

CURRICULUM VITAE

NAME: Robert Edward Stewart

PLACE OF BIRTH: Summit, New Jersey

CITIZENSHIP: United States of America

PROFESSIONAL ADDRESS:

Department of Psychology
Washington and Lee University
Lexington, VA 24450
United States
TEL: (540) 458-8837
FAX: (540) 458-8047
email: rstewart@wlu.edu

EDUCATION:

- 1994-1996 Postdoctoral Fellowship in Membrane Biology
John A. DeSimone, preceptor
Departments of Physiology and Biophysics; and Hematology/Oncology
Medical College of Virginia/Virginia Commonwealth University
- 1994 Ph.D. Neuroscience
University of Virginia
Charlottesville, Virginia
Dissertation Title: *Studies of Altered Gustatory Function in Na⁺-Restricted Rats*
- 1987 B.A. Psychology
University of Virginia
Charlottesville, Virginia

HONORS AND AWARDS:

- **Who's Who Among America's Teachers; 2000, 2004, 2005**
- **Membrane Biology Training Program** (Postdoctoral Fellow) at the Medical College of Virginia/Virginia Commonwealth University, 1994-1996 , Dr. I. David Goldman, Director.
- Neurobiological and Behavioral Development Training Program** (Predoctoral Trainee) at the University of Virginia, 1989-1992, Dr. Sally A. Moody, Director.

TEACHING EXPERIENCE AND APPOINTMENTS:

- 2004-date: Department Head
Department of Psychology
Washington and Lee University
- 2003-date: **Associate Professor of Psychology and Faculty in Neuroscience**
Department of Psychology
Washington and Lee University
- 1997-2003: **Assistant Professor of Psychology and Faculty in Neuroscience**
Department of Psychology

Washington and Lee University

1996, 1997: *Washington and Lee University Summer Scholars Program, Brain and Behavioral Sciences Curriculum.*

COURSES TAUGHT:

PSYC 111: *Brain and Behavior*
 PSYC 120: *Quantitative Literacy in the Behavioral Sciences*
 PSYC 150: *Psychoactive Drugs and Behavior*
 PSYC 202: *Theories of Personality*
 PSYC 240: *Adult Development and Aging*
 PSYC 253: *Neural Mechanisms of Motivated Behaviors*
 PSYC 258: *Neural Mechanisms of Sensory and Motor Processes*
 PSYC 353: *Directed Research in Physiological Psychology*
 PSYC 431A: *Laboratory in Brain and Behavior*
 NEURO 120: *Introduction to Neuroscience*
 PSYC/NEURO 395: *Special Topics in Psychology/Neuroscience* (3 credit hour courses, including *Chemical Senses, The Neuronal Membrane, and Motor Degenerative Diseases*)

RESEARCH EXPERIENCE AND APPOINTMENTS:

2003-2004: Visiting Senior Research Fellow
 Department of Psychology
 University of Virginia
Research Topics: Molecular aspects of bitter taste development in hamster; lingual and palatal taste nerve terminal field development in hamster nucleus tractus solitarius

1997-1998 Research Assistant Professor
 Department of Psychology
 University of Virginia
Research Topic: Development and regulation of amiloride-sensitive Na⁺ channel function in the rat gustatory system. Peripheral mechanisms of taste mixture interaction and the role of mixture interactions in primary taste coding in hamster.

1996-1997 Research Associate
 Department of Psychology
 University of Virginia
Research Topic: Development and regulation of amiloride-sensitive Na⁺ channel function in the rat and hamster gustatory systems. Peripheral mechanisms of taste mixture interaction; and the role of mixture interactions in primary taste coding in the rat and hamster.

1994-1996 Post-Doctoral Research Fellow
 Laboratory of Dr. John A. DeSimone
 Department of Physiology and Biophysics
 Medical College of Virginia/Virginia Commonwealth University
Research Topic: Topological characterization of taste transduction pathways and pathway interactions.

1987-1988 Laboratory Technician II
 Laboratory of Dr. Richard C. McCarty
 Department of Psychology
 University of Virginia
Research Topic: Sympathetic-adrenal-medullary responses to chronic intermittent stress; development of hypertension in genetically susceptible rat strains; and role of atrial natriuretic peptide in the development and maintenance of hypertension.

