Curriculum vitae

SCOTT C. STEFFENSEN

Personal Data

Professor
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Education

1987	PhD in Pharmacology, University of Utah College of Medicine
1980	BS in Medical Technology, University of Utah

Professional Experience

2014-present	Professor in Psychology and Neuroscience, Brigham Young University
2003-2014	Associate Professor in Psychology, Brigham Young University
2014	Visiting Professor in Psychology, Brigham Young University, Hawaii
2014	Visiting Professor in Neuroscience, University of Hawaii Medical School
2001-2003	Assistant Professor in Psychology, Brigham Young University
2000-2001	Visiting Teaching Professor in Neuroscience, Brigham Young University
1994-2000	Assistant Professor in Neuropharmacology, The Scripps Research Institute
1991-1994	Senior Research Associate, The Scripps Research Institute
1989-1990	Visiting Scholar in Neuroscience, UCSD
1988-1994	Post-doctoral Fellow in Neuropharmacology, The Scripps Research Institute
1987-1988	Instructor in Anesthesia, Harvard Medical School

Appointments and Honors

2019-2022	Recipient, Alumni Professorship Award, BYU
2016-2019	Scholar, Arnold and Mabel Beckman Foundation
2011-2015	Associate Director, BYU Center for Neuroscience
1988-1992	NRSA PHS NIH Fellowship. Scripps Alcohol Research Center

Publications

Refereed Journal Articles

1) Ryu, S., Kim, O.H., Lee, Y.E., Kim, J.S., Li, Z.H., Kim, T.W., Lim, R.N., Ka, M., Lee, Y.J., Cheong, J.H., Kim, H.J., Lee, Y.S., Steffensen, S.C., Lee, B.H., Woo, D.H., Seo,

J.W., Jang, E.Y. The abuse potential of novel synthetic phencyclidine derivative 1-(1-(4-fluorophenyl)cyclohexyl)piperidine (4'-F-PCP) in rodents. *International Journal of Medical Sciences* (2020) 21(13), 4631; https://doi.org/10.3390/ijms21134631. PMID:

2) Fan Y., Ryu Y., Zhao R., Bills K.B., Steffensen S.C., Yang C.H., Kim H.Y. Enhanced Spinal Neuronal Responses as a Mechanism for Increased Number and Size of Active Acupoints in Visceral Hyperalgesia. *Scientific Reports* (2020) Jun 25;10(1):10312. doi: 10.1038/s41598-020-67242-9. PMID: 32587303

3) Yorgason, J.T., Hedges, D.M., Obray, J.D., Jang, E.Y., Bills, K.B., Woodbury, M., Williams, B., Andres, M.A., and **Steffensen, S.C.** Methamphetamine increases dopamine release in the nucleus accumbens through calcium-dependent processes. *Psychopharmacology* (2020) Jan 21. doi: 10.1007/s00213-020-05459-2. PMID: 31965252

4) Kim, M.S., Fan, Y., Lee, S.M., Chang, S.C., Kim, H.K., Ryu, Y., **Steffensen, S.C.**, Yang, C.H., and Kim, H.K. Role of the central amygdala in acupuncture inhibition of methamphetamine-induced behaviors in rats. *Addiction Biology* (2020) 10.1111/adb.12862. PMID: 31997525

5) Bills, K.B., Obray, J.D., Clarke, T., Parsons, M., Brundage, J., Yang, C.H., Kim, H.Y., Yorgason, J.T., Blotter, J.D., and **Steffensen, S.C.** Mechanical stimulation of cervical vertebrae modulates the discharge activity of ventral tegmental area neurons and dopamine release in the nucleus accumbens. *Brain Stimulation* (2020) 13(2):403-411. doi:10.1016/j.brs.2019.11.012. PMID: 31866493

6) Shin, J.H., Fan, Y, Kim, D.H., Jang, H.B., Chang, S., Ryu, Y., Bae, J.H., Lee, S., Lee, B.H., **Steffensen, S.C.**, Yang, C.H., and Kim, H.Y. Paired mechanical and electrical stimulation of neurogenic spots induces opioid-mediated suppression of hypertension in rats. *Journal of Physiological Sciences* (2020) 70(1):14. doi: 10.1186/s12576-020-00735-4. PMID: 32039692

7) Ryu, I.S., Choi, M.J., Lee, Y.E., Kim, J.S., Kim, W.H., Cheong, J.H., Kim, H.J., Jang, C.G., Lee, Y.S., Ka, M., Woo, D.H., **Steffensen, S.C**., Jang, E.Y., Yoon, S.S. and Seo, J.W. The potent psychomotor, rewarding and reinforcing properties of 3-fluoromethamphetamine in rodents. *Addiction Biology* (2019) doi: 10.1111/adb.12846. PMID: 31797481

8) Chang, S., Fan, Y, Shin, J.H., Ryu, Y., Kim, M.S., **Steffensen, S.C.**, Kim, H.K., Kim, J.M., Lee, B.H., Jang, E.Y., Yang, C.H. Kim, H.Y. Unpleasant sound elicits negative emotion and reinstates drug seeking. *Mol. Neurobiol* (2019) 56(11): 7594-7607. doi.org/10.1007/s12035-019-1609-z. PMID: 31073951

9) Gao, F, Chen, D., Ma, X., Sudweeks, S., Yorgason, J., Gao, M., Turner, D., Eaton, J., McIntosh, J.M., Lukas, R., Whiteaker, P., Chang, Y., **Steffensen, S.**, and Wu. J. Alpha6-containing nicotinic acetylcholine receptor is a highly sensitive target of alcohol.

