

## CURRICULUM VITAE

### **LESLIE P. TOLBERT**

Regents' Professor  
Division of Neurobiology  
Arizona Research Laboratories  
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#### **Education**

- 1973 A.B., Radcliffe College of Harvard University, Cambridge, MA (Applied Mathematics)  
1978 Ph.D., Harvard University, Cambridge, MA (Division of Medical Sciences: Anatomy). Thesis title: "Synaptic Organization in the Anteroventral Cochlear Nucleus of the Cat." Thesis advisor: Dr. D. Kent Morest.  
1978-81 Postdoctoral Fellow, Department of Neurobiology, Harvard Medical School, Boston, MA. Advisor: Dr. John G. Hildebrand.  
1981 Cold Spring Harbor summer course, "Neurobiology of the Leech."

#### **Research Interests**

Cellular and developmental neurobiology  
- Development of olfactory glomeruli and other reiterated compartments in the brain  
- Mechanisms underlying axonal guidance and specificity of synaptic connections  
- Interactions between neurons and glial cells in neural development and mature function  
Neurobiology of insects; use of experimentally advantageous "simpler" systems

#### **Academic Appointments**

##### Present Position

- 2002- Regents' Professor  
1995- Professor, Arizona Research Laboratories Division of Neurobiology, and (joint appointment) Department of Cell Biology and Anatomy, University of Arizona

##### Previous Positions

- 1997-04 Chair, Committee on Neuroscience and Graduate Interdisciplinary Program in Neuroscience, University of Arizona  
1990-95 Associate Professor (with tenure), Arizona Research Laboratories Division of Neurobiology, and (without tenure) Department of Anatomy, University of Arizona  
1987-90 Assistant Professor, Arizona Research Laboratories Division of Neurobiology, and Department of Anatomy, University of Arizona  
1982-87 Assistant Professor, Department of Anatomy and Cell Biology, Georgetown University Schools of Medicine and Dentistry, Washington, D.C.  
1981-82 Research Associate, Department of Cellular and Developmental Biology, Harvard University, Cambridge, MA (with Dr. Ronald Calabrese)  
1978-81 Postdoctoral Fellow, Department of Neurobiology, Harvard Medical School, Boston, MA (with Dr. John Hildebrand)  
1973-78 Graduate Student, Department of Anatomy, Harvard Medical School, Boston, MA (with Dr. D. Kent Morest)

## Honors and Awards

1973	A.B. <i>cum laude</i> from Radcliffe College
1978	Individual NIH NRSA award for postdoctoral studies
1998	Mortar Board Senior Honor Society teacher award
1999	Induction into Omicron Delta Kappa Society (national leadership honor society)
1999	Outstanding Honors Faculty award
2000	Mortar Board Citation Award
2000	Graduate and Professional Student Council Award for Administrator of the Year
2002	Appointed as Regents' Professor

## Intramural Professional Positions and Service (selected)

### University of Arizona

1987-	Coordinator, Division of Neurobiology's microscopy/imaging facility
1988-92	Member, Electron Microscope User Group Committee for ARL Division of Biotechnology (Chair, 1991-92)
1988-04	Member, Executive Committee of the Committee on Neuroscience
1989-92	Chair, Recruitment and Admissions Committee of the Committee on Neuroscience
1989-92	Member, School Outreach Subcommittee, Howard Hughes Biology Experiences Program
1989	Member, Faculty Search Committee, Department of Speech and Hearing Sciences
1989-90	Member, Provost's Search Committee for Coordinator of Interdisciplinary Programs at the University of Arizona
1990-	Active participant, Undergraduate Research Biology Program
1990-97	Member, selection committee for special scholarships, Honors Center
1990-	Member, Promotion and Tenure Committee, ARL Division of Neurobiology (co-chair since '02)
1991-00	Member, Developmental Neuroscience Training Faculty
1991-92	Member, Faculty Search Committee, Department of Anatomy
1992-93	Acting Director, ARL Division of Biotechnology
1993	Member, Search Committee for Dean of Faculty of Science
1993-94	Acting Co-Director, ARL Division of Neurobiology
1993-00	Member, Biotechnology Advisory Committee for Vice President for Research
1993-	Member, Imaging Facility User Group Committee for ARL Division of Biotechnology
1994	Co-organizer, workshop on "Modeling and Simulation of Biological Systems"
1994-	Member, faculty of the Graduate Interdisciplinary Program in Insect Science
1995-	Speakers Bureau speaker at Rotary Clubs, Optimist Club, Lion's Clubs, Scholars for Dollars group, Green Valley Forum, Green Valley Men's Club, Brandeis Club, Yale Club, SAGE group
1995	Member, committee to consider changing natural sciences core curriculum, Faculty of Science
1995-96	Member, Honors Center Task Force for Vice Provost for Undergraduate Programs
1995-00	Member, Promotion and Tenure Committee, Department of Cell Biology and Anatomy
1995-01	Member, steering committee for postdoctoral training program in Molecular Insect Science (director of program, 1998-01)
1995-00	Member, steering/admissions committee for the Flinn Initiative in Biomathematics of the Applied Mathematics Program
1995-98	Chair, Graduate College Standing Advisory Committee on Interdisciplinary Programs
1996	Member, Faculty Search Committee, Department of Speech and Hearing Sciences
1996	Chair, self-study committees for Committee on Neuroscience and ARL Division of Neurobiology, charged with writing reports for Academic Performance Review
1998-01	Member, Executive Committee, Center for Insect Science

