

ALLAN-HERMANN POOL

Contact Information

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Education

Ph.D. in Neuroscience: 2013: University of California, Berkeley

M.Sc. in Neurobiology 2007: University of Kuopio (now University of Eastern Finland)

B.Sc. in Gene Technology 2005: Tallinn University of Technology

Positions

2021 – Present: University of Texas Southwestern Medical Center, TX, USA

Assistant Professor of Neuroscience, Department of Neuroscience, Peter O'Donnell Jr. Brain Institute, Department of Anesthesiology and Pain Management (www.thepoolab.org)

7/1/2015 – 2021: California Institute of Technology, California, USA

Postdoctoral scholar (Mentor: Prof. Yuki Oka)

Dissection and engineering of innate behavioral circuits in the mammalian brain

7/1/2008 – 7/2/2014: Helen Wills Institute for Neuroscience, University of California, Berkeley, California, USA

PhD candidate/Researcher (Mentor: Prof. Kristin Scott)

Molecular genetic dissection of feeding circuits in *Drosophila melanogaster*

2005 – 2007: Laboratory of Epilepsy Research, A.I. Virtanen Institute for Molecular Sciences, University of Kuopio, Neulaniementie 2, Kuopio, Finland

Junior research associate (Mentor: Prof. Asla Pitkänen)

Hippocampal NPY gene therapy as a seizure suppression strategy in rat models of acquired epilepsy

2004 – 2005: Celecure Biotechnologies, Akadeemia tee 15, Tallinn, Estonia

BSc student / Junior research associate

Elucidation of the interaction partners of the human Alpha-fetoprotein and the underlying signal transduction pathways in cancer progression

Scholarships, Honors and Awards

Eugene McDermott Endowed Scholar 2021-2025

European Research Council Starting Grant 2021 (1.65 mm EUR, declined)

Estonia's National Prize for Science Writing (Estonia's Ministry of Education) 2016

UC Berkeley Outstanding Graduate Student Instructor Award 2012

Boehringer-Ingelheim Fonds PhD Fellowship 2010 – 2012

Fulbright Science and Technology Award PhD Fellowship 2007-2009

Estonian Student Fund Award 2007/2008

Estonian Revelia Academic Fund Scholarship 2005, 2006

Estonian Student Fund Award 2004

Tallinn University of Technology Fund of Development Scholarship for Academic and Research endeavors 2003

Selected Publications

Pool AH, Poldsam H, Chen S, Thomson, M. Oka, Y. (2023) Recovery of missing single-cell RNA-sequencing data with optimized transcriptomic references. *NATURE METHODS* (in press)

Jovanovic P. **Pool AH**, Morones N, Wang Y, Novinbakht E, Keshishian N, Jang K, Oka Y, Riera CE. (2023) A Sex-Specific Thermogenic Neurocircuit Induced By Predator Smell Recruiting Cholecystinin Neurons In The Dorsomedial Hypothalamus. *NATURE COMMUNICATIONS* (in press)

Ichiki T, Wang T, Kennedy A, **Pool AH**, Ebisu H, Anderson DJ, Oka Y. (2022) Representation and sensing mechanisms of gut osmolality in the peripheral sensory ganglia. *NATURE*. 602: 468-474.

Pool AH, Wang T, Stafford D, Chance R, Lee S, Ngai J, Oka Y. (2020) Cellular basis of distinct thirst modalities. *NATURE* 588: 112–117

Kim D-W, Yao Z, Graybuck LT, Kim TK, Nguyen TN, Smith KA, Fong O, Yi L, Koulena N, Pierson N, Shah S, Lo L, **Pool AH**, Oka Y, Pachter L, Cai L, Tasic B, Zeng H, Anderson DJ. (2019) Multimodal analysis of cell types in a hypothalamic node controlling social behavior. *CELL* 179: 713-728. e17

Toomsoo, T, Liepelt-Scarfone I, Berg D, Kerner R, **Pool AH**, Kadastik-Eerme L, Rubanovits I, Asser T, Taba P. (2019) Effect of Age on Substantia Nigra Hyper-echogenicity in Parkinson's Disease Patients and Healthy Controls. *ULTRASOUND IN MEDICINE & BIOLOGY* 45 (1), 122-128

Pool AH, Kvello P, Mann K, Cheung DK, Gordon MD, Wang L, Scott K. (2014) Four GABAergic Interneurons Impose Feeding Restraint in Drosophila. *NEURON* 83: 164–177

Pool AH, Scott, K. (2014) Feeding regulation in Drosophila. *CURR. OPIN. NEUROBIOL.* 29:57–63

Noè F, **Pool AH**, Nissinen J, Gobbi M, Bland R, Rizzi M, Balducci C, Ferraguti F, Sperk G, During MJ, Pitkänen A, Vezzani A. (2008) Human neuropeptide Y gene transfer and peptide expression result in suppression of spontaneous seizures in a rat model of human temporal lobe epilepsy. *BRAIN* Jun;131:1506-15

Opinion, Preview and Preprint Manuscripts

Pool AH, Poldsam H., Chen S, Thomson M, Oka Y. Enhanced recovery of single-cell RNA-sequencing reads for missing gene expression data. *BIORXIV*. 2022.

