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CURRICULUM VITAE

Charles Albert Hoeffer

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EDUCATION

Year	Degree	Field	Institution
1995	B.S.	Molecular and Cellular Biology w/ Honors, summa cum laude	University of Arizona, Tucson, AZ
2004	Ph.D.	Molecular and Cellular Biology	University of Arizona, Tucson, AZ

POSTDOCTORAL TRAINING

Year	Mentor or Director	Place of Training
2004-2006	Dr. Eric Klann	Baylor College of Medicine, Houston, TX
2006-2009	Dr. Eric Klann	New York University, New York, NY

ACADEMIC APPOINTMENTS

Year	Academic Title	Institution
2021-present	Associate Professor	University of Colorado, Boulder
2013-2021	Assistant Professor	University of Colorado, Boulder
2013-2018	Adjunct Asst. Professor	New York University School of Medicine, New York, NY
2010-2013	Assistant Professor	New York University School of Medicine, New York, NY
2010-2013	Director	NYU School of Medicine Rodent Behavior Core
2011-2018	Adjunct Faculty	Center for Neural Science, New York University

SELECTED AWARDS AND FELLOWSHIPS

Year	Name of Award
2019	BBRF Fay Frank Seed Grant CU application finalist
2014	Carl Storm Underrepresented Minority Travel Award, Gordon Research Conference Neurobiology of Aging
2014	Essel Investigator Award, Brain & Behavior Research Foundation
2013	Blas Frangione Young Investigator Merit Award
2012	Whitehead Fellowship for Junior Faculty
2012	Minority New Investigator Award, Alzheimer's Association
2009	ISN Biennial Meeting Young Investigator Presenter Travel Award
1996	National Science Foundation Minority Pre-Doctoral Fellowship
1994	NIH Research Training Grant for Minorities, Fellowship Finalist
1994	Biomedical Research Abroad Vistas Open Fellow (HHMI)
1993	Goldwater Scholar Finalist
1992	National Hispanic Scholarship Fund Finalist
1991	American Legion Scholar
1991	President's Award for Excellence

PUBLICATIONS

Manuscripts in preparation

Wong H, Milstead R, Levenga J, Ardizzone C, Borski C, McGuire J, Moldovan R, and **Hoeffer CA** Genetic correction of RCAN1 rescues mitochondrial deficits and calcineurin signaling in the DP16 mouse model of Down syndrome. *To be submitted to Current Biology*

Submitted Research Papers

1. Van Alstyne M, Nguyen VL, Hoeffer CA, Parker R., Polyserine peptides are toxic and exacerbate tau pathology in mice. bioRxiv [Preprint]. 2024 Oct 12:2024.10.10.616100. doi: 10.1101/2024.10.10.616100. PMID: 39416198

2. Lombardi AM, Wong H, Bower ME, Milstead RA, Borski C, Schmitt E, LaPlante L, Ehringer MA, Stitzel J, and Charles A. Hoeffer, AKT2 modulates astrocytic nicotine responses *in vivo*. bioRxiv [Preprint]. 2024 Jun 1:2024.05.31.596856. doi: 10.1101/2024.05.31.596856. PMID: 38854016 *Submitted to Glia 5/15/24, revision underway, expected submission 2/15/25*.
3. Kushner KJ, Hanson J, Svalina M, Borski C, Baca S, Huntsman MM, Alexander AL, Hoeffer CA. AKT1 regulates cannabinoid 1 receptor (CB1R) expression and endocannabinoid-mediated inhibitory neurotransmission at prefrontal GABAergic terminals in an age-dependent manner. (2024). Submitted to *The Journal of Neuroscience* on 2/6/2024, *under revision*.
4. Cain P, Hanson J, Wong W, Borski C, Cooper-Sansone A, LaPlante L, Levenga J, Opp M, and **Hoeffer CA**, RCAN1 dosage correction partially rescues sleep impairments in aged Dp16/Down syndrome model mice. (2023) Submitted to *Neurobiology of Disease*, accepted pending revision 1/15/23. Revision submission is planned for 6/1/25(Delayed because of aging component associated with subject mice).

Published Research Papers

2024

5. Lemieux MR, Freigassner B, Hanson JL, Thathey Z, Opp MR, Hoeffer CA, Link CD. Multielectrode array characterization of human induced pluripotent stem cell derived neurons in co-culture with primary human astrocytes. PLoS One. 2024 Jun 25;19(6): e0303901. doi: 10.1371/journal.pone.0303901. eCollection 2024. PMID: 38917115
6. Valencia-Sanchez S, Davis M, Martensen J, Hoeffer C, Link C, Opp MR, Sleep-wake behavior and responses to sleep deprivation and immune challenge of protein kinase RNA-activated knockout mice. *Brain Behav Immun*. 2024 Oct; 121:74-86. PMID: 39043346

2023

7. Mehrhoff EA, Booher WC, Hutchinson J, Schumacher G, Borski C, Lowry CA, **Hoeffer CA**, Ehringer MA. Diazepam effects on anxiety-related defensive behavior of male and female high and low open-field activity inbred mouse strains. (2023) *Physiol Behav*. Nov 1; 271:114343. doi: 10.1016/j.physbeh.2023.114343. Epub 2023 Sep 9. PMID: 37689380
8. Brasher MS, Mize TJ, Thomas AL, **Hoeffer CA**, Ehringer MA, Evans LM. Testing associations between human anxiety and genes previously implicated by mouse anxiety models. (2023) *Genes Brain Behav*. May 31:e12851. doi: 10.1111/gbb.12851, PMID: 37259642
9. Evans LM, Arehart CH, Grotzinger AD, Mize TJ, Brasher MS, Stitzel JA, Ehringer MA, **Hoeffer CA**. (2023) *PLoS Genet.* May 22;19(5):e1010693. Transcriptome-wide gene-gene interaction associations elucidate pathways and functional enrichment of complex traits PMID: 37216417
10. Milstead R, Link CD, Xu Z, **Hoeffer CA**, TDP-43 Knockdown in Mouse Model of ALS leads to dsRNA deposition, gliosis, and neurodegeneration in the spinal cord. (2023) *Cerebral Cortex*, May 9;33(10):5808-5816. doi: 10.1093/cercor/bhac461, PMID: 36443249

2022

11. Sharma S, Borski C; Hanson, J, Garcia, M; Link, C, **Hoeffer, CA**; Chatterjee, A, Nagpal, P. Identifying Optimal Neuroinflammation Treatment Using Nanoligomer™ Discovery Engine. (2022)*, ACS Chem Neurosci,* Dec 7;13(23):3247-3256. doi: 10.1021/acschemneuro.2c00365. PMID: 36410860
12. Wong H, Buck JM, Pafford JT, Keller BN, Milstead RA, Hanson JL, Stitzel JA, and **Hoeffer CA** RCAN1 knockout and overexpression recapitulate an ensemble of rest-activity and circadian disruptions characteristic of Down syndrome, Alzheimer's disease, and normative aging disorders. (2022) *Journal of Neurodevelopmental Disorders*, May 24;14(1):33. doi: 10.1186/s11689-022-09444-y. PMID: 35610565