- 1997- Affiliate, Applied Mathematics Program
- 1997-98 Member, faculty team for AACU-funded program, "Women and Scientific Literacy: Building Two-Way Streets"
- 1997-98 *Ad hoc* member, Committee on Academic Freedom and Tenure, for investigation of allegation of scientific misconduct by a faculty member
- 1998 Member, search committee for Vice President for Research
- 1998- Member (Chair for 2 years, Vice-Chair for 1), Graduate Interdisciplinary Programs Advisory Council (elected)
- 1998- Member, Steering Committee for Applied Mathematics
- 1998- Member, executive committee for Biology-Math-Physics Initiative (BMPI), providing graduate training at the interface between biology, math, and physics
- 1999- Member, selection committee for BRAVO! program for undergraduate research abroad
- 1999-00 Member, search committee for Dean, College of Medicine (unsuccessful search)
- 1999-00 Member, search committee for Senior Vice President for Academic Affairs and Provost
- 2000 Acting Director, ARL Division of Neurobiology
- 2000 Member, search committee for Vice President for Health Sciences and Dean of College of Medicine (successful)
- 2000-02 Member, steering committee for Institute for Biomedical Science and Biotechnology (IBSB); convener of *ad hoc* group on molecular neuroscience
- 2001-02 Member, self-study committee for Academic Program Review of Applied Mathematics
- 2002 Member, review team for Academic Program Review of Department of Physiology
- 2002- Member, University of Arizona Finance Committee
- 2003- Member, selection committee for IBSB/BIO5 graduate fellowships
- 2003-04 Member, Focused Excellence team on Cognitive Sciences and Neurosciences
- 2004- Member, Focused Excellence Task Force (created by Regents' Professors)
- 2004 Chair, Financial Support Services Review team
- 2005 Member, review team for Academic Program Review of Arid Lands Resource Sciences GIDP

Georgetown University

- 1982-87 Member, Graduate Advisory Committee, Department of Anatomy
- 1983 Alternate member, Research Committee, School of Medicine
- 1986-87 Faculty Director, Georgetown University Medical Center Electron Microscopy Facility
- 1986-87 Member, University Animal Care and Use Committee

**Extramural Professional Positions and Service (selected)**

- 1978- Ad hoc reviewer for: Brain Research, Cell and Tissue Research, Glia, Journal of Anatomy, Journal of Comparative Neurobiology, Journal of Neurobiology, Journal of Neuroscience, Science, Synapse, Trends in Neuroscience, Journal of Comparative Physiology, National Science Foundation, National Sciences and Engineering Research Council of Canada
- 1987 Member, NIH Search Committee for position of Chief, Laboratory of Neurobiology, NINCDS
- 1987-91 Member, National Science Foundation Advisory Panel on Biological Facilities Centers, which became Advisory Panel on Science and Technology Centers
- 1990-91 President, Arizona Society for Electron Microscopy and Microbeam Analysis
- 1990-92 Guest Editor, two issues of Microscopy Research and Technique on olfactory centers in the brain
- 1991 Member, National Science Foundation Advisory Panel, Instrumentation and Instrument Development Program
- 1991-95 Regular Member, National Institutes of Health Neurology B-1 Study Section
- 1994 Chair, NIH Behavioral and Neurosciences Special Emphasis Panel

