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EDUCATION

1999 – 2005	Ph.D.	Department of Molecular Biology and Genetics, Cornell University Spindle orientation in *Saccharomyces cerevisiae* depends on the transport of microtubule ends along polarized actin cables (Tim C. Huffaker)
1995 – 1999	B.S.	Department of Agricultural Chemistry, National Taiwan University (Hsien-Yi Sung)

RESEARCH EXPERIENCE

2021– present	Associate professor, Department of Biological Science and Technology, National Yang Ming Chiao Tung University, Taiwan
2013 – 2021	Associate professor, Department of Biological Science and Technology, National Chiao Tung University, Taiwan
2008 – 2013	Assistant professor, Department of Biological Science and Technology, National Chiao Tung University, Taiwan
2007 – 2008	Post-doctoral researcher, Division of Biological Sciences, UCSD, La Jolla, CA (Shelley Halpain)
2005 – 2007	Post-doctoral researcher, Department of Cell Biology, Scripps Research Institute, La Jolla, CA (Shelley Halpain)

HONORS AND AWARDS

2018	交通大學傑出教學獎
2012	交通大學傑出教學獎
2009	交通大學績優導師

FUNDING SUPPORT

2019-2022	MOST 108-2628-B-009-003 Studying the targeting mechanism of cytoplasmic Ran in neurons, and its role in neuronal maturation and ALS pathogenesis
2016 – 2019	MOST 105-2320-B-009-005-MY3 Examining the role of Ran signaling pathway on neuronal development
2015 – 2016	MOST 104-2311-B-009-003 Studying the function of Ran GTPase and its effector proteins on neuronal morphogenesis
2012 – 2015	NSC 101-2311-B-009-004-MY3 Studying the effect of microtubule-associated proteins on neurite morphogenesis
2011 – 2014	NSC 100-2627-B-009-008 (Main Project) Drug–target network and structure-based systems biology for cancers and neurological disorders (Sub Project) High-content screening for drugs inhibiting cancer progression or inducing neurite regeneration
2009 – 2011	NSC 98-2311-B-009-001-MY2 Investigation of microtubule-based motor proteins on neuritogenesis

PUBLICATION

Peer-Reviewed Journal:

2021 Chen YJ, Huang YA, Ho CT, Yang JM, Chao JI, Li MC, **Hwang E***. A nanodiamond-based surface topography down-regulates the microRNA miR6236 to enhance neuronal development and regeneration. *ACS Applied Bio Materials*, 2021, 4(1): 890–902.

2020 Huang YA, Hsu CH, Chiu HC, Ho CT, Lo WL, **Hwang E***. Actin waves transport RanGTP to the neurite tip to regulate non-centrosomal microtubules in neurons. *Journal of Cell Science*, 2020, 133, jcs241992.

2018 Huang YA, Ho CT, Lin YH, Lee CJ, Ho SM, Li MC, **Hwang E***. Nanoimprinted anisotropic topography preferentially guides axons and enhances nerve regeneration. *Macromolecular Bioscience*, 2018, 18(12): e1800335.

2017 He RY, Chao SH, Tsai YJ, Lee CC, Yu CY, Gao HD, Huang YA, **Hwang E**, Lee HM*, Huang JJT*. Photocontrollable probe spatiotemporally induces neurotoxic fibrillar aggregates and impairs nucleocytoplasmic trafficking. *ACS Nano*, 2017, 11(7): 6795-6807.

2017 Chen WS, Chen YJ, Huang YA, Hsieh BY, Chiu HC, Kao PY, Chao CY, **Hwang E***. Ran-dependent TPX2 activation promotes acentrosomal microtubule nucleation in neurons. *Scientific Reports*, 7: 42297.

2014 Huang YA, Kao CW, Liu KK, Huang HS, Chiang MH, Soo CR, Chang HC, Chiu TW*, Chao JI*, **Hwang E***. The effect of fluorescent nanodiamonds on neuronal survival and morphogenesis. *Scientific Reports*, 4: 6919.

