Leigh D. Plant, Ph.D., Curriculum Vitae, Jan 2025

Assistant Professor | Dept of Pharmaceutical Sciences

1 SUMMARY OF RESEARCH INTERESTS

- Regulation of ion channels and membrane proteins by post-translational modification and signaling membrane lipids
- Ion channel and GPCR pharmacology in cardiovascular disease
- Single-molecule analysis of membrane protein dynamics in live cells

2 INDEPENDENT ACADEMIC APPOINTMENTS

2019 – present	Assistant Professor, Dept. of Pharmaceutical Sciences, Northeastern University

3 EDUCATIONAL AND DEPENDENT POSITIONS

2017 – 2019	Research Associate Professor, Dept. of Pharmaceutical Sciences, Northeastern University
2011 – 2017	Assistant Research Professor, Dept. of Biochemistry, Brandeis University,
2004 –2011	Post-doc, University of Chicago, Dept. of Pediatrics
2003 –2004	Post-doc Yale University, Dept. of Pediatrics & molecular medicine
1999 – 2003	Ph.D. University of Leeds, Biophysics and Pharmacology
1996 – 1999	B.Sc., University of Liverpool, Pharmacology

4 PROFESSIONAL ACCOLADES

2024	Key speaker on Membrane Biophysics; Mad City symposium at the Biophysical Society Conference, Philadelphia, Feb 2024
2023	Associate editor for Membrane Physiology & Biophysics, Frontiers in Physiology
2022	Key speaker, FASEB Ion Channel Regulation
2021	Induction into Beta-Tau Chapter of the Rho Chi Pharmacy Society
2021	Gerald Schumacher Pharmacy Faculty Award
2021	Northeastern University, School of Pharmacy and Pharmaceutical Sciences, Teaching excellence award
2021	The Rho Chi Society Annual Invited Lecture
2006 – present	IUPHAR/ BPS Guide to Pharmacology, committee on K2P channels
2013	Keynote speaker: Glyoxalase Centennial, The Biochemical Society, UK
2012	Cranefield Award: The Society of General Physiologists
2011	Science Research Prize: Pritzker School of Medicine, University of Chicago
1999 – 2003	Medical Research Council of the UK, Doctoral Fellowship,
1998 – 1999	Wellcome Trust Undergraduate Studentship | School of Tropical Medicine, University of Liverpool

5 SCIENTIFIC AND SCHOLARLY ACTIVITY

PI, FUNDED

Jul 2023 – Sept 2024	NU Tier 1 award: Axolotl oocytes as a model system for TMEM16A drug discovery $50,000 with co-I: Prof. James Monaghan, Biology
Jul 2023 – Sept 2024	Spark award: Ion channel modulators and muscular dystrophy ailments $50,000
Jan 2019 – Dec 2023	R01HL144615, NIH-NHLBI: SUMO-regulation of ion channels via PIP_2 $250,000 direct; $125,000 indirect per year

Jan 2019 - open	Barker Foundation Award: Ion channels in human disease $190,000 direct
Jan 2019 – Sept 2020	NU Tier 1 award: Interactions of cannabinoid and opioid signaling $50,000 | Co-I: Prof. Ryan Koppes, Chemical Engineering

Co-PI, FUNDED

Jan 2025—Dec 2029	Australian Research Council Award, The role of lipids in ion channel function, with Ben Corry at National University
May 2024 – June 2028	Department of defense award, HT94252410100: Integrative lymphatic muscle cell biology for the treatment of lymphatic disease; with Tim Padera, MGH

As Co-I; FUNDED

June 2020 – June 2024	R01HL059949: Structural Determinants of PIP_2 Regulation PI: Prof Diomedes Logothetis, Northeastern University
April 2023 – March 2028	R01NS131467: Dravet Syndrome anti-epileptic control by targeting GIRK channels PI: Prof Diomedes Logothetis, Northeastern University

SUBMITTED

Fall 2024	A1 revision of 1R01HL176865-01: Nav Channel Regulation by PIP2; Plant PI (33%)

IN PREPARATION

For Spring 2025	Allosteric regulation of TMEM16A channels by PIP_2
For Summer 2025	Competitive renewal of R01HL144615, PI

6 ACADEMIC SERVICE

Federal grant review

Jun 21	DOD, CDMRP Review Panel: Discovery Award
Oct 21, Mar 23, Jul 23	NIH R03: understudied GPCRs, ion channels & kinases