PROGRAMMATIC RESEARCH SUPPORT:

5/1/00-4/30/02:

National Institutes of Health, National Institute on Deafness and Other Communication Disorders:
'Gustatory Sodium and Potassium Sensing in Hamster.' (R15-DC04271)

Direct Costs: \$100,000

R.E. Stewart, Principal Investigator

8/1/97-7/30/99:

National Institutes of Health, Institute on Deafness and Other Communication Disorders: 'Comparative Development of Gustatory Sodium Sensing.' (R03-DC03499)

Direct costs: \$70,000

R.E. Stewart, Principal Investigator.

OTHER EXTRAMURAL SUPPORT:

9/1/03-8/31/04:

National Institutes of Health, National Institute on Deafness and Other Communication Disorders: 'Molecular Studies of Taste Development.' (Kirchstein National Research Service Award Senior Fellowship; F33 DC006541)

Direct costs: \$60,000

R. E. Stewart, Fellow

PROFESSIONAL ACTIVITIES:

Memberships:

- Association for Chemoreception Sciences, since 1990.
- Society for Neuroscience, since 1997.
- Council on Undergraduate Research, since 1999
- American Association for the Advancement of Science, since 2000

Institutional service/committee work:

- Member, *Washington and Lee Institutional Animal Care and Use Committee*, 1999-2003.
- Member, *Graduate Fellowships Committee*, Washington and Lee University, 1998-2002.
- Member, *Neuroscience Program Committee*, Washington and Lee University, 1997-present.
- Institutional liaison: *Council on Undergraduate Research* (2001-2002)
- Institutional representative: *Associated Colleges of the South, Alliance on Faculty Development* (2001-2002)
- Institutional representative: *Barry M. Goldwater Scholarship and Excellence in Education Program* (2002-2003)
- Student Representative, *Executive Committee of the Neuroscience Graduate Program*, University of Virginia, 1991-1992.

Professional Service/Editorial/Review Work:

- Ad hoc panelist: *National Institutes of Health-National Institute on Deafness and Other Communication Disorders*, Special Emphasis Panel, ZDC-1
- Ad hoc reviewer: *National Science Foundation, Integrative Biology and Neuroscience*.
- Ad hoc reviewer: *The American Journal of Physiology: Regulatory, Integrative and Comparative Physiology*
- Ad hoc reviewer: *Chemical Senses*

PROFESSIONAL PRESENTATIONS:

1. XXVIIth Annual Meeting of the Association for Chemoreception Sciences. Extensive anatomical overlap of greater superficial petrosal (GSP) and IXth nerve terminal fields in hamster solitary nucleus (NTS)*. Sarasota, FL, April 2005.
2. Science, Society and the Arts Research Conference. Greater superficial petrosal taste nerve terminal field in hamster solitary nucleus*. Lexington, VA, November 2004
3. 34th Annual Meeting of the Society for Neuroscience. Greater superficial petrosal nerve terminal field in hamster nucleus tractus solitarius. San Diego, CA, October, 2004.