2014 Hsu TC, Liu KK, Chang HC, **Hwang E**, Chao JI*. Labeling of neuronal differentiation and neuron cells with biocompatible fluorescent nanodiamonds. *Scientific Reports*, 4: 5004.

2013 Charoenkwan P, **Hwang E**, Cutler RW, Lee HC, Ko LW, Huang HL, Ho SY*. HCS-Neurons: Identifying phenotypic changes in multi-neuron images upon drug treatments of high-content screening. *BMC Bioinformatics*, 14 (Suppl 16): S12.

2013 Huang YA, Kao JW, Tseng DT, Chen WS, Chiang MH, **Hwang E***. Microtubule-associated type II protein kinase A is important for neurite elongation. *PLoS One*, 8(8): e73890.

2012 Lee TY, Chen WS, Huang YA, Liu TW, **Hwang E**, Tseng CP*. Application of aurintricarboxylic acid for the adherence of mouse P19 neurons and primary hippocampal neurons to non-coated surface in serum-free culture. *Biotechnology Progress*, 28: 1566–74.

2011 Dehmelt L, Poplawski G, **Hwang E**, Halpain S*. NeuriteQuant: An open source toolkit for high content screens of neuronal morphogenesis. *BMC Neuroscience*, 12: 100.

2011 Ho SY, Chao CY, Huang HL, Chiu TW, Charoenkwan P, **Hwang E***. NeurphologyJ: an automatic neuronal morphology quantification method and its application in pharmacological discovery. *BMC Bioinformatics*, 12: 230.

2011 Cheng IH*, Lin YC, **Hwang E**, Huang HT, Chang WH, Liu YL, Chao CY. Collagen VI protects against neuronal apoptosis elicited by ultraviolet irradiation via an Akt/phosphatidylinositol 3-kinase signaling pathway. *Neuroscience*, 183: 178–188.

2011 Chen WS, Yueh CY, Huang YA, **Hwang E***. An inverted method for culturing dissociated mouse hippocampal neurons. *Neuroscience Research*, 70 (1): 118–123.

2006 Wolyniak MJ, Blake-Hodek K, Kosco K, **Hwang E**, You L, Huffaker TC*. The regulation of microtubule dynamics in *Saccharomyces cerevisiae* by three interacting plus-end tracking proteins. *Molecular Biology of the Cell*, 17 (6):2789-2798.

2003 **Hwang E**, Kusch J, Barral Y, Huffaker TC*. Spindle orientation in *Saccharomyces cerevisiae* depends on the transport of microtubule ends along polarized actin cables. *Journal of Cell Biology*, 161 (3): 483-8.

Book:

2009 **Hwang E**. Examining the function of cytoskeleton-associated proteins in yeast: A combination of yeast genetics, molecular biology, and real-time imaging. Lambert Academic Publishing. ISBN 978-3-8383-1471-6.

Conference Presentations:

2019 Hsu CH, Huang YA, Chiu HC, Ho CT, Lo WL, **Hwang E**. GTP-bound Ran regulates non-centrosomal microtubule formation and is transported by actin waves towards the neurite tip. Society for Neuroscience Annual Meeting, Chicago, IL, October 19th – 23rd, 2019. (**Dynamic poster**)

2018 Goh A, Huang HC, **Hwang E**. Overexpressed Cep170 localizes as acentrosomal puncta along neurites and promotes neurite outgrowth. ASCB | EMBO Meeting. San Diego, CA, U.S.A. December 8th – 12th. (Poster)

2018 Lo WL, Hsu CH, Chiu HC, **Hwang E**. An optogenetic approach to examine the role of cytoplasmic Ran in acentrosomal microtubule nucleation in neurons. ASCB | EMBO Meeting. San Diego, CA, U.S.A. December 8th – 12th. (Poster)

