

Young-Gyun Park, Ph. D.

Assistant Professor, Department of Bio and Brain Engineering
Korea Advanced Institute of Science and Technology (KAIST), South Korea

CONTACT INFORMATION

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EDUCATION

Integrated M. S. /Ph. D., Biological Sciences, Korea Advanced Institute of Science and Technology (KAIST), South Korea 2006.03 – 2011.08
- Thesis: Role of T-type calcium channel on tremorogenesis

B.S., Biological Sciences, KAIST, South Korea 2002.03 – 2006.02

PROFESSIONAL EXPERIENCE

Research Scientist, MIT, United States (Advisor: Dr. Kwanghun Chung) 2019.06 – 2020.07

Postdoctoral Fellow, MIT, United States (Advisor: Dr. Kwanghun Chung) 2015.06 – 2019.05

Postdoctoral Associate, Friedrich-Miescher Institute, Switzerland (Advisor: Dr. Silvia Arber) 2013.12 – 2015.04

Postdoctoral Associate, KAIST, Korea (Advisor: Dr. Daesoo Kim) 2011.09 – 2013.11

PUBLICATIONS (*Co-first authors)

Yun DH*, **Park Y-G***, Cho JH*, Kamensky L, Evans N, DiNapoli N, Xie K, Choi SW, Albanese A, Tian Y, Sohn CH, Zhang Q, Kim M, Swaney J, Guan W, Park J, Drummond G, Choi H, Ruelas L, Feng G, Chung K. Universal strategy for volumetric single-cell processing, CuRVE, and its demonstration in rapid and scalable organ-scale molecular phenotyping, eFLASH. (**Accepted in *Nature Biotechnology***)

Kim H, Kim B, Kim SJ, Choi Y, Kim I-H-R, Han J, **Park Y-G**, Han Y-M, Park J-K (2024) Reconfigurable Hanging Drop Microarray Platform for On-Demand Preparation and Analysis of Spheroid Array. *Advanced Healthcare Materials*. 13:22. doi: 10.1002/adhm.202400501

Cho W, Kim S, **Park Y-G**. (2023) Towards multiplexed immunofluorescence of 3D tissues. *Mol. Brain* 16:37. doi:10.1186/s13041-023-01027-9

Min KW, Kim N, Lee JH, Sung Y, Kim M, Lee EJ, Kim J-M, Kim J-H, Lee J, Cho W, Yang JM, Kim N, Kim J, Lee CJ, **Park Y-G**, Lee S-H, Lee H-W, Kim JW. (2023) Visuomotor anomalies in chiasmatic mice expressing a transfer-defective Vax1 mutant. *Exp. Mol. Medicine* 55:385–400. doi:10.1038/s12276-023-00930-4

Jeon J, Kim H, Jang H, Hwang K, Kim K, **Park Y-G**, Jeong K-H. (2022) Handheld laser scanning microscope catheter for real-time and in vivo confocal microscopy using a high definition high frame rate Lissajous MEMS mirror. *Biomed. Opt. Express* 13:1497–1505. doi:10.1364/boe.447558

Roy DS*, **Park Y-G***, Kim ME*, Zhang Y*, Ogawa SK*, DiNapoli N, Gu X, Cho JH, Choi H, Kamentsky L, Martin J, Mosto O, Aida T, Chung K, Tonegawa S. (2022) Brain-wide mapping reveals that engrams for a single memory are distributed across multiple brain regions. *Nature Communication* 13:1799. doi:10.1038/s41467-022-29384-4

Lilascharoen V, Wang EH, Nam D, Pate SC, Tran AN, Yoon CD, Choi J-H, Wang X-Y, Pribiag H, **Park Y-G**, Chung K, Lim BK (2021) Divergent pallidal pathways underlying distinct Parkinsonian behavioral deficits, *Nature Neuroscience*, 24 504-515

Muñoz-Castañeda R, Zingg B, Matho KS, Chen X, Wang Q, Foster NN, Li A, Narasimhan A, Hirokawa KE, Huo B, Bannerjee S, Korobkova L, Park CS, **Park Y-G**, Bienkowski MS, Chon U, Wheeler DW, Li Xiangning, Wang Yun, Naeemi M, Xie P, Liu L, Kelly K, An X, Attili SM, Bowman I, Bludova A, Cetin A, Ding L, Drewes R, D’Orazi F, Elowsky C, Fischer S, Galbavy W, Gao L, Gillis J, Groblewski PA, Gou L, Hahn JD, Hatfield JT, Hintiryan H, Huang JJ, Kondo H, Kuang X, Lesnar P, Li Xu, Li Y, Lin M, Lo D, Mizrachi J, Mok S, Nicovich PR, Palaniswamy R, Palmer J, Qi X, Shen E, Sun Y-C, Tao HW, Wakemen W, Wang Yimin, Yao S, Yuan J, Zhan H, Zhu M, Ng L, Zhang LI, Lim BK, Hawrylycz M, Gong H, Gee JC, Kim Y, Chung K, Yang XW, Peng H, Luo Q, Mitra PP, Zador AM, Zeng H, Ascoli GA, Huang ZJ, Osten P, Harris JA, Dong H-W. (2021) Cellular anatomy of the mouse primary motor cortex. *Nature* 598:159–166. doi:10.1038/s41586-021-03970-w