2021

13. Colbert SM, Funkhouser SA, Johnson EC, Morrison CL, **Hoeffer C,** Friedman N, Ehringer MA, Evans LM, Novel characterization of the multivariate genetic architecture of internalizing psychopathology and alcohol use. (2021) *Am J Med Genet B Neuropsychiatr Genet.* Sep;186(6):353-366. doi: 10.1002/ajmg.b.32874. Epub 2021 Sep 27. PMID: 34569141
14. Levenga J, Wong H, Milstead R, LaPlante L, and **Hoeffer C,** Immunohistological examination of AKT isoforms in the brain: cell-type specificity that may underlie AKT's role in complex brain disorders and neurological disease (2021) *Cerebral Cortex Communications* May 28;2(2):tgab036. PMID: 34296180

15. Gindina S, Botsford B, Cowansage K, LeDoux J, Klann E, **Hoeffer C,** and Ostroff L, Upregulation of eIF4E, but not other translation initiation factors, in dendritic spines during memory consolidation (2021) *Journal of Comparative Neurology*, Aug 1;529(11):3112-3126. PMID: 33864263

2020

16. Wong H, Levenga J, LaPlante L, Keller B, Cooper-Sansone A, Borski C, Milstead R, and **Hoeffer C,** Isoform-specific roles for AKT in affective behavior, spatial memory, and extinction related to psychiatric disorders. Dec 16;9:e56630. doi: 10.7554/*ELife* (2020) PMID: 33325370
17. Evans LM, Johnson EC, Melroy-Greif WE, Hewitt JW, **Hoeffer CA**, Keller MC, Saba LM, Stitzel JA, Ehringer MA, The Role of A Priori-Identified Addiction and Smoking Gene Sets in Smoking Behaviors, *Nicotine Tob Res* (2020) Jul 16;22(8):1310-1315. doi: 10.1093/ntr/ntaa006.

2018

18. Levenga J, Peterson D, Wong H, Cain P, and **Hoeffer CA** Sleep Behavior and EEG Oscillations in Aged Dp(16)1Yey/+ Mice: A Down Syndrome Model (2018) *Neuroscience*, Apr 15;376:117-126. doi: 10.1016/j.neuroscience.2018.02.009. PMID: 29454635

2017

19. Levenga J, Wong H, Milstead RA, Keller BN, LaPlante LE, and **Hoeffer CA**, AKT isoforms have distinct hippocampal expression and roles in synaptic plasticity, (2017) *Elife*. Nov 27;6. pii: e30640. doi: 10.7554/eLife.30640. PMID: 29173281
20. Ostroff LE, Botsford B, Gindina S, Cowansage KK, LeDoux JE, Klann E, and **Hoeffer CA,** Accumulation of polyribosomes in dendritic spine heads, but not bases and necks, during learning depends on cap-dependent translation initiation, (2017) *J. Neuroscience Feb 15;37(7):1862-1872,* PMCID: PMC5320614
21. Koukouli F, Rooy M, Tziotis D, Sailor KA, O'Neill H, Nilges M, Changeux JP, Levenga J, **Hoeffer CA**, Stitzel J, Gutkin B, DiGregorio DA, Maskos U, Nicotine reverses hypofrontality in animal models of addiction and schizophrenia (2017) *Nature Medicine* 23(3):347-354. PMID: 28112735

2016

22. Rajamohamedsait HB, Shamir DB, Krishnaswamy S, Rajamohamedsait WJ, Rasool S, Gonzalez V, Levenga J, Gu J, **Hoeffer CA**, Sigurdsson EM, Affinity of Tau Antibodies for Soluble Pathological Tau Species but not their Immunogen or Insoluble Tau Aggregates Predicts In Vivo and Ex Vivo Efficacy, *Mol Neurodegeneration*, (2016) Aug 30;11(1):62. PMCID: PMC5006503
23. Choi GB, Yim YS, Wong H, Kim S, Kim H, Kim SV, **Hoeffer CA***, Littman DR, Huh JR*, The maternal IL-17a pathway promotes autism-like phenotypes in offspring, (2016) *Science,* Feb 26;351(6276):933-9, PMID: 26822608 **Corresponding authors*

2015

24. Wong H, Cain P, Levenga J, Cain P, Choi Y, McMillan DR, Rothermel B, Klann E and **Hoeffer CA,** Regulator of calcineurin 1 (RCAN1) overexpression leads to age-dependent behavioral and synaptic deficits related to oxidative stress (2015) *Acta Neuropathologica,* Oct 24, PMID:26497675

2014

25. Wincott CM, Abera S, Vunck S, Choi Y, DeVito LM, Hofmann F, **Hoeffer CA**, Ziff EB, cGMP-Dependent Protein Kinase Type II Knockout Mice Exhibit Working Memory Impairments, Decreased Repetitive Behavior, and Anxiety-like Traits (2014) *Neurobiology of Learning and Memory,* Oct;114:32-9, PMID:24752151
26. Karayannis T, Au E, Patel JC, Kruglikov I, Markx S, Delorme R, Héron D, Salomon D, Glessner J, Restituito S, Gordon A, Rodriguez-Murillo L, Roy NC, Gogos J, Rudy B, M.E. Rice, Karayiorgou M, Hakonarson H, Keren B, Huguet G, Bourgeron T, **Hoeffer CA,** Tsien RW, Peles E, Fishell G, Cntnap4 Differentially Contributes to GABAergic and Dopaminergic Synaptic Transmission (2014) *Nature,* Jul 10;511(7508):236-40. PMID: 24870235
27. Trinh M, Kaphzan H, Antion M, Cavener D, **Hoeffer C,** and Eric Klann. Phosphorylation Distinctly Limits the Expression of Hippocampal Metabotropic Glutamate Receptor-dependent Long-term Depression (2014) *Learning and Memory*, Apr 16;21(5):298-304. PMID: 24741110
28. Bowling H, Zhang G, Bhattacharya A, Perez-Cuesta LM, Deinhardt K, **Hoeffer CA**, Neubert TA, Gan WB, Klann E, Chao MV, Antipsychotics Activate mTORC1-Dependent Translation to Enhance Neuronal Morphological Complexity. *Science Signaling*. (2014) Jan 14;7(308) doi: 10.1126/ PMID: 24425786