2018 **Hwang E**. A LOV-based optogenetic toolkit to tackle neurodevelopment questions. 科技部神經醫學學門與形態及生理醫學學門交流促進會. November 17th. (**Invited speaker**)

2017 Hsu CH, Chiu HC, Chen WS, Chen YJ, Huang YA, Hsieh BY, **Hwang E**. Cytoplasmic Ran regulates acentrosomal microtubule nucleation in neurons. ASCB | EMBO Meeting. Philadelphia, PA, U.S.A. December 2nd – 6th. (Poster)

2017 Ho TY, Huang YA, Lin YH, Lee CJ, Ho SM, Li MC, **Hwang E**. Nanoimprinted surface topography preferentially guides and enhances axon regeneration. ASCB | EMBO Meeting. Philadelphia, PA, U.S.A. December 2nd – 6th. (Poster)

2017 **Hwang E**, Chen WS, Chen YJ, Huang YA, Hsieh BY, Chiu HC, Kao PY, Chao CY. TPX2 promotes acentrosomal microtubule nucleation in neurons and its activity is regulated by Ran GTPase. American Society for Neurochemistry Annual Meeting. Little Rock, AR, U.S.A. March 18th – 22nd. (Poster)

2015 **Hwang E**, Chen WS, Chen YJ, Huang YA, Kao PY. Ran-dependent TPX2 activation promotes microtubule nucleation and neurite morphogenesis. American Society for Cell Biology Annual Meeting. San Diego, CA, U.S.A. December 12nd – 16th. (Poster)

2015 Lin YH, Huang HC, Chao HH, Hsu L, **Hwang E**. Using infra-red laser and nanodiamond coating to perform spot axotomy. American Society for Cell Biology Annual Meeting. San Diego, CA, U.S.A. December 12nd – 16th. (Poster)

2015 Hsieh BY, Liu E, **Hwang E**. Examining the interaction of TPX2 and Importin-alpha isoforms *in vitro* and *in vivo*. American Society for Cell Biology Annual Meeting. San Diego, CA, U.S.A. December 12nd – 16th. (Poster)

2014 Yeh WA, **Hwang E**. Developing a photoactivable strategy to disrupt dynein-dynactin complex interaction. Cold Spring Harbor Asia Conference. Suzhou, China. November 17th – 21st. (Poster)

2013 **Hwang E**. Studying the role of microtubule-associated protein kinase A during neuritogenesis. 2013 Bioinformatics and Systems Biology in Taiwan, October 19th, Taipei, Taiwan. (**Invited speaker**)

2013 Huang YA, Kao JW, Tseng D, Chen WS, Chiang MH, **Hwang E***. Microtubule-associated type II protein kinase A is important for neurite elongation. Cold Spring Harbor Asia Conference. Suzhou, China. May 6th – 10th. (Poster)

2012 **Hwang E**, Huang HL, Chao CY, Kao PY, Ke CC, Chiang MH, Ho SY, Encalada S. A genetic algorithm-based method to automatically characterize and classify neurons. American Society for Cell Biology Annual Meeting. San Francisco, CA, U.S.A. December 15th – 19th. (Poster)

2012 Huang YA, Tseng D, **Hwang E**. Microtubule and protein kinase A interaction is important for neurite morphogenesis. American Society for Cell Biology Annual Meeting. San Francisco, CA, U.S.A. December 15th – 19th. (Poster)

2012 **Hwang E**, Huang YA, Tsieng D. (2012) Microtubule and protein kinase A interaction is important for neurite elongation. FENS Forum. Barcelona, Spain, July 14th – 18th, 2012. (Poster)

2011 Huang YA, Tsieng D, **Hwang E**. (2011) Microtubule and protein kinase A interaction is important for neurite morphogenesis. American Society for Cell Biology Annual Meeting. Denver, CO, December 3rd, 2011. (Poster)

2010 Chen WS, Yueh CY, **Hwang E**. An inverted method for culturing dissociated mouse hippocampal neurons. Society for Neuroscience Annual Meeting, San Diego, CA, November 13th, 2010. (Poster)

