CURRICULUM VITAE

STEVEN C. LEISER, PH.D.

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Senior Director, Translational EEG

April 2017- Present: PsychoGenics, Paramus, NJ.

- Oversee all activity and data management of translational rodent EEG/ERP lab

Head of Translational Sciences

Jan. 2016- March 2017: Luc Therapeutics, Cambridge, MA.

- Implement translational science plan to utilize EEG/mismatch negativity (MMN) in advancing small molecules through discovery
- Oversee all activity and data management of translational rodent EEG/MMN lab
- Communication with external partners and coordinate work at multiple contract research organizations (CRO).

Consultant, Founder

Jan. 2016-Present: Bolt Translational Sciences, Valley Cottage, NY.

- Consult clients on setting up labs, analysis, data interpretation; focused on establishing EEG and ERP endpoints in animal models.

Senior Research Scientist

Oct. 2010-Dec 2015: Lundbeck Research USA, Paramus, NJ.

- Translational team champion – provide expertise on clinical study endpoints from preclinical findings and back-translate clinical EEG/ERP data into animal studies
- Head of translational rodent EEG lab
- Epilepsy lead for project team in Neuroinflammation
- Biology Team member for Glutamate targets
- 2 Direct Reports
- Communication with external partners, contract research (CRO), and global line functions

Senior Scientist

Sept. 2009-Oct. 2010: AstraZeneca Pharmaceuticals, Wilmington, DE.

- Established translational biomarker strategy (EEG/ERP) for late-stage Schizophrenia and Alzheimer's disease (AD) therapeutics
- 1 direct report
- Head of translational rodent electrophysiological lab (P300 ERP & EEG)

Senior Research Scientist

April 2007- Sept. 2009: Wyeth Research, Princeton, NJ.

- Established multiple *in vivo* electrophysiological platforms in unanesthetized rats and mice to utilize translatable preclinical biomarkers to advance drug discovery
- Liaised with Translational Medicine to provide decision-critical clinical biomarkers as well as backwards-translate clinical endpoints into rodent models and initiated cross-species *in vivo* models with collaborations
- Trained technicians on fundamental concepts of EEG, systems operations, data analysis, and surgeries
- Integrated with Neurodegeneration, Psychiatry (Schizophrenia and Depression), and Pain Departments

Postdoctoral fellow

2005-2007: University of Pennsylvania & Children's Hospital of Philadelphia, Philadelphia, PA.
Laboratory of Rita J. Valentino, Ph.D., Director, Center for Stress Neurobiology.

- Studied effects of stress-related neuropeptides (CRF) and drugs of abuse on sensory information processing and sensory response dysregulation, paralleling symptoms in autism, stress, and substance abuse.
- Received the National Alliance for Autism Research Postdoctoral Fellowship.

Ph.D. Neuroscience

1998-2005: Drexel University College of Medicine, Philadelphia, PA.
Neuroengineering Laboratory of Karen A. Moxon, Ph.D.

- Studied how the brain decodes sensory information with an emphasis on using these signals to advance neurotechnologies (brain-computer interface devices).
- Co-started the Neuroengineering Laboratory and degree program at Drexel University.

B.S. Biology

1994-1998: East Stroudsburg University, East Stroudsburg, PA.

- Pre-Medicine; Comparative Animal & Human Anatomy & Physiology

Additional Experience & Service

- From Scientist to CSO: A Business and Industry Prep Course, NYAS, 2011.
- Drug Development & Team Leader Training, Rider Applied Leadership Institute, 2009.
- Neural Signal Processing, SFN short course, Washington, DC. 2008.
- Statistical Analysis of Neuronal Data. Pittsburgh Supercomputing Center (PSC), Carnegie Mellon University, University of Pittsburgh, Pittsburgh, PA. May 2004.
- Advances in Neural Prosthetics. 28th Northeast Bioengineering Conference, April 2002.
- Scientific Management Course for Postdoctoral Fellows. Philadelphia Postdoctoral Consortium and AAAS/ScienceCareers.org, Philadelphia, October 2006.
- Brain Awareness Week, Philadelphia Chapter of Society for Neuroscience & Franklin Institute (2003-2006), Wyeth (2007-2008), Wyeth & Princeton University (2009).

Faculty Positions

- Adjunct Faculty: Rowan University, Glassboro, NJ: General Biology, Human Focus: Spring 2007 (15w)
- Adjunct Faculty: Camden County College, Blackwood, NJ: Anatomy & Physiology I: Spring 2006 (6 week), Fall 2006 (15 week), Anatomy & Physiology II: Spring 2007 (15 week).
- Adjunct Faculty: Dept. Liberal Studies, Harcum College, Bryn Mawr, PA: Anatomy & Physiology II: Summer 2006 (4 week) & Fall 2006 (13 week).
- Co-Instructor: Drexel University College of Medicine, Philadelphia, PA: Special Topics in Neurobiology, 2002-2005.

