

CURRICULUM VITAE

Amy Lee, Ph.D.

A. List of Institutions Attended

- 1986 – 1990 B.S. University of Michigan-Ann Arbor
- 1992 – 1998 Ph.D. University of Virginia
Department of Pharmacology
Neuroscience Graduate Program
Mentor: Kevin R. Lynch
- 1998 – 2002 Postdoctoral University of Washington
Fellow Department of Pharmacology
Mentor: William A. Catterall

B. Professional and Academic Positions Held

- 2002 – 2008 Assistant Professor
Department of Pharmacology, Emory University
- 2008 –2015 Associate Professor, with tenure
Dept. of Molecular Physiology & Biophysics, University of Iowa
- 2009 – 2015 Associate Professor
Dept. of Otolaryngology, Head and Neck Surgery, University of Iowa
- 2009 – 2015 Associate Professor
Dept. of Neurology, University of Iowa
- 2014 – present Assistant Dean for Scientific Affairs
Carver College of Medicine, University of Iowa
- 2015 – present Professor
Dept. of Molecular Physiology & Biophysics, University of Iowa
Dept. of Otolaryngology, Head and Neck Surgery, University of Iowa
Dept. of Neurology, University of Iowa

C. Honors, Awards, Recognitions, and Outstanding Achievements

- 1986 National Merit Scholar
- 1986 University of Michigan Alumni Scholarship
- 1990 Graduation with Distinction, University of Michigan
- 1995 Pre-doctoral NRSA F31 MH11074
- 1997 Eric Lothman Award in Recognition of Outstanding Achievement in Neuroscience
- 1998 Post-doctoral NRSA F32 NS10645
- 2002 PhRMA Foundation Research Starter Award
- 2007 Emory University Dept. of Pharmacology Excellence in Teaching Award
- 2011 Carver Foundation Research Program of Excellence Award
- 2012 Elected to Biophysical Society Council

- 2014 Women of Innovation Award, Technology Association of Iowa
2015 AAMC Basic Research Video Competition Third Place
(<http://medresearch.tumblr.com/GRANDwinner>)
2016 University of Iowa Faculty Communicating Ideas Award

SCHOLARSHIP/PROFESSIONAL PRODUCTIVITY

A. Publications or Creative Works

Original articles:

1. Lee, Y.S., Lee, H.J., Crain, R.C., **Lee, A.**, and S.J. Korn. (1994) Polyunsaturated fatty acids modulate stomatal aperture and two distinct K⁺ channels in guard cells. *Cellular signalling*. 6:181-186
2. Baraban, S.C., Lothman, E.W., **Lee, A.**, and P.G. Guyenet. (1995) Kappa opioid receptor-mediated suppression of voltage-activated K⁺ current in a catecholaminergic cell line. *J. Pharmacol. Exp. Ther.* 273:927-933
3. **Lee, A.**, Talley, E., Rosin, D.L., and K.R. Lynch. (1995) Characterization of α 2A-adrenergic receptors in GT1 neurosecretory cells. *Neuroendocrinology*. 62:215-225
4. Rosin, D.L., Talley, E., **Lee, A.**, Stornetta, R.L., Gaylinn, B., Guyenet, P.G., and K.R. Lynch. (1996) Distribution of α 2C-adrenergic receptor-like immunoreactivity in the rat central nervous system. *J. Comp. Neurol.* 372: 135-165
5. Talley, E., Rosin, D.L., **Lee, A.**, Guyenet, P.G., and K.R. Lynch. (1996) Distribution of α 2A-adrenergic receptor-like immunoreactivity in the rat central nervous system. *J. Comp. Neurol.* 372:111-134
6. **Lee, A.**, Wissekerke, A.E.W., Rosin, D.L., and K.R. Lynch. (1998) Localization of α 2C-adrenergic receptor immunoreactivity in central catecholaminergic neurons. *Neuroscience*. 84:1085-96
7. Milner, T.A., **Lee, A.**, Aicher, S.A., and D.L. Rosin. (1998) Hippocampal α 2A-adrenergic receptors are located predominantly presynaptically but are also found postsynaptically and in selective astrocytes. *J. Comp. Neurol.* 395:310-27
8. **Lee, A.**, Rosin, D.L., and E.J. Van Bockstaele. (1998) α 2A-adrenergic receptors in the rat nucleus locus coeruleus: subcellular localization in catecholaminergic dendrites, astrocytes, and presynaptic axon terminals. *Brain Res.* 795:157-69
9. **Lee, A.**, Rosin, D.L., and E.J. Van Bockstaele. (1998) Ultrastructural evidence for prominent postsynaptic localization of α 2C-adrenergic receptors in catecholaminergic dendrites in the rat nucleus locus coeruleus. *J. Comp. Neurol.* 394:218-29
10. Milner, T.A., Rosin, D.L., **Lee, A.**, and S.A. Aicher. (1999) α 2A-adrenergic receptors are primarily presynaptic heteroreceptors in the C1 area of the rat rostral ventrolateral medulla. *Brain Res.* 821:200-11
11. **Lee, A.**, Wong, S.T., Gallagher, D., Li, B., Storm, D.R., Scheuer, T., and W.A. Catterall. (1999) Ca²⁺/calmodulin binds to and modulates P/Q-type calcium channels. *Nature*. 399:155-159
12. **Lee, A.**, Scheuer, T., and W.A. Catterall. (2000) Ca²⁺/ calmodulin- dependent facilitation and inactivation of P/Q- type Ca²⁺ channels. *J. Neurosci.* 20: 6830-6838
13. Hettinger, B.D., **Lee, A.**, Linden, J., and D.L. Rosin. (2001) Ultrastructural localization of adenosine A_{2A} receptors suggests multiple cellular sites for modulation of GABAergic neurons in rat striatum. *J. Comp. Neurol.* 431:331-346
14. **Lee, A.**, Westenbroek, R.E., Haeseleer, F., Palczewski, K., Scheuer, T., and W.A.