- 1994 Invited participant, National Science Foundation Workshop on developing an international database on identified neurons
- 1995-96 President and founding member, Tucson Chapter of the Society for Neuroscience
- 1996- Participant, Brain Awareness Week outreach activities (organizer, 1996)
- 1996-00 Member, NASA advisory team for design of insect accommodations for research in space
- 1997-00 Member, Committee on Neuroscience Literacy of Society for Neuroscience; co-organizer of Workshop for High School Students, 1998, 1999, 2000
- 1998 Member, Program Committee of the Association for Chemoreception Sciences
- 1998-99 Member, Awards Committee of the Association for Chemoreception Sciences
- 1998 Speaker on "Learning, Development, and Brain Plasticity: Recent Insights from Neuroscience," at annual meeting of National Association of Biology Teachers, Reno, NV
- 1999, '02 Career panelist, "Expanding Your Horizons" conference for grade-school girls in Tucson
- 1998-01 Councilor, Association of Neuroscience Departments and Programs (elected)
- 1998- Member, Editorial Board, Chemical Senses
- 2000-02 Councilor, Association of Chemoreception Sciences (elected)
- 1999-00 Member, Flinn Scholarship Selection Committee, Flinn Foundation, Phoenix, AZ
- 1999-02 *Ad hoc* member, NIH Review Panel for Small Grants Program in Deafness and Communicative Disorders
- 2000- Member, Program Committee, Society for Neuroscience (Chair in 2003-2004)
- 2001 External evaluator, University of Utah's Interdisciplinary Program in Neuroscience
- 2001- Associate Editor, Journal of Comparative Neurology
- 2002-03 President, North American Association of Neuroscience Departments and Programs (ANDP); Past-President in subsequent year
- 2002 External evaluator, Montana State University's NSF-funded Integrated Graduate Education and Research Training Program in Computational Neuroscience
- 2003- Member, Society for Neuroscience Working Group on Professional Development
- 2004 Member, Selection Committee for Arizona Rhodes Scholarship Finalists
- 2005- Founding fellow, Arizona Arts, Sciences, and Technology Academy

### Memberships in Professional Societies

Arizona Imaging and Microanalysis Society  
 Association for Chemoreception Sciences  
 Microscopy Society of America  
 Society for Neuroscience  
 - member of Arizona and Tucson Chapters

### Publications

#### Refereed journal articles:

- Tolbert LP, Hildebrand JG (1981) Organization and synaptic ultrastructure of glomeruli in the antennal lobes of the moth *Manduca sexta*: a study using thin sections and freeze-fracture. Proc. R. Soc. Lond. B 213:279-301
- Tolbert LP, Morest DK (1982) The neuronal architecture of the anteroventral cochlear nucleus of the cat in the region of the cochlear nerve root: Golgi and Nissl methods. Neuroscience 7:3013-3030

- Tolbert LP, Morest DK, Yurgelun-Todd D (1982) The neuronal architecture of the anteroventral cochlear nucleus of the cat in the region of the cochlear nerve root: horseradish peroxidase labelling of identified cell types. Neuroscience 7:3031-3052
- Tolbert LP, Morest DK (1982) The neuronal architecture of the anteroventral cochlear nucleus of the cat in the region of the cochlear nerve root: electron microscopy. Neuroscience 7:3053-3067
- Tolbert LP, Matsumoto SG, Hildebrand JG (1983) The development of synapses in the antennal lobes of the moth *Manduca sexta*. J. Neurosci. 3:1158-1175
- Tolbert LP, Calabrese RL (1985) Anatomical analysis of contacts between identified neurons that control heartbeat in the leech *Hirudo medicinalis*. Cell Tissue Res. 242:257-267
- Arbas EA, Tolbert LP (1986) Presynaptic terminals persist following degeneration of "flight muscle" in a flightless grasshopper. J. Neurobiol. 17:627-636
- Oland LA, Tolbert LP (1987) Glial patterns during early development of antennal lobes of *Manduca sexta*: A comparison between normal lobes and lobes deprived of antennal axons. J. Comp. Neurol. 255:196-207
- Oland LA, Tolbert LP, Mossman KL (1988) Radiation-induced reduction of the glial population during development disrupts the formation of olfactory glomeruli in an insect. J. Neurosci. 8:353-367
- Oland LA, Tolbert LP (1988) The effects of hydroxyurea parallel the effects of radiation in developing olfactory glomeruli. J. Comp. Neurol. 27:377-387
- Tolbert LP (1988) Afferent axons from the antenna influence the number and placement of intrinsic synapses in the antennal lobes of *Manduca sexta*. Synapse 3:83-95
- Oland LA, Tolbert LP (1989) Patterns of glial proliferation during formation of olfactory glomeruli in an insect. Glia 2:10-24
- Oland LA, Orr G, Tolbert LP (1990) Construction of a protoglomerular template by olfactory axons initiates the formation of olfactory glomeruli in the insect brain. J. Neurosci. 10:2096-2112
- Tolbert LP, Sirianni PA (1990) The requirement for olfactory axons in the induction and stabilization of olfactory glomeruli in an insect. J. Comp. Neurol. 298:69-82
- Sun XJ, Tolbert LP, Hildebrand JG (1993) Ramification pattern and ultrastructural characteristics of the serotonin immunoreactive neuron in the antennal lobe of the moth *Manduca sexta*: a laser-scanning confocal and electron microscopic study. J. Comp. Neurol. 338:5-16 (with cover picture)
- Alonso-Pimentel H, Tolbert LP, Heed WB (1994) Re-examination of the concept of the insemination reaction in *Drosophila*. Cell Tiss. Res. 275:467-479
- Krull CE, Morton DB, Faissner A, Schachner M, Tolbert LP (1994) Spatiotemporal pattern of expression of tenascin-like molecules in a developing insect olfactory system. J. Neurobiol. 25:515-534
- Krull CE, Oland LA, Faissner A, Schachner M, Tolbert LP (1994) *In vitro* analyses indicate a potential role for tenascin-like molecules in the development of insect olfactory glomeruli. J. Neurobiol. 25:989-1004
- Malun D, Oland LA, Tolbert LP (1994) Uniglomerular projection neurons participate in early development of olfactory glomeruli in the moth *Manduca sexta*. J. Comp. Neurol. 347:1-22 (with cover picture)
- Willis MA, Butler MA, Tolbert LP (1995) Normal glomerular organization of the olfactory lobe is not necessary for odor guided locomotion. J. Comp. Physiol. A 176:205-216
- Sun XJ, Tolbert LP, Hildebrand JG (1995) Using laser scanning confocal microscopy as a guide for electron microscopic study of labeled neurons. J. Histochem. Cytochem. 43:329-335
- Kirschenbaum SR, Higgins M, Tveten M, Tolbert LP (1995) 20-hydroxyecdysone stimulates proliferation of glial cells in the developing brain of the moth *Manduca sexta*. J. Neurobiol. 28:234-247
- Oland LA, SR Kirschenbaum, WM Pott, AR Mercer, LP Tolbert (1995) Development of an identified serotonergic neuron in the antennal lobe of the moth and effects of reduction in serotonin during construction of olfactory glomeruli. J. Neurobiol. 28:248-267
- Oland LA, WM Pott, GY Bukhman, XJ Sun, LP Tolbert (1996) Activity blockade does not prevent the construction of olfactory glomeruli in the moth *Manduca sexta*. Int. J. Dev. Neurosci. 14:983-996
- Baumann PM, LA Oland, LP Tolbert (1996) Glial cells stabilize axonal protoglomeruli in the developing olfactory lobe of the moth *Manduca sexta*. J. Comp. Neurol. 373:118-128

