

Curriculum Vitae

Dr. Stuart A. McCaughey

Education:

<u>Institution</u>	<u>Degree</u>	<u>Year</u>
University of Delaware	Ph. D. Psychology/ Neuroscience	1999
University of Delaware	M. A. Psychology	1995
Duke University	B. S. Psychology	1991

Positions and employment:

2018-present	Assistant Professor, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
2017-2018	Research Specialist, Department of Anatomy and Cell Biology, School of Dental Medicine, University of Pennsylvania
2008-2016	Assistant Professor, Indiana University School of Medicine (IUSM) – Muncie at Ball State University
2001-2008	Research Associate, Monell Chemical Senses Center
1998-2001	Post-doctoral Fellow, Monell Chemical Senses Center
1992	Research Assistant, University of Delaware

Honors and awards:

2009- present	Affiliated scientist, Monell Chemical Senses Center
1995	Recipient of a Graduate Fellowship from the University of Delaware
1993, 1994	Recipient of a Tuition Award from the University of Delaware

Teaching experience:

- 2023 Instructor for the courses Brain & Behavior, Advanced Neuropharmacology, Advanced Neuroanatomy, Neurological Disorders, Drugs and the Brain, and Psychological and Brain Science, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2022 Instructor for the courses Brain & Behavior, Advanced Neuropharmacology, Advanced Neuroanatomy, Neurological Disorders, Drugs and the Brain, and Psychological and Brain Science, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2021 Instructor for the courses Brain & Behavior, Advanced Neuropharmacology, Advanced Neuroanatomy, Neurological Disorders, and Psychological and Brain Science, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2020 Instructor for the courses Brain & Behavior, Advanced Neuroanatomy, Neurological Disorders, and Psychological and Brain Science, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2019 Instructor for the courses Brain & Behavior, Advanced Neuroanatomy, Neurological Disorders, Introduction to Neuroscience, and Psychological and Brain Science, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2018 Instructor for the courses Brain & Behavior and Introduction to Neuroscience, Department of Psychological and Brain Sciences, University of Delaware, Newark, DE
- 2009-2015 Course director and sole instructor of the course Neuroscience for first year medical students, IUSM-Muncie
- 1993, 1996-1998 Laboratory instructor for the course Introductory Biology, Department of Biology, University of Delaware, Newark, Delaware.
- 1995, 1997 Laboratory instructor of the graduate level course Neuroscience I (Neuroanatomy), Department of Psychology, University of Delaware, Newark, Delaware.
- 1992-1993, Teaching assistant for the courses Brain and Behavior, Learning and

1995 Motivation, and Sensation and Perception; Department of Psychology, University of Delaware, Newark, Delaware.

Students mentored in research at Ball State University:

2015-2016 Justin Knox, undergraduate in the Chemistry department
2013-2016 Jacob Price, undergraduate in the Biology department
2013-2014 Geoffrey Hutchinson, undergraduate in the Chemistry department
2011-2014 Rachel Dana, undergraduate in the Biology department
2013 Nicholas Yonts, graduate student in Physiology and Health Sciences
2010-2012 Lisa Payton-Webber, undergraduate in the Biology department
2009-2011 Chandra Cherukuri, graduate student in Physiology and Health Sciences
2009-2011 Nathan Roach, undergraduate in the Chemistry department

Students mentored in research as part of the Monell Center's summer program for high school and college students:

2001, 2004 Marena Tynan La Fontaine; Masterman High School, Stanford University
2003 Hadiza Kazoure, Temple University
2000 Shawndra Woodward, Temple University

Research training:

2017-2018 Cell culture; immunocytochemistry; calcium imaging; qPCR (related to neurodegenerative diseases of the retina). Supervisor: Dr. Claire Mitchell. Institution: University of Pennsylvania
1998-2008 Sham-drinking preparations; measuring whole-nerve chorda tympani activity in rat and mouse; electrolytic lesions; brain histology; c-fos immunohistochemistry; measuring single-unit activity in the mouse nucleus of the solitary tract; taste

reactivity; measuring whole-nerve trigeminal activity in rats; genotyping using PCR. Supervisor: Dr. Michael Tordoff. Institution: Monell Chemical Senses Center.

1992-1998 Measuring single-unit activity in rat nucleus of the solitary tract; stereotaxic surgery; long- and short-term intake tests; dietary manipulations in rats. Supervisor: Dr. Thomas Scott. Institution: University of Delaware.

1990-1991 Measuring whole-nerve chorda tympani activity in gerbil. Supervisor: Dr. Robert Erickson. Institution: Duke University.

Research funding:

2013-2014 PI on an Advance award from Ball State University

2010-2014 Role as a Consultant on an R01 award received from NIH by Michael Tordoff from the Monell Center (NIH R01 DC-010149)

2009-2014 Role as an Investigator on an R01 award received from NIH by Michael Tordoff from the Monell Center (NIH R01 DK-046791)

2003-2006 PI on grant R03 DC005929 (NIH), "Central gustatory electrophysiology in mice"

2004 PI on a grant from a Monell Center corporate sponsor

2001-2002 PI on grant F32 DK10134 (NIH), "Neural control of calcium intake"

Full-length peer-reviewed publications:

McCaughey SA. Variation in the gene *Tas1r3* reveals complex temporal properties of mouse brainstem taste responses to sweeteners. *Am J Physiol Regul Integr Comp Physiol.* 321(5): R751-R767, 2021.

