

## *CURRICULUM VITAE*

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**Date of Birth:** March 27, 1964    **Citizenship:** United States of America

<b><u>Education:</u></b>	<b><u>Field of Study</u></b>	<b><u>Degree</u></b>	<b><u>Year</u></b>
University of Rochester	Physiology	Ph.D.	1995
University of Rochester	Physiology	M.S.	1992
Wofford College	Biology	B.S.	1986

### **Professional Memberships:**

Society for Neuroscience, Biophysical Society, Association for Research in Otolaryngology, Graduate Student Society -University of Rochester: President 90-92

### **Research Experience:**

Assistant Professor, Department of Neuroscience and Department of Otolaryngology, University of Virginia, Oct., 2001-present.

Instructor, Department of Neurobiology, Harvard Medical School, 1999-2001.

Post-Doctoral Fellow: Department of Neurobiology, Harvard Medical School and Massachusetts General Hospital. Mentor: David P. Corey, Ph.D. 1995-1999.

Research Associate, Howard Hughes Medical Institute. 1995-1999.

Graduate Student, Department of Physiology, University of Rochester, Mentor: Ruth Anne Eatock, Ph.D. 1990 - 1995.

### **Teaching Experience:**

Lecturer, Neurobiology 703 (graduate), University of Virginia, Fall, 2003. 2 lecture.

Lecturer, Neurophysiology 862 (graduate), University of Virginia, Fall, 2003. 1 lecture

Lecturer, Otology Conferences (ENT residents), University of Virginia, Summer, 2003. 2 lectures.

Guest Lecturer, Pediatric Audiology (graduate), James Madison University, Spring, 2003. 2 lectures.

Directed Readings, Neuroscience 850 (graduate), University of Virginia, Spring, 2003. 10 sessions.

Panel participant, Neuroscience 808 (graduate), University of Virginia, Spring 2003. 1 panel.

Discussion leader, Neuroscience 707 (graduate), University of Virginia, Spring 2003. 1 discussion.

Lecturer, Medical Neuroscience (graduate), University of Virginia, Spring 2003. 1 lecture, 2 labs, 2 problem sets.

Lecturer, Neurobiology 703 (graduate), University of Virginia, Fall, 2002. 2 lectures.

Lecturer, Neurophysiology 862 (graduate), University of Virginia, Fall, 2002. 2 lectures + lab.

Lecturer, Medical Neuroscience (graduate), University of Virginia, Spring, 2002. 1 lecture

Lecturer, Neurobiology 703 (graduate), University of Virginia, Fall, 2001. 1 lecture.

Lecturer, Introduction to Neuroscience (undergraduate), Harvard University, Spring, 1999.

Head Conference Instructor, Introduction to Neuroscience (graduate), Program in Health Sciences and Technology, Harvard Medical School and Massachusetts Institute of Technology, 1998, 1999 and 2000.

Conference Instructor, Introduction to Neuroscience (graduate), Program in Health Sciences and Technology, Harvard Medical School and Massachusetts Institute of Technology, Fall, 1997.

Teaching Fellow, Molecular, Cellular and Developmental Biology (undergraduate), Harvard University. Spring, 1998.

Teaching Assistant, Neurobiology of Sensory Transduction (graduate), Baylor College of Medicine, 1994

Teaching Assistant, Introduction to Neuroscience (undergraduate), University of Rochester, 1990, 1991.

Camden Academy, High School Biology Teacher, Soccer Coach, 1986-1988.

### **Mentorship**

David Abraham, Ph.D. Post-doctoral fellow, Summer, 2002-present.

Jessica Risner, Neuroscience Graduate Student, Rotation, Summer 2002.

Jessica Risner, Neuroscience Graduate Student, Ph.D. thesis, Fall, 2002 – present.

Chris Colclasure, M.D. Otolaryngology Resident, Research rotation, Fall, 2002.

Eric Stauffer, Neuroscience Graduate Student, Rotation, Spring, 2003.

Eric Stauffer, Neuroscience Graduate Student, Ph.D. thesis, Spring, 2003 – present.

Mike Nelson, Neuroscience Graduate Student, Rotation, Summer, 2003.