- Sun XJ, Tolbert LP, Hildebrand JG (1997) Synaptic organization of the uniglomerular projection neurons of the antennal lobe of the moth *Manduca sexta*: a laser scanning confocal and electron microscopic study. J. Comp. Neurol. 379:2-20
- Oland LA, LP Tolbert (1998) Glomerulus development in the absence of a set of mitral-like neurons in the insect olfactory lobe. J. Neurobiol. 36:41-52
- Rössler W, Tolbert LP, Hildebrand JG (1998) Early formation of sexually dimorphic glomeruli in the developing olfactory lobe of the brain of the moth *Manduca sexta*. J. Comp. Neurol. 396:415-428
- Oland LA, WM Pott, MR Higgins, LP Tolbert (1998) Targeted ingrowth and axon-glia relationships of olfactory receptor axons in the primary olfactory pathway of an insect. J. Comp. Neurol. 398:119-138
- Sun XJ, LP Tolbert, JG Hildebrand, IA Meinertzhagen (1998) A rapid method for combined laser scanning confocal microscopic and electron microscopic visualization of biocytin or neurobiotin-labeled neurons. J. Histochem. Cytochem. 46:263-273
- Rössler W, Randolph PW, Tolbert LP, Hildebrand JG (1999) Axons of olfactory receptor cells of trans-sexually grafted antennae induce development of sexually dimorphic glomeruli in *Manduca sexta*. J. Neurobiol. 38:521-541
- Rössler W, Oland LA, Higgins MR, Hildebrand JG, Tolbert LP (1999) Development of a glia-rich axon-sorting zone in the olfactory pathway of the moth *Manduca sexta*. J. Neurosci. 19:9865-9877
- Rössler W, Tolbert LP, Hildebrand JG (2000) Importance of timing of olfactory receptor-axon outgrowth for glomerulus development in *Manduca sexta*. J. Comp. Neurol. 425:233-243
- Wegerhoff R, Rössler W, Higgins MR, Oland LA, Tolbert LP (2001) Fenvalerate treatment affects development of olfactory glomeruli in *Manduca sexta*. J. Comp. Neurol. 430:533-541
- Lohr C, Oland LA, Tolbert LP (2001) Olfactory receptor axons influence the development of glial potassium currents in the antennal lobe of the moth *Manduca sexta*. Glia 36:309-320
- Dubuque SH, Schachtner J, Nighorn AJ, Menon K, Tolbert LP, Zinn K (2001) Immunolocalization of synaptotagmin for the study of synapses in the developing antennal lobe of *Manduca sexta*. J. Comp. Neurol. 441:277-287
- Gibson NJ, Rössler W, Nighorn AJ, Oland LA, Hildebrand JG, Tolbert LP (2001) Neuron-glia communication via nitric oxide is essential in establishing antennal-lobe structure in *Manduca sexta*. Dev. Biol. 240:326-39
- Goriely A, Secomb T, Tolbert LP (2002) Effect of the glial envelope on extracellular K<sup>+</sup> diffusion in olfactory glomeruli. J. Neurophysiol. 87:1712-1722
- Higgins MR, Gibson NJ, Eckholdt PA, Nighorn A, Copenhaver P, Nardi J, Tolbert LP (2002) Different isoforms of fasciclin II are expressed by a subset of developing olfactory receptor neurons and by olfactory-nerve glial cells during formation of glomeruli in the moth *Manduca sexta*. Dev. Biol. 244:134-154
- Lohr C, Tucker E, Oland LA, Tolbert LP (2002) Development of depolarization-induced calcium transients in insect glial cells is dependent on the presence of afferent axons. J. Neurobiol. 52:85-98
- Tucker E, Tolbert LP (2003) Reciprocal interactions between olfactory receptor axons and olfactory nerve glia cultured from the developing moth *Manduca sexta*. Dev. Biol. 260:9-30
- Tucker ES, Oland LA, Tolbert LP (2004) *In vitro* analyses of interactions between olfactory receptor growth cones and glial cells that mediate axon sorting and glomerulus development. J. Comp. Neurol. 472:478-495
- Gibson NJ, Hildebrand JG, Tolbert LP (2004) Glycosylation patterns are sexually dimorphic throughout development of the olfactory system in *Manduca sexta*. J. Comp. Neurol. 476:1-18

