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Amy Lee, PhD

Curriculum vitae

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EDUCATION

1986 – 1990	B.S., Biology	University of Michigan
1992 – 1998	Ph.D., Neuroscience	Department of Pharmacology University of Virginia
1998 – 2002	Postdoctoral Fellow	Department of Pharmacology University of Washington

PROFESSIONAL APPOINTMENTS

2002–2008	Assistant Professor	Department of Pharmacology Emory University
2008–2015	Associate Professor	Departments of Molecular Physiology & Biophysics, Neurology, and Otolaryngology and Head & Neck Surgery University of Iowa
2014–present	Assistant Dean for Research	Carver College of Medicine University of Iowa
2015–present	Professor	Departments of Molecular Physiology & Biophysics, Neurology, and Otolaryngology and Head & Neck Surgery University of Iowa

HONORS AND AWARDS

1986	National Merit Scholar
1986	University of Michigan Alumni Scholarship
1990	Graduation with Distinction, University of Michigan
1995	Individual pre-doctoral NRSA F31 MH11074
1997	Eric Lothman Award in Recognition of Outstanding Achievement in Neuroscience, University of Virginia

1998	Individual post-doctoral NRSA F32 NS10645
2002	PhRMA Foundation Research Starter Award
2007	Department of Pharmacology, Emory University School of Medicine, Teaching Excellence Award
2011	Carver 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 prize winner (http://medresearch.tumblr.com/GRANDwinner)
2016	University of Iowa Faculty Communicating Ideas Award
2017	University of Iowa Diversity Catalyst Award

PROFESSIONAL SOCIETY MEMBERSHIPS

1996-present	Member, Society for Neuroscience
2008-present	Member, Association for Research in Otolaryngology
2011-present	Member, Biophysical Society

ADMINISTRATIVE EXPERIENCE

University of Iowa

2010–present	Iowa Center for Molecular Neuroscience Executive Committee
2012-present	Bridge funding committee
2013	Chair, Dept. of Pharmacology External Review Committee
2013–2016	Faculty Senate
2013–present	François Abboud Cardiovascular Center Executive Committee
2013–present	UI Sloan Center for Exemplary Learning, program leader
2014- present	Assistant Dean for Research, Carver College of Medicine
2016	Carver College of Medicine Research Investment Initiative Committee

Professional society membership and leadership roles

1996-present	Member, Society for Neuroscience
2008-present	Member, Association for Research in Otolaryngology
2011-present	Member, Biophysical Society
2012-16	Council Member, Biophysical Society
2016	AAMC Group on Research Advancement & Development
2018	Chair, Exocytosis/endocytosis subgroup, Biophysical Society

Editoral Boards

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

Meeting/course organization

2006	Society for Neuroscience Annual Meeting Symposium, "Ca^{2+} channel signaling complexes", Chair
2009-10	Cold Spring Harbor Summer Course on Ion Channel Physiology, co-director
2014	Society for Neuroscience Annual Meeting Symposium "More than a pore: ion channel signaling complexes", Chair
2015	Association for Research in Otolaryngology Annual Meeting symposium "Cellular Ca^{2+} signaling in the auditory system"
2015	FASEB Ion Channel Regulation conference, Big Sky, MT, co-chair

Peer Review

National Institutes of Health

2006	Ad hoc reviewer for F03B
2007	Ad hoc reviewer for NTRC
2011-2015	Member, NTRC study section
2013	Special Emphasis Panel, NHLBI
2017	Ad hoc reviewer for NST2, NINDS
2017	Special Emphasis Panel ZNS1 SRB-M(02), NINDS

American Heart Association

2008, 2011	Cardiac Electrophysiology and Cell Transport Committee

Medical Research Council

2007	Neurosciences and Mental Health Board (UK)

Health Research Board (Ireland)

2007	External reviewer

BBSRC Biochemistry & Cell Biology (United Kingdom)

2008–2009	External Reviewer

Austrian Science Fund

2009	External Reviewer

TRAINEES

Postdoctoral Trainees		Current Positions
Anisha Moring[#†]	2003–2005	Portfolio Manager, Boehringer Ingelheim
Kuai Yu	2004–2005	Assistant Research Scientist, Dept. of Cell Biology, Emory University
Guiying Cui	2005–2007	Assistant Professor, Dept. of Pediatrics, Emory University Iowa City, IA
Irina Calin-	2004–2007	Associate Professor, Dept. of Biology,