2013

29. **Hoeffer CA,** Wong H, Cain P, Levenga J, Cowansage K, Davy C, Majmundar N, Choi Y, McMillan DR, Rothermel B, and Klann E. Regulator of calcineurin 1 (RCAN1) modulates expression of innate anxiety and anxiogenic responses to selective serotonin reuptake inhibitor (SSRI) treatment (2013) *J. Neurosci.* Oct 23;33(43):16930-44. PMID: 24155299
30. Levenga J, Wong H, Krishnamurthy P, Rajamohamed Sait HB, Sigurdsson E, and **Hoeffer CA.** Tau pathology induced loss of GABAergic interneurons leads to altered hippocampal synaptic plasticity and behavioral impairments (2013) *Acta Neuropathologica Communications*, 1-34. PMID: 24252661
31. Wincott CM, Kim S, Titcombe RF, Tukey DS, Girma HK, Pick JE, DeVito LM, Hofmann F, **Hoeffer C**, and Ziff E. Spatial Memory Deficits and Motor Coordination Facilitation in cGMP-Dependent Protein Kinase Type II-deficient Mice. (2013) *Neurobiology of Learning and Memory*; 99:32-7, PMID: 23103773
32. **Hoeffer CA**, Santini E, Ma T, Arnold EC, Whelan AM, Wong H, Pierre P, Pelletier J, and Klann E. Multiple components of eIF4F are required for protein synthesis-dependent hippocampal long-term potentiation. (2013) *J. Neurophysiology*;109(1):68-76, PMID: 23054596

2012

33. **Hoeffer CA**, Sanchez E, Hagerman RJ, Danh YM, Nguyen V, Wong H, Whelan AM, Zukin RS, Klann E, and Tassone F. Altered mTOR signaling and enhanced CYFIP2 expression levels in subjects with Fragile X syndrome. (2012) *Genes, Brains, and Behavior*; 11:332-41, PMID: 22268788
34. Rakowski-Anderson T, Wong H, Rothermel BA, Cain P, Lavilla C, Pullium JK, **Hoeffer CA**. Characterization of Fecal Corticosterone Levels in RCAN1 mutant Mice. (2012) *Comp. Medicine* 62:87-94, PMID: 22546913

2011

35. Valjent E, Bertran-Gonzalez J, Bowling H, Lopez S, Santini E, Matamales M, Bonito-Oliva A, Hervé D, **Hoeffer C**, Eric Klann E, Girault J, Fisone G. Haloperidol regulates the state of phosphorylation of ribosomal protein S6 via activation of PKA and phosphorylation of DARPP-32. (2011) *Neuropsychopharmacology* 36:2561-70, PMID:21814187
36. **Hoeffer CA**, Ma T, Wong H, Massaad CA, Zhou P, Iadecola C, Murphy MP, Pautler RG, Klann E. Amyloid Beta-Induced Impairments in Hippocampal Synaptic Plasticity Are Rescued by Decreasing Mitochondrial Superoxide. (2011) *J. Neurosci.* 31:5589-95, PMID: 21490199
37. Connor SA, **Hoeffer CA**, Klann E, Nguyen PV. Fragile X mental retardation protein regulates heterosynaptic plasticity in the hippocampus. (2011) *Learn. & Mem.* 18:207-20, PMID: 21430043
38. **Hoeffer CA**, Cowansage KK, Arnold EC, Banko JL, Moerke NJ, Rodriguez R, Schmidt EK, Klosi E, Chorev M, Lloyd RE, Pierre P, Wagner G, LeDoux JE, Klann E. Inhibition of the interactions between eukaryotic initiation factors 4E and 4G impairs long-term associative memory consolidation but not reconsolidation. (2011) *Proc. Natl. Acad. Sci. U S A*. 108:3383-8, PMID: 21289279

2010

39. Ma, T., **Hoeffer, C.A**., Capetillo-Zarate, E., Yu, F., Wong, H., Tampellini, D., Klann, E., Blitzer, R.D., and Gouras, G.K. (2010) Dysregulation of the mTOR pathway mediates impairment of synaptic plasticity in a mouse model of Alzheimer's disease. *PLoS One*. 5(9) PMID: 20862226
40. Suvrathan A**, Hoeffer CA,** Wong H, Klann E, Chattarji S. Characterization and reversal of synaptic defects in the amygdala in a mouse model of fragile X syndrome. (2010) *Proc. Natl. Acad. Sci. USA*. 107:11591-6, PMID: 20534533
41. Sharma, A, **Hoeffer, CA,** Takayasu Y, Miyawaki T, McBride SM, Klann E and Zukin RS. Dysregulation of mTOR signaling in fragile X syndrome. (2010) *J. Neurosci.* 30:694-702. PMID: 20071534

2008

42. **Hoeffer CA**, Tang W, Santillan, A, Wong H, Patterson RJ, Martinez, LA, Tejada-Simon, MV, Hamilton SL and Klann E, Removal of FKBP12 Enhances mTOR-Raptor Interactions, LTP, and Perseverative/Repetitive Behavior. (2008) *Neuron* 60:832-845, PMID: 19081378
43. Antion MD, Hou L, Wong H, **Hoeffer CA**, Klann E. mGluR-dependent long-term depression is associated with increased phosphorylation of S6 and synthesis of elongation factor 1A but remains expressed in S6K-deficient mice. (2008) *Mol. Cell. Biol.* 28:2996-3007, PMID: 18316404
44. Antion MD, Merhav, M, **Hoeffer CA**, Reis G, Kozma SC, Thomas G, Schuman, EM, Rosenblum K, and Klann E, Removal of S6K1 and S6K2 Leads to Divergent Alterations in Learning and Synaptic Plasticity. (2008) *Learn. & Mem*. 15:29-38, PMID: 18174371

2007

45. **Hoeffer CA**, Dey A, Sachan N, Shelton J, Richardson J, Patterson RJ, Klann E and Rothermel BA. The Down Syndrome Critical Region Protein RCAN1 Regulates Long-Term Potentiation and Memory via Inhibition of Phosphatase Signaling. (2007), *J. Neurosci.* 27:13161-13172, PMID: 18045910

2006

46. Kishida K, **Hoeffer, CA**, Hu D-Y, and Klann E. Synaptic Plasticity Deficits and Mild Memory Impairments in Mouse Models of Chronic Granulomatous Disease. (2006) *Mol. Cell. Biol.,* 15:5908-20. PMID: 16847341

2003

47. **Hoeffer CA**, Sanyal S, Ramaswami M. Acute induction of conserved synaptic signaling pathways in Drosophila melanogaster. (2003) *J. Neurosci.* 23:6362-72, PMID: 12867522

2002

48. Sanyal S, Sandstrom DJ, **Hoeffer CA**, Ramaswami M., AP-1 functions upstream of CREB to control synaptic plasticity in Drosophila. (2002) *Nature*. 416:870-4. PMID: 11976688