### Chapters and reviews:

- Hildebrand JG, Matsumoto SG, Camazine SM, Tolbert LP, Blank S, Ferguson H, Ecker V (1979) Organization and physiology of antennal centers in the brain of the moth *Manduca sexta*. In: Insect Neurobiology and Pesticide Action, pp. 375-382

- Hildebrand JG, Matsumoto SG, Tolbert LP, Schneiderman AS, Camazine SM (1982) Postembryonic development of the antennal lobes in the moth *Manduca sexta*. Neuroscience Research Program Bulletin. MIT Press 20:891-900
- Tolbert LP (1988) Review of Synapse. Quart. Rev. Biol. 63:243
- Tolbert LP, Oland LA (1989) A role for glia in the development of organized neuropilar structures. Trends Neurosci. 12:70-75 (invited contribution)
- Tolbert LP (1989) Intercellular interactions in the construction of olfactory glomeruli in an insect. ISOT X: Proceedings of the Tenth International Conference on Olfaction and Taste. (K. Doving, ed.), Univ. of Oslo Press, pp. 236-245
- Tolbert LP, Oland LA (1990) Glial cells form boundaries for developing insect olfactory glomeruli: a review. Exp. Neurol. 109:19-28 (Invited contribution to special issue devoted to boundaries in the developing brain)
- Boeckh J, Tolbert LP (1993) Synaptic organization and development of the insect antennal lobe. Micros. Res. Techn. 24:260-280
- Oland LA, Krull CE, Tolbert LP (1995) Glial cells play a key role in the construction of insect olfactory glomeruli. In Neuron-Glia Interrelations During Phylogeny: II. Plasticity and Regeneration, A. Vernadakis and B. Roots (eds), Humana Press, Inc.
- Oland LA, Tolbert LP (1996) Multiple factors shape the development of olfactory glomeruli: insights from an insect model system. J Neurobiol 30:92-109 (invited contribution for special issue on olfaction)
- Tolbert LP, Sun XJ, Hildebrand JG (1996) Combining laser scanning confocal microscopy and electron microscopy in studies of the insect nervous system. J Neurosci Methods 69:25-32 (invited contribution to issue on "Methods for Studying the Nervous Systems of Invertebrates")
- Hildebrand JG, Rössler W, Tolbert LP (1997) Postembryonic development of the olfactory system in the moth *Manduca sexta*: primary-afferent control of glomerular development. Seminars in Cell & Developmental Biology 8:163-170 (invited contribution to issue on olfactory development)
- Edwards JS, Tolbert LP (1998) Chapter 19: Insect Neuroglia. In Microscopic Anatomy of the Invertebrates, M. Locke (ed.), Wiley-Liss Inc., Vol 11B: Insecta, pp. 449-466 (invited chapter)
- Tolbert LP (1998) Olfactory development in invertebrates: on the scent of central developmental issues. In "Olfaction and Taste XII: An International Symposium," Annals NY Acad. Sci. 855:95-103
- Burd GD, Tolbert LP (2000) Development of the Olfactory System. In Neurobiology of Taste and Smell, T.E. Finger, W.L. Silver, and D. Restrepo (eds.), John Wiley and Sons, pp. 233-255
- Oland LA, Tolbert LP (2003) Key interactions between neurons and glial cells during neural development in insects. Ann Rev Entomology 48:89-110
- Tolbert LP, Oland LA, Christensen TC, Goriely AR (2003) Neuronal and glial morphology in olfactory systems: Significance for information processing and underlying developmental mechanisms. Brain and Mind 4:27-49
- Tolbert LP, Oland LA, Tucker ES, Gibson NJ, Higgins M, Lipscomb B (2004) Bidirectional influences between neurons and glial cells in the developing olfactory system. Prog. Neurobio. 73:73-105