McCaughey SA. Characterization of mouse chorda tympani responses evoked by stimulation of anterior or posterior fungiform taste papillae. *Neurosci Res* 141: 43-51, 2019.

Lu W, Gómez NM, Lim JC, Guha S, O'Brien-Jenkins A, Coffey EE, Campagno KE, **McCaughey SA**, Laties AM, Carlsson LG, Mitchell CH. The P2Y₁₂ receptor antagonist ticagrelor reduces lysosomal pH and autofluorescence in retinal pigmented epithelial cells from the ABCA4^{-/-} mouse model of retinal degeneration. *Front Pharmacol* 9: 242, 2018.

Albalawi F, Lu W, Beckel JM, Lim JC, **McCaughey SA**, Mitchell CH. The P2X7 receptor primes IL-1 β and the NLRP3 inflammasome in astrocytes exposed to mechanical strain. *Front Cell Neurosci* 11: 227, 2017.

Bachmanov AA, Bosak NP, Glendinning JI, Inoue M, Li X, Manita S, **McCaughey SA**, Murata Y, Reed DR, Tordoff MG, Beauchamp GK. Genetics of amino acid taste and appetite. *Adv Nutr* 7(4): 806S-22S, 2016.

Dana RM, **McCaughey SA**. Gustatory responses of the mouse chorda tympani nerve vary based on region of tongue stimulation. *Chem Senses* 40(5): 335-44, 2015.

Baird JP, Tordoff MG, and **McCaughey SA**. Bursting by taste-responsive cells in the rodent brainstem. *J Neurophys* 113(7): 2434-46, 2015.

Tordoff MG, Aleman TR, **McCaughey SA**. Heightened avidity for trisodium pyrophosphate in mice lacking *tas1r3*. *Chem Senses* 40(1): 53-9, 2015.

Tordoff MG, Ellis HT, Aleman TR, Downing A, Marambaud P, Foskett JK, Dana RM, **McCaughey SA**. Salty taste deficits in CALHM1 knockout mice. *Chem Senses* 39(6): 515-28, 2014.

McCaughey SA, Glendinning JI. Experience with sugar modifies behavioral but not taste-evoked medullary responses to sweeteners in mice. *Chem Senses* 38(9): 793-802, 2013.

Cherukuri CM, Bachmanov AA, **McCaughey SA**. A/J and C57BL/6J mice differ in chorda tympani responses to NaCl. *Neurosci Res* 75(4): 283-8, 2013.

Cherukuri CM, **McCaughey SA**, Tordoff MG. Comparison of differences between PWD/PhJ and C57BL/6J mice in calcium solution preferences and chorda tympani nerve responses. *Physiol Behav* 102(5): 496-502, 2011.

Tordoff MG, Shao H, Alarcón LK, Margolskee RF, Mosinger B, Bachmanov AA, Reed DR, **McCaughey S**. Involvement of T1R3 in calcium-magnesium taste. *Physiol Genom* 34(3): 33848, 2008.

McCaughey SA. The taste of sugars. *Neurosci Biobehav Rev* 32(5): 1024-43, 2008.

Guenther CJ, **McCaughey SA**, Tordoff MG, Baird JP. Licking for taste solutions by potassium-deprived rats: Specificity and mechanisms. *Physiol Behav* 93: 937-46, 2008.

McCaughey SA, Giza BK, Tordoff, MG. Taste and acceptance of pyrophosphates. *Am J Physiol* 292: R2159-67, 2007.

McCaughey SA. Taste-evoked responses to sweeteners in the nucleus of the solitary tract differ between C57BL/6ByJ and 129P3/J mice. *J Neurosci* 27: 35-45, 2007.

McCaughey SA, Forestell CA, Tordoff MG Calcium deprivation increases the palatability of calcium solutions in rats. *Physiol Behav* 84: 335-42, 2005.

McCaughey SA, Fitts DA, Tordoff MG. Lesions of the subfornical organ decrease the calcium appetite of calcium-deprived rats. *Physiol Behav* 79: 605-12, 2003.

McCaughey SA, Tordoff MG. Magnesium appetite in the rat. *Appetite* 38: 1-10, 2002.

Inoue M, **McCaughey SA**, Bachmanov AA, Beauchamp GK. Whole-nerve chorda tympani responses to sweeteners in C57BL/6ByJ and 129P3/J mice. *Chem Senses* 26: 915-923, 2001.

Inoue M, Li X, **McCaughey SA**, Beauchamp GK., Bachmanov AA. Soa genotype selectively affects mouse gustatory neural responses to sucrose octaacetate. *Physiol Genom* 5: 181-186, 2001.

