# Karen F. Greif

Dept. of Biology
Bryn Mawr College
Bryn Mawr, PA 19010
Tel: 610-526-5092 FAX: 610-526-5086
EMAIL: kgreif@brynmawr.edu

#### **Education**

A.B. 1973 Human Biology, Brown University, Providence, RIPh.D. 1978 Psychobiology and Biochemistry, California Institute of Technology, Pasadena, CA. Dr. Roger W. Sperry, thesis director.

### **Professional Appointments**

- Sept. 1982- Dept. of Biology, Bryn Mawr College, Bryn Mawr, PA
   Department Chair, June 2006-09, Professor, 1994-, Department Chair, 1993-96,
   Associate Professor 1989-94, Assistant Professor 1982-89
- April-July 1978 Postdoctoral Fellow, Division of Biology, California Institute of Technology with Dr. Elias Lazarides
- Sept. 1978-July 1981 Postdoctoral Fellow, Dept. of Physiology, University of California Medical Center, San Francisco, CA with Dr. Louis F. Reichardt
- Aug 1981-July 1982 Postdoctoral Fellow, Dept. of Physiology, University of California Medical Center, San Francisco, CA with Dr. Amy S. Kelly
- 1983-84 Visiting Assistant Professor, Dept. of Anatomy, Medical College of Pennsylvania, Philadelphia, PA
- 1989-90 Visiting Associate Professor, Dept. of Biology, Univ. of California, Los Angeles, CA with Dr. Allan J. Tobin
- 1996-97 Program Officer, Office of Scientific and Engineering Personnel, National Research Council, National Academy of Sciences, Washington, DC
- 2003-04 Visiting Fellow, Center for Bioethics, University of Pennsylvania
- 2009-10 Visiting Faculty, Dept of Neurobiology, Drexel Univ. College of Medicine with Dr. Gianluca Gallo
- 2014-15 Visiting Faculty, Shriners Hospitals Pediatric Research Center, Temple University School of Medicine with Dr. Gianluca Gallo

#### **Honors and Awards**

- 1970 National Merit Scholarship Finalist
- 1970-71 Pembroke College (Brown Univ.) Alumnae Scholar for Western New England
- Summer 1972 National Science Foundation Summer Research Apprentice, California Institute of Technology
- 1974-78 NIH Predoctoral Trainee, California Institute of Technology
- 1975-76 Chairperson, Graduate Student Council, California Institute of Technology, member 1974-77

1975-76 Chair, Ad-hoc Committee (faculty, student, administration) on Student Grievance Procedures, California Institute of Technology

1978-80 Fellow of the Muscular Dystrophy Association of America

1989-90 NRSA Senior Research Fellowship

1996-97 Visiting Investigator Program, National Center for Human Genome Research (declined)

2006 Fellowship to attend 12<sup>th</sup> Annual Conference on Teaching Survival Skills and Ethics

## **Scientific Memberships**

American Association for the Advancement of Science Society for Neuroscience Society for Developmental Biology American Society for Cell Biology Association for Women in Science Association for Politics and the Life Sciences

#### **Grant Support**

Current:

April 2012- Bryn Mawr College Faculty Award, \$3,500 August 2015- HHMI New Directions, \$8,000.

### Previous:

July 1983-June 1988 Dysautonomia Foundation, Inc., "Regulation of synaptic vesicle antigens in sympathetic ganglia", \$50,011.00

1983-84 Biomedical Research Support Grant (through Bryn Mawr College), \$2,400.00

1984-85 National Science Foundation, PCM 84-00267, "Purchase of a light microscope with epifluorescence and Nomarski optics", \$26,000.00

1984-85 Bryn Mawr College Faculty Research Award, "Localization of synapses in rabbit superior colliculus", \$485.00

1985-86 Bryn Mawr College Faculty Research Award, \$7,500.00

June 1986-May 1989 National Science Foundation, BNS-8519673, "Transsynaptic regulation of sympathetic ganglion development", \$88,889.00

Sept. 1986-May 1988 Alzheimer's Disease and Related Disorders Association, Inc., "The role of synaptic activity in regulation of a synaptic vesicle antigen in the adult and aging rat sympathetic nervous system", \$19,681.00

1988-89 BRSG (BMC) "Trophic effects on sympathetic ganglion development", \$973.00

1989-90 NIH NRSA Senior Fellowship 1 F33 NS08713-01, "Gene expression in developing sympathetic ganglia", \$33,000.00 (Fellowship support for Sabbatical Leave)

June 1991-Jan 1992 Pew Program In Undergraduate Education: Collaborative Research Program (with M.-F. Chesselet, U. Penn.) "Applications of synaptic vesicle probes to studies of development and plasticity in neural systems" \$5,500.00

July 1992-June 1993 Bryn Mawr College Faculty Research Award, \$1,000.00

July 1, 1992 - June 30, 1993 Dysautonomia Foundation, Inc. "Gene regulation in developing sympathetic ganglia", \$10,000.00

June 1990- May 1994 National Science Foundation, BNS 88-19763, "Regulation of sympathetic ganglion development in vitro", Total direct plus indirect costs: \$198,586.00.

- July 1996-July 1997. National Center for Human Genome Research/ NIH "Visiting Investigator Program" approx. \$45,000 (Sabbatical Leave Support). Awarded but declined.
- June 1, 1994-May 31, 1997. NIH (AREA) 1-R15-NS31732 "Gene expression in developing cerebellum" \$91,270.
- Sept. 1995-June 2000. USRA/NASA "Cooperative University-based program in earth system science education" \$25,000. (Mark Johnsson, PI; Karen Greif, Co-PI)
- Sept. 1 1997-Feb 28, 2001. NIH (AREA) R15-NS36383, Synaptic vesicle proteins in developing rat SCG, \$74,237 (direct costs), \$94,348 (direct plus indirect).
- July 31, 2000-June 30, 2002 NSF, Purchase of a confocal microscope for biological research (PD. Brodfuehrer, PI, K. Greif Co-PI) \$169,695.
- April 1, 2001-Aug 1, 2002, Bryn Mawr College Faculty Research Award, \$3000.
- Sept. 2002-May, 2003 Mellon Tri-College Fellowship (teaching release time only) Policy-making and the biological sciences.
- Aug. 2002-July 2006 NIH AREA R15 NS40303 "Synaptic proteins in sympathetic neurons," \$139,648
- Sept. 2003-February 2007 Bryn Mawr College, Marion Bridgman Slusser Fund, \$3,000.
- Jan 2008-June 2009. Pennsylvania Health Research Formula Fund Award, \$12,570

#### **Current Research**

I am studying developmental patterns of expression of synaptic proteins proposed to play critical roles in control of vesicle fusion during synaptic transmission and recently implicated in axon branching. Cellular and molecular biological approaches are employed in vitro.

I am also engaged in research on aspects of policy-making in the biological sciences.

