Updated: Dec. 2022

**Sung Eun “Samuel” Kwon**

1105 N. University Ave-Room 4264, Ann Arbor, MI 48109 • samkwon@umich.edu • 608-886-7474

**Current Appointment**

**Assistant Professor, University of Michigan** 2018-present

Department of Molecular, Cellular, Developmental Biology

**Education**

**Ph.D. University of Wisconsin-Madison**  2011

**B.Sc. Australian National University** 2004

**Research Experience**

**Johns Hopkins University** 2012-2017

Postdoctoral Scientist (5 years)

Advisor: Dr. Daniel H. O’Connor

Project: long-range cortical circuits driving touch perception

**University of Wisconsin-Madison, Howard Hughes Medical Institute** 2006-2011

Graduate Research Assistant (5.5 years)

Advisor: Dr. Edwin R. Chapman

Thesis title: functional analysis of synaptic vesicle proteins

**GlaxoSmithKline, Centre of Excellence for Drug Discovery, Singapore** 2005-2006

Research Associate (1 year)

Supervisors: Dr. Darrel J. Pemberton and Dr. Paul F. Chapman

Task: *In vivo* psychopharmacology with 5-CSRTT task in rat

**Australian National University** 2002-2004

Lab Technician (1.5 years)

Advisor: Dr. John D. Clements

Thesis title: basic kinetic properties and stoichiometry of glycine receptors

**Publications**

*\* equal contribution*

Yang Y, Shen H, **Kwon SE**. Learning-induced reorganization of neuronal subnetworks in primary sensory cortex (original research article, submitted).

Zhao M, **Kwon SE**. *SYNGAP1* haploinsufficiency in inhibitory neurons disrupts tactile processing in somatosensory cortex (original research article, submitted). Preprint available at https://doi.org/10.1101/2022.09.27.509690

\*Tsytsarev V, **\*Kwon SE**, Plachez C, Zhao S, O’Connor DH and Erzurumlu R. (2022) Layers 4 and 3 neurons of the bilateral whisker-barrel cortex in a conditional Robo3 mutant mouse line. *Neuroscience* 494: 140-151.

Chang C, Zhao M, Grudzien S, Oginsky MF, Yang Y and **Kwon SE.** (2022) A cortico-cortical pathway targets inhibitory interneurons and modulates paw movement during locomotion in mice, *Journal of Neuroscience* 42(1): 44-57.

**Kwon SE.** (2021) Preview: Delay tactics for action in the cortex. *Neuron* 109 (13): 2045-2046.

Zhang M, **Kwon SE**, Ben-Johny M, O’Connor DH, Issa JB. (2020) Spectral hallmark of auditory-tactile interactions in somatosensory cortex. *Communications Biology* 3(1): 64.

**Kwon SE.** (2018) Interplay between cortical state and perceptual learning: a focused review, *Frontiers in Systems Neuroscience* 09 Oct: fnsys.2018.00047*.*

**(Before joining UMich)**

Minamisawa G**, Kwon SE**, Chevee M, Brown SP and O’Connor DH. (2018) A non-canonical feedback circuit for rapid interactions between somatosensory cortices, *Cell Reports* 23(9): 2718-2731*.*

**\*Kwon SE,** \*Tsytsarev V, Erzurumlu RS and O’Connor DH. (2018) Organization of orientation-specific whisker deflection responses in layer 2/3 of mouse somatosensory cortex, *Neuroscience* 368: 46-56.

**Kwon SE**, Yang H, Minamisawa G and O’Connor DH. (2016) Propagation of sensory and decision- related activity in a cortical feedback loop during touch perception, *Nature Neuroscience* 19(9): 1243-9*.*

\*Yang H, \***Kwon SE**, Severson KS and O’Connor DH. (2016) Origins of choice-related activity in mouse somatosensory cortex, *Nature Neuroscience* 19(1): 127-34.

Liu H, Bai H, Hui E, Yang L, Evans C, Wang Z, **Kwon SE**, and Chapman ER. (2014) Synaptotagmin 7 functions as a Ca2+-sensor for synaptic vesicle replenishment, *eLife* 3: e01524.