Andrea Lelli, Ph.D. Visiting scientist, University of Pavia, Italy, Fall, 2003.

Valeria Piazza, Visiting graduate student, University of Pavia, Italy, Fall, 2003.

Chuck Fletcher, M.D. Otolaryngology Resident, Research rotation, Spring, 2004.

### **Invited Seminars and Symposia**

Association for Research in Otolaryngology. February, 2004. Symposium: Viral-mediated gene transfer: From virology to practice.

Innovations in clinical communication sciences. October, 2003. Symposium: Transduction and adaptation in sensory hair cells.

Flanders Interuniversity Institute of Biotechnology, Leuven, Belgium. December, 2002. Seminar: Mechanotransduction and adaptation in hair cells: A chemical-genetic strategy demonstrates a role for myosin Ic.

American Society for Gravitational and Space Biology. November, 2002. Symposium: Gravitational effects on mechanotransduction and adaptation on sensory hair cells of a mammalian vestibular organ.

University of Virginia. October, 2002. Neuroscience Graduate Program Seminar Series: Mechanotransduction and adaptation in hair cells: A chemical-genetic strategy demonstrates a role for myosin Ic

University of Virginia. October, 2002. Interdisciplinary Workshops on Sensory Systems: Molecular motors in the sensory cells of the mammalian inner ear.

Barany Society Meeting. September, 2002. Symposium: Vestibular influences on movement.

University of California, Davis. September, 2002. Seminar: Mechanotransduction and adaptation in sensory hair cells: A chemical-genetic strategy demonstrates a role for myosin Ic.

Johns Hopkins University. May, 2002. Seminar: Mechanotransduction and adaptation in sensory hair cells: A chemical-genetic strategy demonstrates a role for myosin Ic.

NIH, NIDCD. March, 2002. Seminar: Mechanotransduction and adaptation in sensory hair cells: A chemical-genetic strategy demonstrates a role for myosin Ic.

34 International Congress of Physiological Sciences. August, 2001. Symposium: Viral-mediated gene transfer to study the molecular physiology of the mammalian inner ear.

Association for Research in Otolaryngology. February, 2001. Symposium: Molecular physiology in the sensory hair cells of the mouse utricle.

Harvard/MIT, Eaton Peabody Lab. October, 2000. Seminar: The role of myosin IB in adaptation by mammalian vestibular hair cells: A targeted mutation confers drug sensitivity.

### **Services**

Teleconference Reviewer for NIH study section, IFCN5, October, 2003.

Ad-Hoc Reviewer for NIH study section, IFCN6. March, 2003.

Manuscript Reviewer: Nature, Journal of Neuroscience, Journal of Physiology, Journal of Neurophysiology, Neuroscience, Brain Research, Journal of Biological Chemistry

### **News Coverage**

The Daily Progress (Charlottesville, VA), Nov. 10, 2003, In the earth's shadow.

*Nature Medicine* October, 2003, In your ear. 9(10), 1258.

University of Virginia Press Release, Sept., 14, 2003, Sensory cells for hearing and balance are fast-developing, U.VA. researchers find.

Link, February 18, 2002, Publication of the University of Virginia Health System. Molecular clue to inherited deafness discovered.

Headliners, February 13, 2002, University of Virginia Faculty in the News, Musical pipe organs mimic mammalian ears.

Ascribe Newswire, February 12, 2002, Researchers find key molecular clue to inherited deafness; study also identifies strategy for discovering other gene functions.

Bioworld Today, February 12, 2002, A daily biotechnology Newspaper. One of 40 myosin proteins in mammalian body led to key hearing-mechanism clue.

WINA 1070, February 12, 2002, Local talk radio interview. UVA professor peers into rodent ears.