#### **Professional Activities**

- 1983-88 Society for Neuroscience, Philadelphia Chapter: Councillor, 1983-85, Vice-President, 1985-86; President, 1986-87; Past-President, 1987-88
- 1983-85 Secretary/Treasurer, Sigma Xi, Bryn Mawr College Chapter
- 1985 Co-organizer, Symposium on Neuroscience, Bryn Mawr College
- 1985-88 Society for Neuroscience, Chapters Committee, member
- 1986 Honors Examiner, Dept. of Biology, Swarthmore College
- 1988-91 Pew Science Program in Undergraduate Education (Mid-Atlantic Region), Cell and Molecular Biology Curriculum Planning Committee
- 1989-91 Program Committee, Winter Conference on Brain Research
- 1990-99 Science-by-Mail (program in science for children), Participant
- 1993-95 Program Committee, Winter Conference on Brain Research
- 1994-98 Board of Directors, Winter Conference on Brain Research
- 1997-2003 Facilities Chair-Elect (and Secretary of the Board-Elect), Facilities Chair, Facilities Past-Chair (2-year terms each), Winter Conference on Brain Research
- Feb. 1998 Howard Hughes Medical Institute Predoctoral Fellowship Review Panel
- 1998-2000 CIES Fulbright Specialist Review panel for Life Sciences-Animal Science
- Nov. 1998 Textbook reviewer, Saunders Publishing Company

Feb. 2000 Howard Hughes Medical Institute Predoctoral Fellowship Review Panel

2002-08 Director of Educational Outreach, Winter Conference on Brain Research

2003-12 Program Committee, Winter Conference on Brain Research

June 2006 Conference on Teaching Survival Skills and Ethics, Snowmass, CO

April 2007 Outside consultant for the Dept. of Biology, College of Notre Dame, Baltimore MD

2008-12 Board of Directors, Winter Conference on Brain Research

2009-12 Town Meeting Coordinator, Winter Conference on Brain Research

2009 Outside reviewer for faculty promotion, Vassar College

2010-16 Travel Fellowship review committee, Winter Conference on Brain Research

2016 Outside reviewer for faculty promotion, Arcadia University

Reviewer for <u>Science</u>, <u>Neuroscience Letters</u>, <u>Journal of Neurochemistry</u>, <u>Brain Research</u>, Neuroscience

#### Federal Review Panels:

1986 National Science Foundation, Neuroscience Oversight Review Committee

Feb 1989 NIH NLS-1 Study Section, Ad-hoc Member

Dec 1991 National Science Foundation, BBSS-REU (Research Experiences for Undergraduates)
Review Panel

June 1994 National Science Foundation, Academic Research Infrastructure (ARI) Program, Facilities Modernization Review Panel

July 1996 NIH, Neurology B-2 Study Section, NRSA Fellowship Review

Nov 2004 NIH, ZNS1 SRB-M Study Section, Fellowship Review

April 2005 NIH, ZNS1 SRB-M Study Section, Fellowship Review

July 2005 NIH, ZNS1 SRB-M Study Section, Fellowship Review

1988- Ad-hoc reviewer of research proposals, NSF (Developmental Neuroscience). Most recent: Sept 2013.

#### Other leadership positions:

1994-2008 Board of Directors, Chamber Music Conference and Composer's Forum of the East, Inc. 1995-2008 Secretary of the Board and member of the Executive Committee

### Master's and Doctoral Theses Supervised

- Holly I. Trenchard, Ph.D. awarded May 1987, "Studies on the role of transsynaptic activity as a factor regulating postnatal development in the rodent superior cervical ganglion," formerly Research Scientist, University Science Center, Philadelphia, PA.
- Karen M. Linderman Cianci, Ph.D. awarded May 1989, "Effects of neuronal membrane depolarization on sympathetic ganglion development," currently Dean of the School of Arts and Sciences, Fresno Pacific University.
- Zhen Shi, M.A. awarded May 1993, "Synaptotagmin (p65) and Synapsin 1 mRNA expression in adult and developing rat superior cervical ganglia", Ph.D. University of South Florida, 2006, Postdoc Univ. Illinois, Champaign-Urbana.
- Sujatha Narayan, Ph.D. awarded May 2001, "Synaptic protein expression and trafficking in developing sympathetic neurons in vitro and in vivo", M.A. 1996, "Time course of expression of vesicle proteins during postnatal development of the rat superior cervical ganglion", currently Research Specialist, Janelia Farms, VA

#### **Doctoral Committees Chaired:**

Nancy Kraus, Ph.D. '92, Chemistry

Nancy Bauer, Ph.D. '98, Graduate School of Social Work and Social Research

Kelly Butler, Ph.D. '01, Chemistry

Jun-Jun Mao, Ph.D. '01, Chemistry

James Schweppe, Ph.D., Dec. '05, Chemistry

Roland Stahl, Ph.D '08, Graduate School of Social Work and Social Research

Yevgeniya Ratnovsky, Ph.D.'09, Clinical Developmental Psychology

Ryan Fealy, Ph.D. '14, Chemistry

Eva Goedhart, Ph.D.'15, Mathematics

Anne Castley, Ph.D, '16, Psychology

Renee Gelblat, Dept. of Geology (MA only awarded)

Number of senior theses supervised: 101

#### **Bibliography**

Books:

- National Research Council (Committee on Dimensions, Causes and Implications of Recent Trends in the Careers of Life Scientists). 1998. <u>Trends in the Early Careers of Life</u> Scientists, Washington DC, National Academy Press, 178 pp.
- Greif, K.F. and J. F. Merz. 2007. <u>Current Controversies in the Biological Sciences: Case studies of policy challenges arising from new technologies</u>, Cambridge, MIT Press, 372 pp.

Full Papers (peer reviewed):

- Greif, K.F. 1976. Bilateral memory for one-trial passive avoidance in chicks. Behav. biol. 16: 453-462.
- Greif, K.F. and M.Y. Scott. 1980. Intraretinal transfer of a color discrimination task in goldfish. Exp. neurol. 67: 492-503.
- Greif, K.F. and M.Y. Scott. 1980. Interocular transfer of color discrimination after tectal lesions in goldfish. Exp. neurol. 67: 504-512.
- Greif, K.F. and L. F. Reichardt. 1982. Appearance and distribution of neuronal cell surface and synaptic vesicle antigens in the developing rat superior cervical ganglion. J. neurosci. 2:843-852.