2000

49. Yamauchi Y, **Hoeffer C**, Yamamoto A, Takeda H, Ishihara R, Maekawa H, Sato R, Su-Il S, Sumida M, Wells MA, Tsuchida K. cDNA and deduced amino acid sequences of apolipophorin-IIIs from Bombyx mori and Bombyx mandarina (2000) *Arch Insect Biochem Physiol*.;43(1):16-21, PMID: 10613959

Invited Reviews and Book Chapters

50. Wong, **Hoeffer C,** Maternal IL-17A in autism (2018) Exp Neurol. 2018 Jan;299(Pt A):228-240. doi: 10.1016/j.expneurol.2017.04.010. Epub 2017 Apr.
51. Joshua Suhl and **Charles Hoeffer,** Fragile X Syndrome: From Genetics to Targeted Treatment. (2017) Chapter: FMRP binding properties (Elsevier Press)
52. Santini E, Klann E and **Hoeffer C**, Translational Regulation of Synaptic Plasticity. (2012) Multidisciplinary Tools for Investigating Synaptic Plasticity (Springer Press)
53. **Hoeffer CA**, Klann E, mTOR signaling at the crossroads of plasticity, memory, and disease. (2010) *Trends Neurosci*. 33:67-75. Epub 2009 Dec 4., Review: PMID: 19963289
54. **Hoeffer CA**, Klann E. NMDA Receptors and Translational Control (2009). Biology of the NMDA Receptor, Chapter 6, PMID: 21204412

FUNDING

Current Research Support

Departmental Research Development Fund
Agency: University of Colorado, Boulder. Type: Start-up Grant.
Role: PI (Hoeffer) Period: 8/1/2013-ongoing
The major goal of this grant is to set up PI's laboratory and fund preliminary studies needed to be competitive for extramural support.

NIH R33 DA055781 Direct: $250k/year Period: 9/1/2024- 8/31/2027
Agency: NIDA
Role of glial expression in nicotine behaviors for genes identified through human GWAS.
Role: MPI (Hoeffer, Stitzel, Ehringer)
This grant aims to identify novel genes affecting nicotine use in humans by modeling astrocytic responses to GWAS-identified genes in astrocytes.

NIH R01 AG085307 Direct: 450k/yr Period: 7/01/2024-3/31/2029
Agency: NIA
The Role of double-stranded RNA in neuronal cell death in Alzheimer's and related neurodegenerative diseases
Role: MPI (Hoeffer, Link, Zhang)
The overarching goal of this project is to determine if double-stranded RNA is causal in neuroinflammatory processes related to Alzheimer's disease and other tauopathies.

RIO Seed Grant Direct: 50K total Period: 5/1/2024 - 10/30/2025
Agency: CU RIO
Molecular validation of epistatic network hub genes in Alzheimer's Disease and Related Dementias using AD brain samples and ADRD-derived iPSCs.
Role: MPI (Evans, Hoeffer)
This seed grant proposes to generate preliminary data to make a previously submitted R01 (PI Evans) more competitive. Specifically, we will validate iPSC approaches and viral CRISPRi mediated hub-gene candidate knock downs in human derived iN networks.

RIO Seed Grant Direct: 50K total Period: 5/1/2024 - 10/30/2025
Agency: CU RIO
Studying astrogliosis in the brain using quantitative image analysis and mathematical modeling.
Role: MPI (Betterton, Hoeffer)
This seed grant proposes to generate preliminary data to generate a future competitive NIA R01 based on age-related astrocyte functional changes that may be predicted from astrocyte cell shape. We will generate preliminary image, machine learning, and models from data set derived from in vivo and cultured astrocyte stimulation.

NI23013. AFAR Direct: 375k total Award Period: 01/01/2024-12/31/2026
Agency: Hevolution/AFAR, New Investigator Awards in Aging Biology and Geroscience Research
Gene-gene interaction associations with frailty to identify core genes of aging and their biological context.
Role: Co-I (PI Evans, LM)

Lab Venture Challenge (LVC) Direct: 125k total Award Period: 3/1/2024-2/28/2026
DO 2024-2300
Agency: Venture Partners at CU Boulder and the Colorado Office of Economic Development and International Trade (OEDIT) Advanced Industries Program.
New treatment for dementia with peptide therapeutics targeting tau aggregation.
Role: Co-I (PI Van Alstyne)

NIH R01 AG083268 Direct: 499k/yr Period: 9/1/2023-8/31/2028
Agency: NIA/INCLUDE Initiative
Sleep abnormalities in Down Syndrome-related Alzheimer's disease.
Role: PI
The overarching goal of this project is to determine if triplication of target genes due to trisomy 21 in Down Syndrome contributes to sleep disruptions that exacerbate Alzheimer’s disease pathogenesis.

NIH R01 NS131660 Direct: 375K/yr Period: 4/1/2023-3/31/2027
Agency: NINDS
Investigation of UBQLN2-dependent changes to neuronal health and function in ALS-FTD
Role: Co-I (Alexandra Whiteley PI)
The purpose of this grant is to elucidate the molecular mechanism of PEG10-induced neuronal dysfunction, understand why UBQLN2 and PEG10 appear to have such a unique regulatory relationship, and expand on our preliminary ALS-FTD work, which was focused on the spinal cord, to determine how UBQLN2 and PEG10 are dysregulated in the brain of ALS-FTD patients.

Pending or to be resubmitted
W.M. Keck Foundation Research Grants Direct: 1.2 million for 3 years Period: 4/1/2026-3/31/2029
Agency: Keck Foundation *Submitted 11/14 (accepted 12/1/2024), proceeding to stage 2, decision 2/7/2024*
New Tools for Cell Shape Characterization and Prediction of Astrocyte Function
Role: MPI (Betterton, Hoeffer, Prasad)
This proposal will develop a new paradigm for rapidly predicting astrocyte behavior and function based on imaging, analyzing, and modeling astrocyte morphology. The fundamental advance of this work will be the integration of multiple techniques with a focus on predictive biology and not just characterization of cell state. We

will create a novel toolkit that combines advanced microscopy (live-cell and super-resolution imaging), spatial omics profiling, and computational modeling to improve the analysis and prediction of astrocyte function.

CRCNS-Computation Neuroscience 2509765 Direct: 250k/year Period: 6/1/2025-5/31/2030
Agency: NSF/NIH *Submitted 11/15/2024, pending review*
NSF Collaborative Research: CRCNS Research Proposal: Studying astrocyte shape change in the brain using quantitative image analysis and mathematical modeling
Role: PI (Co-I Betterton, Prasad)
The goal of this proposal is to test the hypothesis that different astrocytic stimuli promote different types of cell shape change that can be measured and modeled to predict underlying cell signaling and pathway activation to impute current and future functional outcomes. Shape change will be measured and modeled by high resolution imaging, mathematical modeling, and spatial transcriptomic gene expression profiling.