- Catterall. (2002) Differential modulation of Ca_v2.1 channels by calmodulin and Ca²⁺-binding protein 1. *Nat. Neuroscience*. 5(3): 210-217
15. **Lee, A.**, Zhou, H., Scheuer, T., and W.A. Catterall. (2003) Molecular determinants of Ca²⁺- and calmodulin-dependent regulation of Ca_v2.1. *Proc. Natl. Acad. Sci.U.S.A.* 100:16059-16064
 16. Haeseleer, F., Imanishi, Y., Maeda, T., Possin, D., Maeda, A., **Lee, A.**, Rieke, F., and K. Palczewski. (2004) Essential role of Ca²⁺-binding protein 4, a Ca_v1.4 channel regulator, in photoreceptor synaptic function. *Nat. Neurosci.* 7: 1079-1087
 17. Zhou, H., Kim, S.-A., Kirk, E.A., Tippens, A. L., Sun, H., Haeseleer, F., and **A. Lee.** (2004) Ca²⁺-binding protein-1 facilitates and forms a postsynaptic complex with Ca_v1.2 (L-type) Ca²⁺ channels. *J. Neurosci.* 24:4698-4708
 18. Zhou, H., Yu, K., McCoy, K.L., and **A. Lee.** (2005) Molecular mechanism for divergent regulation of Ca_v1.2 Ca²⁺ channels by calmodulin and Ca²⁺-binding protein-1. *J. Biol. Chem.* 280:29612-29619
 19. Cooper, D.S., Saxena, N.C., Moring, A.G., **Lee, A.**, and I. Choi. (2005) Molecular and functional characterization of the electroneutral Na/HCO₃ cotransporter (NBCn1) in rat hippocampal neurons. *J. Biol. Chem.* 280: 17823-17830
 20. Kreiner, L., and **A. Lee.** (2006) Endogenous and exogenous Ca²⁺ buffers differentially modulate Ca²⁺-dependent inactivation of Ca_v2.1 Ca²⁺ channels. *J. Biol. Chem.* 281: 4691-4698
 21. Cui, G., Meyer, A.C., Calin-Jageman, I., Neef, J., Haeseleer, F., Moser, T. and **A. Lee.** (2007) Ca²⁺-binding proteins tune Ca²⁺-feedback to Ca_v1.3 channels in auditory hair cells. *J. Physiol.* 585: 791-803 (featured in "Perspectives" article by J. Striessnig (2007) *J. Physiol.* 585: 643-644)
 22. **Lee, A.**, Jimenez, A., Cui, G., and F. Haeseleer. (2007) Phosphorylation of CaBP4 by protein kinase C zeta in photoreceptors. *J. Neurosci.* 27:12743-12754
 23. Tippens, A.L., and **A. Lee.** (2007) Caldendrin: a neuron-specific modulator of Ca_v1.2 (L-type) Ca²⁺ channels. *J. Biol. Chem.* 282:8464-8473
 24. Calin-Jageman, I., Yu, K., Hall, R.A., Mei, L., and **A. Lee.** (2007) Erbin enhances voltage-dependent facilitation of Ca_v1.3 Ca²⁺ channels through relief of an autoinhibitory domain in the Ca_v1.3 α₁ subunit *J. Neurosci.* 27:1374-1385
 25. Yu, K., Xiao, Q., Cui G., **Lee, A.**, and H. C. Hartzell. (2008) The Best Disease-Linked Cl Channel hBest1 Regulates Ca_v1 (L-type) Ca²⁺ Channels Via SH3-binding Domains. *J. Neurosci.* 28:5660-5670
 26. Tippens, A.L., Pare, J.-F., Moosmang, S., Milner, T.A., Smith, Y., and **A. Lee.** (2008) Ultrastructural evidence for pre- and post-synaptic localization of Ca_v1.2 L-type Ca²⁺ channels in the rat hippocampus. *J.Comp.Neurol.* 506:569-583
 27. Rieke, F., **Lee, A.**, and F. Haeseleer. (2008) Characterization of Ca²⁺-binding protein 5 knockout mouse retina. *Invest Ophthalmol Vis. Sci.* 49:5126-5135
 28. Kreiner, L., Christel, C.J., Benveniste, M., Schwaller, B., and **A. Lee.** (2010) Compensatory regulation of Ca_v2.1 Ca²⁺ channels in cerebellar Purkinje neurons lacking parvalbumin and calbindin D-28k. *J. Neurophysiol.* 103: 371-381
 29. Jenkins, M.A., Jiao, Y., Christel, C.J., Kim, K., Obermair, G.J., Colbran, R.J., and **A. Lee.** (2010) Ca²⁺-dependent facilitation of Ca_v1.3 Ca²⁺ channels by densin and Ca²⁺/calmodulin-dependent protein kinase II. *J. Neurosci.* 30:5125-5135
 30. Frank, T., Rutherford, M.A., Strenzke, N., Neef, A., Pangršič, T., Khimich, D., Fetjova, A., Gundelfinger, E.D., Liberman, M.C., Harke, B., Bryan, K.E., **Lee, A.**, Egner, A.,