McCaughey SA, Tordoff MG. Calcium deprivation alters gustatory-evoked activity in the rat nucleus of the solitary tract. *Am J Physiol* 281: R971-R978, 2001.

Tordoff MG, **McCaughey SA.** Influence of oral and gastric NaCl preloads on NaCl intake and gastric emptying of sodium-deficient rats. *Am J Physiol* 281: R1152-R1160, 2001.

McCaughey SA, Tordoff MG. Calcium-deprived rats sham-drink CaCl₂ and NaCl. *Appetite* 34: 305-311, 2000.

McCaughey, SA, Scott, TR. Rapid induction of sodium appetite modifies taste-evoked activity in the rat nucleus of the solitary tract. *Am J Physiol* 279: R1121-R1131, 2000.

McCaughey SA, Scott, TR. The taste of sodium. *Neurosci Biobehav Rev* 22: 663-676, 1998.

Giza BK, Ackroff K, **McCaughey SA**, Sclafani A, Scott, TR. Preference conditioning alters taste responses in the nucleus of the solitary tract of the rat. *Am J Physiol* 273: R1230-R1240, 1997.

McCaughey SA, Giza BK, Nolan LJ, Scott TR. Extinction of a conditioned taste aversion in rats: II. Neural effects in the nucleus of the solitary tract. *Physiol Behav* 61: 373-379, 1997.

Nolan LJ, **McCaughey SA**, Giza BK, Rhinehart-Doty JA, Smith JC, Scott TR. Extinction of a conditioned taste aversion in rats: I. Behavioral effects. *Physiol Behav* 61: 319-323, 1997.

McCaughey SA, Giza BK, Scott TR. Activity in rat nucleus tractus solitarius after recovery from sodium deprivation. *Physiol Behav* 60: 501-506, 1996.

Giza BK, **McCaughey SA**, Zhang L, Scott TR. Taste responses in the nucleus of the solitary tract in saccharin-preferring and saccharin-averse rats. *Chem Senses* 21: 147-157, 1996.

Book chapters:

McCaughey SA. Salt and Flavour: mechanisms of taste perception and physiological controls of intake. In "Reducing salt and other sodium sources in food products: practical strategies", D. Kilcast and F. Angus (eds), Cambridge: Woodhead Publishing (2007).

McCaughey SA. Salt and Flavour: mechanisms of taste perception and physiological controls of intake (revised version). In "Reducing salt in foods (second edition)", C. Beeren, K. Groves, and P. M. Titoria (eds), Cambridge: Woodhead Publishing (2019).

McCaughey, SA, Forestell CA, and Menella JA. Taste and Smell. In "Swaiman's Textbook of Pediatric Neurology, 7th edition", S. Ashwal and P. Pearl (eds). Elsevier (in preparation)

Membership in professional societies:

Association for Chemoreception Sciences, Society for Neuroscience, Society for the Study of Ingestive Behavior

Selected invited talks:

"Connecting the tongue to the brain: Embracing complexity in the taste system," Monell Chemical Senses Center, guest speaker series, 2018.

"The chemical senses: taste and smell," guest lecture for the course Intro to Neurosciences, School of Veterinary Medicine, University of Pennsylvania, 2017.

"Calcium-specific taste," Annual Meeting of the Association for Chemoreception Sciences, symposium on "Basic tastes: why five?", 2011.

"Pleasure and reward in feeding," Monell Chemical Senses Center, summer lecture series for students, 2007.

“Central gustatory responses: patterns across neurons and across time,” the John B. Pierce Laboratory seminar series, 2007.

"Measuring the firing rates of neurons," Monell Chemical Senses Center, summer lecture series for students, 2004.

"Mineral appetite in rats," Monell Chemical Senses Center, in-house seminar, 2003.

"The history of salt," Monell Chemical Senses Center, Food Selection seminar series, 2001.

"Taste-evoked responding in the rat nucleus of the solitary tract," University of Pennsylvania, Feeding Behavior seminar series, 1998.

Additional responsibilities and service:

- 2022-present Director of Undergraduate Recruitment, Department of Psychological and Brain Sciences, University of Delaware
- 2022-present Member, HPEC committee, University of Delaware
- 2018-present Neuroscience lab coordination duties for the Department of Psychological and Brain Sciences, University of Delaware
- 2020-2021 Member, Diversity, Equity, and Inclusion Committee, Department of Psychological and Brain Sciences, University of Delaware
- 2015-2016 Site Director in charge of Neuroscience curricular reform for the Muncie campus of the Indiana University School of Medicine
- 2010-2012 Co-director or lecturer, Muncie Brain Bee short course in neuroscience
- 2006-2008 Member, Safety Committee, Monell Center
- 2006-2007 Co-organizer, Food Selection Discussion Group seminar series, Monell Center
- 2005-2008 Project Manager for multi-scientist consortium, Monell Center

Ad hoc reviewer for: Appetite, Journal of Neurophysiology, American Journal of Physiology, Physiology and Behavior, Chemical Senses, Brain Research Bulletin, BMC Neuroscience, Flavour and Fragrance Journal, Journal of Neurophysiology, and Journal of Membrane Biology.