R01 AG093460 Direct: 499k/year Period: 04/01/2025 - 03/31/2030
Agency: NIA *Submitted 7/1/2024, Not discussed, resubmitting 7/1/2025*
Roles of Akt dysregulation in Down syndrome disease pathophysiology.
Role: MPI (Hoeffer, Zhang, Ma)
The goal of this project is to determine the effects of AKT hyperactivation in cognitive and molecular dysfunction in hippocampal and prefrontal function in a Down syndrome mouse model.

NIH R21 DA062231 Direct: 275k/2yr Period 01/01/2025-12/31/2026
Agency: NIDA *Submitted 3/5/2024, Scored 28% but not funded. Reformatting for an NIA R01 and NSF*
Studying astrogliosis in the brain using quantitative image analysis and mathematical modeling
Role: MPI (Hoeffer, Betterton)
The goal of this proposal is to test the hypothesis that different addictive substances cause different types of acute astrogliosis that can be distinguished by imaging, mathematical modeling, and/or gene expression profiling.

NIH R01 MH129434 (26% percentile score) Direct: ~350k/year Period: 04/01/2022-03/31/2027
Agency: NIMH To be resubmitted pending publication of Kushner et al. 2025 (likely Oct 2025)
The role of interneuronal AKT1 in synaptic function and behavior
Role: PI
The grant aims to test the hypothesis that Akt1 functions in interneuronal cell populations in a cell- and sex-specific fashion, and these expression differences serve to modulate AKT-dependent signaling in cognition and neural responses. This proposal aims to (1) determine if interneuronal AKT1 activity is required for synaptic plasticity and normal network activity, (2) determine if interneuronal AKT1 activity modulates behavior and cognition (3) determine if Akt1 activity in microglia underlies responses to neuroinflammatory stimulation.

NIH R01, DA053245 Direct: ~425k/yr Period:4/1/2021-3/31/2026.
To be resubmitted pending publication of Akt2 nicotine study, Lombardi et al. 2025
Agency: NIDA
The role of astrocytic AKT2 in responses to nicotine exposure
Role: Lead PI (MPI with J. Stitzel)
The purpose of this grant is to test the central hypothesis that AKT2-dependent signaling regulates behavioral responses to nicotine and that Akt2 mediates these effects in an astrocyte and sex-dependent fashion. Aim 1: will determine how inhibition of astroglial AKT2 activity affects nicotine-induced cognitive and memory effects. Aim 22 will determine if astroglial AKT2 activity mediates nicotine withdrawal-induced cognitive, memory, and sleep effects. Aim3 Identify molecular mechanisms linking nicotine to AKT2-mediated astrocytic responses following chronic nicotine exposure.

Past Research Support
NIH R01 AG064465-01 SUPPLEMENT Direct: $250,000 for 1 yr Period: 2/1/2022-1/31/2023
Agency: NIA
Sleep Disruption and Alzheimer's Disease Pathology
Role: MPI (Opp, Hoeffer, Link PIs)

The supplement aims to assess and perform definitive studies to determine the extent to which sleep disruption per se contributes to AD pathology in DS model mice. We will use the Dp16 model mouse with reduced App and Rcan1 expression to genetically probe the contribution of each gene to sleep disruption and mutant APP expression from subsequent Aβ deposition and AD-like pathology.

NIH R01 AG064465-01 Direct: $490,000/yr Period: 7/1/2019-6/30/2024
Sleep Disruption and Alzheimer's Disease Pathology
Role: MPI (Opp, Hoeffer, Link PIs)
The grant aims to assess and perform definitive studies to determine the extent to which sleep disruption per se contributes to AD pathology have not been conducted. We will use mice expressing an inducible mutant amyloid precursor protein (APP) transgene to temporally dissociate sleep disruption and mutant APP expression from subsequent Aβ deposition and AD-like pathology. The grant focuses on neuroinflammation mediated by the activity of PKR as a central mediator of this process.

Linda Crnic Bridge Funding Grant Direct: $25,000/yr Period: 12/1/2020-11/30/2021
Agency: Linda Crnic Foundation NCE till 2024
Targeting dysregulated mitochondrial activity in DS-related Alzheimer's disease
Role: PI (Hoeffer)
This grant aims to examine the role of Regulator of Calcineurin over-expression in Down Syndrome models of mitochondrial dysfunction involved in DS-linked neurodegeneration.

AB Nexus Grant Direct: $112,000 Period 12/1/2021-11/30/2023
Understanding AKT1 function regulating interneuronal activity involved in E/I balance
Role MPI (Hoeffer, Huntsman)
The purpose of this grant to gain insight into AKT1 isoform function in different interneuronal subtypes using electrophysiology and behavioral analyses.

LeJeune Foundation #1805 Direct: €40K (€6K added for 2021) /yr Period: 12/01/2018-6/30/2021.
RCAN1, synaptic plasticity, and neuronal phosphatase dysregulation in Down syndrome
Role: PI
This grant aims to develop FRET-based reporters to examine Calcineurin phosphatase dysregulation and mitochondrial dysfunction associated with Down Syndrome.

NIH R01, NS086933-01 Direct: $250,000/yr Period: 4/1/2015-3/31/2021
Agency: NINDS (NCE)
Akt regulation of synaptic plasticity and behavior
Role: PI (Hoeffer)
This proposed research addresses fundamental questions about the differentiation of neurobiological signaling involved in cognition, which has important implications for mental health. By defining Akt isoform-specific regulation of synaptic plasticity and cognition, our approach will provide new insight into Akt-dependent mechanisms affected in neurological diseases and psychiatric disorders associated with cognitive impairments.

Linda Crnic Seed Grant Direct: $100,000/yr Period: 4/1/2018-3/31/2019
Agency: Linda Crnic Foundation
Targeting dysregulated mitochondrial activity in DS-related Alzheimer's disease
Role: PI (Hoeffer)
This grant aims to examine the role of Regulator of Calcineurin over-expression in Down Syndrome models of mitochondrial dysfunction involved in DS-linked neurodegeneration.

Calico Biolabs Direct: $26,000/yr Period: 9/1/2018-8/31/2019
Agency: Industry collaboration
Exploring the physiological effector of novel eIF2A inhibitors in synaptic plasticity and protein synthesis control Role: PI (Hoeffer)

The purpose of this industry seed grant is to explore the pharmacological impacts of ISRIB and two other novel molecule inhibitors of eI2F2A on protein synthesis dependent forms of hippocampal plasticity.