- Greif, K.F. and A.S. Kelly. 1983. Quantitation of synaptic vesicle antigen in rabbit superior colliculus during normal development and after neonatal visual cortical lesion. Brain res. 275: 143-147.
- Reichardt, L.F., W.D. Matthew, A.D. Lander, K. Tomaselli, R.Greenspan and K.F. Greif. 1984. Applications of monoclonal antibodies to studies on neurite outgrowth and synapse formation. in Neuroimmunology, (P.O. Behan and F. Spreafico, eds.), New York, Raven Press, pp 99-112.
- Greif, K.F. and H.I. Trenchard. 1984. Evidence for transsynaptic regulation of neuronal heparan sulfate proteoglycan in developing superior cervical ganglion. J. cell. biochem. 26: 127-133.
- Greif, K.F. and H.I. Trenchard. 1985. Evidence for transsynaptic regulation of neuronal heparan sulfate proteoglycan in developing superior cervical ganglion. Reprint of above article in Neurobiology: Molecular Biological Approaches to Understanding Neuronal Function and Development (UCLA Symposium on Molecular Biology), (P. O'Lague, ed.), Vol. 24: 1-7.
- Greif, K.F. 1986. Plasticity of expression of a synaptic vesicle antigen in the adult rat superior cervical ganglion. J. neurosci. 6: 3628-3633.
- Greif, K.F. 1987. Deafferentation-induced increases in a synaptic vesicle antigen in the adult rat superior cervical ganglion are associated with new protein synthesis. Neurosci. Lett. 83: 133-137.
- Greif, K.F. and H. Trenchard. 1988. Neonatal deafferentation prevents normal increases in synaptic vesicle antigens in the developing rat superior cervical ganglion. Synapse 2: 1-6.
- Greif, K.F. and Flaherty, K.N. 1989. Changes in expression of a synaptic vesicle antigen in aging sympathetic neurons. Neurobiology of Aging, 10: 51-54.
- Linderman, K.M. and K.F. Greif. 1990. Membrane depolarization regulates expression of a synaptic vesicle protein in rat superior cervical ganglia in vitro. J. neurobiol.21: 295-302.
- Greif, K.F., M.G. Erlander, N.J.K. Tillakaratne, and A.J. Tobin. 1991. Postnatal expression of glutamate decarboxylases in developing rat cerebellum, Neurochem. Res. 16: 235-242.
- Greif, K.F., N.J.K. Tillakaratne, M.G. Erlander, S. Feldblum and A.J. Tobin. 1992. Transient developmental increase in expression of a glutamate decarboxylase (GAD) mRNA in postnatal rat striatum, Devel. Biol. 153: 158-164.
- Greif, K.F. and K.N. Flaherty. 1992. Age-dependent effects of deafferentation of the rat superior cervical ganglion on expression of p65 (synaptotagmin) during postnatal development, Neurosci. Let.142: 22-26.

- Tillakaratne, N.J.K., M.G. Erlander, M.W. Collard, K.F. Greif, and A.J. Tobin. 1992. Glutamate decarboxylases in nonneural cells of rat testis and oviduct: Differential expression of GAD<sub>65</sub> and GAD<sub>67</sub>, J. neurochem. 58: 618-627.
- Greif, K.F. 1994. Expression of pre-proenkephalin mRNA during postnatal development of rat superior cervical ganglion. Neurosci. Lett. 180: 203-208.
- Greif, K.F. 1997. Bringing science policy into the classroom: a model course, Politics and the Life Sciences 16 (1): 131-133.
- Greif, K.F., C.V. Kuh and J.A. Voytuk. 1997. Career trends for new doctorates in astronomy and astrophysics. Bulletin of the American Astronomical Society. 29(5): 1449-1465. (special volume: the American Astronomical Society's Examination of Graduate Education in Astronomy)
- Greif, K.F. 2001. 3', 5'-cyclic adenosine monophosphate regulates expression of synaptotagmin in neonatal sympathetic ganglia in vitro, J. Neurobiol., 46: 281-288.
- Narayan, S. and K.F. Greif, 2004. Transport of a synaptotagmin-YFP fusion protein in sympathetic neurons during early neurite outgrowth *in vitro* after transfection *in vivo*. J. Neurosci. Methods 133: 91-98. (published online 23 December 2003)
- Greif, KF. 2007. Can we model a cell? Emergent approaches to biological research, Soundings 90: 91-101 (Dec. 2007).
- Greif, K.F., N. Asabere\*, G. J. Lutz and G. Gallo. 2013. Synaptotagmin-1 promotes the formation of axonal filopodia and branches along the developing axons of forebrain neurons, Dev Neurobiol. 2013 Jan; 73(1):27-44. Published online in Wiley Online Library (wileyonlinelibrary.com). DOI 10.1002/dneu.22033, July 27, 2012.
- Winkle, C., K. Taylor, E. Dent, G. Gallo, K.F. Greif and S. Gupton. 2016. Beyond the Cytoskeleton: The Emerging Role of Organelles and Membrane Remodeling in the Regulation of Axon Collateral Branches Developmental Neurobiology, submitted Feb 17, 2016, accepted Apr 21, 2016. (all authors contributed equally). Published Wiley Online Library (wileyonlinelibrary.com) 9 May 2016 | DOI: 10.1002/dneu.22398.

#### Papers in preparation:

Greif, KF, A. Brandtjen\*, C Weichelsbaum\*, Pacheco-Garcia, A., M Currie\*, C Schoonover\*, H Lehman\*, N Ashok\*, S. Gandarez\* and G. Gallo. Synaptotagmin acts as a calcium sensor to promote axon filopodia and branching in developing neurons.

#### **Book Reviews:**

Greif, K.F. 1996. Review of <u>The Coevolutionary Process</u> by John N. Thompson, Politics and the Life Sciences 15 (2): 344-346.

#### Miscellaneous Publications:

- Greif, K.F. 1987. Fascinating patterns: careers in Neuroscience. Bryn Mawr NOW, (Spring/Summer, 1987).
- Greif, K.F. 2003. Academics are teachers and colleagues too (letter), Nature 421: 13.

#### Abstracts:

- Greif, K.F. and M.Y. Scott. 1977. Localization and generalization of visual memory after tectal lesions in goldfish. Soc. neurosci. abstr. 3: 234.
- Scott, M.Y., K.F. Greif and R.W. Sperry. 1977. Survival of visual discrimination learning after ablation of trained tectal regions in goldfish. Anat. rec. 187: 778.
- Greif, K.F., W.D. Matthew, and L.F. Reichardt. 1981. Postnatal development of rat superior cervical ganglion as monitored by binding of monoclonal antibodies. Soc. neurosci. abstr. 7: 669.
- Greif, K.F. and A.S. Kelly. 1982. Effect of visual cortex ablation on synaptic vesicle antigen in the developing rabbit superior colliculus. Soc. neurosci. abstr. 8: 864.
- Reichardt, L.F., A.L. Calof, P.D. Gorin, R.J. Greenspan, K.F. Greif, A.D. Lander, W.D. Matthew, D.L. Shelton, K. Tomaselli and J. Winter. 1983. Studies on neurotrophic and substrate-attached neurite outgrowth factors. Neurosci. Let. Suppl. 14: S302. (Abstract-Seventh European Neuroscience Congress).
- Greif, K.F. and H.I. Trenchard. 1984. Transsynaptic regulation of neuronal cell surface and synaptic vesicle antigens in the developing rat superior cervical ganglion. J. cell biochem. 8B: 116. (UCLA Symposium on Molecular Neurobiology).
- Greif, K.F. and H.I. Trenchard. 1984. Evidence for transsynaptic regulation of synaptic vesicle and neuronal cell surface antigens in rat superior cervical ganglion. Soc. neurosci. abstr. 10: 1056.
- Greif, K.F. 1985. Plasticity of synaptic vesicle number in adult rat superior cervical ganglion following deafferentation and ganglionic blockade. Soc. neurosci. abstr. 11:1103.
- Greif, K.F. and K.M. Linderman.1986. Role of impulse activity in regulation of expression of a synaptic vesicle antigen in the rat superior cervical ganglion. Soc. neurosci. abstr. 12: 1109.
- Trenchard, H. and K.F. Greif. 1986. Enhanced synaptic activity regulates a synaptic vesicle antigen in the rat superior cervical ganglion. Soc. neurosci. abstr. 12: 1109.