17 SUMMARY OF UNIVERSITY SERVICE

2024	ACPE standards update taskforce
2024	SOPPS Assessment committee
2022	Faculty search committee in Drug Discovery
2022 – 2023	Co-chair SOPPS Self Study for reaccreditation
2021	Director for transition to Plus One program
2020	BS Pharmaceutical Sciences revision taskforce
2020	Recruitment committee for new co-op coordinator, PS
2019 – ongoing	SOPPS Curriculum Revision taskforce
2019 – ongoing	Director of the BS degree program in Pharmaceutical Science
2019 – 2024	Bylaws committee, Chair 2023-2024

8 SUMMARY OF TEACHING, ADVISING & MENTORING

Northeastern University

Course coordinator & Instructor—current classes

PHSC 1001	Introduction to Contemporary Pharmaceutical Sciences
PHSC 2100	Lab Research Rotation
PHSC 2650	Introduction to Health Sciences Research
PHSC 3802	Principles of Pharmacology & Medicinal Chemistry 2

PHSC 4995	Practicum
PHSC 4997	Undergraduate senior thesis
PHSC 4998	Undergraduate senior thesis continuation
PHSC 6300-2	Biomedical Science Seminar
PHSC 6216	Human Physiology & Pathology, *coordinator*

Instructor

PHSC 3802	Principles of Pharmacology & Medicinal Chemistry 2
PHSC 5110	Integrated Science & Therapeutics 1
PHMD 5115	Integrated Science & Therapeutics 2
PHSC 5203	Integrated Science & Therapeutics 3
PHSC XXXX	Integrated Science & Therapeutics 6
PHMD 5600	Capstone Pharmacy students performing lab research
PMCL 6250	Ion Channel Physiology and Pharmacology
PMCL 6252	Small molecule pharmacology

Classes taught in legacy curricula

PHSC 4501	Pharmacology & Medicinal Chemistry 1, *Instructor*
PHSC 4502	Pharmacology & Medicinal Chemistry 2, *Coordinator & instructor*
PMCL 6260	Pharmacology I, *Coordinator & instructor*

Grad student mentees

Graduate student mentees in the Plant lab

Yuchen Yang	Pharmacology, PhD, graduated Aug 2022
Rokhand Arvan	Biomedical Sciences, PhD, graduated Dec 2022
Jordie Kamuene	Biomedical Sciences, PhD, graduated May 2023
Jenna Connolly	Pharmacology, PhD program
R. Charles Kissell	Pharmacology, PhD program
Florence Ng	Pharmacology, PhD student candidate
Ting An Tsai	MS Biochemistry Thesis student, graduated Aug 2021
Christelle Aoun	MS Pharmacology Thesis student, graduated Aug 2023

Grad student committees

Katlynn Gwilt	PhD candidate, Miller lab, graduated 2019
Kirin Gada	PhD candidate, Logothetis lab, graduated 2021
Lucas Cantwell	PhD candidate, Thakur lab, graduated 2022
Dimitris Gazgalis	PhD candidate, Logothetis lab, graduated 2022
Lisa Fleischer	PhD candidate, Logothetis lab, graduated 2022
Brenda Winn	PhD candidate, Logothetis lab, graduated 2023
Matthew Sullivan	PhD candidate. Konry lab, graduated 2023
Jose Estevam	PhD candidate. Konry lab, graduated 2024
Nicholas Fragola	PhD candidate, Booth lab, graduated 2024
Evan Smith	PhD candidate, Makriyannis lab
Wilder Felix	PhD candidate, Thakur lab
Bryce Johnson	PhD candidate, Booth lab
Reed Masakayan	PhD candidate, Hatfield lab
Anh Minh Nguyen	PhD candidate, Yano lab

Andrew Zorn	PhD candidate, Logothetis lab
Sachin Thigale	PhD candidate, Logothetis lab
Nicole Rivera	MS Thesis, graduated Aug 2022; PhD candidate, Logothetis lab
Jahnavi Simhadri	MS Thesis, graduated Aug 2022; PhD candidate, Logothetis lab
Mehek Ningoo	MS Thesis, graduates, 2021 now PhD candidate at Icahn School of, Mt Sinai
Yifang Liu	MS Thesis, graduated 2020, now PhD candidate in Biomedical Engineering
Daniela Cozzi	MS Thesis, graduated 2023, now PhD candidate at Georgetown

