

CURRICULUM VITAE

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NAME Wang, Kai-Yi		POSITION TITLE Postdoctoral Researcher	
EDUCATION/TRAINING			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
National Taiwan Normal University, Taiwan	B.S.	2010-2014	Life Science
National Yang Ming Chiao Tung University, Taiwan	M.S. Ph.D.	2014-2022	Cellular and Circuit Neuroscience (Mentor: Cheng-Chang Lien)
National Yang Ming Chiao Tung University, Taiwan	Postdoc	2022-present	Cellular and Circuit Neuroscience (Supervisor: Cheng-Chang Lien)

A. Personal statement

My research interests focus on elucidating the emotional-affective circuit mechanisms in health and disease. I study how emotional information processing in the hippocampus and amygdala at the cellular, network and behavioral level. To correlate the emotional behavior with physiological readout, I use *in vivo* fiber photometry in freely behaving animals to measure the calcium dynamics of the interested cell population. To establish causal relationships between brain circuits and mouse behavior, I utilize the circuit-based intervention techniques, such as optogenetic and chemogenetic. To probe the information processing flow and the input-output organization of the network, I employ *ex vivo* or *in vivo* optogenetics-assisted circuit mapping via respectively whole-cell patch-clamp in brain slices or juxtacellular recording in the intact brain. Moreover, I am enthusiastic about bridging basic and translational neuroscience with multidisciplinary approaches. Over the past 6 years, I have highlighted the relevance of hippocampal circuitry to psychiatric disorders and have applied the findings in the basic research to the neuropsychiatric disease mouse model.

I am proficient at English since I need to have the scientific discussion and communicate daily to international students in our lab. I am a communicative and organized person. I have joined 5 collaborative projects, mentored at least 7 graduate students and host 3 international scholars in the past 6 years. As an organizer of the student seminar in the lab, I demonstrate my leadership ability at work. Winning many awards in the poster and oral presentations exhibits my good presentation skills.

B. Positions, Honors and Professional Experiences

Positions and Employment

2022.02-present Postdoctoral fellow, National Yang Ming Chiao Tung University, Taipei, Taiwan

2014.09-2022.02 Graduate Student Researcher, National Yang Ming Chiao Tung University, Taipei, Taiwan

Honors

2021 The oral blitz award in 2nd Taiwan Society for Neuroscience, Taipei, Taiwan

2020 The oral blitz award in 1st Taiwan Society for Neuroscience, Taipei, Taiwan

2020 The poster presentation and oral blitz award in 2020 NYCU Symposium for Biological Technology and Therapeutic Development, Hsinchu, Taiwan

2020 The poster presentation award in Neuroscience symposium for 40th anniversary of Institute of Neuroscience in NYMU, Taipei, Taiwan

2017 The third place of the oral presentation in the 32nd Joint Annual Conference of Biomedical Science, Taipei, Taiwan

2016 Dean's award of the school of life science, National Yang-Ming University, Taipei, Taiwan

Invited Speeches in International Conferences

2020.09.27 Hippocampal Mossy Cell Circuitry Mediating Anxiolytic Effects: Invited by the 1st Asia-Pacific Computational and Cognitive Neuroscience, AP-CCN, Hsinchu, Taiwan.

Service and Mentorship

2014-present Mentored 7 graduate students, 1 medical student, and 4 student interns.

2016-present Organized and chaired the monthly Dinner-time Seminar in the lab.

2020.11-12 Host the visiting scholar, Dr. Francesco Ferraguti, Department of Pharmacology, Medical University of Innsbruck, Austria.

2017.12 Host the visiting scholar, Dr. Gábor Tamás, MTA-SZTE Research Group for Cortical Microcircuits, University of Szeged, Hungary.

2016.03 Host the visiting scholar, Dr. Hannah Monyer, Department of Clinical Neurobiology at the Medical Faculty of Heidelberg University and German Cancer Research Center (DKFZ), Heidelberg, Germany.

Other Academic Activities and Experience

2021.09 Poster session and Oral blitz presented at the 2nd Taiwan Society for Neuroscience, Taipei, Taiwan

2020.09 Poster session and Oral blitz presented at the 1st Taiwan Society for Neuroscience, Taipei, Taiwan

2020.09 Poster session and Oral blitz presented at the 2020 NYCU Symposium for Biological Technology and Therapeutic Development, Hsinchu, Taiwan

2018.07 Poster session presented at the 11th FENS forum of Neuroscience, Berlin, Germany

2016.11 Poster session presented at the 46th Annual meeting of the Society for Neuroscience, San Diego, USA

2016.09-10 & 2017.12-2018.01 Learning head-fixed juxta-cellular recording technique in University of Szeged, Szeged, Hungary

Professional Memberships

2018-present Student Member, Neuroscience Society of Taiwan

2018 Student Member, Federation of European Neuroscience Societies (FENS), Europe

2016-2017 Student Member, The Chinese Physiological Society

2016 Student Member, Society for Neuroscience (SfN), USA

C. Contributions to Science

Peer-reviewed publications (in reverse chronological order)

1. **Wang KY**, Wu JW, Cheng JK, Chen CC, Wong WY, Averkin RG, Tamás G, Nakazawa K, Lien CC. (2021) Elevation of hilar mossy cell activity suppresses hippocampal excitability and avoidance behavior. *Cell Reports* 36:109702.
2. Hsu YT, Chang YG, Liu YC, **Wang KY**, Chen HM, Lee DJ, Yang SS, Tsai CH, Lien CC, Chern YJ. (2019) Enhanced $\text{Na}^+\text{-K}^+\text{-2Cl}^-$ cotransporter 1 underlies motor dysfunction in Huntington's disease. *Movement Disorders* 34:845-857.
3. Chang JH, Tsai PH, **Wang KY**, Wei YT, Chiou SH, Mou CY. (2018) Generation of functional dopaminergic neurons from reprogramming fibroblasts by nonviral-based mesoporous silica nanoparticles. *Scientific Reports* 8:11.

Manuscripts under review

1. Abdulmajeed WI, **Wang KY**, Wu JW, Ajibola MI, Cheng IHJ, Lien CC. Mossy Cells in the Ventral Hippocampus Differentially Impact on Granule Cell Activity along the Longitudinal Axis. (Under revision in *The Journal of Physiology*).
2. Hou WH, Jariwala M, **Wang KY**, Seewald A, Ricci A, Ferraguti F, Lien CC, Capogna M. Role of inhibitory engram on fear memory in the mouse central lateral amygdala. (Under review in *Cell Reports*).

Others

1. 連正章、侯文賢、**王凱誼**、高敏華。用光與化學分子控制大腦！《科學月刊 (Science Monthly)》第559期/2016年7月號 第526-531頁。
This article reviews novel neuroscience methods such as optogenetics and chemogenetics for lay readers.

D. Skills

Laboratory Techniques

Expert in *in vivo* juxtacellular recording, *ex vivo* electrophysiology, *in vivo* fiber photometry, chemogenetic and optogenetic manipulations, and rodent survival surgery. Proficient in two photon and confocal microscopy, perfusion, cryosection, histology, genotyping for transgenic mouse and animal breeding and caring. Moderate in primary cell culture.

Computer

Expert in Microsoft Word, PowerPoint, Excel, and CorelDRAW. Proficient in experimental movie making. Novice in MATLAB and Python.

Language

Native in Chinese. Proficient at English and Taiwanese.