- Linderman, K.M. and K.F. Greif. 1987. In vitro studies on the role of activity in the expression of a synaptic vesicle protein in the rat superior cervical ganglion, Soc. neurosci abstr.13: 1613.
- Trenchard, H., P. Beaston-Wimmer, K.F. Greif and A.J. Smolen. 1987. Catecholamine levels and turnover in the sympathetic nervous system of spontaneously hypertensive rats, Soc. neurosci. abstr.13: 684.
- Greif, K.F. and K.N. Flaherty. 1988. Expression of a synaptic vesicle protein after deafferentation of the superior cervical ganglion differs with age, Soc. neurosci. abstr.14: 518.
- Linderman, K.M. and K.F. Greif. 1989. Depolarization induced changes in synaptic vesicle protein (p65) expression in SCG explants, Soc. neurosci. abstr.15: 1202.
- Greif, K.F., N.J.K. Tillakaratne, M.G. Erlander and A.J. Tobin. 1990. Transient increase in expression of a GAD mRNA during postnatal development of rat striatum, Soc. neurosci. abstr.16: 1292.
- Khrestchatisky, M., K.F. Greif, R. Weatherwax and A.J. Tobin. 1990. Developmental distribution of the mRNAs encoding the  $\alpha$ -1,  $\alpha$ -2, and  $\alpha$ -4 polypeptides of the GABA<sub>A</sub> receptor, Soc. neurosci. abstr. 16: 379.
- Tillakaratne, N.J.K., M.G. Erlander, K.F. Greif, G.D. Frantz and A.J. Tobin.1990. Molecular identity of brain glutamic acid decarboxylase (GAD) forms in rat oviduct and testis, Soc. neurosci. abstr.16: 695.
- Greif, K.F. and A.J. Tobin. 1991. Expression of pre-proenkephalin messenger RNA in developing rat superior cervical ganglion. Soc. neurosci abstr. 17: 1125.
- Greif, K.F., H. Fahl and E. Lederman\*. 1992. Second messenger regulation of the synaptic vesicle protein p65 (synaptotagmin) in rat sympathetic ganglia in vitro, Soc. neurosci. abstr.18: 477.
- Greif, K.F., H. Fahl, D. Frederick,\* F. Kim\* and S. Yang\*. 1993. Target tissue regulation of p65 (synaptotagmin) in sympathetic ganglia in vitro, Soc. neurosci. abstr. 19: 1100.
- Greif, K.F. 1994. Beyond specificity Cell-cell interactions in neural development, APA Annual Convention Abstracts.
- Narayan, S. and K.F. Greif. 1995. Time course of expression of vesicle proteins during postnatal development of rat superior cervical ganglion, Soc. Neurosci. Abstr. 21: 800.
- Narayan, S. and K.F. Greif. 1997. Differing patterns of expression of synaptic vesicle proteins in the developing rat superior cervical ganglion, Soc. Neurosci. Abstr. 23: 1972.

- Narayan, S. and K.F. Greif. 1998. Pattern of expression of synaptic vesicle proteins in the developing rat pineal gland, Soc. Neurosci. Abstr. 24: 2000.
- Narayan, S. and K.F. Greif. 2000. Induction of expression of a synaptotagmin-YFP fusion protein in developing rat sympathetic ganglia by adenovirus-mediated transfection in vivo. Soc. Neurosci. Abstr. 26: 301.
- Narayan, S. and K.F. Greif. 2001. Transport of a synaptotagmin-YFP fusion protein in sympathetic neurons during early neurite outgrowth in vitro after transfection in vivo. Soc. Neurosci. Abstr., 27: Program No. 891.7.
- Stearns, C.R.\*, S. Gu and K.F. Greif. 2005. Differential transport of synaptic proteins in sympathetic neurons in vitro, Neurosci. Abstr., Program No. 713.2
- Greif, K.F., F. Badiane\*, K. Krasnec\*, S. Chan\*, S. Jackson\* and N. Asabere\*. 2007. Knockdown of synaptotagmin by RNAi influences axon outgrowth in sympathetic neurons in vitro, American Society for Cell Biology Annual Meeting Program #1277.
- Greif, K.F. N. Asabere\*, G. J. Lutz and G. Gallo. 2010. Synaptotagmin-1 promotes the formation of axonal filopodia and branches in developing axons. American Society for Cell Biology Annual Meeting, Abstract number #1147.
- Greif, K.F., A Brandtjen\*, C Weichelsbaum\*, M Currie\*, C Schoonover\*, H Lehman\*, N Ashok\* and S Gandarez\* 2014 Synaptotagmin-1's Promotion of the Formation of Axonal Filopodia in developing Neurons is associated with Calcium Flux, American Society for Cell Biology Annual Meeting, December 2014, abstract #2077.

### **Courses Taught (Bryn Mawr College)**

Introduction to Biology (Bio 101, 102)

Basic Concepts in Biology (Bio 103)

Biological Explorations I (Bio 110)

Introduction to Neuroscience (Bio 202)

Biology and Public Policy (Bio 210)

Integrative Organismal Biology I and II (Bio 313, 314) (with P. Brodfuehrer, and S. Gardiner)

Developmental Biology (Bio 271) [part only]

Developmental Neurobiology (Bio 364, Bio 611)

Cell Biology (Bio 340)

Topics in Neurobiology - Trophic Factors (Bio 361)

Topics in Cell Biology: Protein Targeting (Bio 359)

Topics in Cell Biology: Signal Transduction (Bio 359)

Topics in Cell Biology: Cell Cycle (Bio 359)

Topics in Cell Biology: Second Messenger Mechanisms (Bio 359)

Topics in Cell Biology: Cancer (Bio 359)

Topics in Physiology (Bio 380), [part only]

Advanced Topics in Developmental Biology: Induction (Bio 371) (with M. Hollyday)

<sup>\*</sup> Bryn Mawr Undergraduate

Senior Seminar in Physiology (Bio 392) (with P. Brodfuehrer)

Senior Seminar in Cell Biology (Bio 395)

Senior Seminar in Environmental Sciences (Anthro/Bio/Geo 397)

Topics in Neural and Behavioral Sciences (Bio/Psych 396) (with Wendy Sternberg, with Anjali

Thapar, with Earl Thomas)

Senior Seminar in Science and Society (Bio 398)

Senior Seminar in Laboratory Investigations (Bio 399)

Supervised Research (Bio 405, Bio 403, Bio 401)

Praxis III (2007, 2009, 2011, 2012 (2), 2013, 2014 (2), 2016)

We Live Here: Humans and the Environment (College Seminar 002)

Guest Lecturer: Science of Information (CS 380), "Cellular signaling and information"

