

**CURRICULUM VITAE**

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*Education:*

1974 B.A. Mount Holyoke College (Biology and English)  
1976 M.A. Princeton University (Biology)  
1979 Ph.D. Princeton University (Biology: Focus in Neurobiology and Development)

*Postdoctoral Training:*

1979-1980 Fellowship, National Science Foundation,  
Harvard Medical School, Boston, MA  
1980-1983 Fellowship, National Institutes of Health,  
Harvard Medical School, Boston, MA

*Academic Appointments:*

1976-1978 Teaching Assistant, Anatomy and Neurophysiology, Princeton  
University, Princeton, NJ  
1979-1983 Research Fellow, Department of Neurobiology, Harvard Medical School,  
Boston, MA  
1983-1985 Instructor, Department of Neurobiology, Harvard Medical School  
1983-1988 Co-Director, Marine Biology Lab Short Course "*Basic  
Immunocytochemical Techniques in Tissue Sections and Whole  
Mounts*"  
1985-1987 Lecturer, Department of Neurobiology, Harvard Medical School  
1987-1993 Assistant Professor, Department of Biological Sciences, Wellesley  
College, Wellesley, MA  
1987-1997 Visiting Assistant Professor, Department of Neurobiology,  
Harvard Medical School  
1993 Visiting Fellow, School of Biological Sciences, University of New South  
Wales, Sydney, Australia  
1993-1999 Associate Professor, Department of Biological Sciences, Wellesley  
College  
1997-1998 Visiting Faculty, Volen Center, Brandeis University, Waltham, MA  
1999- Professor, Department of Biological Sciences, Wellesley College  
1999-2004 Director, Neuroscience Program, Wellesley College  
2001-2004 Chair, Department of Biological Sciences, Wellesley College  
2002-2004 Allene Lummis Russell Professor in Neuroscience, Wellesley College  
2004- Susan M. Hollowell and Ruby Frances Howe Farwell Professor in Biology,  
Wellesley College

*Professional Activities and Honors:*

- 1969 National Science Foundation Scholar Foundation for Research on the Nervous System, Boston, MA
- 1972 Undergraduate Research Appointee, National Science Foundation, Clark University, Worcester, MA
- 1974 Magna cum laude graduate, Mount Holyoke College
- 1977, 1978 Presidential Scholar, Electron Microscopy Society of America
- 1989 Mary Lyon Alumnae Achievement Award, Mount Holyoke College
- 1989-1995 NSF Presidential Young Investigator Award
- 1990 NSF Discussion Panel *U.S. Engineering, Mathematics, and Science Education for the Year 2010 and Beyond.*
- 1992 Chairperson, NSF Workshop *Role of Faculty from Science Disciplines in the Undergraduate Education of Science and Mathematics Teachers*
- 1993 Fogarty Senior International Fellow, University of New South Wales, Australia
- 1993-1996 Curriculum Committee, Wellesley College
- 1994 NSF Presidential Young Investigator Steering Committee, *The Status of Undergraduate Science Education in the U.S.*
- 1994-1995 Co-chair, Pedagogy Task Force, Wellesley College
- 1995 NSF Review Panel, Division of Undergraduate Education: *Mathematical Sciences and their Applications Throughout the Undergraduate Curriculum*
- Member of the Visiting Committee for Assessment of the Biology Program, Bryn Mawr College
- Invited participant, National Research Council Convocation *Undergraduate Education in Science, Mathematics, Engineering, and Technology*
- Invited participant, NSF Conference *Women in Science: Celebrating Achievements, Charting Challenges*
- 1995-2000 Co-chair, East Coast Nerve Net Organizing Committee
- 1995-1998 Committee on Neuroscience Literacy, Society for Neuroscience
- 1996-98 Co-Chair, Short Course for High School Students
- 1997 *Teaching Neuroscience*, Presentation for High School Teachers
- 1996-2004 Graduate Record Examinations Board, Educational Testing Service, Committee of Examiners (GRE Biology)
- 2002-2004, Chair
- 1996, 1998 Science Careers Forum, Panelist, Harvard Medical School, Ph.D. Program in Biological and Biomedical Sciences
- 1998-2001 Admissions Committee, Wellesley College
- 1998-1999 Brachman Hoffman Grants Committee, Wellesley College
- 1999- Section Editor, *Arthropod Structure and Development*
- 2000-2001 Advisory Panel for the Major Research Instrumentation Program, National Science Foundation
- 2000 NIH Review Panel: Summer Research Experiences for Undergraduates
- 2002 Organizer for the conference *Post-genomic neuroscience: from molecules to behavior*, Marine Biological Laboratory, Woods Hole, MA
- 2001-2004 NSF Developmental Neuroscience Panel
- 2003-2006 Committee on the Development of Women's Careers in Neuroscience, Society for Neuroscience
- 2004-2005 Maren Fellow, Mt. Desert Island Biological Laboratory
- 2004-2007 INBRE External Advisory Committee, University of Arkansas for Medical Sciences, BRIN Program.

