Sung-Yon Kim, Ph.D.

sungyonkim@snu.ac.kr
sungyonkimlab.org

Associate Professor, Department of Chemistry
Seoul National University, Seoul, South Korea

Education & Training

2013 – 2015	Postdoctoral fellow	Massachusetts Institute of Technology
2009 – 2013	Ph.D. in Neuroscience	Stanford University
2003 – 2009	B.S. in Chemistry and Biological Sciences	Seoul National University. *summa cum laude*
	(2004 – 2005) Military service in South Korea	

Faculty Appointments

2026 – 2027	Visiting Professor	The Rockefeller University
2023 – 2026	Program Director	Graduate Program in Molecular Biology and Genetics, Seoul Nat'l Univ
2022 – 2023	Visiting Scholar	Department of Neurobiology, UC San Diego
2021 –	Associate Professor	Department of Chemistry, Seoul National University
2020 –	Invited Investigator	Korea Brain Research Institute
2015 – 2021	Assistant Professor	Seoul National University

Affiliations at SNU. Dept of Biological Sciences (2020-), Program in Biophysics and Chemical Biology (2017-2023), Brain-Mind-Behavior Program (2017-), Institute of Molecular Biology and Genetics (2016-), Dept of Biophysics and Chemical Biology (2015-2017), Program in Molecular Biology and Genetics (2015-), Program in Neuroscience (2015-)

Honors & Awards (Selected)

2022	Hanseong Science Award	Hanseong Foundation
2022	Asan Award in Medicine (Young Medical Scientist category)	Asan Foundation
2020	Commendation for the Promotion of Healthcare Technology	Ministry of Health and Welfare, Korea
2018	Young Researcher Award	National Research Foundation of Korea
2014	Donald B. Lindsley Prize in Behavioral Neuroscience	Society for Neuroscience
2014	LSRF Postdoctoral Fellowship	Life Sciences Research Foundation

Publications (Selected)

1. Kim M, Koo DJ, Han G, Cho H, Lee JI, Woo CW, Kim SY. A pharynx-to-forebrain circuit transforms swallowing into rapid thirst satiation. ***Neuron***. *Accepted in principle*
2. Kim SR, Kim J, Kim SY. (2026). A neural circuit for social novelty preference integrates sensory and memory signals. ***Nature.*** *Accepted in principle*
3. Lee M, Jung S, Kwon JJ, Kondaurova A, Nam M, Kim D, Hyun JH, Kim SY. (2026). Distinct lateral hypothalamic GABAergic ensembles encode motivational salience and value-scaled consumption. ***Cell Reports***. 45(10):118049. doi:10.1016/j.celrep.2026.118049.
4. Jung S, Kondaurova A, Lee M, Kwon JJ, Shin H, Kim SY. (2026). Parabrachial neurons orchestrate cold-induced homeostatic responses. ***Nature Metabolism***. 8(8):1679-1693. doi:10.1038/s42255-026-01565-1. **featured as News & Views by Drs. Óscar Freire-Agulleiro and Miguel López, "Cold sensing and the parabrachial nucleus," Nature Metabolism. 8(8):1627-1628 (2026). doi:10.1038/s42255-026-01571-3.*
5. Pac J, Koo DJ, Cho H, Jung D, Choi MH, Choi Y, Kim B, Park JU, Kim SY*, Lee Y*. (2022). Three-dimensional imaging and analysis of pathological tissue samples with de novo generation of citrate-based fluorophores. ***Science Advances***. 8(46):eadd9419. *******co-correspondence*

6. Kim M, Heo G, Kim SY. (2022). Neural signalling of gut mechanosensation in ingestive and digestive processes. ***Nature Reviews Neuroscience***. 23(3):135-156.
7. Jung S, Lee M, Kim DY, Son C, Ahn BH, Heo G, Park J, Kim M, Park HE, Koo DJ, Park JH, Lee JW, Choe HK, Kim SY. (2022). A forebrain neural substrate for behavioral thermoregulation. ***Neuron***. 110(2):266-279.e9. **featured as Previews by Dr. Amber Alhadeff, Neuron 110(2):180–182*.
8. Lee S, Kim S, Koo DJ, Yu J, Cho H, Lee H, Song JM, Kim SY*, Min DH*, Jeon NL*. (2021). 3D microfluidic platform and tumor vascular mapping for evaluating anti-angiogenic RNAi-based nanomedicine. ***ACS Nano***. 15(1):338-350. **co-correspondence*
9. Kim DY, Heo G, Kim M, Kim H, Jin JA, Kim HK, Jung S, An M, Ahn BH, Park JH, Park HE, Lee M, Lee JW, Schwartz GJ, Kim SY. (2020). A neural circuit mechanism for mechanosensory feedback control of ingestion. ***Nature***. 580(7803):376–380.
**featured as lead Highlight in Nature Reviews Gastroenterology & Hepatology 2020, 17:315.*
**selected as one of the Top 100 National Research and Development Projects in 2021*
10. Park HE, Choi D, Park JS, Sim C, Park S, Kang S, Yim H, Lee M, Kim J, Pac J, Rhee K, Lee J, Lee Y, Lee Y, Kim SY. (2019). Scalable and isotropic expansion of tissues with simply tunable expansion ratio. ***Advanced Science***. 6(22):1901673. **featured as the front cover*
11. Kim SY, Cho JH, Murray E, Bakh N, Choi H, Ohn K, Ruelas L, Hubbert A, McCue M, Vassallo SL, Keller PJ, Chung K. (2015). Stochastic electrotransport selectively enhances the transport of highly electromobile molecules. ***Proc Natl Acad Sci U S A***. 112(46):E6274-83.
12. Kim SY, Chung K, Deisseroth K. (2013). Light microscopy mapping of connections in the intact brain. ***Trends in Cognitive Sciences***. 17(12):596-599.
13. Kim SY, Adhikari A, Lee SY, Marshel JH, Kim CK, Mallory CS, Lo M, Pak S, Mattis J, Lim BK, Malenka RC, Warden MR, Neve R, Tye KM, Deisseroth K. (2013). Diverging neural pathways assemble a behavioural state from separable features in anxiety. ***Nature***. 496(7444):219-223.
**featured as News and Views by Dr. Joshua Johansen, Nature 496(7444):174–175*.
14. Tye KM*, Prakash R*, Kim SY*, Fenno LE, Grosenick L, Zarabi H, Thompson KR, Gradinaru V, Ramakrishnan C, Deisseroth K. (2011). Amygdala circuitry mediating reversible and bidirectional control of anxiety. ***Nature***. 471(7338):358-362. **equal contribution*