# **College Service and Activities**

Faculty Comm	nittees and Service:	
1982-89	Class of 1902 Lecture Fund	
1982-85	Undergraduate Council	
1983-84	Undergraduate Curriculum	
1983-84	Academic Computing	
1983-85	Ad-hoc Committee on Special Academic Programs	
1983-85	Planning Committee for Science Complex	
1984-85	Search Committee for Graduate Dean	
1985-	Institutional Animal Care and Use Committee (IACUC). Convener, 1994-	
1986-89	Dana Selection Committee	
1986-89	Committee on Culture and Technology (Sloan New Liberal Arts Program)	
1987-94, '97-'03, '05-'06, '12- Undergraduate Major Advisor, Dept. of Biology		
1988-89	Undergraduate Admissions	
1990-91	Search Committee for Chemistry	
1990-93	Graduate Council, Secretary 1991-93	
1990-93	Representative to the Bryn Mawr Council	
1991-94	Faculty Representative to the Board of Trustees	
1992-93	Ad-hoc Committee for Biology at Haverford (Search Committee)	
1992-93	Director, Minority Women in Science Program	
1993-95	Grand Marshall for Commencement	
1993-95	Faculty Representative to the Seven College Conference	
1993-94	Committee on Health Benefits	
1993-96	Committee for the Coordination of the Sciences, Chair 1994-96	
1994-95	Ad-hoc Committee for Biology at Haverford (Search Committee)	
1994-95	Task Force on Smoking Policy	
1997-98	Acting-Director, Environmental Sciences Concentration	
1998-00	Nominating Committee, Chair 1999-00	
1998	Graduate Council (Sem I)	
1998-99	Advisory Committee to Writing Center	
Jan. 1999-02	Director, Environmental Studies Concentration	
Feb. 1999	Glossator for review of Prof. Karl Johnson, Dept. of Biology, Haverford College	
1999-2002	Undergraduate Awards and Fellowships Committee	
2000-2005	Secretary of the Faculty of Arts and Sciences	

2000-01	Search Committee, Dept. of Geology
2004-05	Task Force on Governance (Trustees, Administration, Faculty)
2004-06	Committee on Independent Majors
2005	Search Committee for Assistant Dean, Undergraduate College
2005-09	Undergraduate Awards and Fellowships Committee
2005-06	Search Committee for Environmental Policy faculty position (Cities/Sociology)
2006-07	Council on Academic Standing, Convener
2007	Acting Director, Environmental Studies (Sem II)
2008-10	Graduate Council
2010-14	Major Adviser, Biology
2013-16	Committee on Endowed Lectures
2015-19	Committee on Appointments
2016(Spring)	Major Adviser, Biology
Events:	J , ES
4/83	Women in Science, Panel Moderator
9/83	Freshman Customs Week, Curriculum Panelist
10/83	Parents' Day, Speaker
2/84	Figaro Project, Orchestra Member, Marriage of Figaro
9/84	Freshman Customs Week, Curriculum Speaker and Panelist
3/84	Symposium on Neuroscience, Co-organizer
1985-	Chamber Music Society at Bryn Mawr College, Founding Member
11/86	Parents' Day, Lecture-Demonstration
5/88	Alumnae College, Faculty
11/88	Parents' Day, Speaker
10/91	Parents' Day, Speaker
4/93	Open Campus Day, Panelist
11/93	Perspectives Program (Resources), Speaker
2/99	Speaker, Provost's faculty lecture series
10/99	Speaker, Parents' Day
6/02	Speaker, Reunion Weekend
4/05	"Master Teacher," Open Campus Day
5/07	First Friday Speaker
Other college	service:
Summer 2006-08 Workshops on Survival Skills and Research Ethics for undergraduate summer research fellows	
March 2009	Presentation to Graduate Student Group in the Sciences Research Ethics

March 2009 Presentation to Graduate Student Group in the Sciences, Research Ethics

Summer 2010-16 Workshops on Survival Skills and Research Ethics for undergraduate summer research fellows

Fall 2012-14	Faculty representative to 4+1 Engineering Program with UPenn
2011-13	Academic Advisor to Independent Major, Priya Gupta '13
2013-15	Academic Advisor to Independent Major, Manahil Siddiqi '15
2014-16	Academic Advisor to Independent Major, Medha Ghosh '16

# Papers presented at scientific meetings

11/77 Society for Neuroscience Annual Meeting, Anaheim, CA

- 11/81 Society for Neuroscience Annual Meeting, Los Angeles, CA
- 11/82 Society for Neuroscience Annual Meeting, Minneapolis, MN
- 3/83 Philadelphia Chapter Society for Neuroscience, Regional Meeting
- 5/83 Dysautonomia Foundation Annual Symposium, New York, NY
- 6/83 Gordon Research Conference on CNS Development, Tilton, NH
- 3/84 Philadephia Chapter Society for Neuroscience, Regional Meeting
- 4/84 UCLA Symposium on Molecular Neurobiology, Keystone, CO
- 5/84 Dysautonomia Foundation Annual Symposium, New York, NY
- 10/84 Society for Neuroscience Annual Meeting, Anaheim, CA
- 1/85 Winter Conference on Brain Research, Vail, CO
- 3/85 Philadelphia Chapter Society for Neuroscience, Regional Meeting
- 5/85 Dysautonomia Foundation Annual Symposium, New York, NY
- 6/85 Gordon Research Conference on CNS Development, Tilton, NH
- 7/85 Gordon Research Conference on Neuroplasticity, Wolfeboro, NH
- 10/85 Society for Neuroscience Annual Meeting, Dallas, TX
- 1/86 Winter Conference on Brain Research, Keystone, CO
- 3/86 Philadelphia Chapter Society for Neuroscience, Regional Meeting
- 5/86 Dysautonomia Foundation Annual Symposium, New York, NY
- 11/86 Society for Neuroscience Annual Meeting, Washington, DC
- 1/87 Winter Conference on Brain Research, Vail, CO
- 3/87 Philadelphia Chapter Society for Neuroscience, Regional Meeting
- 5/87 Dysautonomia Foundation Annual Symposium, New York, NY
- 6/87 Gordon Conference on CNS Development, Newport, RI
- 7/87 Gordon Conference on Neuroplasticity, Wolfeboro, NH
- 11/87 Society for Neuroscience Annual Meeting, New Orleans, LA
- 3/88 Philadephia Chapter Society for Neuroscience, Regional Meeting
- 5/88 Dysautonomia Foundation Annual Symposium, New York, NY
- 11/88 Society for Neuroscience Annual Meeting, Toronto, Ontario, Canada
- 1/89 Winter Conference on Brain Research, Snowbird, UT
- 4/89 Philadelphia Chapter Society for Neuroscience, Regional Meeting
- 6/89 Gordon Research Conference on Neural Development, Newport, RI
- 11/89 Society for Neuroscience Annual Meeting, Phoenix, AZ
- 1/90 Winter Conference on Brain Research, Snowmass, CO
- 10/90 Society for Neuroscience Annual Meeting, St. Louis, MO
- 1/91 Winter Conference on Brain Research, Vail, CO (Educational Outreach)
- 11/91 Society for Neuroscience Annual Meeting, New Orleans, LA
- 1/92 Winter Conference on Brain Research, Steamboat Springs, CO
- 6/92 Gordon Research Conference on Neural Development, Newport, RI
- 10/92 Society for Neuroscience Annual Meeting, Anaheim, CA
- 7/93 Gordon Research Conference on Neural Plasticity, Wolfeboro, NH
- 11/93 Society for Neuroscience Annual Meeting, Washington, DC
- 1/94 Winter Conference on Brain Research, Snowbird, UT
- 7/94 Gordon Research Conference on Neural Development, Newport, RI
- 8/94 APA Annual Convention, Los Angeles, CA
- 1/95 Winter Conference on Brain Research, Steamboat Springs, CO