Undergraduate & PharmD Student mentees

Northeastern University

Aviv Ilana	BS Behavioral neuroscience, now MD program at UMass
Dorian Stump	BS Behavioral neuroscience, now PA program at Tufts
Ilana Mereminsky	BS Behavioral Neurosciences, now MD program at Drexel
Elisa Abraham	BS Pharm Sci thesis student, now MS candidate in pharmacology, NU
Johanna Rajotte	BS Biochemistry graduate, now MD/PhD program at Buffalo, NY
Anne Yauch	BS Biochemistry thesis student, now Vet/PhD at UPenn
Austin Baggetta	BS Pharm Sci thesis student, now a PhD candidate at Mt Sinai
Tatiana Tsapaeva	BS Pharm Sci thesis student, now MBA Stanford University
Jennifer Uyanga	BS Pharm Sci thesis student, now MSc student at Stanford
Lingshan Liu	BS Pharm Sci thesis student, now lab tech at MGH
Jihwan Park	BS Pharm Sci graduate
Elizabeth Scholl	BS Pharm Sci thesis student
Charlize Iratagotia	BS Pharm Sci thesis student
Sophie Herbst	BS Pharm Sci thesis student
Allen Guo	BS Pharm Sci thesis student
Angie Chen	BS Pharm Sci thesis student
Jessica Vassallo	BS Pharm Sci thesis student
Alejandra Llamas	Bioengineering, class of 2023
Teerithveen Pasricha	Bioengineering, class of 2023
Gaia Di Bernardini	Bioengineering, class of 2023
Jordan Miller	BS Chemistry student, class of 2025
Sophie Pyrah	BS Biochemistry student, class of 2026
Hao Nyugen	Pharm D student, capstone
Trevor McRobie	Pharm D student, capstone
Seojin Park	Pharm D student, capstone
Joan Zhang	Pharm D student, capstone
Eric Wang	Pharm D student, capstone
Tenko Ka	Pharm D student, capstone
Lucinda Chen	Pharm D student, capstone
Yuton Chen	Pharm D student, capstone
Salima Amiji	Pharm D student, capstone
Catherine Murphy	Pharm D student, capstone
Clare Russo	Pharm D student, capstone
Sophie Friedman	Pharm D student, capstone

9 PUBLICATIONS:

Peer-reviewed research articles and reviews, exclusive of abstracts

Google Scholar Metrics: 4783 citations, h-index: 31; i10 index: 41 (on 11/27/2024)

