

## Curriculum Vitae

**SUKHAN KIM**

### **ADDRESS**

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### **EDUCATION**

1998-2005 B.S., Electrical and Electronics Engineering, Kyungshung University, Busan, South Korea

### **WORK EXPERIENCE**

2017-present Research Specialist, Lead, Department of Pharmacology and Chemical Biology, Emory University School of Medicine, Atlanta, GA

2011-2017 Academic Staff, Department of Biomedicine, Aarhus University, Aarhus, Denmark

2010-2011 Manager, Department of Shipping and Sales Control, HS Automotive Alabama, Enterprise, AL

2009-2010 Manager, Department of Production, GERC Wireless, Lawrenceville, GA

2005-2006 Assistant Manager, Department of Quality Assurance, Shinil Precision Automotive Industry, Busan, South Korea

### **SKILLS**

Mutagenesis, molecular biology, and cell culture

Two-electrode voltage clamp current recordings

Current clamp membrane potential recordings

Wire- and pressure-myography

Intracellular dye injection and imaging

Manage laboratory equipment operation and maintenance

Database curation

Shipping and sales control, production control, and quality control

### **PUBLICATIONS**

1. Montanucci L, Brünger T, Bhattarai N, Boßelmann CM, **Kim S**, Allen JP, Zhang J, Klöckner C, Fariselli P, May P, Lemke JR, Myers SJ, Yuan H, Traynelis SF, Lal D. Distances from ligands as main predictive features for pathogenicity and functional effect of variants in NMDA receptors. *medRxiv*. 2024 May 7. PMID: 38766179
2. Xu Y, Song R, Perszyk RE, Chen W, **Kim S**, Park KL, Allen JP, Nocilla KA, Zhang J, XiangWei W, Tankovic A, McDaniels ED, Sheikh R, Mizu RK, Karamchandani MM, Hu C, Kusumoto H, Pecha J, Cappuccio G, Gaitanis J, Sullivan J, Shashi V, Petrovski S, Jauss RT, Lee HK, Bozarth X, Lynch DR, Helbig I, Pierson TM, Boerkoel CF, Myers SJ, Lemke JR, Benke TA, Yuan H, Traynelis SF. De novo GRIN variants in M3 helix associated with neurological disorders control channel gating of NMDA receptor. *Cell Mol Life Sci*. 2024 Mar 28;81(1):153. PMID: 38538865
3. Vieira MM, Peng S, Won S, Hong E, Inati SK, Thurm A, Thiam AH, **Kim S**, Myers SJ, Badger JD 2nd, Traynelis SF, Lu W, Roche KW. A Frameshift Variant of GluN2A Identified in an Epilepsy Patient Results in NMDA Receptor Mistargeting. *J Neurosci*. 2024 Jan 24;44(4). PMID: 38050135
4. Myers SJ, Yuan H, Perszyk RE, Zhang J, **Kim S**, Nocilla KA, Allen JP, Bain JM, Lemke JR, Lal D, Benke TA, Traynelis SF. Classification of missense variants in the N-methyl-d-aspartate receptor GRIN gene family as gain- or loss-of-function. *Hum Mol Genet*. 2023 Sep 16;32(19):2857-2871. PMID: 37369021