- 9/95 Tri-College (Bryn Mawr, Haverford, Swarthmore) Symposium in the Life Sciences, Haverford, PA
- 11/95 Society for Neuroscience Annual Meeting, San Diego, CA
- 1/96 Winter Conference on Brain Research, Snowmass, CO (Educational Outreach)
- 10/97 Society for Neuroscience Annual Meeting, New Orleans, LA
- 1/98 Winter Conference on Brain Research, Snowbird, UT (Session Chair and Educational Outreach)
- 7/98 Gordon Research Conference on Neural Development, Newport, RI
- 10/98 Society for Neuroscience Annual Meeting, Los Angeles, CA
- 1/99 Winter Conference on Brain Research, Snowmass CO (Poster and Educational Outreach)
- 1/00 Winter Conference on Brain Research, Breckenridge, CO (Educational Outreach)
- 7/00 Gordon Research Conference on Neural Development, Newport RI
- 10/00 Society for Neuroscience Annual Meeting, New Orleans, LA
- 1/01 Winter Conference on Brain Research, Steamboat Springs, CO (Educational Outreach)
- 11/01 Society for Neuroscience Annual Meeting, San Diego, CA
- 1/02 Winter Conference on Brain Research, Snowmass, CO (Session Chair and Ed. Outreach)
- 1/03 Winter Conference on Brain Research, Snowbird UT (Session Chair and Ed. Outreach)
- 1/04 Winter Conference on Brain Research, Copper Mountain CO (Ed. Outreach)
- 1/05 Winter Conference on Brain Research, Breckenridge, CO (Educational Outreach)
- 11/05 Society for Neuroscience Annual Meeting, Washington DC
- 1/06 Winter Conference on Brain Research, Steamboat Springs, CO (Educational Outreach)
- 1/07 Winter Conference on Brain Research, Snowmass, CO (Session Chair and Ed. Outreach)
- 12/07 American Society for Cell Biology annual meeting, Washington DC
- 1/08 Winter Conference on Brain Research, Snowbird UT (Ed. Outreach)
- 2/09 Philadelphia Chapter, Society for Neuroscience (poster)
- 1/10 Winter Conference on Brain Research, Breckenridge CO (poster and Ed. Outreach)
- 12/10 American Society for Cell Biology annual meeting, Philadelphia PA (Poster)
- 1/11 Winter Conference on Brain Research (Educational Outreach)
- 1/12 Winter Conference on Brain Research (Educational Outreach)
- 1/13 Winter Conference on Brain Research (Speaker and Ed. Outreach)
- 1/14 Winter Conference on Brain Research (Ed. Outreach)
- 12/14 American Society for Cell Biology annual meeting, Philadelphia PA (Poster)
- 1/15 Winter Conference on Brain Research (Poster and Ed. Outreach)
- 6/15 First Annual Shriners-Temple Symposium on Neural Repair, Temple Univ School of Medicine. Philadelphia, PA (Poster)
- 1/16 Winter Conference on Brain Research (Ed. Outreach (not presented because of weather delays)

#### **Invited lectures**

- 1980 Pomona College, Claremont, CA
- 1981 University of Wisconsin, Kenosha, WI Union College, Schenectady, NY Oberlin College, Canton, OH
- 1982 Dept. of Anatomy, Univ. of California, San Francisco
   Medical College of Pennsylvania, Philadelphia, PA
   University of Maryland, Baltimore County, Catonsville, MD

	Carnegie-Mellon University, Pittsburgh, PA Bryn Mawr College, Bryn Mawr, PA
	State University of New York, Purchase, NY
	Thomas Jefferson University, Philadelphia, PA
1983	Seton Hall University, West Orange, NJ
1703	Villanova University, Villanova, PA
1984	St. Joseph's University, Philadelphia, PA
1985	Drexel University, Philadelphia, PA
1705	Cornell Medical College, New York, NY
1986	Franklin Institute, Philadelphia, PA
1987	Duke University, Durham, NC
1, 0,	Temple University, Philadelphia, PA
1988	Haverford College, Haverford, PA
	Temple University School of Medicine, Philadelphia, PA
	Univ. of Louisville School of Medicine, Louisville, KY
1993	Villanova University, Villanova, PA
1996	American Astronomical Society: Workshop on Graduate Education (NRC Presentation)
	Washington, DC
1999	Bryn Mawr College, Bryn Mawr PA
2000	Univ. of Maryland, Baltimore County, Catonsville, MD
2001	The Quadrangle, Haverford, PA "The human genome project"
	White Horse Village, Media, PA "The human genome project"
	Marlborough School, Los Angeles, CA
2002	Marlborough School, Los Angeles CA
2004	Martins Run, Media PA "Our genetic heritage"
	Center for Bioethics, Univ. of Pennsylvania, Philadelphia PA "Bioterrorism and the
	assault on Civil Liberties"
2007	University of Pittsburgh School of Medicine, Survival Skills and Ethics Program
	"Careers in 4-year colleges"
	Bryn Mawr College First Friday series: "Research in an age of bioterrorism"
	Martins Run, Media PA: "Evolution v. Intelligent Design"; "What is DNA?"
2008	Carnegie Mellon Univ, Pittsburgh PA." Careers in 4-year colleges"
	Martins Run, Media PA "Must our brains get old when we do?"
2009	University Of Pennsylvania, Philadelphia, PA, "Research in an age of Bioterrorism"
2010	Martins Run, Media PA "Diet and the Brain"
2012	Martins Run, Media PA "Sleep-Why Bother?"