Complete List of Published Work: Google Scholar, ORCID, NCBI MyBibliography, Full CV file

Intellectual Properties (Selected)

1. Ahn HJ, Kim SY. (KR granted 2023; US granted 2024). Automated apparatus for stereotactic surgical device. KR102525496B1, US12011321B2
2. Chung K, Kim SY, Ohn K, Murray E, Cho JH. (filed 2015; first US grant 2019). Active transport of charged molecules into, within, and/or from charged matrices. US10416116B2, US12066400B2, EP3126037B1, CN106211762B
3. Kim SY, Deisseroth K, Adhikari A. (filed 2014; EP granted 2019; US granted 2021). Optogenetic control of behavioral state. US10974064B2, EP2968997B1, CN105246550A, AU2014227600B2, ES2742492T3

Professional Activities (Selected)

TBD	Cold Spring Harbor Asia Meeting "Brain-Body Interface at the Edge of Physiology & Pathology: Current Status and Future Directions." Suzhou, China. Co-organizer (in planning)
2027	Keystone Symposia "Neurobiology of Appetite Control." Keystone, CO, U.S. Co-organizer
2026	Founding Member, Brain-Body Interaction Society

2025 Co-organizer, Samsung Global Research Symposium on the Science and Engineering of Brain-Body Interactions. Stockholm, Sweden
Organizer, SNU Neuro-Chemical-Metabolism Symposium. Seoul
Organizer, The 2nd Annual Meeting of the Global BRL on Thermoregulation. Seoul
2025 – 2026 Academic Committee, Korean Society for the Study of Obesity (KOSSO)
2024 Organizer, The 1st Annual Meeting of the Global Basic Research Laboratory on Neural Circuits for Thermoregulation. Seoul
2022 – 2025 Trainee Professional Development Awards Selection Committee, SfN
2022 – 2024 Diversity Committee, SSIB
2021 – 2024 Program Committee, Society for the Study of Ingestive Behavior (SSIB)
2021 – 2023 Program Manager (Neurobiology RB), National Research Foundation of Korea
2021 – Editorial Board, Molecules and Cells
2021 – Member, Young Korean Academy of Science and Technology (Y-KAST)
2021 – 2023 Academic Committee, Korean Endocrine Society (KES)
2021 – 2022 Academic Committee, Korean Society for Brain and Neural Science (KSBNS)

Reviewing of manuscripts. ad-hoc reviewer for Nature, Cell, Nature Neuroscience, Neuron, Nature Metabolism, Nature Biotechnology, Nature Methods, Science Advances, Nature Communications, Biological Psychiatry, Proc Natl Acad Sci U S A., Current Biology, Cell Reports, Neuropsychopharmacology, eLife, etc.
Reviewing of grant proposals. National Research Foundation of Korea (NRF), Samsung Science & Technology Foundation, European Research Council (ERC)

Invited Talks (Selected among invited talks in the last few years)

2027	EMBO International Lecture Series on Sensory Systems	Bengaluru, India. *(Scheduled)*
	EPFL (Swiss Federal Institute of Technology in Lausanne)	Lausanne, Switzerland *(Scheduled)*
	DeWitt Goodman Seminar Series, Columbia University	New York, NY, U.S. *(Scheduled)*
	Keystone Symposia on Neurobiology of Appetite Control	Keystone, CO, U.S. *(Scheduled)*
	Leon Levy Seminar Series, The Rockefeller University	New York, NY, U.S. *(Scheduled)*
2026	Johns Hopkins University School of Medicine	Baltimore, MD, U.S. *(Scheduled)*
	Neuroscience 2026, Society for Neuroscience	Washington, D.C. U.S. *(Scheduled)*
	MCN Seminar Series, Massachusetts Institute of Technology	Cambridge, MA, U.S.
	Monell Chemical Senses Center	Philadelphia, PA, U.S.
	Dept. of Molecular and Cellular Physiology, Yale University	New Haven, CT, U.S.
	Society for the Study of Ingestive Behavior	Philadelphia, PA, U.S.
	Molecular Psychiatry Meeting	Lihue, HI, U.S.
	Keystone Symposia on Gut-Brain Axis	Breckenridge, CO, U.S.
	Gordon Research Conference (Social Behavior)	Pomona, CA, U.S.
	Shenzhen Medical Academy of Research and Translation	Shenzhen, China.
2025	Center for Physiology, University of Cologne	Cologne, Germany
	131st International Titisee Conference on Thermoregulation	Titisee, Germany
	Institute for Immunology, Tsinghua University	Beijing, China
	Japanese Assoc. for the Study of Taste and Smell	Osaka, Japan
	Global Research Symposium on Body-Brain Interactions	Stockholm, Sweden
	Keystone Symposia on Interoception	Seattle, WA, U.S.

2024	Janelia Conference on Sensory Biology of Ingestion	Ashburn, VA, U.S.
	Workshop on the Social Brain	Baeza, Spain
	Westlake University	Hangzhou, China
	Zhejiang University	Hangzhou, China
	Cold Spring Harbor Asia Summer Imaging Course	Suzhou, China
	Gordon Research Conference on Optogenetics	Barga, Italy
2023	Department of Neurobiology, Harvard Medical School	Boston, MA, U.S
	4D Cellular Physiology, HHMI Janelia Research Campus	Ashburn, VA, U.S.
	Department of Physiology, UCSF	San Francisco, CA, U.S.
	Department of Neurobiology, Northwestern University	Evanston, IL, U.S.
	Robert Whitney Newcomb Memorial Lecture, NIH	Bethesda, MD, U.S.
	Neurobiology & Neural Systems Seminar, Caltech	Pasadena, CA, U.S.
	Synapse-to-Circuit Seminar Series, UCLA	Los Angeles, CA, U.S.
	Department of Neuroscience, UT Southwestern	Dallas, TX, U.S.