Neuropharmacology (2019) 149:45-54. doi: 10.1016/j.neuropharm.2019.01.021. PMID: 30710570

10) Bills, K., Clarke, T., Major, G., Jacobson, C., Blotter, J., Feland, J., and **Steffensen, S**. Targeted subcutaneous vibration with single-neuron electrophysiology as a novel method for understanding the central effects of peripheral vibrational therapy in a rodent model. *Dose Response* (2019) 17(1). doi: 10.1177/1559325818825172. PMID: 30728758

11) Kim, N.J., Ryu, Y., Lee, B.H., Chang, S., Fan, Y, Gwak, Y.S., Yang, C.H., Bills, K.B., **Steffensen, S.C.**, Koo, J.S., Jang, E.Y., and Kim, H.Y. Acupuncture inhibition of methamphetamine-induced behaviors, dopamine release and hyperthermia in the nucleus accumbens: mediation of group II mGluR. *Addiction Biology* (2019) 24(2): 206-217. Jan. doi: 10.1111/adb.12587. PMID: 29363229

12) Williams, S.B., Yorgason, J.T., Nelson, A.C., Lewis, N., Nufer, T.M., Edwards, J.G. and **Steffensen, S.C.** Glutamate transmission to ventral tegmental area GABA Neurons is altered by acute and chronic ethanol. *Alcohol Clin Exp Res* (2018) 42(11):2186-2195 Sep 11. doi: 10.1111/acer.13883. PMID: 30204234

13) Wood, R.L., Karkinsey, K.S., Thompson, A.D., Rigby, M.N., Boatright, G.D., Pitt, W.G., Roeder, B.L., **Steffensen, S.C.** and Cook, A.D., Baseline effects of lysophosphatidylcholine and nerve growth factor in a rat model of sciatic nerve regeneration after crush injury. *Neural Regeneration Research* (2018) 13(5):846-853 May doi: 10.4103/1673-5374.232479. PMID 29863015

14) Guohai, C., Hedges, D.M., **Steffensen, S.C.**, Harb, J.N., Ashe, J., Pulio, C., Vanfleet, R.R., Davis, RC. Fabrication of High Aspect Ratio Millimeter-Tall Free-Standing Carbon Nanotube Based Microelectrode Arrays. *ACS Biomaterials Science and Engineering*. Accepted April 2018

15) Mitchell, U.H., Obray, J.D., Hunsaker, E., Garcia, B., Clarke, T., Hope, S., and **Steffensen, S.C.** Peripheral dopamine in restless legs syndrome. *Frontiers in Neurology*. (2018) 9(155) Mar. doi: 10.3389/fneur.2018.01555. PMID: 29599746

16) Nelson, A.C., Williams, S.B., Pistorius, S.S., Park, H.J., Woodward, T.J., Payne, A.J., Obray, J.D., Shin, S.I., Mabey, J.K., **Steffensen, S.C.** Ventral tegmental area GABA neurons are resistant to GABA(A) receptor-mediated inhibition during ethanol withdrawal. *Frontiers in Neuroscience* (2018) doi:10.3389/fnins.2018.00131. PMID: 29556175

17) Chen, D., Gao, F., Ma, X., Gang-gang, S., Huang, Y., Su, Q., Sudweeks, S.N., Gao, M, Turner, D., Eaton, J.B., Chang, Y., McIntosh, J.M., Lukas, R.J., Whiteaker, P., **Steffensen, S.C.**, and Wu, J. Pharmacological and functional comparisons of α6/α3β2β3-nAChRs and α4β2-nAChRs heterologously expressed in the human epithelia SH-EP1 cell line *Acta Pharmacol Sinica* (2018) 39(10):1571-1581. May doi: 10.1038/aps.2017.209. PMID: 29795357

18) Hedges, D.M., Obray, J.D., Yorgason, J.T., Jang, E.Y., Uys, J.D., Weerasekara, V.K., Bellinger, F.P., and **Steffensen, S.C.** Methamphetamine induces striatal dopamine release in the nucleus accumbens through a sigma receptor-mediated pathway. *Neuropsychopharmacology* (2017) 43(6):1405-1414. May. doi: 10.1038/npp.2017.291. PMID: 29185481

19) **Steffensen, S.C.**, Shin, S.I., Nelson, A.C., Pistorius, S.S., Williams, S.B., Woodward, T.J., Park, H.J., Friend, L., Gao, M., Gao, F., Taylor, D.H., Olive, M.F., Edwards, J.G., Sudweeks, S.N., Buhlman, L.M., McIntosh, J.M., and Wu, J. α6 subunit-containing nicotinic receptors mediate low-dose ethanol effects on ventral tegmental area neurons and ethanol reward. *Addiction Biology* (2018) 23(5):1079-1093doi: 10.1111/adb.12559: PMID: 28901722

20) Chang, S., Ryu, Y.H., Gwak, Y.S., Kim, N.J., Kim, J.M., Lee, J.Y., Kim, S.A., Lee, B.H., **Steffensen, S.C.**, Jang, E.Y., Yang, C.H. and Kim, H.Y. Spinal pathways involved in somatosensory inhibition of the psychomotor actions of cocaine. *Scientific Reports* (2017) 7(1) 5359. doi:10.1038/s41598-017-05681-7: PMID: 28706288