- Riedel, D., and T. Moser. (2010) Bassoon and the Synaptic Ribbon Organize Ca²⁺ Channels and Vesicles to Add Release Sites and Promote Refilling. *Neuron*. 68: 724-738
31. Gregory, F.D., Bryan, K.E., Pangršič, T., Calin-Jageman, I.E., Moser, T., and **A. Lee**. (2011) Harmonin inhibits presynaptic Ca_v1.3 Ca²⁺ channels in mouse inner hair cells. *Nat. Neurosci.* 14:1109-1111
 32. Oz, S., Tsemakhovich, V., Christel, C.J., **Lee, A.**, and N. Dascal. (2011) CaBP1 regulates voltage-dependent inactivation and activation of Ca_v1.2 (L-type) calcium channels. *J. Biol. Chem.* 286:13945-13953
 33. Lee, A.S., Ra, S., Rajadhyaksha, A.M., Britt, J.K., Jesus-Cortes, D. H., Gonzales, K. L., Moosmang, S., **Lee, A.**, Hofmann, F., Pieper, A.A., and A. M. Rajadhyaksha. (2012) Forebrain elimination of *CACNA1C* mediates anxiety-like behavior in mice. *Mol. Psychiatry*. 17:1054-1055
 34. Lee, A.S., Gonzales, K.L., **Lee, A.**, Moosmang, S., Hofmann, F., Pieper, A.A., and A. M. Rajadhyaksha. (2012) Selective genetic deletion of *CACNA1C* in the mouse prefrontal cortex. *Mol. Psychiatry*. 17:1051
 35. Schrauwen, I., Helfmann, S., Inagaki, A., Wolk, F., Tabatabaiefar, M.A., Picher M.M., Sommen, M., ZazoSeco, C., Kremer, H., Dheedene, A., Claes, C., Franssen, E., Reimnitz, F., Diederichsen, U., Hashemzadeh, M., Couke, P., **Lee, A.**, Moser, T., and G. Van Camp. (2012) A mutation in *CABP2*, expressed in cochlear hair cells, causes autosomal recessive hearing impairment. *Am. J. Hum. Genet.* 91(4):636-45
 36. Christel, C.J., Schaer, R., Wang, S., Henzi, T., Kreiner, L., Grabs, D., Schwaller, B., and **A. Lee**. (2012) Calretinin regulates Ca²⁺-dependent inactivation and facilitation of Ca_v2.1 Ca²⁺ channels through a direct interaction with the α_1 2.1 subunit. *J. Biol. Chem.* 287:39766-39775
 37. Christel, C.J., Cardona, N., Mesirca, P., Herrmann, S., Hofmann, F., Striessnig, J., Ludwig, A., Mangoni, M.E., and **A. Lee**. (2012) Distinct localization and modulation of Ca_v1.2 and Ca_v1.3 L-type Ca²⁺ channels in mouse sinoatrial node. *J. Physiol.* 590: 6327-6341
 38. Zou, J., **Lee, A.**, and J. Yang. (2012) The expression of whirlin and Ca_v1.3 α_1 is mutually independent in photoreceptors. *Vision Res.* 75:53-59
 39. Haeseleer, F., Sokal, I., Gregory, F.D., and **A. Lee**. (2013) Protein phosphatase 2A dephosphorylates CaBP4 in the retina and regulates CaBP4 function. *Invest Ophthalmol Vis. Sci.* 54:1214-1226
 40. Oz, S., Benmocha, A., Sasson, Y., Sachyani, D., Almagor, L., **Lee, A.**, Hirsch, J. A., and N. Dascal. (2013) Competitive and non-competitive regulation of calcium-dependent inactivation in Ca_v1.2 L-type Ca²⁺ channels by calmodulin and Ca²⁺-binding protein 1. *J. Biol Chem.* 288:12680-12691
 41. Hall, D.D., Dai, S., Tseng, P.Y., Malik, Z., Nguyen, M., Matt, L., Schnizler, K., Shepherd, A., Mohapatra, D. P., Tsuruta, F., Dolmetsch, R.E., Christel, C. J., **Lee, A.**, Burette, A., Weinberg, R.J., and J. W. Hell. (2013) Competition between α -actinin and Ca²⁺/calmodulin controls surface retention of the L-type Ca²⁺ channel Ca_v1.2. *Neuron*. 78:483-497
 42. Inagaki, A., and **A. Lee**. (2013) Developmental alterations in the biophysical properties of Ca_v1.3 Ca²⁺ channels in mouse inner hair cells. *Channels*. 7:171-181
 43. Gregory, F. D., Pangrsic, T., Calin-Jageman, I. E., Moser, T., and **A. Lee**. (2013) Harmonin enhances voltage-dependent facilitation of Ca_v1.3 channels and synchronous exocytosis in mouse inner hair cells. *J. Physiol.* 591:3252-3269