# **Outside Interests**

Classical music (Oboe and English Horn); backpacking and outdoor activities (Sierra Club National Outings Leader); downhill and cross-country skiing; Asian cooking

2014 Martins Run, Media PA "Brain foods: fact or fiction?"

# References

Available upon request

# **Public Performances (Oboe and English Horn)**

Chamber Music Society at Bryn Mawr College:

- Fall 1986 Schumann Three Romances (with David Reibstein)
- Feb. 21, 1987 Mozart <u>Piano Quintet K. 452</u> (with Frank Mallory, David Hall, Hugh Rosenbaum and David Reibstein)
  - Poulenc <u>Trio for Piano, Oboe and Bassoon</u> (with Hugh Rosenbaum and David Reibstein)
- Oct. 18, 1987 Arnold Cooke Oboe Sonata (with David Reibstein)
- Feb. 21, 1988 Mozart <u>Divertimento #4 in B flat</u> (with Frank Mallory and Hugh Rosenbaum)
  Hindemith <u>Kleine Kammermusik Op. 24, No. 2</u> (with Sarah Herr, Frank Mallory, Elaine Richards and Hugh Rosenbaum)
  Beethoven <u>Piano Quintet Op. 16</u> (with Virginia Nez, Frank Mallory, Elaine Richards and Hugh Rosenbaum)
- Oct. 7, 1988 Aaron Copland Quiet City (with Sharon and Paul Burgmayer)
- Nov. 20, 1988 Randall Thompson <u>Suite for Oboe, Clarinet and Viola (1940)</u> (with Frank Mallory and Mary Rorro)

  Mozart <u>Oboe Quartet K. 370</u> (with Dulani Kulasinghe, Marit Danielson and Liz Schaefer)
- Mar. 5, 1989 Anton Reicha Quintet Op. 92, No.3 (with Andrea Bial, Frank Mallory, Elizabeth Hubbell and Hugh Rosenbaum)

  Jane Wilkinson Sonatine (1988) (with Frank Mallory) **WORLD PREMIERE**Ludwig Thuille Sextet in B flat, Op. 6 (with Andrea Bial, Frank Mallory, Elizabeth Hubbell, Hugh Rosenbaum and Virginia Nez)
- Oct. 7, 1990 Jean Francaix Quator (1933) (with Andrea Bial, Frank Mallory and Rebecca Nowlin)
- Nov. 11, 1990 Bach <u>Trio Sonata from the Musical Offering</u> (with Andrea Bial, Caroline Cunningham and Sharon Burgmayer)
- April 10, 1991 Benjamin Britten <u>Phantasy Quartet Op.2</u> (with Catherine Foster, Emily Baillargeon and Paul Melvin)
- Nov. 17, 1991 Franz Danzi Quintet Op. 56, No. 2 (with Andrea Bial, Frank Mallory, Victoria Lepore and Rebecca Nowlin)
- April 10, 1992 Franz Sussmayr <u>Quintet</u> (with Francesca Mariani, Catherine Foster, Bobby Paramsothy and Ingrid Nelson)
  Arthur Berger (1943) <u>Quartet</u> (with Adele Swank, Frank Mallory and Amanda Weidman)
- Nov. 15, 1992 Aaron Copland <u>Quiet City</u> (with Sharon and Paul Burgmayer)

  Beethoven <u>Piano Quintet Op. 16</u> (with Emily Bengels, Frank Mallory, Victoria Lepore and Rebecca Nowlin)
- Feb. 28, 1993 Wilkinson <u>Sonatine</u> (with Frank Mallory)
  Irving Fine <u>Partita</u> (with Adele Swank, Frank Mallory, Angela Stavropoulos and Rebecca Nowlin)
- April 25, 1993 Gordon Jacob <u>Sextet</u> (with Jennifer Zarutskie, Adele Swank, Frank Mallory, Angela Stavropoulos, and Rebecca Nowlin)

- Oct. 15, 1993 Mozart <u>Piano Quintet K. 452</u> (with Michael Isador, Frank Mallory, Angela Stavropoulos and Justin Miller)
- Oct. 16, 1994 Schumann Three Romances (with Michael Isador)
- April 9, 1995 Dvorak/Mallory Czech Suite (with Leslie Clifton, Leslie Burnick, Justin Miller, Rachel Braddick and Frank Mallory)
- Oct. 22, 1995 C.P.E. Bach- Trio Sonata (with Carol Amado and Paul Melvin)
- Oct.5, 1997 B. Marcello Oboe Concerto (with Michael Isador)
- Oct. 19, 1997 Randall Thompson- Suite (1940) (with Frank Mallory and Dominique Johnson)
- Nov. 3, 2000 Randall Thompson- Suite (1940) (with Frank Mallory and Federico Piantini)
- Oct. 27, 2001 Britten Phantasy- Quartet (with Mort Raff, Federico Piantini and Paul Melvin)
- May 11, 2002 Reicha- Quintet Op 91 #3, Allen Shawn- Woodwind Quintet #2 (world premiere) (with Roger Brooks, Frank Mallory, Abby Wells and James Dunne)
- Oct. 27, 2002 Malcolm Arnold- Oboe Quartet (with Janet Pinkow, Suzanne Stevens and Charles Thomas)
- Oct. 26, 2003 Jean Francaix- Quator (1933) (with Lindsay Cobbett, Frank Mallory and Lorraine Jewett)
- Feb. 29, 2004 Mozart- Divertimento K439, Trio K. 574 (with Frank Mallory and Neal Williams)
- Oct. 30, 2004 Alexandre Tansman- Trio (with Frank Mallory and Lorraine Jewett)
- Feb. 26, 2005 Ralph Vaughan-Williams- <u>Six Studies in English Folksong</u> (with Hilary Smith, Allison Avery, Paul Melvin, Frank Mallory and Neal Williams); Beethoven- <u>Quintet op.</u> 16 (with Janet Ahlquist, Frank Mallory, Rachel Braddick and Neal Williams)
- Oct 29, 2005 Poulenc- <u>Trio for Oboe</u>, <u>Bassoon and Piano</u> (with Neal Williams and Janet Ahlquist)
- Feb 25, 2006 Mozart C minor Serenade; Gordon Jacob Divertimento (with Elizabeth Dibble, Frank Mallory, Robert Stanley, Rachael Braddick, Charlotte Reckner, Neal Williams and Lorraine Jewett) [unable to perform because of illness]
- Oct 28, 2006 Mozart <u>E flat major serenade</u> (with Alexa Robertson, Frank Mallory, Robert Stanley, Rachael Braddick, Charlotte Reckner, Neal Williams and Lorraine Jewett); Copland <u>Quiet City</u> (with Sharon and Paul Burgmayer)
- March 3, 2007 Mozart <u>Trio K 574</u>; Alexandre Tansman- <u>Trio</u>; Paquito D'Rivera <u>Habanera</u> (with Frank Mallory and Lorraine Jewett)
- Nov 2, 2007 Janácek <u>Mladi Suite for Winds</u> (with Rebecca Simon, Robert Stanley, Rachel Braddick, Loren Stata and Frank Mallory)
- March 1, 2008 Ralph Vaughan-Williams <u>Six Studies in English Folksong</u> (with Frank Mallory et al); Hindemith, <u>Kleine Kammermusik Op 24. No 2</u> (with Rebecca Simon, Robert Stanley, Rachel Braddick, and Loren Stata)
- Nov 7, 2008 Gordon Jacob <u>Sextet</u> (with Steven Kamin, Rebecca Simon, Frank Mallory, Dick Martz, and Loren Stata)
- Mar 1, 2009 Irving Fine Partita (with Rebecca Simon, Frank Mallory, Rachel Braddick, and Loren Stata)
- Apr. 11, 2010 Beethoven Quintet for Piano and Winds (with Stephen Zukin, Frank Mallory, Rachel Braddick and Lorraine Jewett)
- Nov 14, 2010 Mozart <u>Piano Quintet K. 452</u> (with Stephen Zukin, Frank Mallory, Rachel Braddick and Lorraine Jewett)
- Nov 6, 2011 Nielsen Quintet, (with Rebecca Simon, Frank Mallory, Rachel Braddick, and Lorraine Jewett)