R21 DA036673-01 Direct: $150,000 Y1, $125,000 Y2 Period: 2/1/2015-1/31/2017
Analysis of alpha4 nicotinic receptors using viral re-expression in alpha4 KO mice.
Agency: NIDA
Role: (PI: Stitzel, Co-I: Hoeffer 5% effort AY and summer)
The goal of this project is to better understand the role of putative phosphorylation sites in the alpha4 nicotinic receptor subunit nicotine in nicotine-induced upregulation of the alpha4 receptor population and whether increased receptor numbers are essential for nicotine withdrawal associated learning deficits that likely contribute to smoking relapse.

MNIRGDP-12-258900 Direct: $50,000/yr Period: 2/1/2013-1/31/2017
Loss of GABAergic signaling underlies synaptic and behavioral deficits in a Tau model of Alzheimer's disease
Agency: Alzheimer's Association. Type: Mentored New Investigator Grant (MNIRGD)
Role: PI (Hoeffer)
The purpose of this grant is to examine the role of pathological tau in synaptic and behavioral impairments.

Linda Crnic Seed Grant Direct: $100,000/yr Period: 4/1/2015-3/31/2016
Agency: Linda Crnic Foundation
Targeting dysregulated mitochondrial activity in DS-related Alzheimer's disease
Role: PI (Hoeffer)
The purpose of this grant is to examine the role of Regulator of Calcineurin over-expression in Down Syndrome models of mitochondrial dysfunction involved in DS-linked neurodegeneration.

SFARI 27444 Direct: $250,000/yr Period: 7/1/2013-6/30/2016
Roles of RORgamma-t and pro-inflammatory Th17 cells in ASD
Agency: Simons Foundation. Type: SFARI Autism Investigator Award
Role: (Co-I: Hoeffer, PI: D. Littman; New York University, School of Medicine)
The purpose of this grant is to characterize the impact of the transcription factor RORγ-t on IL-17 signaling and the display of autistic-related behavior in a maternal model of inflammation.

Sie Foundation Post-Doctoral Fellowship Direct: $58,000/yr Period: 5/1/2014-4/30/2016
Agency: Anna and John J. Sie Foundation. Type: Post-doctoral Fellowship Award.
Role: PI (Levenga, Mentor: Hoeffer)
The purpose of this grant is to identify the role of RCAN1 in age related hyperexcitability and oxidative stress related to Down syndrome.

NARSAD 21069 Direct: $30,000/yr Period: 1/15/2014-1/14/2016
Regulators of calcineurin in the pathophysiology of schizophrenia
Agency: Brain and Behavior Research Foundation (NARSAD). Type: Young Investigator Award.
Role: PI (Hoeffer)
This grant aims to identify the role of RCAN1 on Calcineurin signaling in the display of schizophrenia-associated behavior in mouse disease models.

NYU Whitehead Fellowship for Junior Faculty Direct: $30,000/yr Period: 09/01/2012-8/31/2013
Alternative Translational Mechanisms in Memory Formation
Agency: New York University. Type: Young Investigator Award
Role: PI (Hoeffer)

F31 NS042366 Period: 08/1/2002-02/1/2004
Neural Activity and Gene Expression in D. melanogaster.
Agency: NIH, NINDS. Type: NRSA Pre-doctoral fellowship.
Role: PI (Hoeffer)

NSF Minority Predoctoral Fellowship Period: 09/01/1998-08/31/2001
Identifying the Arc ortholog in D. melanogaster.
Agency: IOS
Role: PI (Hoeffer)

Applied but withdrawn.
WITHDRAWN (Eligibility eliminated because of R01 award)
Webb-Waring Biomedical Research Awards Direct: $125,000/yr Period: 7/1/2015-6/30/2017
Agency: Boettcher Foundation

TEACHING EXPERIENCE AND TRAINING

Year	Name of Course, Type of Teaching
NYU	
2005	Topics in Neuroscience (Baylor), Lecture
2010	Disorders of the Nervous Disorder, Lecture
2011	Laboratory in Neural Science I, II, Lecture and Lab
2012	Disorders of the Nervous Disorder, Lecture
2013	The Assembly of Neural Circuits, Lecture
CU	
2013	Faculty Teaching Excellence Program, *Teaching in a Nutshell*, *Designing and Grading Assessments and Exam,* and *In Pursuit of Teaching-Research Synergy*
2014-present	IPHY 4600, Immunology, Lecture
2014	IPHY, 580-097, Independent Study (Undergraduate Research)
2015	LEAP (Leadership Education for Advancement and Promotion) *Introductory Leadership Workshop*
2015-present	IPHY 6010, Neurobiology of Aging and Neurodegeneration, Lecture
2018-2019	ASSETT Faculty Fellow, *Integrating and exploring new technologies, teaching methods and learning experiences in the classroom.*
2018-	IPHY 6010, Neuroinflammation and the Nervous System, Lecture
2019-	IPHY 6010-002: Sem-Behavioral Genetics, Lecture/Pro-Sem
2021-	IPHY 4060, Cell Physiology, Lecture/Lab

MENTORING OF GRADUATE STUDENTS, RESIDENTS, POST-DOCTORAL FELLOWS IN RESEARCH

Under my direct supervision:

Name	Position	Time Period	Present Position
Keenan Kushner,	Postdoctoral	2024-present	Hoeffer lab
Myriam Garcia	Postdoctoral	2023-present	Co-Mentored with Alexandra Whiteley
Ryan Milstead	Postdoctoral	2022-present	Hoeffer Lab
Salvador Valencia-Sanchez	Postdoctoral	2022-2024	Co-Mentored with Mark Opp
Jessica Hanson	Postdoctoral	2021-2024	Co-mentored with Link Lab, T32 Training Fellowship Awardee, moved to Link Lab
Helen Wong	Postdoctoral	2016-2020	Senior Scientist, Eikon Therapeutics
Daniel Peterson	Postdoctoral	2016-2018	Asst. Professor (Tenure track), Dept. Psych, Southern Georgia Univ
Josien Levenga	Postdoctoral	2011-2017	Senior Research Manager, Revvity Biological
Cristian Zambrano	Postdoctoral	2014-2015	SomaLogic, Boulder
Kirana Cowansage	Postdoctoral	2010-2011	
Kora Kastengren	Graduate Student	2024-present	Ph.D. candidate, IPHY
Joshua Jackson	Graduate Student	2023-present	Ph.D. candidate, IPHY
Keenan Kushner	Graduate Student	2022-2024	Graduated, post-doctoral trainee, Hoeffer lab
Alanna Mayberry	Graduate Student	2020-2025	Ph.D. candidate, IPHY, left lab Jan 2025