## Research-related presentations

### Invited presentations at national and international meetings (since 1990):

- 1990 Winter Conference on Brain Research, Panel on "Roles for Glial Cells in Development," Snowmass, CO
- 1990 European Chemoreception Research Organization, Satellite Symposium on "Development and Plasticity of the Olfactory System: A Comparative View," Luminy, France
- 1991 MIND (Meeting in Neural Development), New York, NY
- 1992 Glomerulus Meeting, Tegernsee, Germany
- 1992 Cajal Club, American Association of Anatomists, New York, NY

- 1993 Association for Chemoreception Sciences, Workshop on "Comparative Aspects of Olfaction," Sarasota, FL
- 1994 Gordon Conference on Olfaction and Taste, Plymouth, NH
- 1995 Conference on the Smallest Brains, Free University of Berlin, Berlin, Germany
- 1995 Fourth International Congress on Neuroethology, Symposium on "Olfactory Development" (organizer and speaker), Cambridge, England
- 1997 International Symposium on Olfaction and Taste XII/Association for Chemoreception Sciences XIX, Symposium on "Olfactory Development," San Diego, CA
- 2000 International Symposium on Olfaction and Taste XV, Symposium on "Olfactory Plasticity," Brighton, England
- 2000 XXI International Congress of Entomology, plenary speaker, Iguassu Falls, Brazil
- 2000 Society for Neuroscience, Special Lecturer, New Orleans, LA
- 2002 International Society for Developmental Neuroscience, invited speaker in symposium on "Olfactory Development," Sydney, Australia
- 2003 European Symposium on Insect Taste and Olfaction, invited speaker, Harstad, Norway
- 2003 Association for Chemoreception Sciences, organizer and introductory speaker, symposium on "Patterning in Olfactory Systems: How Much Is Pre-Specified?," Sarasota, FL

**Invited presentations at universities and local societies (since 1990):**

- 1990 Research seminar, Institute for Zoology, University of Regensburg, Regensburg, Germany
- 1990 Research seminar, Department of Biology, University of Konstanz, Konstanz, Germany
- 1991 Research seminar, Cancer Biology Group, University of Arizona
- 1991 Research seminar, Department of Neurobiology and Physiology, Northwestern University
- 1991 Research seminar, Department of Anatomy, University of Tennessee
- 1992 Research seminar, Institute of Neuroscience, University of Oregon
- 1992 Research seminar, Neuroscience Program, Ohio State University
- 1992 Research seminar, Department of Pathology, University of Arizona
- 1993 Research seminar, Barrow Neurological Institute, Phoenix, AZ
- 1993 Short research presentation, Undergraduate Research Biology Program, University of Arizona
- 1994 Workshop on Biological Imaging, College of Medicine, University of Arizona
- 1995 Grass Lecture, University of Mississippi Medical Center, Jackson, MS
- 1995 Series of three lectures as Visiting Professor, Institute for Zoology, University of Regensburg, Regensburg, Germany
- 1995 Research seminar, Neurobiology Division, University of Heidelberg, Heidelberg, Germany
- 1996 Research seminar, Department of Biology, Pima Community College, Tucson, AZ
- 1996 Research seminar, Neuroscience Program, University of Illinois, Urbana-Champaign, IL
- 1997 Research seminar, Department of Zoology, University of Maryland, College Park, MD
- 1997 Research seminar, Neuroscience Program, University of Utah, Salt Lake City, UT
- 1998 Research seminar, Department of Neuroscience, Case Western Reserve University, Cleveland, OH
- 1999 Research seminar, Department of Physiology, University of Arizona
- 1999 Research seminar, Department of Biology, University of Missouri, Columbia, MO
- 1999 Lecture on neural development for Senior Academy, U. of A.
- 2000 Research seminar, Hexapodium, Center for Insect Science, U. of A.
- 2000 Presentation on U. of Arizona's IGERT training grant on the interface between math, physics, and biology, Association of Neuroscience Departments and Programs, Washington, DC
- 2001 Research seminar, Biochemistry Department, St. Mary's University, San Antonio, TX
- 2001 Research seminar, Department of Biology, Georgia State University, Atlanta, GA
- 2001 Presentation on mechanisms of neural plasticity, Holtzman Education Series, St. Joseph's Hospital, Tucson, AZ

