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EDUCATION

Ph.D. Chemistry (2009), California Institute of Technology

B.S. Chemistry (2000), National Taiwan University

PROFESSIONAL EXPERIENCE

Assistant Professor (2012.07- present), National Taiwan University.

Postdoctoral Fellow (2010.07- 2012.05), Massachusetts General Hospital and Harvard Medical School. Adviser: Dr. Bradley T. Hyman, MassGeneral Institute for Neurodegenerative Disease and Department of Neurology. Characterization of tau protein misfolding inside neuronal synapses of Alzheimer's disease subjects.

Ph.D. dissertation research (2004.10-2010.06). California Institute of Technology. Adviser: Dr. Erin M. Schuman, Division of Biology and Howard Hughes Medical Institute. Characterization of synaptic proteasome composition in rat brains and its regulation by synaptic plasticity.

Doctoral research (2002.10-2004.09), California Institute of Technology. Adviser: Dr. Linda C. Hsieh-Wilson, Division of Chemistry and Chemical Engineering and Howard Hughes Medical Institute. Characterization of O-GlcNAc glycosylated proteins using chemo-enzymatic labeling.

AWARDS AND HONORS

Alzheimer's Disease Research Fellowship, American Health Assistance Foundation (2010.07-2012.05)

California Tobacco-Related Disease Research Program Fellowship (2004.04-2007.03)

Yuan. T. Lee Chemistry Fellowship (1996.07-2000.06)

PUBLICATIONS (*CORRESPONDING AUTHOR)

(A) Original research articles

1) Tai, H. C.; Khidekel, N.; Ficarro, S. B.; Peters, E.C.; Hsieh-Wilson, L. C.* Parallel identification of O-GlcNAc modified proteins from cell lysates. *J. Am. Chem. Soc.*, 2004, 126, 10500-10501.

2) Lin, W. Y.; Murugesh, M. G.; Sudhakar, S.; Yang, H. C.; Tai, H. C.; Chang, C. S.; Liu, Y. H.; Wang, Y.; Chen, I.W.; Chen, C. H.; Luh, T. Y.* On the rigidity of polynorbornenes with dipolar pendant groups. *Chem. Eur. J.*, 2005, 12, 324-330.

3) Tai, H. C.; Besche, H.; Goldberg, A. L.; Schuman, E. M.* Characterization of the brain 26S proteasome and its interacting proteins. *Front. Mol. Neurosci.* 2010, 3, 12.

4) Koffie, R. M.; Hashimoto, T.; Tai, H. C.; Serrano-Pozzo, A.; Joyner, D.; Hou, S.; Kopeikina, K. J.; Frosch, M. P.; Lee, V. M.; Holtzman, D. M.; Hyman, B. T.; Spires-Jones, T. L.* Apolipoprotein E4 effects in Alzheimer's disease are mediated by synaptotoxic oligomeric amyloid-beta. *Brain*, 2012, 135, 2155-68.

5) Tai, H. C.; Serrano-Pozo, A.; Hashimoto, T.; Frosch, M. P.; Spires-Jones, T. L.; Hyman, B. T.* The synaptic accumulation of hyperphosphorylated tau oligomers in Alzheimer disease is associated with dysfunction of the ubiquitin-proteasome system. *Am. J. Path.*, 2012, 181, 1426-35.

6) Taylor, A. M.*; Wu, J.; Tai, H. C.; Schuman, E. M.* Axonal translation of β-catenin regulates synaptic vesicle dynamics. *J. Neurosci.*, 2013, 33, 5584-9.

7) Kopeikina, K. J.; Polydoro, M.; Tai, H. C.; Yaeger. E.; Carlson, G. A.; Pitstick, R.; Hyman, B. T.; Spires-Jones, T. L.* Synaptic alteration in the rTg4510 mouse model of tauopathy. *J. Comp. Neurol.* 2013, 521, 1334-53.

8) Perez-Nievas, B. G.; Stein, T.; Tai, H. C.; Dols-Icardo, O.; Scotton, T. C.; Barroeta-Espar, I.; Fernandez-Carballo, L.; de Munain. E. L.; Perez, J.; Serrano-Pozo, A.; Frosch, M. P.; Lowe, V.; Parisi, J. E.; Petersen, R. C.; Ikonomovic, M. D.; Lopez. O. L.; Klunk, W.; Hyman, B. T.; Gomez-Isla, T.* Dissecting phenotypic traits linked to human resilience to Alzheimer's pathology. *Brain*, 2013, 136, 2510-26.

9) Tai, H. C.*; Wang, B. Y.; Serrano-Pozo, A.; Frosch, M. P.; Spires-Jones, T. L.; Hyman, B. T.* Frequent and symmetric deposition of misfolded tau oligomers within presynaptic and postsynaptic terminals in Alzheimer's disease. *Acta Neuropath. Comm.*, 2014, 2, 146.

10) Huang, C. F.; Liu, Y. H.; Tai, H. C.* Synthesis of peptides containing 2-oxohistidine residues and their characterization by liquid chromatography-tandem mass spectrometry. *J. Pept. Sci.*, 2015, 21, 114-119.

11) Yang, C. I.; Tsai, B. N.; Huang, S.J.; Wang, T.Y.; Tai, H. C.; Chan, J.C. Aggregation of Beta-Amyloid Peptides Proximal to Zwitterionic Lipid Bilayers. *Chem. Asian J.* 2015, 10, 1967-1971.

(B) Reviews and commentary articles

1) Tai, H. C.; Schuman, E. M.* MicroRNA: MicroRNAs reach out into dendrites. *Curr. Biol.*, 2006, 16, R121-123.

2) Tai, H. C.; Schuman, E. M.* Ubiquitin, the proteasome and protein degradation in neuronal function and dysfunction. *Nat. Rev. Neurosci.*, 2008, 9, 826-838.

3) Tai, H. C.; Schuman, E. M.* Angelman syndrome: Finding the lost Arc. *Cell*, 2010, 140, 608-610.

4) Chen C. C.; Su, W. C.; Huang, B. Y.; Chen, Y. J.; Tai, H. C.*; Obena, R. P.* Interaction modes and approaches to glycopeptide and glycoprotein enrichment. *Analyst*, 2014, **139**, 688-704.

(C) Violin research articles

1) Tai, H. C.* Stradivari's varnish: A review of scientific findings, Part 1. *Journal of the Violin Society of America: VSA Papers*, 2007, 21 (1), 119-144.

2) Tai, H. C.* Stradivari's varnish: A review of scientific findings, Part 2. *Journal of the Violin Society of America: VSA Papers*, 2009, 22 (1) 60-90.

3) Tai, H. C.*; Chung, D. T. Stradivari violins exhibit formant frequencies resembling vowels produced by females. *Savart Journal*, 2012, 1 (2), online article.

4) Tai, H. C.* Role of timbre memory in evaluating Stradivari violins. *Proc. Nat. Acad. Sci. USA*, 2014, 111, E2777-78.