Mina Griffioen	Graduate Student	2020-present	Ph.D. candidate, IPHY
Andrew Lombardi	Graduate Student	2019-present	Ph.D. candidate, IPHY
Emily Schmitt	Graduate Student	2019-2021	Master's IPHY 2021
Luke Link	Graduate student	2018-2020	Master's IPHY 2020
Ryan Milstead	Graduate student	2015-2021	Ph.D., IBG CU Boulder
Helen Wong	Graduate student (F31)	2010-2015	Senior Scientist, Eikon Therapeutics
Kelsey Loupy	Graduate student	2016-2018	left lab and joined Dr. Chris Lowry, IPHY Ph.D.
Jarryd Butler	Graduate student	2015-2018	Master's degree, IPHY
Carolyn Ardizzone	Graduate student	2014-2016	Master's degree, IPHY, Med Student
Camille Davy	Graduate student	2012-2013	Master's degree,
Sarya Abi-Habib	Graduate student	2011-2012	Master's degree, Pfizer)
Charlotte Wincott	Graduate student	2012-2014	Senior Medical Science Liaison, Psychiatry at Alkermes
Min Chang	Undergraduate	2024-present	Jointly mentored with Dr. M. Betterton
Wyatt Mashkuri	Undergraduate	2024-2025	Left for medical school application prep.
Benjamin Horton	Undergraduate	2024-2025	
Paige Daniels	Undergraduate	2023-present	
Danya Al-Nazal	Undergraduate	2023-present	
Erica Gadja	Undergraduate	2023-2025	
Erin Sheily	Undergraduate	2022-2025	
Evan Wood	Undergraduate (BSI)	2022-2024	
James McGuire	Undergraduate (BSI)	2022-2024	
Samantha Cotto	Undergraduate (BSI)	2022-present	Applying to medical school Fall 2025
Colette Gagne	Undergraduate	2022-2023	
Victoria Ronge	Undergraduate (BSI)	2022-2023	
Sophia Kennedy	Undergraduate	2021-2023	
Emily Bingham	Undergraduate	2021-2023	
Lauren Immink	Undergraduate	2021-2023	
Lauren McCabe	Undergraduate	2021-2022	
Claire Semeria	Undergraduate	2020-2021	
Jaeson Chin	Undergraduate (BSI)	2019-2024	BSI Scholar, UCLA medical school
Shiyao Liang	Undergraduate	2019-2020	
Alex Brown	Undergraduate	2019-2020	
Jessica Pafford	Undergraduate (BSI)	2018-2020	Technician, Anschutz Medical School
Hannah Tobias	Undergraduate	2019-Summer	
Anthony Russo	Undergraduate	2019-Summer	UPenn Graduate School
Samantha Stone	Undergraduate	2016-2019	
Emily Schmitt	Undergraduate (BSI)	2017-2019	Master's, IPHY
Shelby Davenport	Undergraduate	2018-2019	
Stephanie Quintana	Undergraduate	2016-2017	Denver University Graduate Program
Bailey N. Keller	Undergraduate	2016-2017	UPenn Neuroscience Graduate Program
JoEllen Fresia	Undergraduate (BSI)	2016-2017	
Andrew Wax	Undergraduate (UROP)	2015-2016	Medical School Applicant
Alexander Dobzanski	Undergraduate (UROP)	2015-2016	Medical School, Temple University
Ellie Rhodes	Undergraduate	2015-2016	
Jarryd Butler	Undergraduate	2014-2015	
Nicholas Giron	Undergraduate	2014-2015	
Mimi Trinh	Undergraduate	2004-2006	Research Scientist, Takeda
Elizabeth Arnold	Undergraduate	2006-2008	Graduate student, UT Southwestern
Neil Majmundar	Undergraduate	2007-2009	Graduate student, NJ School of Med
Areum Kang	Undergraduate	2008-2010	Graduate student, Rutgers
Sydney Wanner	High school STEM	2019-2020	
Cynthia Lin	High school STEM	2017-2019	
Jia Seow	High school STEM	2016 Summer	

Pradan Harihara	High school STEM	2016 Summer
Max Sherman	High school STEM	2015
Valerio Casalino	High school STEM	2015
Nika Sabasteanski	High school student	2012
Jeanette Chao	High school student	2011

In advisory or committee function:

Name	Position	Supervisor
Jon Maffie	Graduate student	Bernardo Rudy
Heather Bowling	Graduate student	Moses Chao/Eric Klann
Kara Zang	Graduate student	Niels Ringstad
Ryan McCarthy	Graduate student	Marissa Ehringer
Sonia Bellmesova	Graduate student	Marissa Ehringer
Brian Cadle	Graduate student	Ryan Bachtel
Coral Cabrera	Graduate student	Jerry Stitzel
Hunter Matthews	Graduate student	Jerry Stitzel
Jordan Buck	Graduate student	Jerry Stitzel
Erika Merkoff	Graduate student	Marissa Ehringer
Maddie LeMieux	Graduate student	Chris Link
Sidney Aki	Graduate student	Jerry Stitzel
Myra Bower	Graduate student	Marissa Ehringer

SERVICE

MAJOR COMMITTEE ASSIGNMENTS

Year	Name of Committee, Role, Institution
2012	CSHL New Neuroscience Faculty Conference, Junior Faculty Organizer
2014	CU, Integrated Physiology, Welfare Committee
2014	CU, Institute for Behavioral Genetics, Training Committee
2014	CU, IACUC Animal Welfare Committee Ad Hoc Reviewer
2016	CU, Institute for Behavioral Genetics, Diversity and Outreach Committee
2018-2022	CU, Integrated Physiology, TQF (now QTI) Committee
2020-2022	CU, Institute for Behavioral Genetics, CUBS Diversity Initiative Committee
2020-2024	CU, Justice, Equity, Diversity & Inclusion (JEDI) Working Group.
2021-current	CU, IACUC, IBG representative
2024-current	CU, IPHY Executive Committee

MAJOR REVIEWER ASSIGNMENTS

2012-present	CDMRP Tuberous Sclerosis Complex Research Program, Scientific Reviewer
2012-present	CDMRP Neurofibromatosis Research Program, Ad-hoc Reviewer
2013-present	NSF ICOB Neuroscience, Study Section Ad Hoc Reviewer
2014-present	Biotechnology and Biological Sciences Research Program, UK, Reviewer
2014-present	Alzheimer's Society Research Programme, UK, Reviewer
2014-present	Alzheimer's Association, Young Investigator Grants, Reviewer
2015-present	NSF, Neural Systems, Modulation Panel, Ad hoc reviewer
2015-present	NSF, Animal Behavior Panel, Ad hoc reviewer
2016-present	NIH, NOMD study section, Ad hoc reviewer
2017-present	NIH, SYN (now NC) study section, Ad hoc reviewer
2018-present	Wellcome Trust/DBT India Alliance, Ad hoc reviewer
2019-present	Complex Brain Disorder Study Section, Standing Member
2022-present	CDMRP ALS Research Program, Scientific Reviewer
2023-present	CMBG Study Section, Ad hoc Reviewer
2023-present	BRAIN study section Standing Member, NIH
2023	Ad hoc Chair F31 Diversity NRSA Study Section, NIH

