**Chi-Kuang Yao**

Institute of Biological Chemistry, Academia sinica

128 Academia Road, Section 2, Nankang, Taipei 11529, Taiwan

Tel: +886-2-27855696 ex 6070

FAX: +886-2-27889759

Email: ckyao@gate.sinica.edu.tw

**Professional Positions**

2020-present Associate research fellow (Tenured), Institute of Biological

Chemistry, Academia Sinica, Taipei, Taiwan

2011-2020 Assistant research fellow, Institute of Biological Chemistry,

Academia Sinica, Taipei, Taiwan

* 1. Postdoctoral Fellow, Howard Hughes Medical Institute,

Departments of Molecular and Human Genetics, Baylor College of Medicine, TX, USA. (Dr. Hugo Bellen)

* 1. Postdoctoral Fellow, Institute of Molecular Biology, Academia

Sinica, Taipei, Taiwan. (Dr. Y. Henry Sun)

**Education**

* 1. Ph.D. Institute of Genetics, National Yang-Ming University, Taipei,

Taiwan (Dr. Y. Henry Sun)

1999-2001 M.S. Institute of Genetics, National Yang-Ming University, Taipei,

Taiwan (Dr. Y. Henry Sun)

* 1. B.S. Department of Biology, National Cheng-Kung University, Tainan,

Taiwan

**Summary of Research Interests**

1. Pathogenic mechanisms underlying neurodevelopmental and

neurodegenerative diseases

1. Homeostatic regulation of neuron-glia communication and its

impact on neurodegenerative diseases

3) Molecular control of synaptic vesicle cycle

**Honors and Awards**

2021 National Cheng-Kung University Young Alumni Award

2020 Academia Sinica Research Award for Junior Research Investigators

2009. First place Baylor College of Medicine Department of Molecular and Human Genetics publication/achievement award

2005 Dr. Chien-Tien Hsu award (Second Place) (Excellent Ph.D. theses in Taiwan)

2001 IMB Student Thesis Award (The best M.S. thesis in IMB, Academia Sinica, Taiwan)

2001 Dr. Xun-Nuo Yin award (Excellent M.S. theses by National Yang-Ming University, Taiwan)

**Publications**

1. De novo missense variants of KCNA3, KCNA4, and KCNA6 cause early onset developmental epileptic encephalopathy. MH Tsai, CH Lo, YX Liu, SN Wu, CY Kuo

,YH Liu, YC Chang, KL Lin,PC Hung , HH Chen, JL Chen, **CK Yao**\* , Eric Hwang\* ,YJ Wang\*,2025 Human molecular genetics, in press.

1. Park HG, Kim YD, Cho E, Lu TY, **Yao CK**, Lee J, and Lee\* S. (2022-10) J Cell Biol:e202203048. **“Vav-Rac1 Signaling Independently Regulates Synaptic Growth and Functional Plasticity through Distinct Actin-Dependent Mechanisms”**
2. Chang YJ, Lin KT, Shih O, Yang CH, Chuang CY, Fan MH, Lee YC, Kuo HC, Hung SC, **Yao CK**, Jeng US, Chen YR\* (2024-02) Sci Adv **“Sulfated disaccharide protects membrane and DNA damages from poly-glycine-arginine in ALS”**
3. Kim J, Kim S, Nahm M, Li TN, Lin HC, Kim YD, Lee J, **(Yao CK)\***, Lee S\* (2021-03) J Cell Biol. 220(5), e202007112 "**ALS2 regulates endosomal trafficking, postsynaptic development, and neuronal survival.**" **\*Co-corresponding author**
4. Li TN, Chen YJ, Wang YT, Lin HC, Lu TY, **Yao CK\*** (2020-12) Elife 9, e60125 "**A positive feedback loop between Flower and PI(4,5)P2 at periactive zones controls bulk endocytosis in Drosophila.**" **\* Corresponding author**

***\* Highlighted in Nature Chemical Biology (Volume 17, page123(2021)).***

3. Lin SS, Hsieh TL, Liou GG, Li TN, Lin HC, Chang CW, Wu HY, **Yao CK**, Liu YW (2020-10) Cell Reports 33(4), 108310 "**Dynamin-2 Regulates Postsynaptic Cytoskeleton Organization and Neuromuscular Junction Development.**"

1. Amartuvshin O, Lin CH, Hsu SC, Kao SH, Chen A, Tang WC, Chou HL, Chang DL, Hsu YY, Hsiao BS, Rastegari E, Lin KY, Wang YT, **Yao CK**, Chen GC, Chen BC, Hsu HJ (2020-08) Aging cell 19(8), e13191 "**Aging shifts mitochondrial dynamics toward fission to promote germline stem cell loss.**"
2. Peng JJ, Lin SH, Liu YT, Lin HC, Li TN, **Yao CK\*** "**A circuit-dependent ROS feedback loop mediates glutamate excitotoxicity to sculpt the Drosophila motor system.**"

(2019-07) eLife 2019;8:e47372. DOI: 10.7554/eLife.47372 **\* Corresponding author**