Nov 18, 2012 Brahms Op 25 (with Rebecca Simon, Frank Mallory, Rachel Braddick, Rachel Elliott and Stephen Zukin)

#### Other Performances:

Jan. 18, 1987 Mozart - <u>Symphonia Concertante KV. Anh. 1,9</u> (co-soloist with Martin Frank, Richard School and Benjamin Hoyle) Abington Chamber Orchestra, Abington, PA

July 22-23, 1988 Gilbert and Sullivan - <u>Trial By Jury</u> (pit orchestra), Gilbert and Sullivan Society of Chester County, West Chester University, West Chester, PA

Mar. 18, 1989 Rose Tree Pops Orchestra (first oboe), Swarthmore, PA

Oct. 10, 1990 Beethoven - <u>Trio in C, Op. 87</u> (with Frank Mallory and Jonathan Newmark)
Randall Thompson - <u>Suite for Oboe, Clarinet and Viola</u> Dept. of Chemistry, University of Pennsylvania, Philadelphia, PA

Nov. 15-17, 1990 Gilbert and Sullivan - <u>Patience</u> (pit orchestra), Gilbert and Sullivan Society of Chester County, West Chester University, West Chester, PA

Mar. 2, 1991 Francaix - Quator (with Andrea Bial, Frank Mallory and Rebecca Nowlin) Campaign for Bryn Mawr, Bryn Mawr College, Bryn Mawr, PA

Dec. 8, 1991 Antonin Dvorak - <u>Serenade, Op. 44</u> (First Oboe), McCrate Hall, Haverford College, Haverford, PA

April 24, 25, May 2, 1992 Paul Miller - <u>A Coal Region Opera</u> (orchestra) WORLD PREMIERE, Opera Works, Inc., Pottsville, PA.

Nov. 19-21, 1992 Gilbert and Sullivan - <u>Pirates of Penzance</u> (pit orchestra), Gilbert and Sullivan Society of Chester County, West Chester University, West Chester, PA.

Dec. 19, 1992 Rose Tree Pops Orchestra (first oboe), Media, PA

Oct. 17, 1993 Lansdowne Symphony (English Horn), Lansdowne, PA

Nov. 18-20, 1993 Gilbert and Sullivan - <u>Ruddigore</u> (pit orchestra), Gilbert and Sullivan Society of Chester County, West Chester, PA

Dec. 5, 1993 Lansdowne Symphony (English Horn), Lansdowne, PA

Apr. 24, 1994 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA

Oct. 2, 1994 Lansdowne Woodwind Quintet (music by local composers) Lansdowne Library, Lansdowne, PA

Oct. 30, 1994 Lansdowne Symphony (Oboe), Lansdowne, PA

Dec. 4, 1994 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA

Feb. 19, 1995 Lansdowne Symphony (Oboe and English Horn), Media, PA

April 23, 1995 Lansdowne Symphony (Oboe), Lansdowne, PA

Oct. 29, 1995 Lansdowne Symphony (Oboe), Lansdowne, PA

Feb. 11, 1996 Lansdowne Symphony (Oboe), Lansdowne, PA

Apr. 19, 21, 1996 Lansdowne Symphony (Oboe), Philadelphia, PA and Lansdowne, PA

Oct. 26, 1997 Lansdowne Symphony, Haverford, PA (Oboe)

Dec. 14, 1997 Lansdowne Symphony, Havertown, PA (Oboe and English Horn)

Feb. 8, 1998 Lansdowne Symphony, Lansdowne, PA (Oboe)

Apr. 26, 1998 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA

May 3, 1998 Lansdowne Symphony (Oboe and English Horn), Haverford, PA

Oct. 18, 1998 Lansdowne Symphony (Oboe and English Horn), Media, PA.

Nov. 16, 1998 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Haverford College, PA.

Dec. 8, 1998 Lansdowne Symphony (Oboe and English Horn), Media, PA.

Feb. 28, 1999 Lansdowne Woodwind Quintet, Reading PA

- Mar. 21, 1999 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA
- Apr. 25, 1999 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA
- June 13, 1999 Lansdowne Woodwind Quintet, Lansdowne Library, Lansdowne, PA
- Sept. 19, 1999 Lansdowne Symphony (oboe), Essington, PA
- Oct. 31, 1999 Lansdowne Symphony (oboe and English horn), Haverford, PA
- Nov.20, 1999 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Haverford College, PA
- Dec. 5, 1999 Lansdowne Symphony (Oboe and English horn), Haverford PA
- Feb. 6, 2000 Lansdowne Symphony (Oboe), Lansdowne PA
- Mar. 19,2000 Lansdowne Symphony (Oboe and English horn), Lansdowne PA
- April 9, 2000 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Haverford College, PA
- April 30,2000 Lansdowne Symphony (Oboe and English horn), Media PA
- Oct. 22, 2000 Lansdowne Symphony (Oboe and English horn), Haverford PA
- Dec. 2, 2000 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Haverford College, PA
- Dec. 10, 2000 Lansdowne Symphony (Oboe), Lansdowne PA
- Mar. 25, 2001 Lansdowne Symphony (Oboe), Lansdowne PA
- April 27, 29, 2001 Lansdowne Symphony (Oboe), Philadelphia, PA and Lansdowne PA (with UPenn Choral Society)
- Oct. 14, 2001 Lansdowne Symphony (Oboe and English Horn), Haverford PA
- Dec. 2, 2001 Lansdowne Symphony (Oboe and English Horn), Lansdowne, PA
- Dec. 8, 2001 Lansdowne Symphony (Oboe), Lansdowne PA
- Mar 24, 2002 Lansdowne Symphony (Oboe and English Horn), Lansdowne PA
- April 17, 2002 Lansdowne Symphony (Oboe), Philadelphia PA (with UPenn Choral Society)
- April 21, 2002 Lansdowne Symphony (Oboe), Lansdowne PA (with UPenn Choral Society)
- Dec. 6, 2002 Bryn Mawr-Haverford Chorale (Soprano 1), Bach- Mass in B Minor, Haverford College, PA
- Dec.6, 2003 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Haverford College, PA
- April 21, 2005 Bryn Mawr-Haverford Chorale (Soprano), Brahms- Requiem, Haverford College, PA
- Nov. 12, 2005 Masters Recital-Charlotte Reckner, two wind quintets, West Chester University, West Chester PA
- April 13, 2008 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Berlioz Requiem, Haverford College, PA
- April 19, 2009 Bryn Mawr-Haverford Chorale and Orchestra (oboe), Mendelssohn Elijah, Haverford College, PA
- March 29, 2015 Main Line Ecumenical Choir and Orchestra (oboe), works by Handel, Beethoven and Haydn, Paoli, PA.