44. Knoflach, D., Kerov, V., Sartori, S. B., Obermair, G. J., Schmuckermair, C., Liu, X., Sothilingam, V., Garrido, M. G., Baker, S., Glösmann, M., Schicker, K., Seeliger, M., **Lee, A.**, and A. Koschak. (2013) Ca_v1.4 IT mouse as model for vision impairment in human Congenital Stationary Night Blindness Type 2. *Channels* 7:502-512
45. Liu, X., Kerov, V., Haeseleer, F., Majumder, A., Artemyev, N., Baker, S.A., and **A. Lee**. (2013) Dysregulation of Ca_v1.4 channels disrupts the maturation of photoreceptor synaptic ribbons in congenital stationary night blindness type 2. *Channels*. 7:513-522
46. Núñez-Santana, F.L., Oh, M. M., Antion, M. D., **Lee, A.**, Hell. J.W., and J.F.Disterhoft. (2014) Surface L-type Ca²⁺ channel expression levels are increased in aged hippocampus. *Aging Cell*. 12157: 111–120
47. Inagaki, A., Frank C.A., Usachev, Y.M., Benveniste, M., and **A. Lee**. (2014) Pharmacological correction of gating defects in the voltage-gated Ca_v2.1 Ca²⁺ channel due to a familial hemiplegic migraine mutation. *Neuron*. 81: 91-102
48. Kim, K.Y., Scholl, E. S., Liu, X., Shepherd, A., Haeseleer, F., and **A. Lee**. (2014) Localization and expression of CaBP1/caldendrin in the mouse brain. *Neuroscience*. 268:33-47
49. **Lee, A.**, Wang, S., Williams, B., and F. Haeseleer. (2014) Characterization of Ca_v1.4 complexes ($\alpha_11.4$, β_2 , $\alpha_2\delta_4$) in HEK293T cells and in the retina. *J. Biol Chem*. 290:1505-1521
50. Scharinger, A., Eckrich, S., Vandael, D. H., Schonig, K., Koschak, A., Hecker, D., Kaur, G., **Lee, A.**, Sah, A., Bartsch, D., Benedetti, B., Lieb, A., Schick, B., Singewald, N., Sinnegger-Brauns, M. J., Carbone, E., Engel, J., and J. Striessnig. (2015) Cell-type-specific tuning of Ca_v1.3 Ca⁽²⁺⁾-channels by a C-terminal automodulatory domain. *Front.Cell.Neurosci*. 9:309
51. Cao, Y., Sarria, I., Fehlhaber, K.E., Kamasawa, N., Orlandi. C., James, K. N., Hazen, J.L., Gardner, M.R., Farzan, M., **Lee, A.**, Baker, S., Baldwin, K., Sampath, A.P., and K.A. Martemyanov. (2015) Mechanism for Selective Synaptic Wiring of Rod Photoreceptors into the Retinal Circuitry and Its Role in Vision. *Neuron* 2015; 87(6):1248-60
52. Yang, T., Scholl, E.S., Pan, N., Fritsch, B., Haeseleer, F. and **A. Lee**. (2016) Expression and localization of CaBP Ca²⁺ Binding Proteins in the mouse cochlea. *PLoS One* 25: e0147495
53. Haeseleer, F., Williams, B., and **A. Lee**. (2016) Characterization of C-terminal splice variants of Ca_v1.4 Ca²⁺ Channels in human retina. *J. Biol. Chem.*, 291(30):15663-73
54. Krueger, J.N., Moore, S.J., Parent, R., **Lee, A.**, and G.G. Murphy. (2016) A novel mouse model of the aged brain: Over-expression of the L-type voltage-gated calcium channel Ca_v1.3. *Behav. Brain Res.*, pii: S0166-4328(16)30418
55. Stanika R., Campiglio, M., Pinggera, A., **Lee, A.**, Striessnig, J., Flucher, B., and G. Obermair. (2016) Splice variants of the Ca_v1.3 L-type calcium channel regulate dendritic spine morphology. *Sci. Reports* 6:34528
56. Sinha, R., **Lee, A.**, Rieke, F., and F. Haeseleer. Lack of CaBP1/caldendrin or CaBP2 leads to altered ganglion cell responses. *eNeuro* (in press)
57. Wang, S., Hagen, J., Hardie, J., Stanika, R.I., Obermair, G.J., Kennedy, M.B., Colbran, R.J., and **A. Lee**. Densin-180 controls the trafficking and signaling of voltage-gated Ca_v1.2 Ca²⁺ channels at excitatory synapses (*J.Neurosci*. in revision)
58. Kerov,V., Soh, D., Joiner, M., Wiliams, B., Gutierrez, W., Laird, J., Yoshimatsu, T., Bhattarai, S., Artemyev, N.O., Drack, A.V., Wong, R.O., Baker, S.A., and **A. Lee**. $\alpha_2\delta_4$ maintains the presynaptic density of voltage-gated Ca_v1.4 Ca²⁺ channels and the organization of the photoreceptor ribbon synapse (submitted)