*Professional Activities and Honors: (continued)*

- 2004-2007 RIMI External Advisory Committee, Meharry Medical College and Tennessee State University, Nashville, Tennessee
- 2004-2009 INBRE External Advisory Committee, Mt. Desert Island Biological Laboratory and the State of Maine
- 2004-2009 Woods Hole Oceanographic Institution, Corporation Board Member Member, Education Committee
- 2005 Trustee member of the external visiting committee for to the Biology Department, WHOI
- 2005-2007 External Visiting Committee, Neuroscience Program, Trinity College Chair, Congress of the International Society of Neuroethology (Vancouver meeting, July, 2007)

*Invited Lectures:*

- 1986 Discussion Meeting "*Receptors and Ion Channels*", Sponsored by The Company of Biologists, Ltd., Titisee, West Germany
- 1987 Biology Department, Mount Holyoke College, South Hadley, MA
- 1987 Biology Department, Wake Forest University, Winston-Salem, NC
- 1988 Neurobiology Dept., Harvard Medical School, Boston, MA
- 1989 Whitney Laboratory for Experimental Marine Biology and Medicine, University of Florida, St. Augustine, FL
- Biology Dept., George State University, Atlanta, GA
- Symposium. "*Frontiers in Crustacean Neurobiology*" Hamburg, Germany
- Introductory Lecture, Neurobiology and Behavior Conference "*Science as a Way of Knowing*" Symposium. American Society of Zoologists
- 1990 Biology Department, Brandeis University, Waltham, MA
- Symposium "*Molecular and Cellular Events in Neural Development and Regeneration*", Society for Neuroscience Meeting, St. Louis, MO
- 1991 Biology Department, Neuroscience Symposium, University of New South Wales, Sydney, Australia.
- 1992 Department of Zoology, University of Rhode Island
- Cell Biology Program, Rutgers University, New Brunswick, NJ
- 1993 Zoology Department, University of New South Wales, Sydney, Australia
- Anatomy Department, Medical School of the University of New South Wales, Sydney, Australia
- East Coast Neuroscience Meeting, Jarvis Bay, Australia
- 1995 Wellesley College, Faculty Seminar Series
- 1996 Advanced Placement Biology Colloquium for high school teachers, Westford, MA
- 1997 Boston University Marine Program, Woods Hole, MA
- 1999 Frontiers in Crustacean Neurobiology, Hamburg, Germany
- 2000 Georgia State University, Department of Biology
- Beckman Foundation, Beckman Scholars Symposium
- Arizona Research Labs, Division of Neurobiology, University of Arizona, Tucson
- University of Connecticut, Storrs Campus, Department of Physiology and Neurobiology
- 2001 Worcester Polytechnic Institute, Biology Department, Worcester, MA
- New England Society for Microscopy
- University of Virginia, Biology Department
- Tufts University Medical School
- 2002 Colby College, Parents' Weekend
- Wellesley College, The Wellesley Campaign: New England Celebration
- Post-Genomic Neuroscience: From Molecules to Behavior, Marine Biology Laboratories, Woods Hole, MA, Conference