2009 **Hwang E**. Understanding the roles of microtubule-associated proteins during neuritogenesis by high content screen. Microscopy-based high content screen in biomedical research conference, September 19th, Taipei, Taiwan. (**Invited speaker**)

2008 **Hwang E**, Thompson J, Poplawski G, Tipton J, Busby J, Yates J, Halpain S. Quantitative analysis of the microtubule-associated proteome during neurite formation reveals new protein participants. Okinawa Institute of Science and Technology gradient and signaling conference, November 17th – 21st, Okinawa, Japan (Poster)

2008 **Hwang E**, Thompson J, Poplawski G, Tipton J, Busby J, Yates J, Halpain S. Quantitative analysis of the microtubule-associated proteome during neurite formation reveals new protein participants. 1st La Jolla Proteomics meeting, La Jolla, CA, July 2nd, 2008 (Poster)

2007 **Hwang E**, Thompson J, Dehmelt L, Tipton J, Busby J, Yates J, Halpain S. Analysis of the microtubule-associated proteome during neuronal development. 37th Society for Neuroscience Annual Meeting, San Diego, CA, November 4th, 2007. (Poster)

2007 Poplawski G, Dehmelt L, Cho C, **Hwang E**, Walker J, Schultz P, Halpain S. Automated high-content image analysis of neuronal differentiation and morphogenesis. 37th Society for Neuroscience Annual Meeting, San Diego, CA, November 4th, 2007. (Poster)

2007 **Hwang E**, Halpain S. Cytoskeleton and neuronal morphogenesis: a mass spectrometry-based approach. Scripps Neurosciences Seminar Series, La Jolla, CA, May 1st, 2007. (**Oral**)

2006 **Hwang E**, Tipton J, Halpain S, Busby J. Analysis of microtubule-associated proteome during neuronal morphogenesis. 46th American Society for Cell Biology Annual Meeting, San Diego, CA, December 10th, 2006. (Poster)

2006 Tipton J, **Hwang E**, Halpain S, Busby J. A mass spectrometry-based approach for deciphering cytoskeletal mechanisms in neurite formation. 54th ASMS Conference on Mass Spectrometry. Seattle, WA, May 28th, 2006. (Poster)

2006 **Hwang E**, Tipton J, Busby J, Halpain S. A phospho-proteomics approach to study neuritogenesis San Diego Consortium for Systems Biology Symposium. La Jolla, CA, January 20th, 2006. (Poster)

2005 **Hwang E**, Halpain S. Phospho-proteomics on actin and microtubule-associated proteins involved in neurite initiation. Scripps Research Institute Cell Biology Annual Meeting. La Jolla, CA, March 29th, 2005. (Poster)

2004 **Hwang E**, Huffaker TC. Dynamic interaction between the microtubule and microfilament system: a lesson from yeast. Second Annual Biological and Biomedical Sciences Program Symposium. Ithaca, NY, October 12th, 2004. (**Oral**)

2004 **Hwang E**, Huffaker TC. Two stories at microtubule plus-ends. Cornell Biological Forum. Ithaca, NY, September 17th, 2004. (**Oral**)

2003 **Hwang E**, Kusch J, Barral Y, Huffaker TC. Spindle orientation depends on the transport of microtubule ends along polarized actin cables. Cold Spring Harbor Laboratory Meeting on Yeast Cell Biology. Cold Spring Harbor, NY, August 12th-17th, 2003. (**Oral**)

2003 **Hwang E**, Huffaker, TC. Microtubule-actin interaction and nuclear migration in budding yeast. Northeast Regional Yeast Meeting. Montreal, QC, July, 2003. (**Oral**)

2002 **Hwang E**, Huffaker TC. Kar9p provides the physical linkage between two cytoskeleton systems in mitotic and mating yeast cells. 42nd American Society for Cell Biology Annual Meeting, San Francisco, CA, December 14th-18th, 2002. (Poster)