15. M-Taiwan Subproject, Ministry of Economy (Taiwan), TMU PI, CY Hsu, 1/06 - 12/07, US\$800,000, total costs for TMU.
16. NHIP Pilot Project, Department of Health, PI, Hsu CY, 12/07-11/08, US\$450,000.
17. National Health Informatics Platform (NHIP) grant, Ministry of Health (Taiwan), PI, CY Hsu, 1/08 - 12/08, US\$ 437,500
18. Genetic predisposition to stroke, National Science Council (Taiwan), PI, CY Hsu, 8/08 - 7/10, US\$82,500
19. TMU-NIH/NINDS International Collaborative Research on Stroke, National Science Council (Taiwan), PI, CY Hsu, 8/08-7/11, US\$ 97,625
20. Amyloid-mediated Cerebrovascular Degeneration, National Science Council (Taiwan), 8/08 - 7/11, US\$ 106,817