4. XXVth Annual Meeting of the Association for Chemoreception Sciences. Voltage sensitivity of hamster chorda tympani sodium responses*. Sarasota, FL, April 2003.
5. XXVth Annual Meeting of the Association for Chemoreception Sciences. Hamster chorda tympani responses to potassium are voltage-sensitive*. Sarasota, FL, April 2003.
6. Center for Cellular, Molecular, and Chemical Biology, Virginia Military Institute. Gustatory Sensitivity to Sodium in Rat: Insights into Receptor Cell Physiological Development from Simultaneous Epithelial Voltage Clamp and Sensory Nerve Recordings. Lexington, VA, September 2002.
7. XXIIIth Annual Meeting of the Association for Chemoreception Sciences. Alpha-gustducin immunoreactivity in developing hamster taste buds. Sarasota, FL, April 2001.
8. Department of Neurobiology and Anatomy, Wake Forest University/Bowman Gray School of Medicine. Development of Gustatory Sodium Sensing in Rat: A Physicochemical Approach. Winston-Salem, NC, March 1999.
9. XIIIth Congress of the European Chemoreception Research Organisation. Rodent taste cell responses to pH and osmotic pressure. Siena, Italy, September 1998.
10. XXth Annual Meeting of the Association for Chemoreception Sciences. Changes in apical sodium channel number and efficiency contribute to Na⁺ taste response development in rat. Sarasota, FL, April 1998.
11. Department of Psychology, Connecticut College. Sour salt? Neurophysiological evidence against common pathway transduction of Na⁺ and H⁺ stimuli in the hamster anterior tongue. New London, CT, April 1998.
12. Department of Psychology and Program in Neuroscience, Allegheny College. Sour salt? Biophysical evidence against common pathway transduction of Na⁺ and H⁺ stimuli in the hamster taste system. Meadville, PA, January, 1997.
13. XVIIIth Annual Meeting of the Association for Chemoreception Sciences. Physicochemical studies of Na⁺ sensing in the hamster anterior tongue. Sarasota, FL, April, 1996.
14. Department of Oral Biology, Creighton University School of Dentistry. Peripheral taste-mixture interactions: implications for primary gustatory coding. Omaha, NE, February, 1996.
15. T.H. Morgan School of Biological Sciences, University of Kentucky. Development and maintenance of gustatory sodium sensing in the rat. Lexington, KY, November, 1995.
16. XVIIth Annual Meeting of the Association for Chemoreception Sciences. Field potential- and competition-mediated suppression of chorda tympani responses to mixtures of sodium and potassium salts. Sarasota, FL, April, 1995.
17. Department of Biology, James Madison University. Development and plasticity in the rat taste system. Harrisonburg, VA, March, 1995.
18. Program in Neuroscience Research Seminar Series, University of Virginia. Studies of altered gustatory function in sodium-restricted rats. Charlottesville, VA, April, 1994.
19. XVIth Annual Meeting of the Association for Chemoreception Sciences. Time-course of saline-induced recovery of the gustatory system in sodium-restricted rats. Sarasota, FL, April, 1994.
20. Department of Biology, University of Denver. Dietary influences on the developing rat gustatory system. Denver, November, 1992.
21. XIVth Annual Meeting of the Association for Chemoreception Sciences. Immunohistochemical evidence for the presence of amiloride-sensitive sodium channels in the taste buds of sodium-restricted rats. Sarasota, FL, April, 1992.

22. XIIIth Annual Meeting of the Association for Chemoreception Sciences. Localization of binding sites for epidermal growth factor (EGF) in taste buds of neonatal and adult rats. Sarasota, FL, April, 1991.
23. 20th Annual Meeting of the Society for Neuroscience. Localization of receptors for epidermal growth factor (EGF) in taste buds of neonatal rats: Effects of sodium restriction during development. St. Louis, November, 1990.
24. XIIth Annual Meeting of the Association for Chemoreception Sciences. Functional recovery of sodium responses in sodium deprived rats: Induction by anesthetics. Sarasota, FL, April, 1990.
25. 46th Annual Meeting of the Federation of American Societies for Experimental Biology. Binding sites for atrial natriuretic factor (ANF) in kidneys and adrenals of Dahl hypertension-sensitive rats. Washington, D.C., March, 1987.

PEER-REVIEWED PUBLICATIONS AND BOOK CHAPTERS:

1. Hendricks SJ, **RE Stewart**, GL Heck, JA DeSimone and DL Hill (2000). Development of rat chorda tympani sodium responses: Evidence for age-dependent changes in global amiloride-sensitive Na⁺ channel kinetics. *Journal of Neurophysiology* **84**: 1531-1544.
2. **Stewart RE**, V Lyall, GL Heck, GF Feldman, and JA DeSimone (1998). Acid-induced responses in hamster chorda tympani and intracellular pH (pH_i) tracking by taste receptor cells. *American Journal of Physiology* **275** (*Cell Physiology* **44**): C227-C238.
3. **Stewart RE**, JA DeSimone and DL Hill (1997). Invited Review. New perspectives in gustatory physiology: transduction, development, and plasticity. *American Journal of Physiology* **272** (*Cell Physiology* **41**): C1-C26.
4. **Stewart RE**, GL Heck and JA DeSimone (1996). Taste-mixture suppression: Functional dissection of cellular and paracellular origins. *Journal of Neurophysiology* **75**: 2124-2128.
5. **Stewart RE** and DL Hill (1996). Time-Course of Saline-Induced Recovery of the Gustatory System in Sodium-Restricted Rats. *American Journal of Physiology* **270**: R704-R712.
6. **Stewart RE**, PS Lasiter, DJ Benos and DL Hill (1995). Immunohistochemical correlates of peripheral gustatory sensitivity to Na⁺ and amiloride. *Acta Anatomica* **153**: 310-319.
7. Phillips LM, **RE Stewart** and DL Hill (1995). Cross-fostering between normal and sodium-restricted rats: Effects on peripheral taste function. *American Journal of Physiology* **269**: R603-R607.
8. Ye Q, **RE Stewart**, GL Heck, DL Hill and JA DeSimone (1993). Dietary Na⁺-restriction prevents development of functional Na⁺ channels in taste cell apical membranes: Proof by *in vivo* membrane voltage perturbation. *Journal of Neurophysiology* **70**: 1713-1716.
9. **Stewart RE**, RJ Parsons* and DL Hill (1993). Development of some early sensorimotor behaviors in sodium-restricted rats. *Physiology and Behavior* **53**: 813-822.
10. **Stewart RE**, H Tong, R McCarty and DL Hill (1993). Altered taste system development in Na⁺-restricted rats is not explained by decreased Na⁺ levels in mothers' milk. *Physiology and Behavior* **53**: 823-826.
11. **Stewart RE** and DL Hill (1993). The developing gustatory system: Functional, morphological and behavioral perspectives. In: *Mechanisms of Taste Perception*, SA Simon and SD Roper, eds. Boca Raton, FL: CRC Press, pp. 127-158 (Invited Chapter).
12. McCarty R, M Konarska and **RE Stewart** (1992). Adaptation to stress: A learned response? In: *Stress: Neuroendocrine and Molecular Approaches*, R Kvetnansky, R McCarty and J Axelrod, eds. New York: Gordon and Breach, pp. 521-535.