21) Jin, W., Kim, M.S., Jang, E.Y., Lee, J.Y., Lee, J.G., Kim, H.Y., Yoon, S.S., Lee, B.H., Chang, S., Kim, J.H., Choi, K.H., Koo, H., Gwak, Y.S., **Steffensen, S.C.**, Ryu, Y.H. Kim, H.Y., Yang, C.H. Acupuncture reduces relapse to cocaine-seeking behavior via activation of GABA neurons in the ventral tegmental area. *Addiction Biology* (2017) 23(1): 165-181. doi:10.1111/adb.12499: PMID: 28271626

22) Jang, E.Y., Yang, C.H., Hedges, D.M., Kim, S.P., Lee, J.Y., Ekins, T.G., Garcia, B.T., Kim, H.Y., Nelson, A.C., Kim, N.J. and **Steffensen, S.C.** The role of reactive oxygen species in methamphetamine self-administration and dopamine release in the nucleus accumbens. *Addiction Biology* (2017) 22(5) 1304-1315. doi: 10.1111/adb.12419. PMID: 27417190

23) Wood, R.L., Pitt, W.G., **Steffensen, S.C.** and Cook, A.D. A comparison of lysophosphatidylcholine and crush injury in a rat model of sciatic nerve regeneration. *Adv Tissue Eng Regen Med Open Access* (2016) 1(2) doi: 10.15406/atroa.2016.01.00008

24) Larson, M.J., Clayson,P.E., Primosch, M., Leyton, M., and **Steffensen,S.C.** The effects of acute dopamine precursor depletion on the cognitive control functions of performance monitoring and conflict processing: An event-related potential (ERP) study. *PLoS One* (2015) Oct 22;10(10): doi: 10.1371/journal.pone.0140770. PMID: 26492082

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26) Vargas-Perez, H., Bahi, A. Bufalino, M.R., Ting-A-Kee, R., Blanchard, J.K., Larsen, B.R., **Steffensen, S.C.,** Dreyer, J.L. and van der Kooy, D. BDNF signaling in the VTA

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29) Ting-A-Kee, R., Vargas-Perez, H., Mabey, J.K., Shin, S.I., **Steffensen, S.C.** and van der Kooy, D. Ventral Tegmental Area GABA Neurons Control Opiate Motivation. *Psychopharmacology* (2014) 227(4):697-709. PMID: 24899712

30) Kim, S.A., Lee, B.H., Bae, J.H., Kim, K.J., **Steffensen, S.C.,** Ryu, Y.H., Leem, J.W., Yang, C.H., and Kim, H.Y. Peripheral afferent mechanisms underlying acupuncture inhibition of cocaine behavioral effects. *PLoS One* (2013) 8(11). doi: 10.1371/journal.pone.0081018. PMID: 24260531

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32) Shin, S.I., Andersen, D.J., Hansen, D.M., Yorgason, J.T., Schilaty, N.D., Busath, D.D., **Steffensen, S.C.** Connexin-36 knock-out mice have increased threshold for kindled seizures: Role of GABA inhibition. *Biochemistry and Pharmacology* (2013) doi: 10.4172/2167-0501.S1-006

33) Taylor, D.H., **Steffensen, S.C.** and Wu, J. Nicotinic Acetylcholine Receptors in the Ventral Tegmental Area are Important Targets for Nicotine and Ethanol Co-dependence. *Biochemistry and Pharmacology* (2013) 10.4172/2167-0501.S1-002

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35) Zhang, D, Gao, M, Xu, D, Wei-Xing, S. Gutkin, B.S., **Steffensen, S.C.**, Lukas, R.J. and Wu, J. Impact of Prefrontal Cortex in Nicotine-Induced Excitation of Ventral Tegmental Area Dopamine Neurons in Anesthetized Rats. *J. Neurosci* (2012) 32(36):12366-12375. doi:10.1523/jneurosci.5411-11.2012. PMID: 22956827

36) Egan, T.D., Obara, S., Jenkins, T.E., Jaw-Tsai, S.S., Amagasu, S., Cook, D.R., **Steffensen, S.C.,** and Beattie, D.T. AZD-3043: A Novel, Metabolically-Labile Sedative/Hypnotic Agent with Rapid and Predictable Emergence from Hypnosis. *Anesthesiology* (2012) 116(6):1267-77

37) Yoon, S.S., Yang, E.J., Lee, B.H., Jang, E.Y., Kim, H.Y., Choi, S.M., **Steffensen, S.C.** and Yang, C.H. Effects of acupuncture on stress-induced relapse to cocaine-seeking in rats. *Psychopharmacology* (2012) 222(2):303-11. PMID: 22453546

38) Allison, D.W., Wilcox, R.S., Ellefsen, K.L., Askew, C.E. Hansen, D.M. Wilcox, J.D. Sandoval, S.S., Eggett, D.L., Yanagawa, Y. and **Steffensen, S.C.** Mefloquine effects on ventral tegmental area dopamine and GABA neuron inhibition: A physiologic role for connexin-36 gap junctions. *Synapse* (2011) 65:804-813. PMID: 21218452

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Book Chapters

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182) Mayer, J.H., **Steffensen, S.C.** and Henriksen, S.J. Electrophysiologic effects of selective opioid agonists and naloxone in the dentate gyrus. *Soc. Neurosci. Abs*. (1992) 18: 576.2