**Kwon SE** and Chapman ER. (2012) Glycosylation is dispensable for sorting of synaptotagmin 1, but is critical for targeting of synaptophysin and SV2 to recycling synaptic vesicles, *Journal of Biological Chemistry* 287(42): 35658-68.

\*Yao J, \***Kwon SE**, Gaffaney JD, Dunning FM, and Chapman ER. (2012) Uncoupling the roles of synaptotagmin I as a dual Ca2+ sensor during endo- and exocytosis of synaptic vesicles, *Nature Neuroscience* 15(2): 243-9. Highlighted by F1000.

\*Yao J, \*Gaffaney JD, **Kwon SE**, and Chapman ER. (2011) Doc2 is a Ca2+ sensor required for asynchronous neurotransmitter release[,](http://www.ncbi.nlm.nih.gov/pubmed/22036572) *Cell* 147(3): 666-77. Highlighted by F1000.

**Kwon SE** and Chapman ER. (2011) Synaptophysin regulates the kinetics of synaptic vesicle endocytosis in central neurons, *Neuron* 70 (5): 847-54. Highlighted by F1000.

**Presentations**

*Invited Seminars*

Dept. of Biomedical Engineering, Sungkyunkwan University, South Korea, Apr. 2022.

34th annual Barrels Meeting, remote, Nov. 2021.

Neural Networks Club, University of Michigan-Ann Arbor, Nov. 2019.

Simons Foundation annual meeting, New York City, May. 2019.

Department of Pharmacology, Wayne State University, Apr. 2019.

MCDB department retreat, University of Michigan-Ann Arbor, Oct. 2018.

Neuroscience graduate program retreat, University of Michigan-Ann Arbor, Oct. 2018.

Kavli Neuroscience Innovators meeting, Mar. 2018.

Kresge Hearing Institute, University of Michigan-Ann Arbor, Mar. 2018.

Neural Networks Club, University of Michigan-Ann Arbor, Jan. 2018.

Association of Korean Neuroscientists Meeting, Society for Neuroscience, Nov. 2017.

Department of Pharmacology and Physiology, Georgetown University, Apr. 2017.

Department of Neuroscience, University of Pittsburgh, Mar. 2017.

Department of Neurobiology, St. Jude Children’s Research Hospital, Feb. 2017.

Department of Physiology and Biophysics, University of Colorado, Jan. 2017.

Department of MCDB, University of Michigan-Ann Arbor, Jan. 2017.

Neuronal Circuits*,* Cold Spring Harbor Laboratory, 2016.

*Invited Poster Presentations*

Yang Y, **Kwon SE**. Category learning re-organizes layer 2/3 cortical subnetworks, *ASCONA meeting on neural circuit*. Switzerland, Sep. 2022.

Yang Y, **Kwon SE**. Category learning re-organizes layer 2/3 cortical subnetworks, *Gordon Research Conference on Neurobiology of Cognition*. ME, Jul. 2022.

Zhao M, **Kwon SE**. Loss of SYNGAP1 gene in inhibitory cortical neurons disrupts representation of task-relevant sensory input, *Simons Foundation Annual Meeting*. NY, Apr. 2022.

**Awards & Honors**

SFARI Bridge to Independence Fellow 2018-2021

Neuroscience Scholar award, University of Michigan-Ann Arbor 2017

Outstanding research award, Association of Korean Neuroscientists 2017

Albert L. Lehninger research award, Johns Hopkins University 2017

Best poster prize, Department of Neuroscience, Johns Hopkins University 2015

Jerzy Rose award for best thesis, University of Wisconsin-Madison 2012

Epilepsy Foundation pre-doctoral fellowship 2010

Joyce Fildes scholarship, Australian National University 2003

**Teaching and Mentoring (since 2018)**

*Courses*

MCDB 322, Fall 2022

BIO 222, Winter 2020, Winter 2021, Fall 2021

MCDB 465, Fall 2020

MCDB 421, Winter 2019

MCDB 600, Fall 2019

MCDB 614, Fall 2018

*Research Training*

*Current*

Yexin Yang, MCDB PhD Student, May. 2019 – present

Meiling Zhao, MCDB PhD Student, May. 2019 – present

Rafael DeGouvea, Undergraduate Research Student, Aug. 2022 - present

*Past*

Max Oginsky, Postdoctoral Fellow. Apr. 2018 – Jul. 2021. Current: Field Scientist at Scientifica.