13. **Stewart RE** and R McCarty (1991). ANF systems and experimental hypertension. In: *Stress, Neuropeptides and Systemic Disease*, JA McCubbin, PG Kaufman and CB Nemeroff, eds. San Diego, CA: Academic Press, pp. 365-408 (Invited Chapter).
14. Konarska M, **RE Stewart** and R McCarty (1990). Habituation and sensitization of plasma catecholamine responses to chronic intermittent stress: Effects of stressor intensity. *Physiology and Behavior* **47**: 647-652.
15. Konarska M, **RE Stewart** and R McCarty (1990). Habituation of plasma catecholamine responses to chronic intermittent restraint stress. *Psychobiology* **18**: 30-34.
16. Konarska M, **RE Stewart** and R McCarty (1990). Predictability of chronic intermittent stress: Effects on sympathetic-adrenal medullary responses of laboratory rats. *Behavioral and Neural Biology* **53**: 231-243.
17. Konarska M, **RE Stewart** and R McCarty (1989). Sensitization of sympathetic-adrenal medullary responses to a novel stressor in chronically stressed laboratory rats. *Physiology and Behavior* **46**: 129-135.
18. Konarska M, **RE Stewart** and R McCarty (1989). Habituation of sympathetic-adrenal medullary responses following exposure to chronic intermittent stress. *Physiology and Behavior* **45**: 255-261.
19. Cierpial MA, DE Shasby, CA Murphy, AH Borom, **RE Stewart**, SE Swithers and R McCarty (1989). Development of open-field behavior in spontaneously hypertensive and Wistar-Kyoto normotensive rats: Effects of reciprocal cross-fostering. *Behavioral and Neural Biology* **51**: 203-210.
20. **Stewart RE**, SE Swithers, LM Plunkett and R McCarty (1988). ANF receptors: Distribution and regulation in central and peripheral tissues. *Neuroscience and Biobehavioral Reviews* **12**: 151-168.
21. **Stewart RE**, SE Swithers and R McCarty (1988). Brain binding sites for atrial natriuretic factor (ANF): Alterations in pre-hypertensive Dahl salt-sensitive (S/JR) rats. *Brain Research Bulletin* **20**: 1-8.
22. **Stewart RE**, SE Swithers and R McCarty (1987). Alterations in binding sites for atrial natriuretic factor in kidneys and adrenal glands of Dahl hypertensive rats. *Journal of Hypertension* **5**: 481-487.
23. Swithers SE, **RE Stewart** and R McCarty (1987). Binding sites for atrial natriuretic factor (ANF) in kidneys and adrenal glands of spontaneously hypertensive (SHR) rats. *Life Sciences* **40**: 1673-1681.