183) Raymond, S.A., **Steffensen, S.C.**, Thalhammer, J.G. and Strichartz, G.R. Modulation of local anesthetic blockade in single fibers by activation of neighbors in peripheral nerve. *Soc. Neurosci. Abs.* (1992) 18: 477.9

184) **Steffensen, S.C.**, Giacchino, J.L., Miller, D.R. and Henriksen, S.J. Lesions of the medial septum attentuate the ethanol-induced increase in recurrent inhibition in the fascia dentata. *Alcoholism: Clin. Exp. Res (1992)* 16(2): 391

185) Henriksen, S.J., Young, W.G. and **Steffensen, S.C.** Effects of ethanol and chlordiazepoxide on inhibitory processes in the fascia dentata and hippocampus regio superior. *Soc. Neurosci. Abs.* (1991) 17

186) **Steffensen, S.C.**, Moneta, M.E. and Henriksen, S.J. Activity-dependent effects on interneuron excitability regulate dentate granule cell responses to afferent stimulation. *Soc. Neurosci. Abs.* (1991) 17

187) Prospero-Garcia, O., **Steffensen, S.** and Henriksen, S.J. VIP induces theta-like cellular rhythms in hippocampal CA1 neurons. *Soc. Neurosci. Abs.* (1991) 17

188) Mayer, J.H., **Steffensen, S.C.** and Henriksen, S.J. Effects of opioids on evoked and spontaneous cellular events in the dentate gyrus. Soc. Neurosci. Abs. (1991) 17

189) Franz, D.N., **Steffensen, S.C.** and Miner, L.C. Separate mechanisms by which serotonin depresses intraspinal and ganglionic sympathetic transmission. *Soc. Neurosci. Abs.* (1990) 16

190) **Steffensen, S.C.** and Henriksen, S.J. Dissimilar effects of ethanol and chlordiazepoxide on inhibition in the fascia dentata and hippocampus regio superior. *Soc. Neurosci. Abs.* (1990) 16

191) Raymond, S.A., **Steffensen, S.C.** and Ellisman, M.H. Observations of node of Ranvier structure during sustained impulse activity in single frog axons. *Soc. Neurosci. Abs.* (1990) 16

192) Franz, D.N., **Steffensen, S.C.** and Miner, L.C. Separate mechanisms by which clonidine depresses intraspinal and ganglionic sympathetic transmission. *Soc. Neurosci. Abs.* (1990) 15

193) **Steffensen, S.C.,** Raymond, S.A. Phorbol Esters modulate the after effects of impuse conduction in peripheral nerve. *Soc. Neurosci. Abs.* (1989) 15

194) **Steffensen, S.C.**, Kim, Y.M. and Henriksen, S.J. Effects of baclofen and bicuculline on dentate granule cell excitability suggest a presynaptic locus for GABAb receptors. *Soc. Neurosci. Abs.* (1989) 15

195) Raymond, S.A., **Steffensen, S.C.**, Gugino, L.D. and Strichartz, G.R. Critical exposure length for nerve block of myelinated fibers with lidocaine exceeds three nodes. *Regional Anaesthesia* (1988) 12:S46.

196) Franz, D.N., **Steffensen, S.C.** Intraspinal Microinjection of Phorbol Esters Blocks Generation of Cyclic AMP in Sympathetic Preganglionic Neurons (SPGNs). *Soc. Neurosci Abs.* (1987) 13

197) **Steffensen, S.C.,** Franz, D.N. Enhancement of Transmission and Blockade of LTP in Bulbospinal Pathways to Sympathetic Preganglionic Neurons (SPGNs) by Phorbol Esters. *Soc. Neurosci Abs* (1987) 13

198) **Steffensen, S.C.**, Franz, D.N. Enhancement of excitability in Sympathetic Preganglionic Neurons by Intraspinal Microinjection of Cyclic AMP Analogs or Forskolin. *Soc. Neurosci. Abs.* (1986) 12

199) Sangdee, C., **Steffensen, S.C.**, Franz, D.N. Paradoxical effects of Dextroamphetamine on Intraspinal Transmission to Sympathetic Preganglionic Neurons. *Soc. Neurosci. Abs.* (1986) 12

200) **Steffensen, S.C.**, Franz, D.N. Segmental Microinjection of Drugs into the Neuropil of Sympathetic Preganglionic Neurons (SPGNs). *Fed.Proc.* (1986) 45

201) **Steffensen, S.C.**, Franz, D.N. Depression of Excitability and adenylate cyclase in Sympathetic Preganglionic Neurons by Serotonin. *Fed. Proc.* (1985) 44

202) Sangdee, C., **Steffensen, S.C.**, Franz, D.N. Enhancement of Bulbospinal excitatory Transmission to Sympathetic Preganglionic Neurons (SPGNs) by Desipramine and by Dextroamphetamine. *Soc. Neurosci. Abs*. (1984) 10

Intellectual Property

Co-Inventor: BYU Full Patent: *"A device and method to induce interferential beat vibrations and frequencies into the body for treatment of pain, anxiety, depression, addiction, and sleep disorders"* (2019)

Inventor: BYU Provisional Patent **"***Monocyte dopamine D2 receptors as biomarker for brain dopamine*" (2018)

Inventor: BYU Provisional Patent **"***Blood dopamine D2 receptors as biomarkers for brain dopamine"* (2014)