Mentoring & Teaching

Mentored >20 graduate and undergraduate researchers; trainees now Ph.D. or postdoctoral researchers at Harvard, Yale, MIT, Monell, Rockefeller, UCSD, UCLA, etc.

Cold Spring Harbor Asia. Summer Imaging Course. Suzhou, China (2024).

SNU. Neural Circuits and Molecules of the Brain (C40.139), Molecular Neurobiology (3391.503), Optogenetic Approaches to Neuroscience (M1430.001200), Techniques in Neurosciences (M1430.001400), Methods in Brain Sciences (M1427.000200), etc.

MIT. CLARITY workshop instructor.

Stanford. Optogenetics workshop instructor. Molecular and Cellular Neurobiology TA.

Book Chapter

Seo J., Koo DJ., Kim SY. (2019) Chemical Processing of Brain Tissues for Large-Volume, High-Resolution Optical Imaging. In: Kao FJ., Keiser G., Gogoi A. (eds) Advanced Optical Methods for Brain Imaging. Progress in Optical Science and Photonics, vol 5. Springer, Singapore, pp. 295-334. https://doi.org/10.1007/978-981-10-9020-2_15

Professional Activities (Full List)

2026	Founding Member, Brain-Body Interaction Society (BBIS)
2025 – 2026	Academic Committee, Korean Society for the Study of Obesity (KOSSO)
2022 – 2025	Trainee Professional Development Awards Selection Committee, SfN
2022 – 2024	Diversity Committee, SSIB
2022 – 2023	Research Committee, Korean Diabetes Association
2022	Nanosymposium Chair, Neuroscience 2022, Society for Neuroscience (SfN)
2021 – 2024	Program Committee, Society for the Study of Ingestive Behavior (SSIB)
2021	Founding Member, Homeostasis Section in KSBNS
2021 – 2023	Program Manager (Neurobiology RB), National Research Foundation of Korea
2021 –	Editorial Board, Molecules and Cells
2021 –	Member, Young Korean Academy of Science and Technology (Y-KAST)

2021 – 2023 Academic Committee, Korean Endocrine Society (KES)
2021 – 2023 Program Committee, China-Japan-Korea (CJK) Neuroscience Meeting
2021 – 2022 Academic Committee, Korean Society for Brain and Neural Science (KSBNS)
2019 – Member, Society for the Study of Ingestive Behavior (SSIB)
2018 Education Committee, Korean Society for Molecular and Cellular Biology (KSMCB)
2015 – Member, Korean Society for Brain and Neural Science (KSBNS)
2015 – Member, Korean Society for Molecular and Cellular Biology (KSMCB)
2009 – Member, Society for Neuroscience (SfN)

Conference/Symposia Organization (Full List)

TBD Cold Spring Harbor Asia Meeting "Brain-Body Interface at the Edge of Physiology & Pathology: Current Status and Future Directions." Suzhou, China. Co-organizer (in planning)
2027 Keystone Symposia "Neurobiology of Appetite Control." Keystone, CO, U.S. Co-organizer
2025 SNU Neuro-Chemical-Metabolism Symposium. Seoul. Organizer
The 2nd Annual Meeting of the Global Basic Research Laboratory on Neural Circuits for Thermoregulation. Seoul. Organizer
2024 The 1st Annual Meeting of the Global Basic Research Laboratory on Neural Circuits for Thermoregulation. Seoul. Organizer
2021 The Chemical Senses: From Molecules to Behavior. Online
2019 Summer Symposium on Neural Circuitry. Yeongwol. Organizer
2019 Winter Symposium on Neural Circuitry. Gapyeong. Organizer.

Reviewer Activity (Full List)

Reviewing of manuscripts: ad-hoc reviewer for Nature, Cell, Nature Neuroscience, Neuron, Nature Metabolism, Nature Biotechnology, Nature Methods, Science Advances, Nature Communications, Biological Psychiatry, Proc Natl Acad Sci U S A., Current Biology, Cell Reports, Neuropsychopharmacology, eLife, Nanoscale, ACS Nano, ACS Chemical Neuroscience, iScience, Molecular Brain, Scientific Reports, Cells, Frontiers in Molecular Neuroscience, Frontiers in Behavioral Neuroscience, Experimental Neurobiology, Analytical Methods
Reviewing of grant proposals: National Research Foundation of Korea (NRF), Samsung Science & Technology Foundation, European Research Council (ERC)

Teaching (Full List)

Cold Spring Harbor Asia. Summer Imaging Course. Suzhou, China (2024).
Seoul National University. Neural Circuits and Molecules of the Brain (C40.139), Molecular Neurobiology (3391.503), Optogenetic Approaches to Neuroscience (M1430.001200), Techniques in Neurosciences (M1430.001400), Methods in Brain Sciences (M1427.000200), Advanced Genetic Engineering 1: Neurobiology and Gut-Brain Neural Circuits (322.511), Advanced Genetic Engineering 2: Bio-Imaging (322.512), Understanding Modern Biology (3346.210B), Special Topics in Biophysics (338.701), Biophysics and Chemical Biology Seminar (338.505), Special Topics in Chemical Biology (338.702), Neurochemistry (M1409.000600), Advanced Biochemistry (3343.551), Molecular Biochemistry (3343.409A), General Chemistry (034.020).
MIT. CLARITY workshop instructor.
Stanford. Optogenetics workshop instructor. Molecular and Cellular Neurobiology TA.