*Invited Lectures (continued)*

- 2003 Wellesley College, Alumnae Convocation  
Helen F. Cserr Memorial Lecture, Mount Desert Island Biological Laboratory  
Mt. Desert Island Stem Cell Symposium
- 2004 Staley Symposium, Wellesley College  
Frenchman's Bay Crustacean Society  
Universität Ulm, Neurobiologie, Ulm, Germany
- 2005 Wellesley Alumnae Convocation, June, 2005  
Mt. Desert Island Biological Laboratory; NIEHS Center for Membrane Toxicity  
Studies Symposium  
Institute of Marine Research, Bergen, Norway

*Reviewer for the following journals and agencies:*

- |                                     |                                  |
|-------------------------------------|----------------------------------|
| Arthropod Structure and Development | Journal of Experimental Zoology  |
| Biological Bulletin                 | Journal of Comparative Neurology |
| Brain Research                      | Journal of Neurobiology          |
| Canadian Journal of Zoology         | Journal of Neuroscience          |
| Cell and Tissue Research            | National Institutes of Health    |
| Human Frontiers in Science Program  | National Science Foundation      |
| Journal of Experimental Biology     |                                  |

*Membership in Professional Societies:*

- 1974- Sigma Xi
- 1976- Society for Neuroscience
- 1995-1998 Member, Committee on Neuroscience Literacy
- 1997, 1998 Co-Chair, Short Course for High School Students
- 2003-2006 Committee on the Development of Women's Careers in Neuroscience
- 1976- East Coast Nerve Net
- 1995-2000 Co-chair, organizing committee
- 1978- American Association for the Advancement of Science
- 1999-2001 Elected member, Nominating Committee
- 1994- International Congress of Neuroethology
- 2003-2004 Organizing Committee for 2004 congress, Denmark
- 2005-2007 Chair, International Congress 2007, Canada
- 1998-2003 N.E.U.R.O.N (North east under/graduate research organization for neuroscience)
- Founding member
- 1999-2002 Chair, Organizing Committee (meeting held at Wellesley College)

**BIBLIOGRAPHY**

(\*indicates undergraduate student author)

**Books**

- Beltz BS, Burd GD (1989) *Immunocytochemical Techniques: Principles and Practice*, Blackwell Scientific Publications, Cambridge, MA. 182 pp.
- Paul CA, Beltz BS, Berger-Sweeney J, editors (1997) *Discovering Neurons: The Experimental Basis of Neuroscience*, Cold Spring Harbor Press, NY. 420 pp.

**Reviews**

Beltz BS, Kravitz EA (1986) Aminergic and peptidergic neuromodulation in Crustacea. *Journal of Experimental Biology* 124:115-141.

Beltz BS (1988) Crustacean Neurohormones. In: *Invertebrate Endocrinology*, vol 2, Laufer H and Downer R, ed., Alan R. Liss, Inc. NY pp. 235-258.

*Reviews (continued)*

Beltz BS (1990) New Dimensions in Neuroanatomy: Visualizing the Morphology, Physiology and Chemistry of Neurons, *American Zoologist* (SAAWOK Symposium) 30:353-370.

Beltz BS and Helluy S (1992) "Larval" life in the egg: an embryonic molt cycle in the American Lobster, *Lobster Newsletter* 5(1):1-7.

Beltz BS (1995) Neurobiology and Neuroendocrinology. Chapter 11 in: *Biology of the Lobster*, Homarus americanus, Factor JR, ed., Academic Press.

Beltz BS (1999) The Distribution and Functional Anatomy of Amine Neurons in Lobsters, *Microscopy Research and Technique* 44:105-120.