Swaney J, Kamensky L, Evans N, Xie K, **Park Y-G**, Drummond G, Yun DH, Chung K (2019) Scalable image processing techniques for quantitative analysis of volumetric biological images from light-sheet microscopy. *bioRxiv*, 576595

Park Y-G*, Sohn CH*, Chen R*, McCue M, Yun DH, Drummond GT, Ku T, Evans NB, Oak HC, Trieu W, Choi H, Jin X, Lilascharoen V, Wang J, Truttman MC, Qi HW, Ploegh HL, Golub TR, Chen S-C, Frosch MP, Kulik HJ, Lim BK, Chung K (2019) Protection of tissue physicochemical properties using polyfunctional crosslinkers. *Nature Biotechnology*, 37(1), pp 73–83 (Cover article)

Ku T, Swaney J, Park J-Y, Albanese A, Murray E, Cho JH, **Park Y-G**, Mangena V, Chen J, Chung K (2016) Multiplexed and scalable super-resolution imaging of three-dimensional protein localization in size-adjustable tissues. *Nature Biotechnology*, 34(9), pp 973–981

Murray E, Cho JH, Goodwin D, Ku T, Swaney J, Kim S-Y, Choi H, **Park Y-G**, Park J-Y, Hubbert A, McCue M, Vassallo S, Bakh N, Frosch MP, Wedeen VJ, Seung HS, Chung K (2015) Simple, scalable proteomic imaging for high-dimensional profiling of intact systems. *Cell*, 163(6), pp 1500–1514

Lee E*, Hong J*, **Park Y-G**, Chae S, Kim Y, Kim D (2015) Left brain cortical activity modulates stress effects on social behavior. *Scientific Reports*, 5(1), p 13342

Park Y-G, Choi JH, Lee C, Kim S, Kim Y, Chang K-Y, Paek SH, Kim D (2015) Heterogeneity of tremor mechanisms assessed by tremor-related cortical potential in mice. *Molecular Brain*, 8(1), p 3

Park Y-G, Kim J, Kim D (2013) The potential roles of T-type Ca²⁺ channels in motor coordination *Frontiers in Neural Circuits*, 7

Chang K-Y, **Park Y-G**, Park H-Y, Homanics GE, Kim J, Kim D (2011) Lack of CaV3.1 channels causes severe motor coordination defects and an age-dependent cerebellar atrophy in a genetic model of essential tremor. *Biochemical and Biophysical Research Communications*, 410(1), pp 19–23

Kim J, Woo J, **Park Y-G**, Chae S, Jo S, Choi JW, Jun HY, Yeom YI, Park SH, Kim KH, Shin H-S, Kim D (2011) Thalamic T-type Ca²⁺ channels mediate frontal lobe dysfunctions caused by a hypoxia-like damage in the prefrontal cortex. *The Journal of Neuroscience*, 31(11), pp 4063–4073

Park Y-G*, Park H-Y*, Lee CJ, Choi S, Jo S, Choi H, Kim Y-H, Shin H-S, Llinas RR, Kim D (2010) CaV3 1 is a tremor rhythm pacemaker in the inferior olive. *Proceedings of the National Academy of Sciences*, 107(23), pp 10731–10736

PATENTS

Double knockout GABAA $\alpha 1^{-/-}$; CaV3 1 and GABAA $\alpha 1^{-/-}$; Emx1-cre mouse models with enhanced essential tremor. (2013) European Patent EP2241628A1 (registered)

Method for the prevention and treatment of Essential tremor by regulating $\alpha 1$ g T-type calcium channel or by T-type calcium channel blockers. (2012) U.S. Patent US20120014880A1 (applied)

Mouse models with enhanced Essential tremor and preparation method thereof. (2012) U.S. Patent US8319007B2 (registered)

Mouse models enhanced in Essential tremor and method for producing the same. (2012) Japan Patent 05079839 (registered)

$\alpha 1$ /CaV3.1 double knockout mice exhibiting essential tremor and preparation method thereof. (2011) Korea patent 1010925780000 (registered)