2024-present ZRG1 ICN-W (02) SEPT Study Section - Chair
2024-present ZRG1 AN Q55, AD/ADRD-and aging-related outcomes

UNIVERSITY OF COLORADO, BOULDER

2015-2020 Mentor, Summer Mentoring program through CU Science Discovery, STEM high school research outreach initiative (Dr. Karthryn Penzkover)
2020-2022 CU-Boulder BRF Fay Frank Seed Grant reviewer
2021-Current IACUC Committee standing member
2021-2023 AB NEXUS grant reviewer
2024 RIO Seed grant reviewer

BOULDER VALLEY COMMUNITY

2015-present Science Fair Judge Volunteer High Peaks Elementary, BVSD II

MEMBERSHIPS, OFFICES, AND COMMITTEE ASSIGNMENTS IN PROFESSIONAL SOCIETIES

Year	**Society**
2000-Present	Member, Society for Neuroscience
2005-Present	Member, Molecular and Cellular Cognition Society
2008-Present	Member, American Society for Biochemistry and Molecular Biology
2010-Present	Member, Society for the Advancement of Chicanos Native Americans in Science
2012-Present	Member, International Society to Advance Alzheimer's Research and Treatment (ISTAART)

EDITORIAL POSITIONS

Editor: *Acta Neuropathologica, Frontiers in Neuroscience Learning and Memory, Behavioral Neuroscience*
Ad-hoc reviewer: *Journal of Neuroscience, Molecular and Cellular Biology, Journal of Biological Chemistry, Acta Neuropathologica, Behavioral Neuroscience, Neurobiology of Disease, PLoS ONE, PLoS Biology, Biological Psychiatry, Translational Psychiatry, Molecular Psychiatry, Human Molecular Genetics, Nature Medicine, Science, Neuroreports, BMC Biology, Frontiers in Neuroscience, European Journal of Neuroscience, EMBO reports, Neuroscience Letters, Journal of Cell Science, Brain Behavior and Immunity, Frontier Behavioral Neuroscience, Neuropsychopharmacology.*

MAJOR RESEARCH INTERESTS

Protein synthesis regulation and memory, Protein synthesis regulation and synaptic plasticity, Neurodevelopmental disorders, Neurodegenerative disorders, Drug addiction and Astrogliosis

MAJOR PRESENTATIONS

Talk (invited) Mechanisms and outcome of sleep disruption in Down Syndrome: insight from mouse models, T21RS International Conference 2024, June 2024 Rome, Italy

Talk (invited) Exploring mechanisms underlying sleep disruption in Down Syndrome, Sept 5th, 2023, Crnic Institute Down Syndrome Research Symposium, Anschutz, CO, USA

Talk (invited) The role of Regulator of calcineurin1 (RCAN1) in the control of sleep and circadian function in DS, Sept 20th, 2022, Crnic Institute Down Syndrome Research Symposium, Anschutz, CO, USA

Talk (invited, presented virtually) Akt1 specific functions in synaptic plasticity and cognition, April 13th, 2022, Legacy Research Institute, Portland, OR, USA

Talk (invited, presented virtually) Akt1 specific functions in synaptic plasticity and cognition, April 4th, 2022, University of Haifa, Haifa, Israel

Talk (invited, presented virtually) Akt1 specific regulation of extinction behavior linked to interneuronal function, Feb 19th, 2021, Worldwide PI3K Series, USA

Talk (invited, presented virtually) Using mouse models to study complex brain disease and developmental disorders, March 24th, 2021, Memorial Sloan Kettering, NY, USA

Talk (Invited), Dose correction of Regulators of calcineurin rescues sleep abnormalities in a mouse model of Down syndrome, November 2019, Chicago, USA

Talk (Invited), Regulators of calcineurin and mitochondrial dysfunction in Down Syndrome, T21RS International Conference 2019, June 2019, Barcelona, Spain

Talk (Invited), Isoform specific roles for AKT in hippocampal plasticity and Behavior 2/25/19, University of Colorado, Denver, Denver, USA

Talk (Invited), Regulators of calcineurin, EEG and sleep abnormalities in DS, Annual LCI conference, Linda Crnic Institute, University of Colorado Anschutz Medical Campus, October 24, 2018, Denver CO, USA.

Talk (Invited), Isoform specific roles for AKT in hippocampal plasticity, 9/18/18, Champaign-Urbana, IL, USA.

Talk, Regulators of calcineurin controls mitochondrial fission in Down Syndrome, Linda Crnic Institute, University of Colorado Anschutz Medical Campus, 10/24/17, Denver CO, USA

Talk (Invited), Isoform specific roles for AKT in hippocampal plasticity, 10/6/17, Ft. Collins CO, USA

Poster, Regulators of calcineurin and mitochondrial dysfunction related to Alzheimer's disease, Gordon Conference, Neurobiology of Age-related Diseases, 8/7/16, Barcelona, Spain

Talk (Invited), Regulators of calcineurin and Alzheimer's disease related neurodegeneration, Alzheimer's Association International Conference, 7/20/15, Washington D.C., USA

Talk (Invited), Regulators of calcineurin and age-related oxidative stress and neurodegeneration, Gordon Research Conference, Oxidative Stress, 3/15/15, Ventura CA, USA

Talk, Regulators of calcineurin and age-related neurodegeneration, Department of Pharmacology, University of Colorado Anschutz Medical Campus, 12/1/14, Denver CO, USA

Talk, Understanding Genetic Sources of Neurodegeneration, CU-Boulder – IPHY Colloquium Seminar Series, 10/13/14, CU-Boulder, USA

Talk, Identifying cellular lesions underlying neurodegeneration, School of Biological Sciences, University of University of Northern Colorado, 9/26/14, Greeley CO, USA

Talk, Understanding Genetic Sources of Neurodegeneration, CU-Boulder – Interdepartmental Neuroscience Seminar Series, 9/23/14, CU-Boulder, USA

Poster (Wong), Age-dependent effects of RCAN1 overexpression on memory and synaptic plasticity
Society for Neuroscience, 11/11/13, San Diego, USA

Talk, GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior, Alzheimer's Drug Discovery Foundation meeting, 9/9/13, Jersey City, USA

Poster (Levenga), *GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior",* Alzheimer's Drug Discovery Foundation meeting, 9/9/2013, Jersey City, USA

Poster, (Levenga), *GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior*, NYU research day, 9/16/13, NYU School of Medicine, New York, USA

Poster, (Levenga), *GABAergic interneuron loss in a mouse model for tau pathology associates with dysregulated synaptic plasticity and behavior*, Society of Neuroscience meeting, 11/7/13, San Diego, USA