Beltz BS, Kravitz EA (2002) Serotonin in Crustacean Systems: More than a Half Century of Fundamental Discoveries. In *The Crustacean Nervous System*, volume II, Springer Verlag, Berlin, pp 141-163.

**Original Reports**

Beltz BS, Gelperin A (1979) An ultrastructural analysis of the salivary system of the terrestrial mollusc *Limax maximus*. *Tissue and Cell* 11:31-50.

Beltz BS, Gelperin A (1980) Mechanosensory input modulates the activity of an autoactive, bursting neuron in *Limax maximus*. *Journal of Neurophysiology* 44:665-674.

Beltz BS, Gelperin A (1980) Mechanisms of peripheral modulation of salivary burster in *Limax maximus*: a presumptive sensorimotor neuron. *Journal of Neurophysiology* 44:675-686.

Beltz BS, Kravitz EA (1983) Mapping of serotonin-like immunoreactivity in the lobster nervous system. *Journal of Neuroscience* 3:585-602.

Kravitz EA, Beltz BS, Glusman S, Goy M, Harris-Warrick RM, Johnston MF, Livingstone MS, Schwarz TL, Siwicki KK (1983) Neurohormones and Lobsters: Biochemistry to behavior. *Trends in Neuroscience* 6(8):346-349.

Beltz B, Eisen JS, Flamm R, Harris-Warrick RM, Hooper SL, Marder E (1984) Serotonergic innervation and modulation of the stomatogastric ganglion of three decapod crustaceans. *Journal of Experimental Biology* 109:35-54.

Kravitz EA, Beltz BS, Glusman S, Goy MF, Harris-Warrick RM, Johnston MF, Livingstone MS, Schwarz TL (1984) The well-modulated lobster: The roles of serotonin, octopamine, and proctolin in the lobster nervous system. *Pesticide Biochemistry and Physiology* 22:133-147.

Kravitz EA, Beltz BS, Glusman S, Goy M, Harris-Warrick R, Johnston M, Livingstone M, Schwarz T, Siwicki KK (1985) The well-modulated lobster: The roles of serotonin, octopamine, and proctolin in the lobster nervous system. In: *Model Neural Networks and Behavior*, Selverston A, ed., Plenum Press.

Siwicki KK, Beltz BS, Schwarz TL, Kravitz EA (1985) Proctolin in the lobster nervous system. *Peptides* 6:393-402.

Siwicki KK, Beltz BS, Kravitz EA (1987) Proctolin in serotonergic, dopaminergic, and cholinergic neurons in the lobster, *Homarus americanus*. *Journal of Neuroscience* 7:522-532.

Beltz BS, Kravitz EA (1987) Physiological identification, morphological analysis and development of identified serotonin-proctolin containing neurons in the lobster ventral nerve cord. *Journal of Neuroscience* 7:533-546.

Kobierski L, Beltz BS, Trimmer BA, Kravitz EA (1987) The FMRFamide-like peptides of *Homarus americanus*: Distribution, immunocytochemical mapping, and ultrastructural localization in terminal varicosities. *Journal of Comparative Neurology* 266:1-15.