Full bibliography: https://scholar.google.com/citations?user=x1iqszoAAAAJ&hl=en

1. C Shukla, LD Plant, LH Finch, S Grumbridge, Z Henderson, LR Bridges & HA Pearson (2001). Differential effects of antioxidants on Aβ and H_2O_2 induced cell death in the SH-SY5Y neuronal cell line. *J Cell Path*: 5(4), 241-249.
2. M Ramsden, LD Plant, NJ Webster, PFT Vaughan, Z Henderson, HA Pearson (2001). Differential effects of unaggregated and aggregated amyloid β protein (1-40) on K^+ channels in primary cultures of rat cerebellar granule and cortical neurones. *J Neurochem*: 79, 699-712. doi/10.1046/j.1471-4159.2001.00618.x/full
3. LD Plant, PJ Kemp, C Peers, Z Henderson & HA Pearson (2002). Hypoxic depolarization of cerebellar granule neurones by inhibition of TASK-1. *Stroke* 33: 2324-8. doi.org/10.1161/01.STR.0000027440.68031.B0
4. LD Plant, JP Boyle, NM Thomas, NJ Hipkins, E Benediks, NM Hooper, Z Henderson, C Peers, RF Cowburn & HA Pearson (2002). Presenilin-1 mutations alter K^+ currents in the human neuroblastoma cell line, SH-SY5Y. *Neuroreport:* 13, 1553-6.
5. C Peers, A Lewis, LD Plant, HA Pearson, & PJ Kemp (2002). O_2-sensitive K^+ channels controlling cell excitability in *'Oxygen sensing: Responses and adaptation to hypoxia*'. Marcel Dekker Inc Eds S Lahiri, G Semenza, N Prabhakar.
6. LD Plant, JP Boyle, IF Smith C Peers and HA Pearson (2003). The production of Aβ peptide is a critical requirement for the viability of central neurones. *Journal of Neuroscience:* 23, 5531-5.
7. IF Smith, LD Plant, JP Boyle, HA Pearson & C Peers (2003). Chronic hypoxia potentiates capacitive Ca^{2+} entry in type I cortical astrocytes. *J Neurochem*: 85, 1109-16. doi/10.1046/j.1471-4159.2003.01785.x/full
8. IF Smith, JP Boyle, LD Plant, HA Pearson and C Peers (2003). Hypoxic remodeling of Ca^{2+} stores in type I cortical astrocytes. *Journal of Biological Chemistry:* 273, 4875-81. doi: 10.1074/jbc.M209206200
9. S Rajan*, LD Plant*, ML Rabin, MH Butler, SA Goldstein (2005) SUMOylation silences the plasma membrane leak K^+ channel K2P1. *Cell:* 121, 37-47. DOI: 10.1016/j.cell.2005.01.019 **Co-first Author;*
   Commentary: Wilson VG & Rosas A G (2005): Wrestling with SUMO in a new arena. Science STKE: 290, pe32.
10. LD Plant, S Rajan, S Goldstein (2005). K2P channels and their protein partners. *Current Opinion in Neurobiology*. 15 326-33. http://dx.doi.org/10.1016/j.conb.2005.05.008
11. SA Goldstein, DA Bayliss, D Kim, F Lesage, S Rajan, LD Plant. (2005) International Union of Pharmacology. LV. Nomenclature and Molecular Relationships of Two-P Potassium Channels. *Pharm Reviews.* 57(4), 527-40. DOI: 10.1124/pr.57.4.12\
12. HF McGarry, LD Plant, MJ Taylor (2005). Diethylcarbamazine activity against Brugia malayi microfilariae is dependent on inducible nitric oxide synthase and the cyclooxygenase pathway. *Filaria J*ournal: 4, 4-10. DOI: 10.1186/1475-2883-4-4.
13. LD Plant, NJ Webster, JP Boyle, M Ramsden, DB Freir, C Peers, HA Pearson (2005). Aβ peptide as a physiological modulator of neuronal 'A'-type K^+ current. *Neurobiol Aging*: 27, 1673-83. doi.org/10.1016/j.neurobiolaging.2005.09.038

14. LD Plant, PN Bowers, Q Liu, T Morgan, TT Zhang, MW State, W Chen, RA Kittles, SA Goldstein (2006). A Common Cardiac Sodium Channel Variant Associated with a High Risk of Sudden Infant Death Syndrome in African Americans. *J. Clinical Investigation:* 116, 430-5. DOI: 10.1172/JCI25618.