Books / Chapters / Reviews:

1. **Lee, A.**, and K.R. Lynch (1996) Intracellular α 2A-adrenergic receptors in neurons and GT1 neurosecretory cells. In: Alpha-2 Adrenergic Receptors: Structure, Function, and Therapeutic Implications. S. Lanier and L. Limbird, eds. pp. 129-139
2. **Lee, A.** and M.E. Durieux (1998) The use of *Xenopus laevis* oocytes for the study of G-protein-coupled receptors. *In: Identification and Expression of G-protein-coupled Receptors*. K.R. Lynch, ed. pp. 73-95
3. Rosin, D.L., Hettinger, B.D., **Lee, A.**, and J. Linden (2003) Anatomy of adenosine A2A receptors in brain: morphological substrates for integration of striatal function. *Neurology* 61: S12-18
4. **Lee, A.** and W.A. Catterall. (2003) Ca^{2+} -dependent modulation of voltage-gated Ca^{2+} channels. In: Voltage-gated Ca^{2+} Channels. G. Zamponi, ed., Landes Bioscience, Austin.
5. **Lee, A.** (2008, 2014) Neuromodulation of Ca^{2+} channels. In: Encyclopedia of Neuroscience. L. Squire, ed. Academic Press, Oxford.
6. Sheng, Z.H., **Lee, A.**, and W.A. Catterall. (2008) Initiation and Regulation of Synaptic Transmission by Presynaptic Calcium Channel Signaling Complexes. In: Structural and Functional Organization of the Synapse. J. Hell and M. Ehlers, eds.
7. Haeseleer, F. and **A. Lee** (2009) CaBP4. UCSD Nature Molecule Pages, doi:10.1038/mp.a004098.01
8. Calin-Jageman, I. and **A. Lee**. (2008) Ca_v1 L-type Ca^{2+} channel signaling complexes in neurons *J.Neurochem.* 105: 573-583
9. Christel, C. and **A. Lee**. (2012) Electrophysiological analysis of Ca^{2+} -dependent modulation of voltage-gated Ca^{2+} channels. *Biochem. Biophys. Acta* 1820:1243-1252
10. **Lee, A.**, Fakler, B., Kaczmarek, L.K., and L. L. Isom. (2014) More than a pore: ion channel signaling complexes. *J. Neurosci.* doi: 10.1523/JNEUROSCI.3275-14.2014
11. Joiner, M.L. and **A. Lee**. (2015) Voltage-gated Ca_v1 channels in disorders of vision and hearing. *Current Mol. Pharmacol.* 8:1-5
12. Hardie, J. and **A. Lee**. (2015) Decalmodulation of Ca_v 1 channels by CaBPs. *Channels* 8:1-5
13. Kerov, V. and **A. Lee**. (2015) Degrading vision with too much Ca^{2+} . *Channels* 9:221-222
14. Thomas, J. and **A. Lee**. (2016) Measuring Ca^{2+} -Dependent Modulation of Voltage-Gated Ca^{2+} Channels in HEK-293T Cells. *Cold Spring Harb. Protocols* 2016(9):pdb.prot087213

B. Research funding received

National Institutes of Health

R01 NS084190 *Regulation of neuronal calcium channels*

Role: PI, \$1,818,441 direct costs, 12/01/13-11/30/18

R01 DC009433 *Regulation of auditory calcium channels*

Role: PI, \$1,517,498 direct costs, 12/15/08–11/30/18

R21 EY027054 *Rescue of photoreceptor synapses*

Role: Co-I, \$275,000 direct costs, 08/01/16-07/31/18

Department of Defense

MR130438 *Prevention of Noise Damage to Cochlear Synapses*

Role: Co-I, \$461,688 direct costs, 8/1/14-7/31/17

Other funding

Carver Foundation Research Program of Excellence
Role: PI, \$1,200,000 direct costs, 4/1/12–3/31/17

Pending Support:

R01 EY026817 Calcium channels in retinal photoreceptors
Role: PI, \$2,001,716 direct costs (Impact score = 15, Percentile = 3)

Previous Support:

National Institutes of Health

R01 EY020850 *Regulation of L-type calcium channels by CaBP4*
Role: Co-I, subaward: \$395,000 direct costs, 9/1/10–8/31/15

P30 DC 010362 *Iowa Center for Molecular Auditory Neuroscience*
Role: Consultant, \$421,467 direct costs, 9/01/10-08/31/15

R01 HL087120 *Modulation of Cav 1.3 L-type Ca²⁺ channels by PDZ-protein interactions*
Role: PI, \$1,000,000 direct costs, 5/1/09–4/30/13

R55 DC009433, *Regulation of auditory calcium channels*
Role: PI, \$80,000 direct costs, 4/01/08-03/30/09

R01 NS044922 *Regulation of neuronal Ca²⁺ channels by CaBP1*; PI: Amy Lee)
Role: PI, \$1,250,000 direct costs, 12/01/02-11/30/07

R03 AG021723, *Calcium channel modulation by CaBP1 during aging*
Role: PI, \$50,000 direct costs, 12/01/02-11/30/03