### **Publications**

**J.R. Holt** and D.P. Corey. Hair cells: Sensory transduction. *In press: Encyclopedia of Neuroscience* 2004

G.S.G. Géléoc and **J.R. Holt**. Developmental acquisition of sensory transduction in hair cells of the mouse inner ear. *Nature Neuroscience* 6(10), 1019-20, 2003

J.C. Colclasure and **J.R. Holt**. Transduction and adaptation in sensory hair cells of the mammalian vestibular system. *Gravitational and Space Biology Bulletin* 16(2):1-10, 2003

G.S.G. Géléoc and **J.R. Holt**. Auditory amplification: Outer hair cells pres the issue. *TINS*, 26(3):115-117, 2003

R.A. Dumont, Y, Zhao, **J.R. Holt**, M, Bahler, P.G. Gillespie. Myosin-1 isozymes in neonatal rodent auditory and vestibular epithelia. *JARO* 3(4):375-89, 2002

**J. R. Holt**. Viral-mediated gene transfer to study the molecular physiology of the mammalian inner ear. *Audiol Neurootol* 7(3):157-160, 2002

**J.R. Holt**, S.K.H. Gillespie, D.W. Provance, K. Shah, K.M. Shokat, D.P. Corey, J.A. Mercer, P.G. Gillespie. A chemical-genetic strategy implicates myosin-1C in adaptation by hair cells. *Cell* 108, 371-381, 2002

P.G. Gillespie, J.P. Albanesi, M. Bahler, W.M. Bement, J.S. Berg, D.R. Burgess, B. Burnside, R.E. Cheney, D.P. Corey, E. Coudrier, P. de Lanerolle, J.A. Hammer, T. Hasson, **J.R. Holt**, A.J. Hudspeth, M. Ikebe, J. Kendrick-Jones, E.D. Korn, R. Li, J.A. Mercer, R.A. Milligan, M.S. Mooseker, E.M. Ostap, C. Petit, T.D. Pollard, J.R. Sellers, T. Soldati, M.A. Titus. Myosin-I nomenclature. *J Cell Biol.* 155(5):703-4, 2001

**J.R. Holt**, and D.P. Corey. Two mechanisms for transducer adaptation in vertebrate hair cells. *Proceedings of the National Academy of Sciences USA.* 97(22), 11730-11735, 2000

J.S. Oghalai, **J.R. Holt**, T. Nakagawa, T.M. Jung, N. J. Coker, H.A. Jenkins, R.A. Eatock, W.E. Brownell. Harvesting human hair cells. *Annals of Otorhinolaryngology.* 109, 9-16, 2000

**J.R. Holt** Biology in pictures. A sense of color. *Current Biology* 9(10), R351 1999

**J.R. Holt**, D.C. Johns, S. Wang, Z.Y. Chen, E. Marban and D.P. Corey. Functional expression of exogenous proteins in mammalian sensory hair cells infected with adenoviral vectors. *J. Neurophysiology*, 81, 1881-1888, 1999

**J.R. Holt** and D.P. Corey. Ion Channel Defects in Hereditary Hearing Loss. *Neuron*, 22, 217-219, 1999

**J.R. Holt**, M. A. Vollrath and R.A. Eatock. Stimulus processing by type II hair cells of the rodent utricle. *Annals of the New York Academy of Science*, 871:15-26, 1999

**J.R. Holt** and D.P. Corey. Hair cells: Sensory transduction. *Encyclopedia of Neuroscience* 490, 850-853, 1999

**J.R. Holt**, A. Rüschi, M. Vollrath, R.A. Eatock. The frequency dependence of receptor potentials in hair cells of the mouse utricle. *Primary Sensory Neuron*, 2, 233-241, 1998

J.S. Oghalai, **J.R. Holt**, T. Nakagawa, T.M. Jung, N. J. Coker, H.A. Jenkins, R.A. Eatock, W.E. Brownell, Ionic currents and electromotility in human hair cells. *J. Neurophysiol* 79, 2235-2239, 1998

**J.R. Holt**, D.P. Corey, R.A. Eatock, Mechano-electrical transduction and adaptation in hair cells of the mouse utricle, a low-frequency vestibular organ. *J. Neuroscience*, 17:22, pp8739-8748, 1997

W. Denk, **J.R. Holt**, G.M.G. Sheppard, D.P. Corey. Calcium imaging of single stereocilia in hair cells: Localization of transduction channels at both ends of tip links. *Neuron*, 15 pp1311-1321, 1995

**J.R. Holt** and R.A. Eatock. Inwardly rectifying currents of saccular hair cells from the leopard frog. *J. Neurophysiology*, 73:4 pp1484-1502, 1995

### **Meeting Abstracts:**

**J.R. Holt**, D. Abraham and G. S.G. Géléoc Adenoviral-mediated dominant-negative suppression of a low-voltage activated potassium conductance in type I vestibular hair cells. *Abstr ARO*, 2004.