    Commentary: Makielski JC (2006): SIDS: genetic and environmental influences may cause arrhythmia in this silent killer. J. Clinical Investigation: 116, 297-9.
15. D Thomas, LD Plant, C Wilkens, Z McCrossan, SA Goldstein (2008). Alternative translation initiation in rat brain yields K2P2 K^+ channels permeable to Na^+. *Neuron:* 58, (6): 859-70. DOI: 10.1016/j.neuron.2008.04.016
    Commentary: Yang SB & Jan LY (2008): Thrilling moment of an inhibitory channel. Neuron: 58, 823-4.
16. LD Plant, I Dementieva, A Kollewe, S Olikara, JD Marks, SA Goldstein.(2010) One SUMO is sufficient to silence the dimeric K^+ channel K2P1 (2010). *Proc Natl Acad Sci U S A*: 107, (23): 10743-8. DOI: 10.1073/pnas.1004712107.
17. LD Plant, E Dowdell, I Dementieva, JD Marks, SA Goldstein (2011). SUMO modification of cell surface Kv2.1 channels regulates the activity of rat hippocampal neurons. *J Gen. Phys*: 137 (5), 441-54. DOI: 10.1085/jgp.201110604
    Cover of JGP, May 2011; Cranefield Award, 2012 to Leigh D. Plant; Commentary: Mandikian D, Cerda O, Sack JT & Trimmer JS (2011): A SUMO-Phospho tag team for wrestling with potassium channel gating. JGP: 137, 435-439.
18. LD Plant (2012). A role for K2P channels in the operation of somatosensory nociceptors. *Frontiers Mol Neurosci.* DOI: 10.3389/fnmol.2012.00021.
19. LD Plant, DA Bayliss, D Kim, SA Goldstein (on going). The IUPHAR electronic receptor database of Two-P Potassium Channels; http://www.iuphar-db.org/IC/ReceptorFamiliesForward
20. MG Distler, LD Plant, G Sokoloff, AJ Hawk, I Aneas, S Meredith, M Nobrega, AA Palmer (2012). Glyoxalase 1 increases anxiety by reducing $GABA_A$ receptor agonist methylglyoxal. *J. Clinical Investigation:* 122, (6): 2306-15. DOI: 10.1172/JCI61319
21. LD Plant, L Zuniga, D Araki, JD Marks, SA Goldstein (2012). SUMOylation silences heterodimeric TASK potassium channels Containing K2P1 subunits in cerebellar granule neurons. *Science Signaling:* 5 (251): ra84. DOI: 10.1126/scisignal.2003431
    Commentary: Adler, EM (2013): Eschewing ischemia or responding to it. J. Gen. Phys: 141, 1-2.
22. PB Shelat, LD Plant, JC Wang, JD Marks (2013). The tri-block co-polymer F-68 rescues cultured hippocampal neurons following oxygen-glucose deprivation by blocking apoptosis. *J. Neurosci:* 33 (30) 12287-99. DOI: 10.1523/JNEUROSCI.5731-12.2013.
23. LD Plant (2013). Multilevel Regulation: Controlling BK channels in central clock neurons. *J. Gen. Phys:* 142 (6) 579-83*s.* DOI: 10.1085/jgp.201311128.
24. LD Plant, D Xiong, H Dai, SA Goldstein (2014). Individual I_{Ks} channels at the surface of mammalian cells contain two KCNE1 subunits. *Proc Natl Acad Sci U S A:* 111 (14), DOI: 10.1073/pnas.1323548111.
    Commentary: Kobertz, W (2014): Stoichiometry of the cardiac I_{Ks} complex. PNAS: 111(14), 5065-6.
25. LD Plant & SA Goldstein (for 2014). Two-pore potassium channels. Chapter in '*Handbook of Ion Channels*'. Taylor & Francis publishers, Editors: Jie Zheng, Matthew Trudeau.
26. KM McMurray, MG Distler, Sidhu PS, Arnold LA, AA Palmer, LD Plant (2014). Glo1 inhibitors for neuropsychiatric and anti-epileptic drug development. *Biochem Soc Transactions:* 42 (2), 461-7. DOI: 10.1042/BST20140027.