Inventor: BYU Provisional Patent **"***Enhancement of neuromelanin formation and dopamine release in the brain with combined light and chemical therapy"* (2013)

Inventor: BYU Provisional Patent *"Long-term enhancement of dopamine release in the brain with electrical stimulation"* (2011)

Inventor: BYU Provisional Patent *"Transcutaneous delivery of recalcitrant molecules via heterodyned electrophoresis"* (2007)

Research Support, Contracts, and Grant Awards (~$8,100,000 in research funding to date)

External awards and contracts

Sponsor: F32 PHS NIH NCCAM (AT009945)
Novel methods of acupuncture delivery in the treatment of drug-abuse disorders (2019-2022) Total 3 yrs = $229,974

PI: RO1 PHS NIH NIDA (DA035958)
Nicotine and Alcohol co-dependence. (2014-2019) Total 5 yrs = $2,100,000

coPI: National Research Foundation of Korea. Post-doc stipend for Eun Young Jang (2012-2013) $30,000

PI: RO1 PHS NIH NIAAA (AA020919)
Neuroplasticity with alcohol dependence (2012-2017) Total 5 yrs = $1,854,781

PI: RO1 PHS NIH NIAAA Supplement (AA13666)
Neurophysiological substrates of alcohol addiction. (2011-2012) $60,000

PI: RO1 PHS NIH NIAAA Competitive Renewal Award (AA13666). *Neurophysiological substrates of alcohol addiction*. (2006-2011) Total 5 yrs = $1,605,000

Contractor: RO1 PHS NIH Award (MH70386) to Donald Partridge and Fernando Valenzuela. *Age-dependent presynaptic action of pregnenolone sulfate.* Contracted to UNM (2005-2010) Total 5 yrs = $187,500

coPI: Grant from Botulinum Toxin Research Associates. *Effects of botulinum toxin on seizures in rats*. Collaboration with PI David Busath in PDBio (2007) $16,000

PI: RO1 PHS NIH NIAAA Award (AA13666). *Neurophysiological substrates of alcohol addiction*. (2001-2005) Total 4 yrs = $1,252,837

PI: R29 PHS NIH Award (AA10075). *Hippocampal plasticity and acute ethanol*. (1994-1999) Total 5 yrs = $602,098

Trainee: NRSA PHS NIH Award (AA07456) to Floyd E. Bloom. Alcohol Training Center Grant at the Scripps Research Institute. (1989-1993) Total 4 yrs = $165,032

Intramural funding

Co-PI: Interdisciplinary Research Origination Award. *Mechanical Stimulation Device for the Treatment of Opioid Use Disorder.* BYU (2020-2021) $120,000

PI: John A. Widtsoe University Award. BYU (2020) $25,000

PI: Reparations/reimbursement grant. *Damages sustained during the remodel of the KMBL 12th floor vivarium*. Simmons Foundation and BYU ORCA (2019) $70,000

Co-PI (Jonathan Blotter, Co-PI) TechPrep proposal grant. *Targeting vibration platform for chronic pain and opioid addiction.* BYU TTO/ORCA (2019) $40,000

Co-PI (Jonathan Blotter, PI): Fulton College Mentored Research Grant. *Targeting vibration platform for chronic pain and opioid addiction* (2019) $25,000

Mentor: Graduate Mentoring Award. *Leukocyte Dopamine 2-like receptors as a biomarker for brain dopamine D2-like receptors in alcohol abuse* (2019) $15,000

PI: Mentoring Environment Grant: PI: *Neuroimmune mechanisms of alcohol reward*. Funded by the College of Family, Home and Social Sciences (2019) $12,000

Mentor: Beckman Scholar: *Sex differences in ethanol effects on dopamine transmission*. Funded by Beckman Scholar Research Grant (2018) $5,000

PI: Mentoring Environment Grant: *Brain Plasticity with alcohol dependence*. Funded by BYU Office of Research and Creative Activities (2016) $20,000

PI: Mentoring Environment Grant: *Alcohol and Nicotine Co-Dependence III*. Funded by BYU Office of Research and Creative Activities (2015) $20,000

PI: Technology Transfer Grant: *Is the D2 receptor on blood monocytes a peripheral biomarker for brain dopamine?* Funded by BYU Technology Transfer Office (2014) $12,000

PI: Mentoring Environment Grant: *Alcohol and Nicotine Co-Dependence II*. Funded by BYU Office of Research and Creative Activities (2014) $20,000

PI: Mentoring Environment Grant: *Alcohol and Nicotine Co-Dependence*. Funded by BYU Office of Research and Creative Activities (2013) $20,000

PI: Technology Transfer Grant: *Non-invasive, non-pharmacological treatment for psychiatric disorders involving lowered dopamine transmission*. Funded by BYU Technology Transfer Office (2012) $25,000

PI: Mentoring Environment Grant: *Non-invasive treatment for drug addiction*. Funded by BYU Office of Research and Creative Activities (2011) $20,000

PI: BYU Scholarly Grant: *Visual processing in female opiate abusers: Towards an objective index of treatment efficacy*. Funded by BYU Women's Studies (2011) $5,000

PI: Mentoring Environment Grant: *Neurophysiological substrates of alcohol addiction*. Funded by BYU Office of Research and Creative Activities (2010) $19,600

PI: *Visual processing in male and female opiate abusers: Towards an objective index of treatment efficacy.* Funded by BYU Women's Research Institute (2010) $10,000