Jageman[#¥]		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	Senior Manager, Sirion Biotech
Keith Bryan*[#¥]	2009–2014	Staff Scientist, Integrated DNA Technologies
Elizabeth Scholl	2012–2014	Scientific Analyst, Aerotek Recruiting and Staffing
Vasily Kerov	2012–2016	Data Analyst, Datonum
Tian Yang	2014–2018	Staff scientist, Decibel Therapeutic
Edgar Garza-Lopez	2016–	
J. Wesley Maddox	2017–	

Graduate students

		Current Positions
Alyssa Tippens	2002–2007	Publication Lead, Bristol-Myers Squibb
Lisa Kreiner*	2002–2008	Contract Scientific Editor, American Journal Exports
Meagan Jenkins	2006–2009	Medical Writer, Conisus
Kristin Kim	2010–2013	DDS program, U. Louisville School of Dentistry
Shi Yi Wang	2011–2018	Postdoc, Duke University
Jessica Thomas[#†]	2011–2018	Postdoc, Vanderbilt University
Brittany Williams[*#†]	2012–	
Josue Lopez[#†]	2015–	

Undergraduate Students		Current Positions
Drake Bouzek[#]	2011	MD program, University of Iowa Carver College of Medicine
Natalia Cardona*[#†]	2009–2013	Engineer, Alcoa Mining and Materials
Daniel Soh	2011–2014	DDS program, University of Iowa College of Dentistry
Ji-Eun Choi	2015,16	Graduate student, University of Pittsburgh
Grant Stalker	2013–2016	Undergraduate, University of Iowa
Nicole de la Rosa Gonzalez[†]	2016, 2017	Undergraduate, University of Puerto Rico

Research Associates		Current Position
Xiaoni Liu	2010–2013	PhD program, Yale University

Research Interns		
Jordan Breffle	2016–2018	PhD student, Brandeis University
Samiksha Annira	2017–2018	MD student, University of Iowa Carver College of Medicine

*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

RESEARCH FUNDING

Active Support:

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

R01 EY026817 *Calcium channels in retinal photoreceptors*
Role: PI, $1,526,689 direct costs 03/01/17–02/28/22

Other funding
Carver Collaborative Research Grant
Role: PI, $50,000, 7/1/18-6/30/20

Pending Research Support:

R01 NS084190 *Regulation of neuronal calcium channels*
Role: PI

R01 DC009433 *Regulation of auditory calcium channels*
Role: PI

Previous Support:

National Institutes of Health
R21 EY027054 *Rescue of photoreceptor synapses*
Role: Co-I, $275,000 direct costs, 08/01/16-07/31/18

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 Ca^{2+} 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 Ca^{2+} channels by CaBP1*
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 Foundation Research Program of Excellence
Role: PI, $1,200,000 direct costs, 4/1/12–3/31/18

U.S. Department of Defense, MR130438, Prevention of Noise Damage to Cochlear Synapses
Role: Co-I, $461,688 direct costs, 8/1/14-7/31/17

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) 06/01/12-08/31/12

NIH F31 NS049757, *Factors regulating $Ca_v2.1$ modulation by Ca^{2+} in neurons* (PI: Lisa Kreiner) 01/01/04-6/01/08

Deafness Research Foundation Grant, *Harmonin interactions with voltage-gated Ca^{2+} channels in a mouse model of Usher syndrome* (PI: Irina Calin-Jageman)
$25,000 direct costs, 9/1/06-8/30/07

NIH R03 DC008417, *Functional significance of harmonin in cochlear hair cells* (PI: Irina Calin-Jageman) $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) $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) 01/01/12-12/31/13

NIH F31EY026477, *Characterization of a Human Cav1.4 Splice Variant (*PI: Brittany Williams) 06/17/16-06/16/18