MANUSCRIPTS SUBMITTED AND IN PREPARATION:

24. Greene RE*, OF Russell*, RW Spatzer*, EP Proko*, JA DeSimone and **RE Stewart**. Size matters: Anion influences on hamster chorda tympani responses to sodium salts: insights from in vivo receptive field voltage clamp. Manuscript in preparation.
25. **Stewart RE**, H Tong and R McCarty. Aberrant taste system terminal fields in the nucleus of the solitary tract do not influence baroreceptor reflexes. Manuscript in preparation.

PUBLISHED ABSTRACTS:

1. **Stewart R**, M Chastain*, A Selby*, and J Stewart. Extensive anatomical overlap of greater superficial petrosal (GSP) and IXth nerve terminal fields in hamster solitary nucleus (NTS). *Chemical Senses* **30**.
2. **Stewart RE**, JS Stewart and DL Hill. Greater superficial petrosal nerve terminal field in hamster nucleus tractus solitarius. *Neuroscience Abstracts* **34**.
3. Proko E*, R Greene*, O Russell*, C Hatzis*, R Spatzer* and **R Stewart**. (2003). Voltage sensitivity of hamster chorda tympani sodium responses. *Chemical Senses* **28**.

4. Edgar B*, E Proko*, J Stewart and **R Stewart**. (2003). Hamster chorda tympani responses to potassium are voltage-sensitive *Chemical Senses*, **28**.
5. Pullen RN*, CH Hemmings*, NR Hoot* and **RE Stewart** (2001). Alpha-gustducin immunoreactivity in developing hamster taste buds. *Chemical Senses* **26**: 1075.
6. DeSimone JA, V Lyall, **RE Stewart**, GL Heck, and GM Feldman (1999). Rodent taste cell responses to pH and osmotic pressure. *Chemical Senses* **24**: 61.
7. Hendricks SJ, **RE Stewart**, GL Heck, JA DeSimone and DL Hill (1998). Changes in apical sodium channel number and efficiency contribute to Na⁺ taste response development in rat. *Chemical Senses* **23**, 617.
8. **Stewart RE**, SJ Hendricks, GL Heck, JA DeSimone and DL Hill (1997). Chorda tympani taste response development under voltage clamp. *Neuroscience Abstracts* **24**: 1991.
9. **Stewart RE**, GL Heck and JA DeSimone (1996). Physicochemical studies of Na⁺ sensing in the hamster anterior tongue. *Chemical Senses* **21**, 677.
10. **Stewart RE**, GL Heck and JA DeSimone (1995). Field potential- and competition-mediated suppression of chorda tympani responses to mixtures of sodium and potassium salts. *Chemical Senses* **20**, 784.
11. **Stewart RE** and DL Hill (1994). Time-course of saline-induced recovery of the gustatory system in sodium-restricted rats. *Chemical Senses* **19**, 560.
12. Phillips LM, **RE Stewart** and DL Hill (1993). Effects of early postnatal cross-fostering between normal and sodium-restricted rats on chorda tympani responses. *Chemical Senses* **18**, 613.
13. Ye Q, **RE Stewart**, GL Heck, DL Hill and JA DeSimone (1993). Na⁺-restricted rats lack functional Na⁺ channels in taste cell apical membranes: proof by membrane voltage perturbation. *Chemical Senses* **18**: 654.
14. **Stewart RE** and DL Hill (1992). Immunohistochemical evidence for the presence of amiloride-sensitive sodium channels in the taste buds of sodium-restricted rats. *Chemical Senses* **17**: 704.
15. Canos JL*, **RE Stewart** and DL Hill (1992). Development of anterior tongue taste buds in rats deprived of dietary NaCl. *Chemical Senses* **17**: 601.
16. **Stewart RE** and DL Hill (1991). Localization of binding sites for epidermal growth factor (EGF) in taste buds of neonatal and adult rats. *Chemical Senses* **16**: 221.
17. **Stewart RE** and DL Hill (1990). Localization of receptors for epidermal growth factor (EGF) in taste buds of neonatal rats: Effects of sodium restriction during development. *Neuroscience Abstracts* **16**: 879.
18. **Stewart RE** and DL Hill (1990). Functional recovery of sodium responses in sodium deprived rats: Induction by anesthetics. *Chemical Senses* **15**: 645.
19. **Stewart RE**, SE Swithers and R McCarty (1987). Binding sites for atrial natriuretic factor (ANF) in kidneys and adrenals of Dahl hypertension-sensitive rats. *Federation Proceedings* **46**: 968.

* Undergraduate student author and/or presentation