PI: Mentoring Environment Grant: *Neurophysiological substrates of alcohol addiction*. Funded by BYU College of Family, Home and Social Sciences (2009) $19,600

PI: Mentoring Environment Grant: *Neurophysiological substrates of cocaine addiction*. Funded by BYU Office of Research and Creative Activities (2008) $19,600

Co-PI (Dawson Hedges PI)**:** Mentoring Environment Grant: *Neurological sequelae associated with perinatal ultrasound imaging*. Funded by BYU ORCA (2007) $10,000

PI: BYU ORCA Mentoring Environment Grant. *Neuropsychology laboratory*. Funded by BYU ORCA (2006) $20,600

PI: Faculty Research Award. *Role of GABA electrical networks in rewarding behaviors*. Funded by the BYU College of Family, Home and Social Sciences (2005) $2880

PI: Mentoring Environment Grant. *Neuropsychology laboratory*. Funded by BYU ORCA (2005) $19,600

PI:. Faculty Research Award. *Physiological assessment system for drug development.* Funded by BYU College of Family, Home and Social Sciences (2004) $6479

PI: Faculty Research Award. *Physiological assessment system for drug development*. Funded by BYU College of Family, Home and Social Sciences (2003) $6275

Co-PI (Edwin Lephart PI): Mentoring Environment Grant. *Electrocortical correlates of visual information processing*. Funded by BYU Neuroscience Center (2002) $3,500

Donor funding

PI: Towards enhancing dopamine release. Allen Kreutzkamp Family: (2012) $4,000

PI: Towards enhancing dopamine release. Brent Andrus Family: (2011) $5,000

Works in Progress

Grants submitted and under review or revision

Steffensen, S.C., PI, R01 NIH Renewal Application NIDA/NIAAA. Submitted Sep 2019. Under SRG review in Feb.

Steffensen, S.C., PI, R01 NIH Application NCCIH. Submitted June 2019. To be revised and resubmitted May 2020

Presentations

Invited talks (= with honorarium)*

Seminar speaker: *Addiction Recovery and Treatment.* Valley Behavioral Health. Neurobiology of addiction. West Valley, UT (Apr 25, 2019)

Seminar speaker: Case Appointed Special Advocates (CASA) in-service program: *Parenting and Addiction*. Provo, UT (Feb 28, 2019)

Alumni Fireside: *Neurobiology of Addiction*. Tulsa, OK Alumni Association and BYU Speaker's Bureau. Tulsa, AZ (Apr 07, 2018)

Seminar speaker: Seminar speaker: BYU MMBio seminar series (July 05, 2017)

Scientific Advisory Board*: Medical University of South Carolina, Charleston, SC (Apr24-26 2017)

Conference Speaker: Conference on Addiction. Utah Valley University, Orem, UT (Mar 10, 2017)

Symposium Speaker: *Peripheral dopamine D2 receptors mediate acute ethanol effects on dopamine transmission in the mesolimbic reward system*. LDS Life Sciences Symposium. Lehi, UT (July 20, 2016)

Conference Speaker: *What is it like to be a neuroscientist?* PREP Career Series at Utah Valley University, Orem, UT (July 05, 2016)

Symposium speaker*: *In vivo microdialysis and voltammetric techniques for studies of ethanol´s mechanism of action along the mesolimbic dopamine reward system*. Monitoring Molecules in Neuroscience in Gothenburg, Sweden (June 01,2016)

Symposium speaker: *The Biophysical And Computational Modifications In VTA Microcircuits Evoked By Drugs Of Abuse*. Research Society on Alcoholism annual meeting. New Orleans, LA (Mar 27, 2016)

Alumni Fireside: *We are spiritual beings having a physical experience*. Tucson Alumni Association and BYU Speaker's Bureau. Tucson, AZ (Mar 11, 2016)

Alumni Fireside, *We are spiritual beings having a physical experience*. Kansas City Alumni Association and BYU Speaker's Bureau, Kansas City, MO (Oct 17, 2015)

Alumni Fireside: *We are spiritual beings having a physical experience*. Tulsa Alumni Association and BYU Speaker's Bureau, Tulsa, OK (Mar 10, 2015)

Symposium Speaker: Monitoring Molecules in Neuroscience 15th International Conference, Los Angeles, CA (Aug 14, 2014)

College of Science and Engineering Forum, Brigham Young University, Hawaii (May 08, 2014)

Keynote Speaker*: Spring 2014 Psychology Symposium Series at Hawaii Pacific University (Mar 14, 2014)

Keynote Speaker: National Honor's Society, Boston, MA (Nov 18, 2012)

Marriott Business School Neurobusiness Seminar, Brigham Young University, Provo, UT (Feb 02, 2012)

Seminar Speaker*: Barrow Institute Neuroscience Seminar Series, Phoenix, AZ (Jan 24, 2012)*

Keynote Speaker*: Korean Addiction Society Annual Meeting, Daegu, Korea (Sep 30, 2011)

Symposium Speaker: LDS Life Sciences Symposium, Canyon's Resort, Park City, UT (July, 2010)

Seminar Speaker: Molecular Biology Seminar Series, BYU (Nov 05, 2009)

Seminar Speaker*: Intermountain Neuroscience Society Seminar Series, Snowbird, UT (Nov 06, 2009)