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

BIBLIOGRAPHY

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 α2A-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 α2C-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 α2A-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 α2C-adrenergic receptor immunoreactivity in central catecholaminergic neurons. *Neurosci*ence 84:1085-96
7. Milner, T.A. **Lee, A**., Aicher, S.A., and D.L. Rosin (1998) Hippocampal α2A-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) α2A-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 α2C-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) α2A-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) Ca^{2+}/calmodulin binds to and modulates P/Q-type calcium channels. *Nature* 399:155-159
12. **Lee, A**., Scheuer, T., and W.A. Catterall (2000) Ca^{2+}/ calmodulin- dependent facilitation and inactivation of P/Q- type Ca^{2+} 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 Ca^{2+}-binding protein 1. *Nat. Neuroscience* 5(3): 210-217
15. **Lee, A**., Zhou, H., Scheuer, T., and W.A. Catterall (2003) Molecular determinants of Ca^{2+}- 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 Ca^{2+}-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) Ca^{2+}-binding protein-1 facilitates and forms a postsynaptic complex with $Ca_v1.2$ (L-type) Ca^{2+} channels. *J. Neurosci.* 24:4698-4708
18. Zhou, H., Yu, K., McCoy, K.L., and **A. Lee** (2005) Molecular mechanism for divergent regulation of $Ca_v1.2$ Ca^{2+} channels by calmodulin and Ca^{2+}-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/HCO_3 cotransporter (NBCn1) in rat hippocampal neurons. *J. Biol. Chem.* 280: 17823-17830
20. Kreiner, L. and **A. Lee** (2006) Endogenous and exogenous Ca^{2+} buffers differentially modulate Ca^{2+}-dependent inactivation of $Ca_v2.1$ Ca^{2+} 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) Ca^{2+}-binding proteins tune Ca^{2+}-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) Ca^{2+} 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 $Ca_v1.3$ Ca^{2+} channels through relief of an autoinhibitory domain in the $Ca_v1.3$ α_1 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) Ca^{2+} 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 Ca^{2+} channels in the rat hippocampus. *J.Comp.Neurol.* 506 :569-583
27. Rieke, F., **Lee, A**., and F. Haeseleer. (2008) Characterization of Ca^{2+}-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 $Ca_v2.1$ Ca^{2+} 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) Ca^{2+}-dependent facilitation of $Ca_v1.3$ Ca^{2+} channels by densin and Ca^{2+}/calmodulin-dependent protein kinase II. *J. Neurosci.* 30:5125-5135
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31. Gregory FD, Bryan KE, Pangršič T, Calin-Jageman IE, Moser T, **Lee A.** (2011) Harmonin inhibits presynaptic $Ca_v1.3$ Ca^{2+} channels in mouse inner hair cells. *Nat Neurosci.* 14:1109-1111
32. Oz S, Tsemakhovich V, Christel CJ, **Lee A,** Dascal N. (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., Moosmang, S., Hofmann, F., **Lee, A.**, Pieper, A.A., Rajadhyaksha, A.M. (2012) Forebrain elimination of *CACNA1C* mediates anxiety-like behavior in mice. *Mol. Psychiatry.* 17:1054-1055
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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 Ca^{2+} channels in mouse sinoatrial node. *J. Physiol.* 590: 6327-6341
38. Zou, J., **Lee, A**., and J. Yang. (2012) The expression of whirlin and $Ca_v1.3\alpha_1$ 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 JA, DascalN. (2013) Competitive and non-competitive regulation of calcium-dependent inactivation in CaV1.2 L-type Ca^{2+} channels by calmodulin and Ca^{2+}-binding protein *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 a-actinin and Ca^{2+}/calmodulin controls surface retention of the L-type Ca^{2+} channel $Ca_v1.2$. *Neuron.* 78:483-497