- 2002 Research seminar, Program in Neuroscience, Michigan State University, East Lansing, MI  
 2003 Research seminar, Program in Neurosciences, Yale University, New Haven, CT  
 2004 "Neuron-glia interactions in development," Neurology & Neurosurgery Grand Rounds, U. of A.  
 2004 Research seminar, Biocenter, University of Würzburg, Würzburg, Germany  
 2005 Research seminar, University of Illinois, Champaign-Urbana, IL

## Grants Awarded

### Research grants:

- 2000-05 NIH: Program Project Grant for "Neural development: intercellular and humoral control," R.B. Levine, overall P.I.; L.A. Oland, L.L. Restifo, N.J. Strausfeld, L.P. Tolbert, Co-P.I.'s. L.P. Tolbert, P.I. of Project #5, "Development of sexually dimorphic olfactory glomeruli," and of imaging core facility.
- 1999-04 NIH: R01 Grant, "Intercellular interactions in developing glomeruli," L.P. Tolbert, P.I.  
 1997-98 NIH Shared Instrumentation Grant for confocal microscope and Ca<sup>++</sup>-imaging system for neurobiology. L.P. Tolbert, P.I.; J.G. Hildebrand, R.B. Levine, L.A. Oland, N.J. Strausfeld, co-investigators.
- 1995-99 NIH: R01 Grant, "Intercellular interactions in developing glomeruli," L.P. Tolbert, P.I.  
 1995-00 NIH: Program Project Grant for "Neural development: intercellular and humoral control," R.B. Levine, overall P.I.; J.G. Hildebrand, D.B. Morton, L.A. Oland, L.L. Restifo, L.P. Tolbert, Co-P.I.'s. L.P. Tolbert Co-P.I. for Project #2, "Glial development during glomerulus formation;" Co-P.I. for Project #5, "Development of sexually dimorphic olfactory glomeruli;" and P.I. for Core A, "Confocal and electron microscopy core facility."
- 1990-95 NIH: Program Project Grant for "Neural development: intercellular and humoral control," J.G. Hildebrand, overall P.I. L.P. Tolbert P.I. for Project #5, "Hormonal control of olfactory lobe development"; Co-P.I. for Project #2, "Developmental influences on cultured olfactory neurons"; and P.I. for Core A, "Electron and light microscopy core facility".
- 1990-94 NIH RO1 Grant: "Ultrastructural development of antennal center," L.P. Tolbert, P.I.  
 1988-90 NSF: Shared Equipment Grant for "Computer-based system to analyze, reconstruct, and display neurons." N. Strausfeld, P.I.; J. Hildebrand, E. Arbas, R. Levine, G. Burd, L. Tolbert, co-P.I.'s.
- 1987-90 NIH RO1 Grant: "Ultrastructural development of the antennal center," L.P. Tolbert, P.I.  
 1984-87 NIH RO1 Grant: "Ultrastructural development of the antennal center," L.P. Tolbert, P.I.  
 1981-84 NSF: "Characterization of neurons in the heartbeat circuit of leeches," R. L. Calabrese, P.I. In last year, subcontract from Harvard University to L.P. Tolbert (Georgetown University).  
 1978-80 NIH Postdoctoral Fellowship: "Anatomy and biochemistry of developing moth brain," F32-NS05891, to L.P. Tolbert (awarded for 3 years, accepted for 2).

### Training grants in which I participate or participated:

- 2004-09 NIH Training Grant: "Predoctoral Training Program in Neuroscience," R.B. Levine, PI.  
 2000-05 NIH Training Grant: "Postdoctoral excellence in research and training," T. Markow, P.I. L.P. Tolbert, member of steering/selection committee (2000-03).  
 1998-03 NSF IGERT Training Grant: "Multidisciplinary training at the interface of biology, mathematics, and physics," M. Tabor, P.I. L.P. Tolbert, one of 4 Co-P.I.'s.  
 1995-00 Flinn Foundation Training Grant: "Biomathematics and dynamics initiative," M. Tabor, P.I. L.P. Tolbert, one of 19 participating faculty members.

- 1994-01 NIH Training Grant: "Training program in molecular insect science." J. Law, P.I. until 1998; L.P. Tolbert, P.I. 1998-01.
- 1993-98 NIH Training Grant: "Training program in developmental neuroscience." R.B. Levine, P.I. L.P. Tolbert, one of 15 participating faculty members.
- 1993-98 Flinn Foundation Training Grant: "Training in developmental neurobiology," R.B. Levine, P.I. L.P. Tolbert, one of 15 participating faculty members.