Mentoring (Full List)

2026 – Hyeonjong Noh, graduate student, Chemistry, SNU
2024 – 2026 Anna Kondaurova, graduate student, Chemistry, SNU
2024 – Jin-Seong Kim, graduate student, Chemistry, SNU
2023 – 2025 JiSoo Kwon, graduate student, Chemistry, SNU
2022 – Hyeongjun Cho, graduate student, Chemistry, SNU
2022 – Junkoo Park, graduate student, Chemistry, SNU
2022 – Gil Ju Han, graduate student, Chemistry, SNU
2020 – 2022 Hyun-Kyung Kim, graduate student, Chemistry, SNU
2019 – Ben H. Ahn, graduate student, Chemistry, SNU
2018 – 2026 Sieun Jung, graduate student, Neuroscience, SNU
2018 – 2026 Minyoo Kim, graduate student, Chemistry, SNU
2018 – Myungmo An, graduate student, Chemistry, SNU
2017 – 2021 Gyuryang Heo, post-graduate researcher, SNU
2017 – Seong-Rae Kim, graduate student, Chemistry, SNU
2017 – 2020 Kyunghoe Kim, graduate student, Chemistry, SNU
2017 – 2026 Myungsun Lee, graduate student, Chemistry, SNU
2016 – 2018 Jong Hwi Park, post-graduate researcher, SNU
2016 – 2026 Dong-Jun Koo, graduate student, Neuroscience, SNU
2016 – 2024 Han-Eol Park, graduate student, Biology, SNU
2016 – 2022 Dong-Yoon Kim, graduate student, Neuroscience, SNU

Invited Talks (Full List)

2027 EMBO International Lecture Series on Sensory Systems. Bengaluru, India. *(Scheduled)*
EPFL (Swiss Federal Institute of Technology in Lausanne). Lausanne, Switzerland *(Scheduled)*
Institute of Neuroscience, Autonomous University of Barcelona. Barcelona, Spain (*Scheduled*)
University of Zurich. Zurich, Switzerland (*Scheduled*)
Diabetes Research Center, Albert Einstein College of Medicine. Bronx, NY, U.S. *(Scheduled)*
DeWitt Goodman Seminar Series, Columbia University. New York, NY, U.S. *(Scheduled)*
Keystone Symposia on Neurobiology of Appetite Control. Keystone, CO, U.S. *(Scheduled)*
Leon Levy Seminar Series, The Rockefeller University New York, NY, U.S. *(Scheduled)*
2026 Johns Hopkins University School of Medicine Baltimore, MD, U.S. *(Scheduled)*
Program in Neuroscience, Florida State University. Tallahassee, FL, U.S. *(Scheduled)*
Neuroscience 2026, Society for Neuroscience. Washington, D.C. U.S. *(Scheduled)*
Brain-Body Center, MIT. Cambridge, MA, U.S.
Molecular and Cellular Neuroscience Seminar Series, MIT. Cambridge, MA, U.S.
Monell Chemical Senses Center, Philadelphia, PA, U.S.
Department of Molecular and Cellular Physiology, Yale University. New Haven, CT, U.S.
New York University. New York, NY, U.S.
Society for the Study of Ingestive Behavior, Philadelphia, PA, U.S.
Department of Brain and Cognitive Science, Seoul National University. Seoul.
KMPC Symposium on Metabolic Dysregulation. Seoul.
Xplorer Symposia on Frontiers of Decoding Brain Functions. Daejeon.
Molecular Psychiatry Meeting. Lihue, HI, U.S.

Ajou University School of Medicine. Suwon.
Keystone Symposia on Gut-Brain Axis. Breckenridge, CO, U.S.
Gordon Research Conference (Social Behavior). Pomona, CA, U.S.
The 2nd Greater Bay Area Neuroscience Meeting. Shenzhen, China.
Shenzhen Medical Academy of Research and Translation. Shenzhen, China.

2025 Program in Neuroscience, Seoul National University. Seoul.
Brain Research Institute Symposium, Yonsei University. Seoul.
Center for Synaptic Brain Dysfunctions, Institute for Basic Science. Daejeon.
Gastronauts International Conference. Tucson, AZ, U.S.
Center for Physiology, University of Cologne. Cologne, Germany.
131st International Titisee Conference on Thermoregulation. Titisee, Germany.
Institute for Immunology, Tsinghua University. Beijing, China.
National Institute of Biological Sciences. Beijing, China.
59th Annual Meeting of the Japanese Association for the Study of Taste and Smell. Osaka, Japan.
SNU Neuro-Chemical-Metabolism Symposium. Seoul.
The 28th Annual Meeting of the Korean Society for Brain and Neural Sciences. Songdo.
3rd Minisymposium, the Genetics Society of Korea. Online.
Samsung Global Research Symposium on Body-Brain Interactions. Stockholm, Sweden.
Keystone Symposia on Interoception. Seattle, WA, U.S.
Graduate School of Medical Sciences and Engineering, KAIST. Daejeon.
Annual meeting, Korean Society for the Study of Obesity. Seoul.
Annual Meeting of Homeostasis Section of KSBNS. Daegu.

2024 Department of Biology, KAIST. Daejeon.
Department of Biomedical Science & Engineering, GIST. Gwangju.
Janelia Conference on Sensory Biology of Ingestion. Ashburn, VA, U.S.
Department of Biology, Korea University. Seoul.
Department of Brain Science, DGIST. Daegu.
Korea Brain Research Institute (KBRI). Daegu.
Department of Brain and Cognitive Science, Seoul National University. Seoul.
Department of Bioengineering, Yonsei University. Seoul.
Workshop on the Social Brain. Baeza, Spain.
KRIBB-KBRI Neuroscience Joint Symposium. Daejeon.
Department of Physiology, Seoul National University. Seoul.
Westlake University. Hangzhou, Zhejiang, China.
Zhejiang University. Hangzhou, Zhejiang, China.
Cold Spring Harbor Asia summer imaging course. Suzhou, China.
Gordon Research Conference (Optogenetics). Barga, Lucca, Italy.
Korea Research Institute of Bioscience & Biotechnology (KRIBB). Daejeon.
Ajou University School of Medicine. Suwon.
Institute of Basic Science – Max Planck Institute Conference. Seoul.
Annual Meeting of Homeostasis Section of KSBNS. Daejeon.

2023 School of Dentistry, Seoul National University. Seoul.
29th East Asia Joint Symposium. Cheonan.
Samsung Global Technology Conference. Seoul.