G. S.G. Géléoc E.A. Stauffer and **J.R.Holt**. Developmental acquisition of mechanotransduction in hair cells of the embryonic mouse utricle. *Abstr ARO*, 2004.

G. S.G. Géléoc J.R. Risner and **J.R.Holt**. Functional maturation of type I and type II hair cells in the embryonic mouse utricle. *Abstr ARO*, 2004.

J.R. Risner and **J.R.Holt**. Whole-cell firing properties of mouse vestibular ganglion neurons. *Abstr ARO*, 2004.

C. E. Corrales, L. H. Li, J.R. Risner **J.R.Holt** and S. Heller. Replacement of auditory ganglion neurons with embryonic stem cell-derived sensory neurons. *Abstr ARO*, 2004.

G. S.G. Géléoc, J. Risner and **J. R. Holt**. Prenatal Acquisition of Voltage-Gated Conductances in Vestibular Hair Cells of the Developing Mouse Embryo. *Abstr ARO*, 2003.

**J.R. Holt**. Viral-mediated gene transfer to study the molecular physiology of the mammalian inner ear. *Abstr International Physiological Congress*, 2001.

**J.R. Holt** , Molecular physiology in the sensory hair cells of the mouse utricle. *Abstr ARO*, 2001

**J.R. Holt**, D.P. Corey, J.A. Mercer, K.S. Shokat, P.G. Gillespie, Nucleotide Analog Dependent Inhibition of Adaptation in Mice Transgenic for Y61G Myosin I $\beta$ . *Abstr ARO*, 2001

**J.R. Holt**, S. Wang, Z.Y. Chen, D.P. Corey. Recombinant adenovirus infects hair cells of the cultured mouse utricle. *Abstr. Soc. of Neuroscience*, 1998

J.S. Oghalai, **J.R. Holt**, T. Nakagawa, T.M. Jung, N. J. Coker, H.A. Jenkins, R.A. Eatock, W.E. Brownell, Ionic currents and electromotility in human hair cells. *Abstr ARO*, 1998

**J.R. Holt**, D.P. Corey, R.A. Eatock, Receptor potentials in type I and type II hair cells of the mouse utricle. *Abstr. Soc. of Neuroscience*, 1997

**J.R. Holt**, A. Rüsçh, D.P. Corey, R.A. Eatock, Mechanoelectrical transduction and adaptation in hair cells of the mouse utricle. *Abstr. Biophysical Society*, 1997

**J.R. Holt**, A. Rüsçh, D.P. Corey, R.A. Eatock. Mechanoelectrical transduction currents in type I and type II hair cells of the mouse utricle. *Abstr. ARO*, 1997

W. Denk, **J.R. Holt**, G.M.G. Shepperd, D.P. Corey. Two-photon imaging of single stereocilia in hair cells: Localization of transduction channels at both ends of tip links. *Abstr Biophysical Society*, 1996

**J.R. Holt** and R.A. Eatock. Leopard frog saccular hair cells have two types of inwardly rectifying currents. *Abstr. Biophysical Society*, 1994

**J.R. Holt** and R.A. Eatock. The properties of inward rectification in vertebrate vestibular hair cells. *Abstr. Soc. Neuroscience*, 1992

W.E. O'Neill, **J.R. Holt**, M. Gordan. Responses of neurons in the intermediate and ventral nuclei of the lateral lemniscus of the mustached bat to sinusoidal and pseudorandom amplitude modulations. *Abstr. ARO*, 1992

W.E. O'Neill, **J.R. Holt**, M.L. Zettel. Response properties of neurons in the ventral nucleus of the lateral lemniscus of the mustached bat. *Abstr. Soc. Neuroscience*, 1991