Publications

Cuddy LK, Prokopenko D, Cunningham EP, Brimberry R, Song P, Kirchner R, Chapman BA, Hofmann O, Hide W, Procissi D, Hanania T, **Leiser SC**, Tanzi RE, Vassar R. Aβ-accelerated neurodegeneration caused by Alzheimer's-associated ACE variant R1279Q is rescued by angiotensin system inhibition in mice. Sci Transl Med. 2020 Sep 30;12(563):eaaz2541. doi: 10.1126/scitranslmed.aaz2541.

Theilmann W, Gericke B, Schidlitzki A, Muneeb Anjum SM, Borsdorf S, Harries T, Roberds SL, Aguiar DJ, Brunner D, **Leiser SC**, Song D, Fabbro D, Hillmann P, Wymann MP, Löscher W. Novel brain permeant mTORC1/2 inhibitors are as efficacious as rapamycin or everolimus in mouse models of acquired partial epilepsy and tuberous sclerosis complex. Neuropharmacology. 2020 Dec 1;180:108297. doi: 10.1016/j.neuropharm.2020.108297.

Han Z, Chen C, Christiansen A, Ji S, Lin Q, Anumonwo C, Liu C, **Leiser SC**, Meena, Aznarez I, Liau G, Isom LL. Antisense oligonucleotides increase Scn1a expression and reduce seizures and SUDEP incidence in a mouse model of Dravet syndrome. Sci Transl Med. 2020 Aug 26;12(558):eaaz6100. doi: 10.1126/scitranslmed.aaz6100.

Laursen B, Bundgaard CH, Graversen C, Grupe M, Sanchez C, **Leiser SC**, Sorensen HBD, Drewes AM, Bastlund JF. Acute dosing of vortioxetine strengthens event-related brain activity associated with engagement of attention and cognitive functioning in rats. Brain Res. 2017 Jun 1;1664:37-47

Amat-Foraster M, **Leiser SC**, Herrik KF, Richard N, Agerskov C, Bundgaard C, Bastlund JF, de Jong IE. The 5-HT6 receptor antagonist idalopirdine potentiates the effects of donepezil on gamma oscillations in the frontal cortex of anesthetized and awake rats without affecting sleep-wake architecture. Neuropharmacology. 2016 Sep 16;113(Pt A):45-59.

Dale E, Pehrson AL, Jeyarajah T, Li Y, **Leiser SC**, Smagin G, Olsen CK, Sanchez C. Effects of serotonin in the hippocampus: how SSRIs and multimodal antidepressants might regulate pyramidal cell function. CNS Spectr. 2016 Apr;21(2):143-61.

Leiser SC, Iglesias-Bregna D, Westrich L, Pehrson AL, Sanchez C. Differentiated effects of the multimodal antidepressant vortioxetine on sleep architecture: Part 2, pharmacological interactions in rodents suggest a role of serotonin-3 receptor antagonism. J Psychopharmacology. DOI: 10.1177/0269881115592347

Companion paper: Wilson SJ, Højer AM, Buchbjerg J, Areberg J, Nutt DJ. Differentiated effects of the multimodal antidepressant vortioxetine on sleep architecture: Part 1, a pharmacokinetic/pharmacodynamic comparison with the SSRI paroxetine in healthy men. J Psychopharmacology

Leiser SC, Li Y, Pehrson AL, Dale E, Smagin G, Sanchez C. Serotonergic regulation of prefrontal cortical circuitries involved in cognitive processing: A review of individual 5-HT receptor mechanisms and concerted effects of 5-HT receptors exemplified by the multimodal antidepressant vortioxetine. ACS Chem Neurosci. 2015 Mar 6.

Leiser SC, Pehrson AL, Robichaud PJ, Sanchez C. Multimodal antidepressant vortioxetine increases frontal cortical oscillations unlike escitalopram and duloxetine - a quantitative electroencephalographic study in the rat. Br J Pharmacol. 2014 Sep;171(18):4255-72.

Pehrson AL, **Leiser SC**, Gulinello M, Dale E, Li Y, Waller JA, Sanchez C. Treatment of cognitive dysfunction in major depressive disorder-a review of the preclinical evidence for efficacy of selective serotonin reuptake inhibitors, serotonin-norepinephrine reuptake inhibitors and the multimodal-acting antidepressant vortioxetine. Eur J Pharmacol. 2014 Aug 5. pii: S0014-2999(14)00582-2.

Dale E, Zhang H, **Leiser SC**, Xiao Y, Lu D, Yang CR, Plath N, Sanchez C. Vortioxetine disinhibits pyramidal cell function and enhances synaptic plasticity in the rat hippocampus. J Psychopharmacol. 2014 Oct;28(10):891-902.

Wilson FJ, **Leiser SC**, Ivarsson M, Christensen SR, Bastlund JF. Can pharmaco-electroencephalography help improve survival of central nervous system drugs in early clinical development? Drug Discov Today. 2014 Mar;19(3):282-8.

Corbett BF, **Leiser SC**, Ling HP, Nagy R, Breysse N, Zhang X, Hazra A, Brown JT, Randall AD, Wood A, Pangalos MN, Reinhart PH, Chin J. Sodium channel cleavage is associated with aberrant neuronal activity and cognitive deficits in a mouse model of Alzheimer's disease. J Neurosci. 2013 Apr 17;33(16):7020-6.