42. Inagaki, A. and **A. Lee.** (2013) Developmental alterations in the biophysical properties of $Ca_v1.3$ Ca^{2+} 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 exocytosisin 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) Cav1.4 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, L.F., Oh, M.M., Antion, M. D., **Lee**. **A**., Hell, J.W. and J. F.Disterhoft. (2014) Surface L-type Ca^{2+} channel expression levels are increased in aged hippocampus. *Aging Cell,* 12157: 111–120
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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 – 37
49. **Lee, A.,** Wang, S., Williams, B., and F. Haeseleer. (2014) Characterization of $Ca_v1.4$ complexes ($\alpha_1$1.4, β_2, $\alpha_2\delta_4$) in HEK293T cells and in the retina. *J. Biol Chem.* 290:1505-1521
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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 87:1248-1260
52. Yang, T., Scholl, E.S., Pan, N., Fritzsch, B., Haeseleer, F. and **A. Lee.** (2016) Expression and localization of CaBP Ca^{2+} 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 $Ca_v1.4$ Ca^{2+} 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)30418-1
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. (2016) Lack of CaBP1/caldendrin or CaBP2 leads to altered ganglion cell responses. *eNeuro* 3(5). pii: ENEURO.0099-16.2016
57. Zhu, L., Almaça, J., Dadi, P.K., Hong, H., Sakamoto, W., Rossi, M., Lee, R.J., Vierra, N.C., Lu, H., Cui, Y., McMillin, S.M., Perry, N.A., Gurevich, V.V., **Lee, A.**, Kuo, B., Leapman, R.D., Matschinsky, F.M., Doliba, N.M., Urs, N.M., Caron, M.G., Jacobson, D.A., Caicedo, A., and J. Wess. (2017) β -Arrestin-2 is an essential regulator of pancreatic β-cell function under physiological and pathophysiological conditions. *Nat. Commun*. 8:14295
58. Martínez-Rivera, A., Hao, J., Tropea, T.F., Giordano, T.P., Kosovsky, M., Rice, R.C., **Lee, A**., Huganir, R.L., Striessnig, J., Addy, N.A., Han, S., and A.M. Rajadhyaksha. (2017) Enhancing VTA Cav1.3 L-type Ca2+ channel activity promotes cocaine and mood-related behaviors via overlapping AMPA receptor mechanisms in the nucleus accumbens. *Mol. Psychiatry* (doi: 10.1038/mp.2017.9).
59. Wang, S., Hagen, J., Hardie, J., Stanika, R.I., Obermair, G.J., Kennedy, M.B., Colbran, R.J., and **A. Lee**. (2017) Densin-180 controls the trafficking and signaling of voltage-gated $Ca_v1.2$ Ca^{2+} channels at excitatory synapses. *J. Neurosci.* 37:4679-4691.
60. Wang, X., Marks, C.R., Perfitt, T.L., Nakagawa, T., **Lee, A**., Jacobson, D.A., and R.J. Colbran. (2017) A novel mechanism for $Ca^{2+/}$calmodulin-dependent protein kinase II targeting to L-type Ca^{2+} channels that initiates long-range signaling to the nucleus. *J. Biol. Chem.* 292:17324-17336.
61. Thomas, J.R., Hagen, J., Soh, D., and **A. Lee.** (2018) Molecular moieties masking Ca^{2+}-dependent facilitation of voltage-gated $Ca_v2.2$ Ca^{2+} channels. *J. Gen. Physiol.* 150: 83-94.
62. Yang, T., Choi, J.E., Soh, D., Tobin, K., Joiner, M.L., Hansen, M., and **A. Lee.** (2018) CaBP1 regulates Ca_v1 L-type Ca^{2+} channels and their coupling to neurite growth and gene transcription in mouse spiral ganglion neurons. *Mol. Cell. Neurosci.* 88:342-352.
63. Yang, T., Hu, N., Pangrsic, T., Green, S.H., Hansen, M. and **A. Lee**. (2018) Functions of CaBP1 and CaBP2 in the peripheral auditory system. *Hearing Res.* 364:48-58.
64. Yang, T., Britt, J.K., Cintrón-Pérez, C.J., Vázquez-Rosa, E., Tobin, K.V., Stalker, G., Hardie, J., Taugher, R.J., Wemmie, J., Pieper, A.A., and **A. Lee.** (2018) Ca^{2+} binding protein 1 regulates hippocampal-dependent memory and synaptic plasticity. *Neuroscience* 380:90-102.
65. Nanou, E., **Lee, A.**, and W.A. Catterall. (2018) Control of excitation/inhibition balance in a hippocampal circuit by calcium sensor protein regulation of presynaptic calcium channels. *J. Neurosci.* 38:4430-4440.