Department of Biochemistry, Yonsei University. Seoul.
26th Annual Meeting, Korean Society for Brain and Neural Science. Busan.
Department of Neurobiology, Harvard Medical School. Boston, MA, U.S.
4DCP Seminar, HHMI Janelia Research Campus. Ashburn, VA, U.S.
Department of Physiology, UCSF, CA, U.S.
Department of Neurobiology, Northwestern University. Evanston, IL, U.S.
Department of Neurobiology and Anatomy, UTHealth Houston. Houston, TX, U.S.
Robert Whitney Newcomb Memorial Lecture, NIH. Bethesda, MD, U.S.
Neurobiology and Computation & Neural Systems Seminar, Caltech. Pasadena, CA, U.S.
Brain-Body Seminar Series, Icahn School of Medicine at Mount Sinai. New York, NY, U.S.
Monell Chemical Senses Center. Philadelphia, PA, U.S.
Child Health Institute of New Jersey, Rutgers University. New Brunswick, NJ, U.S.
Neuroscience Seminar Series, Department of Neuroscience, UT Austin. Austin, TX, U.S.
Brain-Body Interactions seminar series. Online.
Synapse To Circuit (S2C) Seminar Series, UCLA. Los Angeles, CA, U.S.
Neuroscience Seminar Series, Department of Neuroscience, UT Southwestern. Dallas, TX, U.S.
Brain-Body Interface Seminar Series (of Chinese neuroscience community). Online.
Diabetes & Obesity Research Institute, USC. Los Angeles, CA, U.S.
College of Dentistry, Kyungpook National University. Online.

2022 Korean Bio-scientists in San Diego (KBSD). San Diego, CA, U.S.
Neuroscience Seminar Series, UC Berkeley. Berkeley, CA, U.S.
Cellular & Systems Neuroscience Seminar Series, UC Santa Barbara. Santa Barbara, CA, U.S.
Hotchkiss Brain Institute Seminar Series, University of Calgary. Calgary, Canada.
20th Anniversary Symposium, Picower Institute, MIT. Cambridge, MA, U.S.
Ascona Conference on Gut-Brain Communication. Ascona, Switzerland.
Gordon Research Conference (Hypothalamus). Ventura, CA.
Sorak Conference, Korean Society for Biochemistry and Molecular Biology. Sokcho.
Department of FoodTech, Seoul National University. Seoul.
Department of Life Sciences, University of Seoul. Seoul.
Korea Dementia Research Center. Online.
Materials Korea Forum 2022, Materials Research Institute. Online.
Department of Neuroscience, Kyung Hee University. Online.
Gastronauts Seminar Series. Online.
Korean Society for Cell Biology. Online.

2021 10th DGIST Brain and Cognitive Science Student Symposium. Daegu. Online.
Annual Meeting, the Korean Society for Cognitive Science. Online.
College of Medicine, Sungkyunkwan University. Online.
Department of Preventative Medicine and Public Health, Yonsei University School of Medicine.
Department of Chemistry, Dongguk University. Seoul.
2nd International Conference of Korean Society for Metabolic and Bariatric Surgery. Seoul.
2021 Annual Meeting of the Society for the Study of Ingestive Behavior. Online.
Biophysics School, Postech. Pohang. Online.
20th HFSP Awardees Meeting. Online.
Department of Biological Sciences, UNIST. Online.

Department of Bio and Brain Engineering. KAIST. Online.
24th Annual Meeting, Korean Society for Brain and Neural Science. Incheon.
Department of Biotechnology, Yonsei University. Online.
Annual meeting, Korean Society for the Study of Obesity. Seoul.
Department of Biological Sciences, KAIST. Online.
Center for Nanomedicine, Institute for Basic Science. Seoul.
Green Ribbon Lecture, Korean Society for Molecular and Cellular Biology. Online.

2020 23rd Annual Meeting, Korean Society for Brain and Neural Science. Seoul.
Center for Cognition and Sociality, Institute for Basic Science. Daejeon.
Department of Physiology, Seoul National University School of Medicine. Online.
Department of Medicine, Columbia University. Online.
70th Annual Meeting, Korean Association of Anatomists. Gangneung.
Department of Biochemistry, Seoul National University School of Medicine. Seoul.
Division of Life Sciences, Korea University, Seoul.
Department of Medical Sciences, Yonsei University College of Medicine. Online.
International Congress of Diabetes and Metabolism. Seoul.
Department of Biological Sciences, Konkuk University. Online.
43rd Annual Meeting of the Japan Neuroscience Society. Online.
International Symposium, Korean Association for Laboratory Animal Science. Pyeongchang.
Program in Neuroscience, Seoul National University, Online.
Department of Chemistry, Seoul National University, Online.

2019 College of Medicine, Sungkyunkwan University. Suwon.
International Conference of the Korean Society for Molecular and Cellular Biology. Seoul.
Department of New Biology, DGIST. Daegu.
27th Summer Workshop, Korean Diabetes Association. Yangpyeong.
Department of Physiology, Korea University School of Medicine. Seoul.
7th Seoul International Congress of Endocrinology and Metabolism. Seoul.
Division of Biomedical Science, Kyungpook National University. Daegu.
Department of Chemistry, KAIST. Daejeon.
Annual meeting, Korean Society for the Study of Obesity. Seoul.
Department of Anatomy, Korea University School of Medicine. Seoul.
Annual meeting, Korean Society for Neurodegenerative Disease. Seoul.
Department of Brain and Cognitive Sciences, Seoul National University, Seoul
Weizmann Institute of Science. Israel.

2018 School of Medicine, Seoul National University. Seoul.
Center for Neural Science, KIST. Seoul.
Department of Biomedical Engineering, Sungkyunkwan University. Suwon.
7th Annual Meeting, Korean Neuroendocrine Study Group. Incheon.
21st Annual Meeting, Korean Society for Brain and Neural Science. Seoul.
KAIST Biological Sciences Symposium. KAIST, Daejeon.
Gordon Research Conference (Optogenetics). Newry, ME. *Selected from posters*.
Department of Life Science, POSTECH. Pohang.
24th Congress, International Union of Biochemistry and Molecular Biology. Seoul.
Department of Biological Sciences, Konkuk University. Seoul.

Department of Brain and Cognitive Sciences, DGIST. Daegu.
Interpark Bio-Convergence Center. Seoul.

2017 120th General Meeting, Korean Chemical Society. Gwangju.
24th East Asia Joint Symposium. Otsu, Japan.
Korea Brain Research Institute. Daegu.
21st Annual Symposium, Korean Peptide Protein Society. Jeju.
A3 Foresight Program. Seoul National University. Seoul.
Computational Neuroscience Winter School, Korean Society for Comp. Neuroscience. Pohang.