Sanchez C, Pehrson AL, Betry C, David D, Li Y, Gulinello M, **Leiser SC**, Haddjeri N. Vortioxetine (Lu AA21004), an investigational multimodal antidepressant: Differentiation from currently used antidepressants in preclinical rodent models. Biological Psychiatry 01/2013; 73(9):331.

Sanchez C, Robichaud PJ, Pehrson A, **Leiser SC**. The effects of the multimodal antidepressant Lu AA21004 on attention and vigilance measured as EEG activity in the rat. Eur Neuropsychopharmacology 10/2012; 22(Supplement 2):S243-4.

Mørk A., Pehrson AL, Betry C, David D, Li Y, Gulinello M, **Leiser SC**, Haddjeri N, Sánchez C. Vortioxetine (Lu AA21004), a multimodal antidepressant: differentiation from current antidepressants in animal models of depression. Eur Neuropsychopharmacology 10/2013; 23:S392-S393.

Featherstone RE, Phillips JM, Thieu T, Ehrlichman RS, Halene TB, **Leiser SC**, Christian E, Johnson E, Lerman C, Siegel SJ. Nicotine receptor subtype-specific effects on auditory evoked oscillations and potentials. PLoS One. 2012;7(7):e39775.

Leiser SC. ERPs for animal models of Alzheimer's disease. Alzheimer's & Dementia 8(4):P726, 2012.

Curtis AL, **Leiser SC**, Snyder K, Valentino RJ. Predator stress engages corticotropin-releasing factor and opioid systems to alter the operating mode of locus coeruleus norepinephrine neurons. Neuropharmacology. 2012 Mar;62(4):1737-45.

Leiser SC, Dunlop J, Bowlby MR, Devilbiss DM. Aligning strategies for using EEG as a surrogate biomarker: a review of preclinical and clinical research. Biochem Pharmacol., 81(12):1408-21, 2011.

Brown JT, Chin J, **Leiser SC**, Pangalos MN, Randall AD. Altered intrinsic neuronal excitability and reduced Na(+) currents in a mouse model of Alzheimer's disease. Neurobiol Aging., 32(11):2109.e1-2109.e14, 2011.

Marquis KL, Comery TA, Navarra RL, **Leiser S**, Grauer SM, Pulicicchio C, Kelley C, Roncarati R, Scali C, Haydar S, Ghiron C, Harrison B. Characterization of the alpha-7 nicotinic receptor agonist WYE103914 in models relevant to schizophrenia and interaction with antipsychotics. Biochemical Pharmacology 10/2009; 78(7):911-911.

Leiser SC, Bowlby M, Comery T, Dunlop J. A Cog in Cognition: How the α7 nicotinic acetylcholine receptor is geared towards improving cognitive deficits. Pharmacol Ther., 122(3):302-11, 2009. Editorial Focus: Papers of the Week, *Alzforum* (www.alzforum.org).

Reinhart P, **Leiser SC**, Ling HP, Brown J, Comery T, Pangalos M, Randall A, Wood A, Bowlby M, Chin J. Cellular mechanisms underlying aberrant EEG activity and cognitive deficits in mouse models of Alzheimer's disease. Alzheimer's and Dementia 07/2009; 5(4).

Rickenbacher, E. Baez MA. Hale L. **Leiser SC**. Zderic SA. Valentino RJ. Impact of Overactive Bladder on the Brain: Central Sequelae of a Visceral Pathology. Proceedings of the National Academy of Sciences U S A. (PNAS). 105(30):10589-94, 2008.

Leiser SC and Moxon KA. Responses of Trigeminal Ganglion Neurons during Natural Whisking Behaviors in the Awake Rat. Neuron. 53:117-133, 2007.

Kiddoo DA. Valentino RJ. Zderic S. Ganesh A. **Leiser SC**. Hale LL. Grigoriadis DE. Impact of the State of Arousal and Stress Neuropeptides on Urodynamic Function in the Freely Moving Rat. Am J Physiol Regul Integr Comp Physiol. 290(6):R1697-R1706, 2006.

Leiser SC and Moxon KA. Relationship between somatotopy, receptive fields, and response type of neurons within the rat trigeminal ganglion. J Neurophysiol. 95(5):3129-45, 2006.
Editorial Focus: Szwed and Ahissar. Mapping the gates. J Neurophys. 95(5):2729-30.

Moxon KA. **Leiser SC**. Gerhardt GA. Barbee KA Chapin JK. Ceramic-based multisite electrode arrays for chronic single-neuron recording. IEEE Trans Biomed Eng. 51(4):647-56, 2004.

Foffani G, Tutunculer B, **Leiser SC**, Moxon KA. Decoding sensory stimuli from populations of neurons: methods for long-term longitudinal studies. *In* Handbook of Neural Engineering, ed. Metin Akay, John Wiley & Sons, Inc., Series: IEEE Press Series on Biomedical Engineering, #21, ISBN: 047005669X, Pub. Date: December 22, 2006.