66. Kerov, V., Laird, J.G., Joiner, M.L., Knecht, S., Soh, D., Hagen, J., Gardner, S.H., Gutierrez, W., Yoshimatsu, T., Bhattarai, S., Puthussery, T., Artemyev, N.O., Drack, A.V., Wong, R.O., Baker, S.A., and **A. Lee**. (2018) $\alpha_2\delta$-4 is required for the molecular and structural organization of rod and cone photoreceptor synapses. *J. Neurosci*. 38: 6145-6160.
67. Garza-Lopez, E., Lopez, J., Hagen, J., Sheffield, R., Meiner, V. and **A. Lee**. (2018) Role of a conserved glutamine in the function of voltage-gated Ca^{2+} channels revealed by a mutation in human *CACNA1D*. *J. Biol. Chem.* 293: 14444-14454.
68. Williams, B.N. and **A. Lee**. (2018) Splicing of an automodulatory domain transforms calmodulin regulation of $Ca_v1.4$ L-type Ca^{2+} channels. (in press, *J. Gen. Physiol.*)

Invited reviews:

1. Haeseleer, F. and **A. Lee** (2009) CaBP4. UCSD Nature Molecule Pages, doi:10.1038/mp.a004098.01
2. Calin-Jageman, I. and **A. Lee**. (2008) Ca_v1 L-type Ca^{2+} channel signaling complexes in neurons *J.Neurochem*. 105: 573-583
3. 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
4. Lee,A., Fakler, B., Kaczmarek, L.K., and L. L. Isom. (2014) More than a pore: ion channel signaling complexes. *J. Neurosci.* 34: 15159-15169
5. Joiner, M.L. and **A. Lee.** (2015) Voltage-gated Ca_v1 channels in disorders of vision and hearing. *Current Mol. Pharmacol. 8:143-148*
6. Hardie, J. and **A. Lee**. (2015) Decalmodulation of Ca_v channels by CaBPs. *Channels* 8:1-5
7. Kerov,V. and **A. Lee.** (2015) Degrading vision with too much Ca^{2+}. *Channels* 9:221-222
8. Thomas, J. and **A. Lee**. (2016) Ca^{2+}-dependent inactivation of voltage-gated Ca_v Ca^{2+} channels. *Cold Spring Harb. Protoc.* 2016(9):pdb.prot087213.

Book Chapters:

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. Ca^{2+}-dependent modulation of voltage-gated Ca^{2+} channels. (2003) In: Voltage-gated Ca^{2+} Channels. G. Zamponi, ed., Landes Bioscience, Austin.

5. **Lee**, **A.** *Neuromodulation of Ca^{2+} channels*. (2008, 2014) 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.

Patents/Licenses

2009 Rabbit polyclonal $Ca_V1.3$ antibody antigen (1.3NT/pGEX4T1), licensed to Millipore

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 Opthalmology
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
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
2015 University of California, Davis, Dept. of Pharmacology
2016 Washington University, Dept. of Anesthesiology
2016 University of Montreal, Groupe d'étude des protéines membranaires
2016 University of Florida, McKnight Brain Institute
2016 Brown University, Dept. of Neuroscience
2016 Weill Cornell Medical Center, Dept. of Physiology and Biophysics
2017 Hadassah Hebrew University Hospital, Dept. of Genetics and Metabolic Diseases, Jerusalem
2017 University of Texas-Austin, Dept. of Neuroscience
2017 University of Innsbruck, Dept. of Pharmacology (declined)
2017 University of Pennsylvania, Dept. of Physiology
2018 New York University, Neuroscience Institute
2018 University of Texas-Austin, Dept. of Neuroscience
2018 University of Vermont, Dept. of Pharmacology

Invited talks at national or international conferences:

2003 Southeastern Region Meeting of the American Chemical Society
2005 Atlanta Ca^{2+} Signaling Symposium
2006 FASEB Ca^{2+} signaling conference, Snowmass, CO
2006 Society for Neuroscience Meeting, Atlanta, GA: Minisymposium "Ca^{2+} 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 (declined)
2009 26^{th} International Congress of Physiological Sciences, Kyoto, Japan, invited speaker (Voltage-gated Ca^{2+} channels and cellular excitability: regulation and pathophysiology symposium)
2010 Ca^{2+} and sensory processing, University of Goettingen, Germany
2010 Second International Calcium Channel Conference, Belize (declined)
2011 Gordon Research Conference, Ca^{2+} signaling, Colby College, Maine
2011 Molecular Biology of Hearing and Deafness Wellcome Trust Scientific Conference, Hinxton, Cambridge, UK
2012 FASEB Ca^{2+} signaling conference, Snowmass, CO

2013 Biophysical Society Annual Meeting, Philadelphia, PA, Ca^{2+} 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 Ca^{2+} 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)
2014 NIH/NINDS symposium: "Giant synapses: mechanistic insights into synaptic function"
2015 Association for Research in Otolaryngology Annual Meeting, Baltimore, MD (Cellular Ca^{2+} signaling in the auditory system)
2015 FASEB Ion Channel Regulation conference, Big Sky, MT, co-chair
2015 Calcium Signaling Gordon Research Conference, Newry, Maine (declined)
2015 FASEB conference on the Biology and Chemistry of Vision (declined)
2015 European Calcium Channel Conference, Alpbach, Austria
2015 Society of General Physiologists Annual Symposium, “Macromolecular local signaling complexes,” Woods Hole, MA
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 Exocytosis and endocytosis subgroup symposium, Biophysical Society Annual Meeting, New Orleans, LA
2017 Gordon Research Conference on Calcium Signaling, Il Ciocco, Italy (declined)
2017 FASEB Biology and Chemistry of Vision conference, Steamboat Springs, CO
2017 FASEB Ion Channel Regulation conference, Steamboat Springs, CO
2017 Giant synapse meeting, Georgetown University, Washington D.C.
2018 FASEB Conference on Calcium and Cell Function, Lake Tahoe, UT
2018 European Calcium Channel Conference, Alpbach, Austria