5. D'Erasmus MP, Akins NS, Ma P, Jing Y, Swanger SA, Sharma SK, Bartsch PW, Menaldino DS, Arcoria PJ, Bui TT, Pons-Bennaceur A, Le P, Allen JP, Ullman EZ, Nocilla KA, Zhang J, Perszyk RE, **Kim S**, Acker TM, Taz A, Burton SL, Coe K, Fritzscheier RG, Burnashev N, Yuan H, Liotta DC, Traynelis SF. Development of a Dihydroquinoline-Pyrazoline GluN2C/2D-Selective Negative Allosteric Modulator of the N-Methyl-d-aspartate Receptor. *ACS Chem Neurosci*. 2023 Sep 6;14(17):3059-3076. PMID: 37566734
6. Lewis SA, Shetty S, Gamble S, Heim J, Zhao N, Stitt G, Pankratz M, Mangum T, Marku I, Rosenberg RB, Wilfong AA, Fahey MC, **Kim S**, Myers SJ, Appavu B, Kruer MC. Intrathecal magnesium delivery for Mg<sup>++</sup>-insensitive NMDA receptor activity due to GRIN1 mutation. *Orphanet J Rare Dis*. 2023 Aug 3;18(1):225. PMID: 37537625
7. Xie L, McDaniel MJ, Perszyk RE, **Kim S**, Cappuccio G, Shapiro KA, Muñoz-Cabello B, Sanchez-Lara PA, Grand K, Zhang J, Nocilla KA, Sheikh R, Armengol L, Romano R, Pierson TM, Yuan H, Myers SJ, Traynelis SF. Functional effects of disease-associated variants reveal that the S1-M1 linker of the NMDA receptor critically controls channel opening. *Cell Mol Life Sci*. 2023 Mar 31;80(4):110. PMID: 37000222
8. Brock S, Laquerriere A, Marguet F, Myers SJ, Hongjie Y, Baralle D, Vanderhasselt T, Stouffs K, Keymolen K, **Kim S**, Allen J, Shaulsky G, Chelly J, Marcorelle P, Aziza J, Villard L, Sacaze E, de Wit MCY, Wilke M, Mancini GMS, Hehr U, Lim D, Mansour S, Traynelis SF, Beneteau C, Denis-Musquer M, Jansen AC, Fry AE, Bahi-Buisson N. Overlapping cortical malformations in patients with pathogenic variants in GRIN1 and GRIN2B. *J Med Genet*. 2023 Feb;60(2):183-192. PMID: 35393335
9. Tang W, Beckley JT, Zhang J, Song R, Xu Y, **Kim S**, Quirk MC, Robichaud AJ, Diaz ES, Myers SJ, Doherty JJ, Ackley MA, Traynelis SF, Yuan H. Novel neuroactive steroids as positive allosteric modulators of NMDA receptors: mechanism, site of action, and rescue pharmacology on GRIN variants associated with neurological conditions. *Cell Mol Life Sci*. 2023 Jan 16;80(2):42. PMID: 36645496
10. Strehlow V, Rieubland C, Gallati S, **Kim S**, Myers SJ, Peterson V, Ramsey AJ, Teuscher DD, Traynelis SF, Lemke JR. Compound-heterozygous GRIN2A null variants associated with severe developmental and epileptic encephalopathy. *Epilepsia*. 2022 Oct;63(10):e132-e137. PMID: 35983985
11. Majgaard J, Skov FG, **Kim S**, Hjortdal VE, Boedtkjer DMB. Positive chronotropic action of HCN channel antagonism in human collecting lymphatic vessels. *Physiol Rep*. 2022 Aug;10(16):e15401. PMID: 35980021
12. Han W, Yuan H, Allen JP, **Kim S**, Shaulsky GH, Perszyk RE, Traynelis SF, Myers SJ. Opportunities for Precision Treatment of GRIN2A and GRIN2B Gain-of-Function Variants in Triheteromeric N-Methyl-D-Aspartate Receptors. *J Pharmacol Exp Ther*. 2022 Apr;381(1):54-66. PMID: 35110392
13. Zhang J, Tang W, Bhatia NK, Xu Y, Paudyal N, Liu D, **Kim S**, Song R, XiangWei W, Shaulsky G, Myers SJ, Dobyns W, Jayaraman V, Traynelis SF, Yuan H, Bozarth X. A de novo GRIN1 Variant Associated With Myoclonus and Developmental Delay: From Molecular Mechanism to Rescue Pharmacology. *Front Genet*. 2021;12:694312. PMID: 34413877
14. Hansen KB, Staehr C, Rohde PD, Homilius C, **Kim S**, Nyegaard M, Matchkov VV, Boedtkjer E. PTPRG is an ischemia risk locus essential for HCO<sub>3</sub><sup>(-)</sup>-dependent regulation of endothelial function and tissue perfusion. *Elife*. 2020 Sep 21;9. PMID: 32955439
15. Amador A, Bostick CD, Olson H, Peters J, Camp CR, Krizay D, Chen W, Han W, Tang W, Kanber A, **Kim S**, Teoh J, Sah M, Petri S, Paek H, Kim A, Lutz CM, Yang M, Myers SJ, Bhattacharya S, Yuan H, Goldstein DB, Poduri A, Boland MJ, Traynelis SF, Frankel WN. Modelling and treating GRIN2A developmental and epileptic encephalopathy in mice. *Brain*. 2020 Jul 1;143(7):2039-2057. PMID: 32577763