Seminar Speaker*: University of Utah Medical School Seminar Series, Salt Lake City, UT

Seminar Speaker*: UVSC College of Life Sciences Seminar Series, Orem, UTSeminar Speaker: Winter Conference on Brain Research, Steamboat Springs, CO (2006)

Seminar Speaker*: University of New Mexico Neuroscience Center Seminar Series, Albuquerque, NM (2005)

Seminar Speaker*: FASEB Summer Research Conference on Addiction, Tucson, AZ (2004)

Seminar Speaker*: Bowles Alcohol Center/University of North Carolina Seminar Series, Chapel Hill, NC (2003

Keynote Speaker*: International Society on Alcoholism/Women's Christian Temperance Union Convention Keynote Speaker, Des Moines, IA (2003)

Seminar Speaker*: NIDA 2002 Seminar Series, Bethesda, MD (2002)

Seminar Speaker*: Research Society on Alcoholism Symposium, RSA Annual Meeting, San Fran., CA (2002)

Seminar Speaker*: Research Society on Alcoholism Symposium, RSA Annual Meeting, Montreal, Quebec (2001)

Symposium Speaker*: Research Society on Alcoholism Symposium, RSA Annual Meeting, Denver, CO (2000)

Seminar Speaker*: Visiting Scientist Seminar Series at Advanced Medicines, Inc., San Francisco, CA (2000)

Seminar Speaker: Psychology Forum, Brigham Young University (2000)

Seminar Speaker*: Visiting Scientist Seminar Series, NPS Pharmaceuticals, Inc., Salt Lake City, Utah (1999)

Seminar Speaker: Neuroscience Forum, Brigham Young University, Provo, Utah, (1999)

Symposium Speaker: NIAAA Symposium at the Society for Neuroscience meeting in New Orleans, LA (1997)

Seminar Speaker*: INSERM Neuroactive Steroid Conference, Aix-les-bains, France, (1997)

Symposium Speaker*: IEEE Symposium, San Diego, CA (1991)

Conference Presentations

Catecholamine Symposium by city (year): Asilomar, CA (2012)

Society for Neuroscience Annual Meetings by city (year): Atlanta (2006), Los Angeles (1998), Miami (1994), New Orleans (1987,1991,1997,2000,2003), Orlando (2002), Phoenix (1989), San Diego (1995,2001,2004,2007,2010,2013,2016), St. Louis (1990,1992), Washington DC (1986,1993,1996,2005,2008,2011,2014,2017), Chicago (2009,2015)

Research Society on Alcoholism Annual Meetings by city (year): Bellevue (2014), Orlando (2013), Atlanta (2011); Baltimore (2006), Chicago (2007), Denver (2000,2017), Ft. Lauderdale (2002), Hilton Head (1998), Toronto (1990), Marco Island (1991), Maui (1994), Montreal (2001), San Antonio (1993,2010,2015), San Diego (1992,2009), San Francisco (1997,2001), Santa Barbara (1999,2005), Steamboat Springs (1995), Washington DC (1996, 2008), New Orleans (2016)

FASEB meetings by city (year): Anaheim (1985) and St. Louis (1986)

Membership in Professional Societies

Society for Neuroscience (Member from 1987-present)
Research Society on Alcoholism (Member from 1990-present)
American Association for the Advancement of Science (Member from 1989-1995)
International Neural Network Society (Member from 1989-1991)

Editorial and Ad Hoc Journal Review Activities (number of articles reviewed/journal)

Neuroscience (7)
Journal of Neuroscience (4)
Brain Research (20)
Journal of Pharmacology and Experimental Therapeutics (6)
Pharmacology, Biochemistry and Behavior (5)
Science (4) with Floyd Bloom at Scripps
Proceedings of the National Academy of Sciences (1)
Neuroscience Letters (7)
Alcoholism: Clinical and Experimental research (8)
Nature (1)

Neuropharmacology (5)
Journal of Neuropsychopharmacology (1)
Biological Psychiatry (1)
Synapse (8)
Cerebral Cortex (1)
Alcohol (1)
Neuroimage (1)
European Journal of Neurology (1)
Journal of NeuroEngineering and Rehabilitation (1)
Journal of Tropical Medicine (1)
PLoS One (3)
CNS Neuroscience and Therapeutics (1)
Journal of Acupuncture and Meridian Studies (1)
Addiction Biology (7)
Neurotoxicity Research (1)
Psychopharmacology (1)
Neurochemical Research (1)
BMC Neuroscience (1)

Scientific Advisory Boards

Scientific Advisory Board Member*: Medical University of South Carolina, Charleston, SC Apr 24-26. Review NIH Project grant for Peter Kalivas.