2016 Annual Biophotonics Conference. KAIST, Daejeon.
23rd East Asia Joint Symposium. NTNU, Taipei, Taiwan.
International Conference of the Korean Society for Molecular and Cellular Biology. Seoul
Center for Functional Connectomics, KIST. Seoul.
19th Annual Meeting, Korean Society for Brain and Neural Science. Ilsan.
Department of Brain and Cognitive Sciences, DGIST. Daegu.
School of Chemical and Biological Engineering, Seoul National University. Seoul.
College of Medicine, Yonsei University. Seoul.
30th World Congress, The International College of Neuropsychopharmacology. Seoul.
College of Life Sciences, GIST. Gwangju.
Department of Psychology, Korea University. Seoul.
Zeiss Korea Microscopy Workshop. Gumi.
School of Medicine, Seoul National University. Seoul.
Spring Symposium, Korean Academy of Anxiety Disorder. Jeonju.
Department of Chemistry, UNIST. Ulsan.
Department of Life Science, Ewha Woman's University. Seoul.
Systems Neuroscience Symposium 2016. Suwon.
Department of Systems Biology, Yonsei University. Seoul.
Department of Psychiatry, Seoul National University College of Medicine. Seoul.
Winter Symposium, Winter Korean Association for Laboratory Animal Science. Pyeongchang.
Department of Biological Sciences, KAIST. Daejeon.

2015 Department of Brain and Cognitive Sciences, Seoul National University, Seoul.
Center for Nanomedicine, Institute for Basic Science. Seoul.
International Metabolic Disease Symposium. UNIST, Ulsan.
Center for Genome Engineering, Institute for Basic Science. Seoul.
School of Dentistry, Seoul National University. Seoul.
Center for Neuroscience Imaging Research, Institute for Basic Science. Suwon.
Samsung Advanced Institute of Technology. Suwon.
Department of Chemistry, Seoul National University, Seoul.
Department of Brain and Cognitive Sciences, Seoul National University, Seoul.
International Conference of the Korean Society for Molecular and Cellular Biology. Seoul.
Center for Cognition and Sociality, Institute for Basic Science. Daejeon.
Center for Neuroscience, UC Davis. Davis, CA.

2014 Department of Life Science, POSTECH. Pohang.
Department of Biological Sciences, Seoul National University. Seoul.
Department of Biological Sciences, KAIST. Daejeon.

Department of Brain and Cognitive Sciences, Picower Institute for Learning and Memory, McGovern Institute, MIT. Joint Annual Retreat. Falmouth, MA.

2013 Department of Biological Sciences, KAIST. Daejeon.
36th Annual Meeting, Japanese Neuroscience Society. Kyoto, Japan.
RIKEN Brain Science Institute. Wako, Japan.

Honors & Awards (Full List)

2022 Hanseong Science Award in Life Sciences, Hanseong Foundation
한성과학상, 한성손재한장학회

2022 Asan Award in Medicine (Young Medical Scientist category), Asan Foundation
아산의학상(젊은의학자부문), 아산사회복지재단

2021 Green Ribbon Lecture, Korean Society for Molecular and Cellular Biology
한국분자세포생물학회 Green Ribbon Lecture

2020 Commendation for the Promotion of Healthcare Technology, Ministry of Health and Welfare
보건의료기술진흥 유공자 정부포상(신진연구부문, 장관표창), 보건복지부

2020 Member of Young Korean Academy of Science and Technology (Y-KAST)
한국차세대과학기술한림원(Y-KAST) 회원(이학부, 생물학, 신경생물학)

2020 Scitech Korea Young Neuroscientist Award, Korean Society for Brain and Neural Sciences
싸이텍코리아 젊은과학자상, 한국뇌신경과학회

2020 Travel Award, the Japan Neuroscience Society

2019 Young Scientist, World Economic Forum Annual Meeting of New Champions

2018 Young Researcher Award, National Research Foundation of Korea
올해의 신진연구자, 한국연구재단

2015 Poster Award, Molecular and Cellular Cognition Society, 14th annual meeting

2015 – 2017 Chung-am Science Fellowship (for Junior Faculty), POSCO TJ Park Foundation
청암과학펠로십(신진교수, 생명과학), 포스코청암재단

2015 Travel Award, Korean Society for Molecular and Cellular Biology

2015 – 2016 SNU Invitation Program for Distinguished Scholar, Seoul National University

2014 Donald B. Lindsley Prize in Behavioral Neuroscience, Society for Neuroscience

2014 Postdoctoral Fellow Travel Award, Society for Neuroscience

2014 – 2015 Life Sciences Research Foundation Postdoctoral Fellowship

2013 – 2014 Simons Postdoctoral Fellowship

2012 Brain & Cognitive Sciences Research Award, Association of Korean Neuroscientists

2012 Best Speaker Award, Samsung Scholarship Annual Meeting

2011 Poster Award, Gordon Research Conference

2011 Travel Award, Gordon Research Conference

2009 – 2013 Samsung Scholarship

2008 Best Poster Award, 9th International Congress on Cell Biology

2008 Academic Excellence Award, Seoul National University

2003 – 2008 Presidential Science Scholarship, Korea Science and Engineering Foundation

Publications (Full List)