Other Agencies

Carver Collaborative Research Grant
Role: PI, \$50,000 direct costs, 2/1/11-3/31/13

Israel Binational Science Foundation Research Grant
Role: co-PI, \$40,000 direct costs, 9/01/06-8/30/10

American Heart Association Grant-in-Aid
Role: PI, \$140,000 direct costs, 7/01/07-6/30/09

Whitehall Foundation Research Grant
Role: PI, \$150,000 direct costs, 12/01/02-11/30/05

PhRMA Foundation Research Starter Grant
Role: PI, \$50,000 direct costs, 01/01/02-12/31/02

Emory University Research Committee grant
Role: PI, \$30,000 direct costs, 02/01/02-01/31/03

Funding obtained by trainees

American Heart Association Summer Undergraduate Fellowship (PI: Natalia Cardona)
Role: Sponsor, 06/01/12-08/31/12

F31 NS049757, *Factors regulating Ca_v2.1 modulation by Ca²⁺ in neurons* (PI: Lisa Kreiner)
Role: Sponsor, 01/01/04-6/01/08

Deafness Research Foundation Grant, *Harmonin interactions with voltage-gated Ca²⁺ channels in a mouse model of Usher syndrome* (PI: Irina Calin-Jageman)
Role: Sponsor, \$25,000 direct costs, 9/1/06-8/30/07

R03 DC008417, *Functional significance of harmonin in cochlear hair cells* (PI: Irina Calin-Jageman)
Role: Collaborator, \$150,000 direct costs, 12/1/06-11/30/08

Hearing Heath Foundation Research Grant: *Investigating the role of CaBP1 in KCNQ4 channel modulation* (PI: Keith Bryan), Role: Sponsor, \$50,000 direct costs, 07/01/11-06/30/13

NIH F32 DC011714, *Investigating the role of CaBP1 in KCNQ4 channel modulation* (PI: Keith Bryan), Role: Sponsor, 01/01/12-12/31/13

Conference support

NIH R13 NS092173 *FASEB SRC on Ion Channel Regulation*
Role: PI, \$20,000, 6/01/15-5/31/16

Army Research Office Conference Grant W911NF-15-1-0238 for *FASEB SRC on Ion Channel Regulation*
Role: PI, \$10,000 5/14/2015

Patents/Licenses

2009 Rabbit polyclonal Ca_v1.3 antibody antigen (1.3NT/pGEX4T1), licensed to Millipore

C. Invited Lectures

Lectureships, Seminar invitations:

2002 University of Tennessee Health Sciences Center, Neuroscience Institute
2003 Medical College of Georgia, Neuroscience
2004 Tel Aviv University Dept. of Physiology and Pharmacology
2006 University of Washington, Dept. of Ophthalmology
2006 Vanderbilt University, Dept. of Physiology
2006 University of Virginia, Dept. of Pharmacology/Neuroscience Graduate Program
2007 Cold Spring Harbor Laboratory
2007 University of Montreal Department of Pharmacology
2007 University of Iowa Neuroscience
2007 Rutgers University Women in Neuroscience
2007 Baylor College of Medicine Dept of Physiology
2007 Tel Aviv University Dept. of Physiology and Pharmacology
2008 Boston University Dept. of Pharmacology & Experimental Therapeutics
2008 University of Toronto Dept. of Pharmacology and Toxicology
2008 Duke University Dept. of Pharmacology & Cancer Biology
2008 University of Iowa Dept. of Molecular Physiology and Biophysics
2008 Columbia University Dept of Physiology and Cellular Biophysics
2008 University of Massachusetts Medical School Neuroscience program
2008 Cold Spring Harbor Laboratory
2008 University of Virginia Dept of Neuroscience
2009 Cold Spring Harbor Laboratory
2009 Texas A & M University Neuroscience
2009 University of Colorado Neuroscience

2009 Colorado State University Physiology
2009 Case Western Reserve University Neuroscience
2010 University of Innsbruck Dept of Pharmacology
2010 Technische Universität Munich Pharmacology
2010 University of Tuebingen, Hearing Research
2010 Hebrew University, Dept. of Biochemistry
2010 University of Rochester, Dept of Pharmacology/Physiology
2011 International Institute of Molecular and Cell Biology, Warsaw
2011 Institut de Pharmacologie Moleculaire et Cellulaire, CNRS, Valbonne
2011 Kresge Hearing Research Institute, University of Michigan
2011 Morehouse College, Dept. of Biology
2011 Northwestern University Institute for Neuroscience
2012 Weill Cornell Medical College, Dept. of Pediatric Neurology
2012 Tel Aviv University Dept. of Physiology
2013 Korea Institute of Science and Technology, Seoul
2013 Korea Advanced Institute of Science and Technology, Daejeon
2013 Cold Spring Harbor Laboratory
2013 Johns Hopkins University Hearing and Balance center
2014 Northwestern University Dept. of Pharmacology
2014 University of Connecticut, Dept. of Physiology and Neurobiology
2014 Vanderbilt University, Dept. of Pharmacology
2014 Texas A & M University Dept. of Medical Physiology
2014 Cold Spring Harbor Laboratory
2014 Gaint synapses, National Institute of Neurological Disorders and Stroke
2015 University of Maryland Program in Neuroscience
2015 Max Planck Florida Institute for Neuroscience
2015 Duke University Ion Channels Unit
2015 Creighton University, Dept. of Biomedical Sciences
2015 University of Florida, Dept. of Pharmacology
2016 Washington University, Dept. of Anesthesiology
2016 University of California, Davis, Dept. of Pharmacology
2016 University of Montreal, Groupe d'étude des protéines membranaires
2016 Weill Cornell Medical Center, Dept. of Physiology and Biophysics
2016 Brown University, Dept. of Neuroscience
2017 University of Texas-Austin, Dept. of Neuroscience