Chia-wei Chang, Postdoctoral Fellow, April. 2018 – Feb. 2020. Current: Postdoctoral Fellow at UCLA.

Yijie Pan, MCDB rotation student, Feb. 2022 – Mar. 2022

Rajer Hsieh, NGP rotation student, Aug. 2021 – Dec. 2021

Alvin Chiu, NGP rotation student, Aug. 2021 – Dec. 2021

Kayla Jones, MCDB Horizons Research Intern, May. 2021 – Aug. 2021

Avery Heo, Neuroscience Honors Research Student, May. 2021 – Apr. 2022

Samantha Grudzien, Neuroscience Honors Research Student. Jan. 2019 – May. 2020

Hong Yu Lui, Undergraduate Research Student, Jan. 2020 – Jan. 2021

Johnny Shen, Undergraduate Research Student, Jan. 2020 – Jan. 2021

Nicole Pham, UROP student, Sep. 2019 – Apr. 2020

Alec Bayoneto, Undergraduate Research Student, Sep. 2019 – Apr. 2020

Jasvin Kauer, Undergraduate Research Student from Cambridge, Jul. 2019 – Aug. 2019

Breanne Miller, Undergraduate Research Student, May. 2019 – Dec. 2019

Morteda Alaamiri, Undergraduate Research Student, Jan. 2019 – May. 2019

Griffin Downing, MCDB Rotation Student, Jan. 2019 – Mar. 2019

Antoinette Danku, Neuroscience Rotation Student, Jan. 2019 – Mar. 2019

Chia Chun (Victor) Hor, MCDB Rotation Student, Sep. 2018 – Nov. 2018

Maria Ahmed, MCDB Rotation Student, Apr. 2018 – Jun. 2018

Brenna Bunch, Undergraduate Research Student, Mar. 2018 – May. 2019

**Service**

*MCDB department*

Horizons Summer Internship Committee, Summer 2022

Speaker Host for Connell Lecture, Mar. 2022

Curriculum committee, 2020 – Summer 2022

Departmental Seminar Committee, 2019 – 2020, Fall 2022.

*Neuroscience graduate program*

Admissions Committee, 2019 – present

Mentor for Student Seminar Series, Fall 2020

*Thesis Committees*

Alexis Vega Medina, NGP, Lab of Sara Aton, Sep. 2021 - present

Jessy Martinez, MCDB, Lab of Sara Aton, May. 2019 – present

Maria Ahmed, MCDB, Lab of Josie Clowney, May. 2019 – present

Alexa Faulkner, NGP, Lab of Christian Burgess, May. 2019 – present

Lijing Wang, MCDB, Lab of Sara Aton, May. 2020 – present

Chia-Chun Hor, MCDB, Lab of Bo Duan, May. 2020 – present

Yexin Yang, MCDB, Lab of Sam Kwon, May. 2020 – present

Meiling Zhao, MCDB, Lab of Sam Kwon, May. 2020 – present

Yijun Guo, MCDB, Lab of Roger Cone, May. 2021 – present

Samantha Grudzien, NGP, Lab of Peter Todd, Oct. 2021 – present

*Consultation*

GRIN2B Foundation, Science Director, Jul. 2019 – Oct. 2020

GRIN2B Foundation, Medical Advisory Board, Oct. 2020 – present

*Scientific Review*

Ad hoc reviewer: COSYNE meeting, Journal of Neuroscience, Plos Biology, iScience

Review editor: Frontiers in Cellular Neuroscience, Jul. 2021 – present