27. P Burgos, R Zuniga, P Dominguez, F Delgado-Lopez, LD Plant, L Zuniga (2014). Differential Expression of two-pore domain K^+ channels in rat cerebellar granule neurons. *Biochem Biophys Res Comm:* 453 (4), 754-60. DOI: 10.1016/j.bbrc.2014.10.012.
28. SP Alexander et al., (2015-2016). The Concise Guide to Pharmacology 2015/16. *Br J Pharmacol:* 172 (24), 5729-43. http://onlinelibrary.wiley.com/doi/10.1111/bph.13349/abstract
29. LD Plant, JM Marks & SA Goldstein. Acute hypoxia increases the excitability of central neurons via rapid SUMOylation of Na_V channels. *eLife Dec 28th, 2016*; doi.org/10.7554/eLife.20054.
30. D Xiong, T Li, H Dai, A Arena, LD Plant & SA Goldstein (2017). SUMOylation determines the voltage-required to activate cardiac I_{Ks} channels. *Proc Natl Acad Sci U S A* doi:10.1073/pnas.1706267114.
31. LD Plant (2017). A cryptic binding pocket in K2P2 exposes new avenues for drug development. IUPHAR/BPS Guide to Pharmacology Hot Topics: https://blog.guidetopharmacology.org/2017/08/28/hot-topics-a-cryptic-binding-pocket-in-k2p2-exposes-new-avenues-for-drug-development/
32. J Ha, Y Xu, T Kawano, T Hendon, L Baki, S Garai, A Papapetropoulos, G Thakur, LD Plant & DE Logothetis (2018). Hydrogen sulphide inhibits Kir2 and Kir3 channels by decreasing sensitivity to the phospholipid PIP_2. *J Biol Chem* 293 (10), 3546-3561 doi: 10.1074/jbc.RA117.001679.
33. Z Gu[#], LD Plant[#]*, XY Meng*, JM Perez-Aguilar, DE Logothetis & R Zhou* (2018). Exploring the nanotoxicology of MoS_2: A Study on the Interaction of MoS_2 Nanoflakes and K^+ Channels. *ACS Nano* 12 (1), 705-717 doi: 10.1021/acsnano.7b07871 **co-corresponding author, [#]joint first author*
34. K Gada, LD Plant[#] (2019). Two-pore domain potassium channels: emerging targets for novel analgesic drugs. *Br J Pharmacol* doi: 10.1111/bph.14518, *[#]co-corresponding author*
35. Y Xu, L Cantwell, AI Molosh, LD Plant, D Gazgalis, SD Fitz, ET Dustrude, Y Yang, T Kawano, S Garai, SF Noujaim, A Shekhar, DE. Logothetis, GA Thakur (2020). The small molecule GAT1508 activates brain specific GIRK1/2 channel heteromers and facilitates conditioned fear extinction in rodents. *J Biol Chem* 295 (11), 3614-363
36. The Concise Guide to Pharmacology: Ion Channels. Br J Pharmacol DOI: 10.1111/bph.14749
37. LD Plant[#], D Xiong, J Romero, H Dai, SA Goldstein (2020). Hypoxia produces pro-arrhythmic late sodium current in cardiac myocytes by SUMOylation of $Na_V1.5$ channels. *Cell Reports* 30 (7), 2225-2236 *[#]corresponding author*
38. Z Gu, W Song, S Liu, B Li, LD Plant[#], XY Meng[#] (2020). Potential Blockade of the human Voltage-dependent Anion Channel by MoS_2 Nanoflakes. *Phys Chem Chem Phys* 21 (18), 9520-9530. *[#]co-corresponding author*
39. T Torregrosa, S Webster, C Aghaizu, JR Soucy, C Bertucci, LD Plant, AN Koppes, RA Koppes (2020). Cryopreservation and functional analysis of cardiac autonomic neurons. *J Neurosci Methods* 341, 108724.
40. M Ningoo, LD Plant, A Greka, DE Logothetis (2021). PIP_2 regulation of TRPC5 channel activation and desensitization. *J Biol Chem* 296, 100726. doi: 10.1016/j.jbc.2021.100726.
41. M Cui, Y Alhamshari, L Cantwell, EH Said, GC Eptaminitaki, M Chang, O Abou-Assali, H Tan, K Xu, M Masotti, LD Plant, GA Thakur, SF Noujaim, J Milnes, DE Logothetis (2021). A benzopyran with antiarrhythmic activity is an inhibitor of Kir3. 1-containing potassium channels. *J Biol Chem* 296, 100535. doi: 10.1016/j.jbc.2021.100535.
42. JM Kamuene, Y Xu, LD Plant[#] (2021). The Pharmacology of Two-Pore Domain Potassium Channels. *Handb Exp Pharmacol*, doi: 10.1007/164_2021_462; *[#]corresponding author*
43. Z Gu, AM Baggetta, Y Chong, LD Plant[#], XY Meng[#], R Zhou[#] (2021). Multifaceted Regulation of Potassium-Ion Channels by Graphene Quantum Dots. *ACS Appl Mater Interfaces* 13 (24): 27784-27795. doi: 10.1021/acsami.1c01569, *[#]corresponding author*