1. **Yao CK\***, Liu YT, Lee IC, Wang YT, Wu PY (2017-04) PLoS biology 15(4), e2000931 "**A Ca2+ channel differentially regulates Clathrin-mediated and activity-dependent bulk endocytosis.**" **\* Corresponding author**
2. Tsai YC, Grimm S, Chao JL, Wang SC, Hofmeyer K, Shen J, Eichinger F, Michalopoulou T, **Yao CK**, Chang CH, Lin SH, Sun YH, Pflugfelder GO (2015-03) PloS one 10(3), e0120236 "**Optomotor-blind negatively regulates Drosophila eye development by blocking Jak/STAT signaling.**"
3. Sandoval H, **Yao CK**, Chen K, Jaiswal M, Donti T, Lin YQ, Bayat V, Xiong B, Zhang K, David G, Charng WL, Yamamoto S, Duraine L, Graham BH, Bellen HJ (2014-10) eLife 3, e03558 "**Mitochondrial fusion but not fission regulates larval growth and synaptic development through steroid hormone production.**"
4. **Yao CK**, Lin YQ, Ly CV, Ohyama T, Haueter CM, Moiseenkova-Bell VY, Wensel TG,

Bellen HJ (2009) Cell 138(5), 947-960 "**A synaptic vesicle-associated Ca2+ channel promotes endocytosis and couples exocytosis to endocytosis.**"

\* The paper is highlighted by

a preview in Cell (Cell:138(5):836-7)

a miniview in Neuron (Neuron: 63(5):566-7)

a minireview in Science Signaling (Sci. Signal.: 102(2), pe80)

a “Must Read” paper by“Faculty of 1000 Biology”

1. Giagtzoglou N, Mahoney T, **Yao CK**, Bellen HJ (2009) Neuron 64(5), 595-597 "**Rab3 GTPase lands Bruchpilot.**"
2. **Yao JG**, Weasner BM, Wang LH, Jang CC, Weasner B, Tang CY, Salzer CL, Chen CH, Hay B, Sun YH, Kumar JP (2008) Developmental biology 315(2), 535-551 "**Differential requirements for the Pax6(5a) genes eyegone and twin of eyegone during eye development in Drosophila.**"
3. Ly CV, **Yao CK**, Verstreken P, Ohyama T, Bellen HJ (2008) The Journal of cell biology 181(1), 157-170 "**straightjacket is required for the synaptic stabilization of cacophony, a voltage-gated calcium channel alpha1 subunit.**"
4. Tsai YC, **Yao JG**, Chen PH, Posakony JW, Barolo S, Kim J, Sun YH (2007) Developmental biology 306(2), 760-771 "**Upd/Jak/STAT signaling represses wg transcription to allow initiation of morphogenetic furrow in Drosophila eye development.**"
5. **Yao JG**, Sun YH (2005) The EMBO journal 24(14), 2602-2612 "**Eyg and Ey Pax proteins act by distinct transcriptional mechanisms in Drosophila development.**"

**Invited Presentations in the past three years**

1. 03/2025: “Endoplasmic reticulum-derived EV in neural network homeostasis” (Autophagy and membrane trafficking minisympoisum at Academia Sinica)
2. 03/2025: “Endoplasmic reticulum-derived EV in neural network homeostasis” (CSH Asia)
3. 10/2024: “Vicious interplay of endolysosome-ceramide-BMP axis drives synaptopathy in Raynaud-Claes syndrome” (LabEx meeting at Genova, Italy)
4. 09/2024: “ER-derived EV in neural communication” (Unbiased biological assemly, Academia Sinica, Taiwan)
5. 09/2024:“ER-derived EV in neural communication” (Frontier in science, Academia Sinica, Taiwan)
6. 08/2024: “ER-derived EV in neural communication” (Taiwan Society for neuroscience, Taiwan))
7. 03/2024: “Vicious interplay of endolysosome-ceramide-BMP axis drives synaptopathy in Raynaud-Claes syndrome” (Symposium fusing on synapse at Acaddemia Sinica, Taiwan)
8. 02/2024: 3”Synaptic vesicle symphony: Coupling exo-endo by Flower, Ca2+, lipids”(3rd Asia pacific Drosophila neurobiology conference in Tokyo RIKEN)
9. 11/2023: “From fundamental research to disease modeling. Organelle remodeling in neuron-glia communication”(National Tsing-Hua University, Taiwan)
10. 10/2023: “Neuron to glia transport of ER-derived vesicle”(Mini-symposium on membrane remodeling and trafficking at National Taiwan University College of Medicine)
11. 6/2023: “Fly tackling human diseases”(Kaohsiung Chang Gung Hospital, Taiwan)
12. 5/2023: “Roles of membrane remodeling in neuron-neuron and neuron-glia communication”(National Yang Ming ChiaoTung University, Taiwan)
13. 5/2023: “Multifaceted mission for the transmembrane protein Flower in synaptic vesicle remodeling”(Taiwan-France Bilateral Symposium at Academia Sinica, Taiwan)
14. 12/2022: “Axon-mediated secretion: Talk or Trash to Glia”(EMBO Workshop on Neural development and neurodegeneration at Academia Sinica, Taiwan)
15. 10/2022: “Neuron-glia crosstalk in health and disease”(National Taiwan Medical College, Taiwan)
16. 10/2022: “Neuron-glia crosstalk in health and disease”(Choh Hao Li Lectures at Academia Sinica, Taiwan)
17. 10/2022: “Modelling human diseases in fruit flies”(NPAS-NDMC bilateral conference at Academia Sinica, Taiwan)
18. 9/2022: “Diagnosing nature of disease-associated gene mutation in fruit flies” (Taiwan Society for Neuroscience)