Invitations to National or International Conferences:

1999 Society for Neuroscience Meeting, San Diego, CA, Ca²⁺ channel platform session
2000 Biophysical Society Meeting, New Orleans, LA, Ca²⁺ channel platform session
2002 Society for Neuroscience Meeting, Washington, D.C., Ca²⁺ channel platform session
2003 Southeastern Region Meeting of the American Chemical Society
2004 Society for Neuroscience Meeting, Orlando, FL: Ca²⁺ channel platform session
2005 Atlanta Ca²⁺ Signaling Symposium
2006 FASEB Ca²⁺ signaling conference, Snowmass, CO
2006 Society for Neuroscience Meeting, Atlanta, GA: Minisymposium "Ca²⁺ channel signaling complexes", speaker and chair
2007 International Calcium Channel Conference, Moorea, French Polynesia
2007 FASEB Ion Channel Regulation conference, Snowmass, CO
2008 Gordon Research Conference on Ion Channels
2008 Biophysical Society International Meeting on Calmodulin Modulation of Ion Channels, Asilomar, CA
2009 FASEB Ion Channel Regulation conference, Snowmass, CO, invited speaker (declined)
2009 26th International Congress of Physiological Sciences, Kyoto, Japan, invited

- speaker (Voltage-gated Ca²⁺ channels and cellular excitability: regulation and pathophysiology symposium)
- 2010 Ca²⁺ and sensory processing, University of Goettingen, Germany, invited speaker
- 2010 Second International Calcium Channel Conference, Belize (declined)
- 2011 Gordon Research Conference, Ca²⁺ signaling, Colby College, Maine
- 2011 Molecular Biology of Hearing and Deafness Wellcome Trust Scientific Conference, Hinxton, Cambridge, UK
- 2012 FASEB Ca²⁺ signaling conference, Snowmass, CO
- 2013 Biophysical Society Annual Meeting, Philadelphia, PA, Ca²⁺ channel platform session
- 2013 Third International Calcium Channel Conference (Krabi, Thailand)
- 2013 FASEB Ion Channel regulation conference, Nassau, Bahamas
- 2013 Ribbon Synapse Symposium, Goettingen, Germany
- 2014 Biophysical Society Annual Meeting, San Francisco, CA, Symposium Chair (Molecular regulation of Ca²⁺ channels)
- 2014 Gordon Research Conference, Ion Channels, Mount Holyoke College (declined)
- 2014 Society for Neuroscience Annual Meeting, Washington D.C., Symposium Chair (More than a pore: ion channel signaling complexes)
- 2015 Association for Research in Otolaryngology Annual Meeting, Baltimore, MD (Cellular Ca²⁺ signaling in the auditory system)
- 2015 FASEB Ion Channel Regulation conference, co-chair
- 2015 Calcium Signaling Gordon Research Conference, Newry, Maine (declined)
- 2015 FASEB conference on the Biology and Chemistry of Vision (declined)
- 2015 Second European Calcium Channel Conference, Alpbach, Austria
- 2016 FASEB Conference on Calcium and Cell Function, Lisbon, Portugal
- 2016 FASEB Conference on Retinal Neurobiology, Big Sky, MT
- 2016 Society of General Physiologists Annual Symposium, Wood's Hole, MA
- 2017 FASEB Ion Channel Regulation conference, Steamboat Springs, CO

Organization of National or International Conferences:

- 2006 Society for Neuroscience Meeting, Atlanta, GA: Symposium "Ca²⁺ channel signaling complexes", Chair
- 2007 Symposium on Membrane Signal Transduction, Ca²⁺ channel structure/function, co-chair, University of Washington
- 2009-10 Cold Spring Harbor Summer Course on Ion Channel Physiology, co-director
- 2015 FASEB Ion Channel Regulation conference, Big Sky, MT, co-chair

D. Students Supervised

Past trainees

Postdoctoral Trainees

<u>Postdoctoral Trainees</u>		<u>Current Positions</u>
Anisha Moring ^{#†}	2003–2005	Technology Acquisition Coordinator, Merial Ltd.
Kuai Yu	2004–2005	Postdoctoral Fellow, Dept. of Cell Biology, Emory University
Guiying Cui	2005–2007	Instructor, Dept. of Pediatrics, Emory University Iowa City, IA
Irina Calin-Jageman ^{#‡}	2004–2007	Associate Professor, Dept. of Biology, Dominican University
Frederick Gregory ^{#†}	2006–2011	Program Manager, Neurophysiology and Cognitive Neuroscience, Army Research Office
Akira Inagaki	2009–2012	Assistant Professor, Nagoya City University
Carl Christel	2009–2012	Scientist, Sirion Biotech