1. An M, ... Kim SY. A reciprocal neuromodulatory circuit that controls the persistence of the stress state. *In preparation*
2. Kim M, Koo DJ, Han G, Cho H, Lee JI, Woo CW, Kim SY. A pharynx-to-forebrain circuit transforms swallowing into rapid thirst satiation. ***Neuron***. *Accepted in principle*
3. Kim SR, Kim J, Kim SY. (2026). A neural circuit for social novelty preference integrates sensory and memory signals. ***Nature.*** *Accepted in principle*
4. Lee M, Jung S, Kwon JJ, Kondaurova A, Nam M, Kim D, Hyun JH, Kim SY. (2026). Distinct lateral hypothalamic GABAergic ensembles encode motivational salience and value-scaled consumption. ***Cell Reports***. 45(10):118049. doi:10.1016/j.celrep.2026.118049.
5. Jung S, Kondaurova A, Lee M, Kwon JJ, Shin H, Kim SY. (2026). Parabrachial neurons orchestrate cold-induced homeostatic responses. ***Nature Metabolism***. 8(8):1679-1693. doi:10.1038/s42255-026-01565-1. **featured as News & Views by Drs. Óscar Freire-Agulleiro and Miguel López, "Cold sensing and the parabrachial nucleus," Nature Metabolism. 8(8):1627-1628 (2026). doi:10.1038/s42255-026-01571-3.*
6. Choi SG, Kim S, Kim JW, Choi MK, Han J, Koo DJ, Lee SH, Kim A, Gu JW, Kim KH, Lee JY, Bae JY, Kim SY, Kim J, Lee H, Kang SK. (2025). Dual-phoretic wireless device for directionally oriented and carrier-free targeted drug delivery. ***Sci Adv***. 11(28):eads9269.
7. Ahn J, Kim DH, Koo DJ, Lim J, Park TE, Lee J, Ko J, Kim S, Kim M, Kang KS, Min DH, Kim SY*, Kim Y*, Jeon NL*. (2023). 3D microengineered vascularized tumor spheroids for drug delivery and efficacy testing. ***Acta Biomater***. 165:153-167.
   **co-correspondence*
8. An M, Kim HK, Park H, Kim K, Heo G, Park HE, Chung C, Kim SY. (2022). Lateral septum somatostatin neurons are activated by diverse stressors. ***Exp. Neurobiol***. 31(6):376-389.
9. Pac J, Koo DJ, Cho H, Jung D, Choi MH, Choi Y, Kim B, Park JU, Kim SY*, Lee Y*. (2022). Three-dimensional imaging and analysis of pathological tissue samples with de novo generation of citrate-based fluorophores. ***Sci Adv***. 8(46):eadd9419.
   **co-correspondence*
10. Ahn BH, Kim M, Kim SY. (2022). Brain circuits for promoting homeostatic and non-homeostatic appetites. ***Exp. Mol. Med.*** 54(4):349-357.
11. Kim M, Heo G, Kim SY. (2022). Neural signalling of gut mechanosensation in ingestive and digestive processes. ***Nature Reviews Neuroscience***. 23(3):135-156.
12. Jung S, Lee M, Kim DY, Son C, Ahn BH, Heo G, Park J, Kim M, Park HE, Koo DJ, Park JH, Lee JW, Choe HK, Kim SY. (2022). A forebrain neural substrate for behavioral thermoregulation. ***Neuron***. 110(2):266-279.e9. **featured as Previews by Dr. Amber Alhadeff, Neuron 110(2):180–182*.
13. Cho AN, Jin Y, An Y, Kim J, Choi YS, Lee JS, Kim J, Choi WY, Koo DJ, Yu W, Chang GE, Kim DY, Jo SH, Kim J, Kim SY, Kim YG, Kim JY, Choi N, Cheong E, Kim YJ, Je HS, Kang HC, Cho SW. (2021). Microfluidic device with brain extracellular matrix promotes structural and functional maturation of human brain organoids. *Nat Comm*. 12:4730.
14. Kang S, Park S, Song H, Choi D, Park HE, Ahn BH, Kim SY*, Lee Y*. (2021). Expansion microscopy with a thermally adjustable expansion factor using thermoresponsive biospecimen-hydrogel hybrids. ***ACS Appl.***

Mater. Interfaces. 13(24):28962-28974.
**co-correspondence*

15. Kim SR, Kim SY. (2021). Functional dissection of glutamatergic and GABAergic neurons in the bed nucleus of the stria terminalis. *Mol. Cells*. 44(2):63-67.

16. Lee S, Kim S, Koo DJ, Yu J, Cho H, Lee H, Song JM, Kim SY*, Min DH*, Jeon NL*. (2021). 3D microfluidic platform and tumor vascular mapping for evaluating anti-angiogenic RNAi-based nanomedicine. ***ACS Nano***. 15(1):338-350.
**co-correspondence*

17. Koo DJ, Choi J, Ahn M, Ahn BH, Min DH, Kim SY. (2020). Large-scale 3D optical mapping and quantitative analysis of nanoparticle distribution in tumor vascular microenvironment. ***Bioconjugate Chem***. 31(7):1784-1794.
**featured as the front cover*

18. Lu HJ, Nguyen TL, Hong GS, Pak S, Kim H, Kim H, Kim DY, Kim SY, Shen Y, Ryu PD, Lee MO, Oh U. (2020). Tentonin 3/TMEM150C senses blood pressure changes in the aortic arch. *J Clin Invest*. 130(7):3671-3683.

19. Kim DY, Heo G, Kim M, Kim H, Jin JA, Kim HK, Jung S, An M, Ahn BH, Park JH, Park HE, Lee M, Lee JW, Schwartz GJ, Kim SY. (2020). A neural circuit mechanism for mechanosensory feedback control of ingestion. ***Nature***. 580(7803):376–380.
**featured as lead Highlight in Nature Reviews Gastroenterology & Hepatology 2020, 17:315.*
**selected as one of the Top 100 National Research and Development Projects in 2021*

20. Park HE, Choi D, Park JS, Sim C, Park S, Kang S, Yim H, Lee M, Kim J, Pac J, Rhee K, Lee J, Lee Y, Lee Y, Kim SY. (2019). Scalable and isotropic expansion of tissues with simply tunable expansion ratio. ***Adv Sci*.** 6(22):1901673.
**featured as the front cover*

21. Jung K, Park JH, Kim SY, Jeon NL, Cho SR, Hyung S. (2019). Optogenetic stimulation promotes Schwann cell proliferation, differentiation, and myelination in vitro. *Sci Rep*. 9(1):3487.

22. Lee J, Samson AAS, Yim Y, Kim SY, Jeon NL, Min DH, Song JM. (2019). A FRET assay for the quantitation of inhibitors of exonuclease EcoRV by using parchment paper inkjet-printed with graphene oxide and FAM-labelled DNA. *Mikrochim Acta*. 186(4):211.

23. Bang S, Lee BJ, Lee SR, Na S, Jang JM, Kang M, Kim SY, Min DH, Song JM, Ho WK, Jeon NL. (2019). Reliable autapse formation using the single-cell patterning method. *Biofabrication*. 11(1):015008.

24. Samson AAS, Park S, Kim SY, Min DH, Jeon NL, Song JM. (2019). Liposomal co-delivery-based quantitative evaluation of chemosensitivity enhancement in breast cancer stem cells by knockdown of GRP78/CLU. *J Liposome Res*. 29(1):44-52.