16. Staehr C, Hangaard L, Bouzinova EV, **Kim S**, Rajanathan R, Boegh Jessen P, Luque N, Xie Z, Lykke-Hartmann K, Sandow SL, Aalkjaer C, Matchkov VV. Smooth muscle Ca(2+) sensitization causes hypercontractility of middle cerebral arteries in mice bearing the familial hemiplegic migraine type 2 associated mutation. *J Cereb Blood Flow Metab.* 2019 Aug;39(8):1570-1587. PMID: 29513112
17. Lumsden EW, Troppoli TA, Myers SJ, Zanos P, Aracava Y, Kehr J, Lovett J, **Kim S**, Wang FH, Schmidt S, Jenne CE, Yuan P, Morris PJ, Thomas CJ, Zarate CA Jr, Moaddel R, Traynelis SF, Pereira EFR, Thompson SM, Albuquerque EX, Gould TD. Antidepressant-relevant concentrations of the ketamine metabolite (2R,6R)-hydroxynorketamine do not block NMDA receptor function. *Proc Natl Acad Sci U S A.* 2019 Mar 12;116(11):5160-5169. PMID: 30796190
18. Froelunde AS, Ohlenbusch M, Hansen KB, Jessen N, **Kim S**, Boedtkjer E. Murine breast cancer feed arteries are thin-walled with reduced  $\alpha(1A)$ -adrenoceptor expression and attenuated sympathetic vasoconstriction. *Breast Cancer Res.* 2018 Mar 22;20(1):20. PMID: 29566737
19. Khammy MM, **Kim S**, Bentzen BH, Lee S, Choi I, Aalkjaer C, Jepps TA. 4-Aminopyridine: a pan voltage-gated potassium channel inhibitor that enhances K(v) 7.4 currents and inhibits noradrenaline-mediated contraction of rat mesenteric small arteries. *Br J Pharmacol.* 2018 Feb;175(3):501-516. PMID: 29156097
20. Hangaard L, Bouzinova EV, Staehr C, Dam VS, **Kim S**, Xie Z, Aalkjaer C, Matchkov VV. Na-K-ATPase regulates intercellular communication in the vascular wall via cSrc kinase-dependent connexin43 phosphorylation. *Am J Physiol Cell Physiol.* 2017 Apr 1;312(4):C385-C397. PMID: 28122732
21. Aalbaek F, Bonde L, **Kim S**, Boedtkjer E. Perivascular tissue inhibits rho-kinase-dependent smooth muscle Ca(2+) sensitivity and endothelium-dependent H<sub>2</sub>S signalling in rat coronary arteries. *J Physiol.* 2015 Nov 1;593(21):4747-64. PMID: 26350036
22. Boedtkjer DM, **Kim S**, Jensen AB, Matchkov VM, Andersson KE. New selective inhibitors of calcium-activated chloride channels - T16A(inh) -A01, CaCC(inh) -A01 and MONNA - what do they inhibit?. *Br J Pharmacol.* 2015 Aug;172(16):4158-72. PMID: 26013995
23. Telinius N, Majgaard J, **Kim S**, Katballe N, Pahle E, Nielsen J, Hjortdal V, Aalkjaer C, Boedtkjer DB. Voltage-gated sodium channels contribute to action potentials and spontaneous contractility in isolated human lymphatic vessels. *J Physiol.* 2015 Jul 15;593(14):3109-22. PMID: 25969124
24. Telinius N, Mohanakumar S, Majgaard J, **Kim S**, Pilegaard H, Pahle E, Nielsen J, de Leval M, Aalkjaer C, Hjortdal V, Boedtkjer DB. Human lymphatic vessel contractile activity is inhibited in vitro but not in vivo by the calcium channel blocker nifedipine. *J Physiol.* 2014 Nov 1;592(21):4697-714. PMID: 25172950
25. Telinius N, **Kim S**, Pilegaard H, Pahle E, Nielsen J, Hjortdal V, Aalkjaer C, Boedtkjer DB. The contribution of K(+) channels to human thoracic duct contractility. *Am J Physiol Heart Circ Physiol.* 2014 Jul 1;307(1):H33-43. PMID: 24778167
26. Thomsen AB, **Kim S**, Aalbaek F, Aalkjaer C, Boedtkjer E. Intracellular acidification alters myogenic responsiveness and vasomotion of mouse middle cerebral arteries. *J Cereb Blood Flow Metab.* 2014 Jan;34(1):161-8. PMID: 24192638
27. Boedtkjer E, **Kim S**, Aalkjaer C. Endothelial alkalisation inhibits gap junction communication and endothelium-derived hyperpolarisations in mouse mesenteric arteries. *J Physiol.* 2013 Mar 15;591(6):1447-61. PMID: 23297309