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45. X Wang, N Yang, J Su J, C Wu, S Liu, L Chang, LD Plant[#], X Meng[#] (2022). The Molecular Mechanism of Human Voltage-Dependent Anion Channel 1 Blockade by the Metallofullerenol Gd@C82(OH)22: An In Silico Study. *Biomolecules* 12;12(1):123. doi: 10.3390/biom12010123. PMID: 35053271. *[#]corresponding author*
46. V Corradi, AN Bukiya, WE Miranda, M Cui, LD Plant, DE Logothetis, DP Tieleman, SY Noskov, A Rosenhouse-Dantsker (2022). A molecular switch controls the impact of cholesterol on a Kir channel. Proc Natl Acad Sci U S A. 29;119(13):e2109431119. doi: 10.1073/pnas.2109431119. PMID: 35333652.
47. KD Gada, T Kawano, LD Plant, DE Logothetis (2022). An optogenetic tool to recruit individual PKC isozymes to the cell surface and promote specific phosphorylation of membrane proteins. J Biol Chem. 298(5):101893. doi: 10.1016/j.jbc.2022.101893. PMID: 35367414.
48. M Cui, K Xu, KD Gada, B Shalomov, M Ban M, GC Eptaminitaki, T Kawano, LD Plant, N Dascal, DE Logothetis DE (2022). A novel small-molecule selective activator of homomeric GIRK4 channels. J Biol Chem. 298(6):102009. doi: 10.1016/j.jbc.2022.102009. PMID: 35525275.
49. PA De Oliveira, E Moreno, N Casajuana-Martin, V Casadó-Anguera, NS Cai, GA Camacho-Hernandez, H Zhu, A Bonifazi, MD Hall, D Weinshenker, AH Newman, DE Logothetis, V Casadó, LD Plant[#], L Pardo, S Ferré (2022). Preferential Gs protein coupling of the galanin Gal1 receptor in the μ-opioid- Gal1 receptor heterotetramer. Pharmacol Res. 182 106322. doi 10.1016/j.phrs.2022.106322. PMID: 3575029. *[#]corresponding author*
50. Xu Y, Yang Y, Chandrashekar A, Gada KD, Masotti M, Baggetta AM, Connolly JG, Kawano T, Plant LD[#] (2022). Hypoxia inhibits the cardiac I_{K1} current through SUMO targeting Kir2.1 activation by PIP_2. iScience. 25(9):104969. doi: 10.1016/j.isci.2022.104969. PMID: 36060074. *[#]corresponding author.*
51. KD Gada, M Chang, A Chandrashekar, LD Plant, SF Noujaim, DE Logothetis (2023). Mechanism of PKCε Regulation of Cardiac GIRK Channel Gating. Proc Natl Acad Sci U S A 120(1):e2212325120. doi: 10.1073/pnas.2212325120. PMID: 3658430
52. KD Gada, Y Xu, BT Winn, M Masotti, T Kawano, H Vaananen, LD Plant[#] (2023). Optogenetic dephosphorylation of phosphatidylinositol 4,5 bisphosphate in *Xenopus laevis* oocytes. STAR Protoc 4(1):102003, doi: 10.1016/j.xpro.2022.10200. PMID: 36633950. *[#]corresponding author*
53. O Kotler, Y Khrapunsky, A Shvartsman, H Dai, LD Plant, SA Goldstein, I Fleidervish (2023). SUMOylation of $Na_V1.2$ channels regulates the velocity of backpropagating action potentials in cortical pyramidal neurons. elife 12:e81463. doi: 10.7554/eLife.81463. PMID: 36794908
54. KD Gada, JM Kamuene, T Kawano, LD Plant[#] (2023). Imaging membrane proteins using total internal reflection fluorescence microscopy (TIRFM) in mammalian cells. Bio Protoc 13(4):e4614 doi: 10.217769/BioProtoc.4614 *[#]corresponding author.*
55. KD Gada, JM Kamuene, A Chandrashekar, RC Kissell, AK Yauch, LD Plant[#] (2023). $PI(4,5)P_2$ regulates the gating of $Na_V1.4$ channels. J Gen Physiol 155(6) :e202213255 doi: 10.1085/jgp.202213255. PMID: 37043561 *[#]corresponding author.*
56. MA Hossain, R Sarin, DP Donnelly, BC Miller, JP Salisbury, J Amin, JB Conway, S Watson, JN Winters, Y Xu, RR Brahme, N Alam, H Shahbazian, D Sivasankar, S Padmakumar, A Sattarova, AC Ponmudiyan, T Gawde, W Yang, S Kannapadi, LD Plant, JR Auclair, L Makowski, GA Petsko, D Ringe, DJ Greenblatt, MJ Ondrechen, Y Chen, R Manetsch, JN Agar (2024). Evaluating protein crosslinking as a therapeutic strategy to stabilize SOD1 variants in a mouse model of familial ALS. PLoS Biology 22(1), e3002462. PMCID: PMC10826971, DOI: 10.1371/journal.pbio.3002462

57. LAR Jansen, MA Welch, LD Plant, DJ Baro (2024). Crosstalk between PKA and PIAS3 regulates cardiac Kv4 channel SUMOylation. Cell Commun Signaling. 22 (1), 422. PMCID: PMC11367828, DOI: 10.1186/s12964-024-01795-4
58. JG Connolly, LD Plant (2024). SUMO regulation of ion channels in health and disease (2024). Physiology, PMID: 39499247; DOI: 10.1152/physiol.00034.2024

1.9.2 PAPERS UNDER REVIEW

1. Y Yang, AK Yauch, KD Gada, T Kawana, LD Plant. Activation of adenosine A2A receptors regulates HIF-1α accumulation via SUMOylation. Under review at *Journal of Biological Chemistry.*