25. Ryoo SR, Yim Y, Kim YK, Park IS, Na HK, Lee J, Jang H, Won C, Hong S, Kim SY, Jeon NL, Song JM, Min DH. (2018). High-throughput chemical screening to discover new modulators of microRNA expression in living cells by using graphene-based biosensor. *Sci Rep*. 8(1):11413.

26. Ahn J, Cho CS, Cho SW, Kang JH, Kim SY, Min DH, Song JM, Park TE, Jeon NL. (2018). Investigation on vascular cytotoxicity and extravascular transport of cationic polymer nanoparticles using perfusable 3D microvessel model. *Acta Biomater*. 76:154-163.

27. Kim T, Jang H, Kim S, Lee JH, Kim SY, Jeon NL, Song JM, Min DH. (2018). Synthesis of Fluorescent Au Nanocrystals-Silica Hybrid Nanocomposite (FLASH) with Enhanced Optical Features for Bioimaging and Photodynamic Activity. *Langmuir*. 34(1):173-178.

28. Park SJ, Kim S, Kim SY, Jeon NL, Song JM, Won C, Min DH. (2017). Highly Efficient and Rapid Neural Differentiation of Mouse Embryonic Stem Cells Based on Retinoic Acid Encapsulated Porous Nanoparticle. *ACS Appl Mater Interfaces*. 9(40):34634-34640.

29. Park S, Arumugam P, Purushothaman B, Kim SY, Min DH, Jeon NL, Song JM. (2017). Quantum-dot nanoprobes and AOTF based cross talk eliminated six color imaging of biomolecules in cellular system. *Anal Chim Acta*. 985:166-174.

30. Seo J, Choe M, Kim SY. (2016). Clearing and Labeling Techniques for Large-Scale Biological Tissues. ***Mol Cells***. 39(6):439-46.

31. Murray E, Cho JH, Goodwin D, Ku T, Swaney J, Kim SY, Choi H, Park YG, Park JY, 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):1500-14.

32. Kim SY, Cho JH, Murray E, Bakh N, Choi H, Ohn K, Ruelas L, Hubbert A, McCue M, Vassallo SL, Keller PJ, Chung K. (2015). Stochastic electrotransport selectively enhances the transport of highly electromobile molecules. ***Proc Natl Acad Sci U S A***. 112(46):E6274-83.

33. Bolton AD, Murata Y, Kirchner R, Kim SY, Young A, Dang T, Yanagawa Y, Constantine-Paton M. (2015). A Diencephalic Dopamine Source Provides Input to the Superior Colliculus, where D1 and D2 Receptors Segregate to Distinct Functional Zones. *Cell Rep*. 13(5):1003-15.

34. Adhikari A, Lerner TN, Finkelstein J, Pak S, Jennings JH, Davidson TJ, Ferenczi E, Gunaydin LA, Mirzabekov JJ, Ye L, Kim SY, Lei A, Deisseroth K. (2015). Basomedial amygdala mediates top-down control of anxiety and fear. *Nature*. 527(7577):179-85.

35. Kim SY, Chung K, Deisseroth K. (2013). Light microscopy mapping of connections in the intact brain. ***Trends Cogn Sci***. 17(12):596-9.

36. Chung K, Wallace J, Kim SY, Kalyanasundaram S, Andalman AS, Davidson TJ, Mirzabekov JJ, Zalocusky KA, Mattis J, Denisin AK, Pak S, Bernstein H, Ramakrishnan C, Grosenick L, Gradinaru V, Deisseroth K. (2013). Structural and molecular interrogation of intact biological systems. *Nature*. 497(7449):332-7.

37. Kim SY, Adhikari A, Lee SY, Marshel JH, Kim CK, Mallory CS, Lo M, Pak S, Mattis J, Lim BK, Malenka RC, Warden MR, Neve R, Tye KM, Deisseroth K. (2013). Diverging neural pathways assemble a behavioural state from separable features in anxiety. ***Nature***. 496(7444):219-23.
**featured as News and Views by Dr. Joshua Johansen, Nature 496(7444): 174–175.*

38. Tye KM, Mirzabekov JJ, Warden MR, Ferenczi EA, Tsai HC, Finkelstein J, Kim SY, Adhikari A, Thompson KR, Andalman AS, Gunaydin LA, Witten IB, Deisseroth K. (2013). Dopamine neurons modulate neural encoding and expression of depression-related behaviour. *Nature*. 493(7433):537-541.

39. Warden MR, Selimbeyoglu A, Mirzabekov JJ, Lo M, Thompson KR, Kim SY, Adhikari A, Tye KM, Frank LM, Deisseroth K. (2012). A prefrontal cortex-brainstem neuronal projection that controls response to behavioural challenge. *Nature*. 492(7429):428-32.

40. Nieh EH, Kim SY, Namburi P, Tye KM. (2013). Optogenetic dissection of neural circuits underlying emotional valence and motivated behaviors. *Brain Res*. 1511:73-92.

41. Tye KM*, Prakash R*, Kim SY*, Fenno LE, Grosenick L, Zarabi H, Thompson KR, Gradinaru V, Ramakrishnan C, Deisseroth K. (2011). Amygdala circuitry mediating reversible and bidirectional control of anxiety. ***Nature***. 471(7338):358-62.
**equal contribution*

Intellectual Properties (Full List)

1. Ahn HJ, Kim SY. (KR granted 2023; US granted 2024). Automated apparatus for stereotactic surgical device. KR102525496B1, US12011321B2

2. Lee Y, Kim SY, Kang S, Park HE, Park SH, Choi D. (granted 2022). Bioimaging technique using reversibly expandable/recoverable hydrogel dependent on temperature change. KR102368585B1

3. Lee Y, Kim SY, Kang S, Park HE, Park SH, Choi D. (granted 2021). New compound for synthesizing photoreactive nucleic acids. KR102213041B1

4. Chung K, Kim SY, Ohn K, Murray E, Cho JH. (filed 2015; first US grant 2019). Active transport of charged molecules into, within, and/or from charged matrices. US10416116B2, US12066400B2, EP3126037B1, CN106211762B

5. Kim SY, Deisseroth K, Adhikari A. (filed 2014; EP granted 2019; US granted 2021). Optogenetic control of behavioral state. US10974064B2, EP2968997B1, CN105246550A, AU2014227600B2, ES2742492T3