Wang T, **Pool AH**, Oka Y. (2022) Serotonergic fast lane from taste detection to preparatory digestive actions. *NEURON* 110: 907-909

Ahmed, MA*, Behbahani, AH*; Brückner A*; Charpentier CJ*, Morais, LH*, Mallory S*, **Pool AH*** (*equal contribution). The precarious position of postdocs during COVID-19. *SCIENCE*. 2020. 368 (6494), 957-958

Ahmed, MA*, Behbahani, AH*; Brückner A*; Charpentier CJ*, Morais, LH*, Mallory S*, **Pool AH*** (*equal contribution). US visa changes leave postdocs like us in limbo. *NATURE*. 2020. 583 (7815), Art. No. 202

Patents

U.S. Patent CIT-8249, "Methods and compositions for in vivo gene editing based cell-type specific cellular engineering", issued 7/18/2023.

Conference Presentations and Invited Talks

2023 May, Invited speaker. University of Texas at Dallas. Dallas, Texas, USA. “High-throughput mapping of the Cellular Repertoire Mediating Pain and Homeostatic States”

2022 July. Invited speaker. 10x Genomics Data Talk. “Recovering the hidden transcriptome in scRNA-seq data”. Online.

2022 April. Invited speaker at 11th Annual Gulf Coast Consortia Translational Pain Conference. Houston, TX. Talk: Pain and Analgesia State-to-Cell-Type Mapping.

2022 March. Invited speaker at Cincinnati Children’s Hospital Medical Center, Cincinnati, OH. Talk: Mapping the cellular basis of biological motivations: dissection of thirst and pain

2022 March. Invited speaker at the Bio- and Translational Medicine Institute, Tartu, Estonia. Talk: Mapping the cellular basis of biological motivations: dissection of thirst and pain

2022 January. Invited speaker at Cedars Sinai Medical Center, Los Angeles, CA. Talk: Mapping the cellular basis of biological motivations: dissection of thirst and pain

2021 February. Selected speaker. BrainExpo Seminar Series. Carnie Institute for Brain Science, Brown University, Providence, RI. Talk: Mapping and re-engineering neural circuits underlying biological motivations.

2021 Pool AH. Keynote speaker. University of Tartu Institute of Molecular and Cell Biology Annual Conference 2021, Tartu, Estonia. Talk: Mapping and re-engineering neural circuits underlying biological motivations

2020 September. Invited speaker at the Neuroscience Center, University of Helsinki, Helsinki, Finland. Talk: Mapping and re-engineering neural circuits underlying biological motivations.

2020 September. Invited speaker at the Department of Chemistry and Biotechnology at Tallinn University of Technology. Tallinn, Estonia. Talk: Mapping and re-engineering neural circuits underlying biological motivations.

2019 March. Invited speaker for the Chen Institute for Neuroscience Annual Retreat at University of California Los Angeles Lake Arrowhead Conference Center. CA, USA. Talk: Function cell-type mapping in the mammalian thirst system.

2018 November: Society for Neuroscience annual meeting, San Diego, CA, USA. Poster presentation: Functional annotation of molecular cell types in the mammalian thirst system

2018 September. Boehringer Ingelheim Fonds Fellows Meeting at Woods Hole MLB, MA, USA. Talk: Functional annotation of molecular cell types in the mammalian thirst system.

2018 June: Gordon Research Conference for Molecular Neuroscience, Hong Kong, China. Poster presentation: Functional annotation of molecular cell types in the mammalian thirst system

2014 October: Tallinn University of Technology, Tallinn, Estonia. Talk: Neural circuits for food intake regulation in *Drosophila melanogaster*

2014 October: Estonian Society for Human Genetics Annual Meeting 2014. Otepää, Estonia. Talk: Neural correlates of the feeding drive in *Drosophila melanogaster*

2012 November: Society for Neuroscience Annual Meeting. New Orleans, USA. Talk: Satiety regulation in the *Drosophila* brain

2012 April: HHMI investigator meeting at Janelia Farm, VA, USA. Poster presentation: Sensing satiety in the *Drosophila melanogaster* brain

2012 July: Federation of European Neuroscience Societies meeting. Barcelona, Spain. Poster presentation: Sensing satiety in the *Drosophila melanogaster* brain

Service, Teaching and Membership

2018-present: Ad hoc reviewer for multiple journals listed in alphabetical order: Bio-protocol, Current Biology, Elife, Molecular and Cellular Neuroscience, Translational Neuroscience.

2013-2020: Ad hoc co-reviewer for multiple journals including Cell, Elife, Nature Communications and Neuron.

2021-present: Ad hoc reviewer for the Experimental Biology study section for the Estonian Research Council (2021)

2019: Developed the curriculum and delivered a graduate lecture course “Neurobiology of Behavior” at Tallinn University of Technology

2015: Developed the curriculum and delivered a graduate lecture course “Neural Circuits Underlying Behavior” at Tallinn University of Technology

2011: Teaching Assistant for MCB160L Neuroscience Lab at UC Berkeley. Awarded Outstanding Graduate Student Instructor Award.

2010-present: supervision of 10 undergraduate and graduate student research projects (including NIH Bridges to Baccalaureate program, Amgen Scholars and Caltech SURF students)

2007 – Present: Member of the Society for Neuroscience (SfN)

2021 – Present: Member of the International Association for the Study of Pain (IASP)