Keith Bryan**‡	2009–2014	Research Scientist, Integrated DNA Technologies
Elizabeth Scholl	2012–2014	Contract scientific editor
Vasily Kerov	2012–2016	PhD / University of Iowa

Graduate Students

Alyssa Tippens	2002–2007
Lisa Kreiner*	2002–2008
Meagan Jenkins	2006–2009
Kristin Kim	2010–2013

Current Positions

Publication Lead, Britol-Myers Squibb
Contract scientific editor
Medical Writer, Conisus
Research Associate, Emory University

Research Intern

Josue Lopez	2014–2015
Daniel Soh	2014-2016

Current Positions

Graduate Student, University of Iowa
MS Student, Boston University

Undergraduate Students

Drake Bouzek [#]	2011
Natalia Cardona* ^{#†}	2009-2013
Daniel Soh	2011-2014
Ji-Eun Choi	2015,2016
Grant Stalker	2013-2016

Current Positions

Medical student
Engineer, Alcoa Mining and Materials
Research Intern, University of Iowa
Undergraduate, Duke University
Undergraduate, University of Iowa

Research Associate

Xiaoni Liu	2010–2013
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Current Position

PhD student, Molecular Cellular Biology, Yale University
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Present trainees**Postdoctoral Trainees**

Tian Yang	2014–
Edgar Garza Lopez	2016-

Degree/ Institution

PhD/ University of Iowa
PhD/ National Autonomous University of Mexico (UNAM)

Research Scientist

Jason Hardie	2014–
Vasily Kerov	2016-

Degree/ Institution

PhD / University of Wisconsin
PhD / University of Wisconsin

Graduate Students

Shi Yi Wang	2011–
Jessica Thomas ^{#†}	2011–
Brittany Williams ^{#†}	2012–
Josue Lopez	2015-

Degree/ Institution

BS / University College - London
BS / Alabama State University
Delaware State University
MS/ University of Iowa

Research Intern

Jordan Breffle	2016–
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Degree/ Institution

BS/University of Iowa

Undergraduate Students

Samiksha Annira	2016-
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Degree/ Institution

University of Iowa

*support on individual fellowship (NIH NRSA or AHA)

#support on institutional training grant (NIH T32) or diversity supplement

‡recipient of independent extramural research funding

†under-represented minority

SERVICE**A. Memberships in Professional Organizations and Offices Held**

1996-present Member, Society for Neuroscience

2008-present Member, Association for Research in Otolaryngology
 2011-present Member, Biophysical Society
 2012-2016 Council, Biophysical Society

Peer Review

Editorial Boards

2012–present *Molecular Pharmacology*
 2016-2018 *Journal of Biological Chemistry*

Manuscript Review

2002–present *Brain Research, British Journal of Pharmacology, Channels, FEBS Letters, Molecular Cellular Biochemistry, Molecular Cellular Neuroscience, Molecular Pharmacology, Nature Chemical Biology, Nature Neuroscience, Neuron, Neuroscience, Neuroscience Letters, Journal of Biological Chemistry, Journal of Cellular Physiology, Journal of Comparative Neurology, Journal of General Physiology, Journal of Neurophysiology, Journal of Neuroscience, Journal of Neuroscience Methods, Journal of Physiology, PloS One, Proceedings of the National Academy of Sciences*

B. Administrative Duties

University of Iowa Carver College of Medicine

CCOM

2009 Steering committee, Women's Leadership Council
 2010–present Iowa Center for Molecular Neuroscience Executive Committee
 2011 Diversity recruitment committee, Atlanta University Center Consortium
 2012 Co-organizer, Carver College of Medicine Research Week
 (“The Excitable Brain: Order & Disorder in the Nervous System”, <http://www.medicine.uiowa.edu/researchweek/previous/>)
 2012 Search committee for the Dean, Carver College of Medicine
 (result: appointment of Debra Schwinn)
 2013 Chair, Dept. of Pharmacology External Review Committee
 2013–present François Abboud Cardiovascular Center Executive Committee
 2014-present Assistant Dean for Scientific Affairs

Departmental

Emory University

2006 Department of pharmacology reserves committee

University of Iowa

2008–2014 Organizer, Women in Physiology
 2010–2013 Organizer, Dept. of Molecular & Biophysics seminar series
 2012 Neuroscience faculty search committee, Dept. of Pharmacology

Graduate programs

Emory University

2003 Organizer, Molecular & Systems Pharmacology Graduate Program Retreat

2003 – 06 Admissions committee, Graduate Program in Neuroscience
2004 – 06 Executive committee, Graduate Program in Neuroscience
2007 – 08 Faculty advisory committee, Medical Student
Research Day

University of Iowa

2010–present Neuroscience graduate program admissions committee
2011 Medical Scientist Training Program Admissions
Committee
2012 Neuroscience Graduate Program Comprehensive
Exam committee
2013-present Neuroscience graduate program diversity affairs committee
University Committees
2002-03 Emory Minority Undergraduate Fellowship committee
2013-present University of Iowa Faculty Senate
2013-present Sloan Council for Minority Graduate Fellowships