Teaching Experience

Drugs, Reward and Addiction (Psych 388) Fall 2012-present

Neurobiology (Neuroscience 105-now 205): Fundamentals of neuroscience (3 credit hour course). Winter 2001, Fall 2014-present

Advanced Neuroscience (Neuroscience 480): Fundamentals of neuroscience and literature reviews (3 credit hour course). Coordinator: Fall/Winter 2000-2006

Advanced Neuroscience Laboratory (Neuroscience 481): Histology, anatomy, electrophysiology and behavior (1 credit hour laboratory course). Fall/Winter 2001-2015

Neuroscience Research (Neuroscience 449R): Research experience for neuroscience majors (variable credit). Sp/Su/Fall/Winter 2001-present

Sensation and Perception (Psychology 370): Neurobiological basis of sensation and perception (3 credit hour course). Winter/Fall 2002-2014

Research Design and Methods (Psychology 302): Fall 2007-2011

Psychology Research Capstone (Psychology 430R): Research experience for psychology majors (variable credit). Fall/Winter 2004-present

Committee and Administrative Assignments

Departmental

2018-	Neuroscience Graduate Program, Chair
2012-	Research Space and Resources, Chair
2009-2010	Publicity/Website, Chair
2007-2010	Social, Chair
2002-2004	Research, Chair

Institutional

2009-	Speaker's Bureau
2010-2015	Associate Director, Neuroscience Center
2011-2014	Honors Faculty Council, Member
2001-2006	Institutional Animal Care and Use Committee (IACUC), Member

National

Grant reviewer National Institutes of Health Center for Scientific Review Council NAL (2015-2020)

Grant reviewer National Institutes of Health Center for Scientific Review Council ZRG1 IFCN-C; ad-hoc member (2013)

Grant reviewer National Institutes of Health Center for Scientific Review Council ZDA1 SXC-E; ad-hoc member (2013)

Grant reviewer National Institutes of Health Center for Scientific Review Council ZRG1 IFCN-Z; ad-hoc member (2012)

Grant reviewer National Institutes of Health Center for Scientific Review Council NAL; ad-hoc member (2010)

Grant reviewer National Institutes of Health Center for Scientific Review Council NAL; ad-hoc member (2009)

Grant reviewer National Institutes of Health Center for Scientific Review Council NAL; ad-hoc member (2008)

Grant reviewer National Institutes of Health Center for Scientific Review Council ZAA1HH87L; ad-hoc member (2007)

Grant reviewer National Institutes of Health Center for Scientific Review (ALTX-3 study section); ad-hoc member (2002-2003)

International

Grant reviewer UK Medical Research Council Review 2014/12 Council Neurosciences and Mental Health Board (t-NMHB); ad-hoc member (2014)

Grant reviewer INSERM ANR-GUI-AAP-06 Review; ad-hoc member (2013)

Grant reviewer UK Medical Research Council
Review 2007/12 Council Neurosciences and Mental Health Board (t-NMHB); ad-hoc member (2007)

Post Docs

Dr. Kyle Bills (2019-present)
Eun Young Jang (Korean Research Council Grantee; 2012-2016)
Dr. Hyun Jung Park (2014-2016)
Dr. Devin Taylor (2016)
Dr. Jordan Yorgason (2016-2018)

Graduate Students

Committee Chair (Advisor)

Masters
Kimberly Hales (Neuroscience, BYU, 2006-2008)
Laura Thomas (Psychology, BYU, 2004-2005)
Elise Barber (Neuroscience, BYU, 2005-2006)
Matthew Lassen (Neuroscience, BYU, 2005-2006)
Katie Bradley (Neuroscience, BYU, 2007-2009)
Michelle Nash (Psychology, BYU, 2007-2009)
JungJae Park (Psychology, BYU, 2008-2010)
Devin Taylor (Psychology, BYU, 2008-2011)
Abhishek Trikha (Neuroscience, BYU, 2007-2009)
Cory Everette (Neuroscience, BYU, 2010-2011)
Samuel Shin (Neuroscience, BYU, 2012-2014)
Jennifer Mabey (Neuroscience, BYU, 2013-2014)
Ryan Folsom (Neuroscience, BYU, 2013-2014)
Ashley Nelson (Neuroscience, BYU, 2015-2016)
Stephanie Pistorius (Neuroscience, BYU, 2015-2017)
Stephanie Bair (Neuroscience, BYU, 2016-2018)
Travis Clark (Neuroscience, BYU, 2017-2018)
Elizabeth Anderson (Neuroscience, BYU, 2019-present)

Doctorates

Dave Allison (Neuroscience, BYU, 2006-2010)
JoAnn Petrie (Psychology, BYU, 2008-2012)
Nathan Schilaty (Neuroscience, BYU, 2011-2015)
David Hedges (Chemistry, BYU, 2012-2016)
Kent Stephens (Neuroscience, BYU, 2014)
Daniel Obray (Psychology, BYU, 2015-present)
Andrew Payne (Neuroscience, BYU, 2015-present)
Kyle Bills (Neuroscience, BYU, 2016-2019)
Joakim Ronstrom (Neuroscience, BYU, 2019-present)

Research Associates/Technicians/Employees

Elliott Brown (2002)
Sarah Stobbs (2001-2006)
David Allison (2004-2010)
Allison Ohran (2005)
Matthew Lassen (2006)
Micah Hansen (2008-2010)
JD Wilcox (2010)
Rebecca Wilcox (2010-2011)
Ryan Folsom (2013)
Samuel Shin (2014)
Andy Perez (2014-2015)
Bryan Blumell (2014-2015)
Chris Schow (2015-2016)
Gilbert Marchant (2016)
Christopher Finuf (2016-2017)
Spencer McCarthy (2017)
Mark Woodbury (2017)
Stephanie Williams (2018)
Mandy Nelson (2019)

Community service

Member, Metropolitan Water Board, 2017-2020

Utah State Science Fair Judge CUSEF 2002-2014

2009-2010 Grantee for Provo City Neighborhood Matching Grant to improve neighborhoods ($10K).

2011-2016: BYU Education Week Addiction Symposium (Role: Organizer and Speaker)