### **Teaching and Advising Activities**

#### **Courses in which I have had major responsibility**

##### University of Arizona:

- 1988-94 Anatomy 584 (formerly 595E/895E), "Cellular Neurobiology: Synaptic Mechanisms"
- 1988-02 Neuroscience 588, "Principles of Cellular, Molecular, and Developmental Neurobiology"
- 1990- Neuroscience 701, "Communication in Neuroscience"
- 1992-96 Honors Colloquium 295h, "Mechanics of the Mind"
- 1994 Neuroscience 700, "Methods in Neuroscience"
- 1997- Honors Colloquium 295h, "Discovering the Brain"
- 1998- Neuroscience 282, "Biology of Sensation" (General Education, Tier 2)

##### Georgetown University:

- 1982-87 "Gross Anatomy" for first-year medical and dental students
- 1986 Graduate Seminar in Anatomy and Cell Biology

#### **Courses in which I had a minor teaching role**

##### University of Arizona:

- 1988-89 Anatomy 605/805, "Neurosciences" for first-year medical students
- 1988-94 Anatomy 402, "Principles of Neuroanatomy"
- 1988-92 Physiology 618, "Neurophysiology for Neurologists" refresher course for neurology and neurosurgery residents
- 2003 Neuroscience 588, "Principles of Cellular, Molecular, and Developmental Neurobiology"

##### Georgetown University:

- 1984-87 "Medical Neurobiology" for first-year medical students
- 1985 "Advanced Head and Neck Anatomy" for neurology and ENT residents

#### **Postdoctoral Fellows/Research Associates in my laboratory group:**

- Dr. Lynne Oland, 1985 - 90
- Dr. Fumio Yokohari, 1988 - 89 (shared with Dr. John Hildebrand)
- Dr. Raphael Cantera, 1989 - 90 (shared with Drs. Richard Levine and John Hildebrand)
- Dr. Sheila Kirschenbaum, 1992 - 95
- Dr. Dagmar Malun, 1992 - 93
- Dr. Xue Jun Sun, 1991 - 94 (shared with Dr. Hildebrand)
- Dr. Nicholas Gibson, 1993 - present (shared with Dr. Hildebrand from 7/95 to 6/01)
- Dr. Wolfgang Roessler, 1995 - 2000 (shared with Dr. Hildebrand)
- Dr. Hector Marrero, 1995 - 98 (supervised by Dr. Lynne Oland in my group)
- Dr. Christian Lohr, 1999 - 2001 (supervised by Dr. Lynne Oland in my group)
- Dr. Brian Lipscomb, 2001 - 04

Dr. Antony Day, 2003 - 04

**Graduate students who have completed or are working toward degrees with me:**

Catherine Krull, 1989 - 93 (Ph.D. in Anatomy)

Suzanne Dubuque, 1994 - 98 (Ph.D. in Cell Biology and Anatomy)

Elisa Chase, 1995 - 99 (M.S. in General Biology)

Anita Rado (now Goriely), 1996 - 98 (Ph.D. in Applied Mathematics under joint mentorship by  
Dr. Timothy Secomb in Applied Mathematics and me)

Eric Tucker, 1998 - 2002 (Ph.D. in Cell Biology and Anatomy)

Tasneem Ashraf, 2002 - present (working toward M.S. in General Biology)

Jennifer Crane, 2002 - 04 (M.S. in Neuroscience)

Larry Chandler, 2003 - present (working toward M.S. in General Biology)

**Undergraduate students in my laboratory group:**

34 since 1987, including present students:

Mohammed Abdelwahab, 2003 - present

John Biebelhausen, 2003 – present

**Flinn Scholars for whom I served as faculty mentor:**

Rob Ashley

Katrina Van Santen

Patricia Baumann

Ingrid Burger

Michelle La

Mary Fan

Rupesh Amin

Lauren Hall-Lew

Samuel (Mike) Anderson

**High school students hosted for research projects in my laboratory:**

10 since 1989, including students from Tucson Magnet High School and University High School

**Visiting scientists hosted by my laboratory:**

Ulrike Binkle, 1992 (from University of Konstanz, Germany)

Mike Tveten, 1993 and 1994 (from Pima Community College)

Thomas Speth, 1994 (from University of Regensburg, Germany)

Zdenka Syrova, 1995 (from the Entomology Institute, Czech Republic)

Rainer Wegerhoff, 1997 and 1999 (from University of Kiel, Germany)

Brian Key, 2001 (from University of Queensland, Australia, sponsored by U. of Arizona's  
BRAVO! Program)