AWARDS

KAIST Grand Prize for Creative Education	2024
KAIST Global Excellence Lab, KAIST	2023
Excellence Prize, The Soo-Young Lee Teaching Innovation Award, KAIST	2023
Grand Prize, The 2 nd University Distance Education Best Case Contest, Korea Education and Research Information Service	2022
Poster Award, New England Bioscience Society	2019
AkN Post-doctoral Award, Association of Korean Neuroscientists	2018
Excellent Oral Presentation, Department of Biological Sciences, KAIST	2012
Best Oral Presentation, Korea Society of Biochemistry and Molecular Biology (KSBMB)	2010
Bo-Jung Kim Scholarship	2006 – 2007

TEACHING

Lecturer, Biotechnology Laboratory, KAIST (2021-present)

Lecturer, Methods in Neuroscience, KAIST (2021-present)
Lecturer, Freshmen Seminar <Bio and Brain Engineering>, KAIST (2021)
Lecturer, Brain and Cognitive Engineering I, KAIST (2021-2022)
Lecturer, Special lectures in Bio and Brain Engineering <Single-cell brain mapping>, KAIST (2020)
Instructor, MISTI global seed funds program, MIT (2018)
Supervisor, Undergraduate Research Program, KAIST (2010 - 2012)
Mentor, Group Supervision Program, KAIST (2010)
Teaching Assistant, Molecular Biology, KAIST (2007)
Teaching Assistant, Immunology, KAIST (2007)
Teaching Assistant, General Biology, KAIST (2007)

INVITED TALKS

The meeting of the Basic Research Group of the Korean Spine Neurosurgery Society (2024.03.15)
Annual Meeting of the Brain Engineering Society of Korea, Gangwon, Korea (2024.02.29)
K-BioX global postdoc club 2nd Net-workshop, webinar (2023. 11.10)
2023 Fall conference of the Korean Society for Biomaterials, Jeju, Korea (2023.09.20)
China-Japan-Korea International Meeting & Annual meeting of Chinese Neuroscience Society, Zhuhai, China (2023.07.28)
2023 Korean Physics Society Spring Meeting, Daejeon, South Korea (2023.04.20)
2023 Brain Awareness Week, KAIST, Daejeon, South Korea (2023.03.16)
CHA Biocomplex, Seongnam, South Korea (2022.12.14)
KAIST-SJTU symposium, webinar (2022.12.09)
제 1 회 뇌질환모델연구 WG 심포지엄, Ochang, Korea (2022.11.24)
Korean Society for Extracellular Vesicles 2022 Annual Meeting, Jeju, Korea (2022.11.22)
2022 Annual Fall Meeting of the Korean BioChip Society, Jeju, Korea (2022.11.03)
International Brain Initiative Daegu Conference 2022, Korea Brain Research Institute, Daegu, Korea (2022.09.23)
New PI panel discussion, New PI Cell & Development Society, webinar (2022.06.16)
Department of Biomedical Sciences, Seoul National University School of Medicine, Seoul, Korea (2022.04.25)
The Optical Society of Korea Winter Conference, webinar (2022.02.16)
Brain, Mind and Cognition Conference: Annual conference of the Brain and Cognitive Engineering Program, webinar (2021.12.17)
The Joint Conference of the IBEC2021 and the ICBHI2021, webinar (2021.11.11)
The 2021 International Conference of the Korean Society for Molecular and Cellular Biology, Jungmoon, Korea (2021.11.05)
Korea Science Academy, webinar (2021.10.29)
Korea Research Institute of Standards and Science, webinar (2021.08.10)

44th annual meeting of the Japan Neuroscience Society / the 1st CJK International Meeting, webinar (2021.07.29)
Department of Bio and Brain Engineering, KAIST, webinar (2021.06.09)
Department of Biological Sciences, KAIST, webinar (2021.04.06)
Department of Biomedical Sciences, Seoul National University, webinar (2021.04.05)
The 14th Annual Meeting for Japanese Developmental Neuroscientists (Korea Japan Joint Meeting), webinar (2021.03.20)
Department of Biological Sciences, KAIST, webinar (2021.04.06)
Department of Biomedical Sciences, Seoul National University School of Medicine, webinar (2021.04.05)
The 14th Annual Meeting for Japanese Developmental Neuroscientists (Korea Japan Joint Meeting), webinar (2021.03.20)
Department of Brain and Cognitive Science, Seoul National University, webinar (2021.03.18)
Catholic University School of Medicine, Korea (2020.12.18)
2021 Harvard-MIT-KAIST Symposium on Bio and Brain Engineering, webinar (2020.12.11)
제 41 차 지제근 교수의 신경해부통합강좌, webinar (2020.11.21)
2020 KOSOMBE Fall Meeting, The Korean Society of Medical & Biological Engineering, webinar (2020.11.13)
Institute for Basic Science, Daejeon, Korea (2020.10.20)
Seoul National University, Seoul, Korea (2019.11)
Korea University School of Medicine, Seoul, Korea (2019.04)