- Helluy SM, Beltz BS (1990) Stages in the embryonic development of the American lobster with an emphasis on the nervous system. In *Frontiers in Crustacean Neurobiology*, Birkhauser, pp 530-536.
- Beltz BS, Pontes M, Helluy SM, Kravitz EA (1990) Patterns of appearance of serotonin and proctolin immunoreactivities in the developing nervous system of the American lobster. *Journal of Neurobiology* 21:521-542.
- \*Arbiser ZK, Beltz BS (1991) SCP<sub>B</sub>- and FMRFamide-like immunoreactivities in the lobster: Colocalization of two peptides or colabeling of the same peptide(s)? *Journal of Comparative Neurology* 306:417-424.
- Helluy SM, Beltz BS (1991) Embryonic development of the American lobster (*Homarus americanus*): Quantitative staging and characterization of an embryonic molt cycle. *Biological Bulletin* 180:355-371.
- Beltz BS, Helluy SM, Ruchhoeft ML, \*Gammill LS (1992) Aspects of the embryology and neural development of the American lobster. *Journal of Experimental Zoology* 261:288-297.
- Ma PM, Beltz BS, Kravitz EA (1992) Serotonin-containing neurons in lobsters: I. Their role as "gain-setters" in postural control mechanisms. *Journal of Neurophysiology* 65:36-54.
- Helluy SM, Sandeman RE, Beltz BS, Sandeman DC (1993) Comparative brain ontogeny of the crayfish and clawed lobster: Implications of direct and larval development. *Journal of Comparative Neurology* 335:343-354.
- Cournil I, Helluy SM, Beltz BS (1994) Dopamine in the lobster *Homarus gammarus*: I. Comparative analysis of dopamine and tyrosine hydroxylase immuno-reactivities in the nervous system of the juvenile. *Journal of Comparative Neurology* 344:455-469.
- Sandeman D, Beltz B, Sandeman R (1995) Crayfish brain interneurons that converge with serotonin giant cells in accessory lobe glomeruli. *Journal of Comparative Neurology* 352:263-279.
- Helluy S, Ruchhoeft M, Beltz B (1995) Development of the olfactory and accessory lobes in the American lobster: An allometric analysis and its implications for the deutocerebral structure of decapods. *Journal of Comparative Neurology* 358:1-13.
- Cournil I, Casanovas B, Helluy S, Beltz B (1995) Dopamine in the lobster *Homarus americanus*. II. Dopamine immunoreactive neurons and development of the nervous system. *Journal of Comparative Neurology* 362:1-16.
- Helluy S, Benton J, Ruchhoeft M, \*Langworthy K, Beltz B (1996). Glomerular formation in the developing olfactory and accessory lobes of the American lobster: Stabilization of numbers and increase in size after metamorphosis. *Journal of Neurobiology* 29:459-472.
- Schneider H, Budhiraja P, Walter I, Beltz B, \*Peckol E, Kravitz E (1996). Developmental expression of the octopamine phenotype in lobsters *Journal of Comparative Neurology* 371:3-14.
- \*Langworthy K, Helluy S, Benton J, Beltz B (1997) Amines and peptides in the brain of *Homarus americanus*: Immunocytochemical localization patterns and implications for brain function. *Cell and Tissue Research* 288:191-206.
- Benton J, Helluy S, Huber R, Beltz B (1997) Serotonin depletion by 5,7-dihydroxytryptamine alters deutocerebral development in the lobster. *Journal of Neurobiology* 33:357-373.
- Harzsch S, \*Miller J, Benton J, Dawirs RR, Beltz B (1998) Neurogenesis in the thoracic neuromeres of two crustaceans with different styles of metamorphic development. *Journal of Experimental Biology* 201:2465-2479.
- Harzsch S, Benton, J, Dawirs, RR, Beltz, B (1999) A new look at embryonic development of the visual system in decapod crustaceans: neuropil formation, neurogenesis and apoptotic cell death. *Journal of Neurobiology* 39:294-306.
- Harzsch S, \*Miller J, Benton J, Beltz B (1999) From embryo to adult: Persistent neurogenesis and apoptotic cell death shape the crustacean deutocerebrum. *Journal of Neuroscience* 19:3472-3485.
- Chang ES, Chang SA, Beltz BS, Kravitz EA (1999) Crustacean hyperglycemic hormone in the lobster nervous system: Localization and release from cells in the subesophageal ganglion and thoracic second roots. *Journal of Comparative Neurology* 414:50-56.
- Harzsch S, Benton J, Beltz BS (2000) An unusual case of a mutant lobster embryo with double brain and double ventral nerve cord. *Arthropod Structure and Development* 29:95-99.
- Sullivan JM, Benton JL, Beltz BS (2000) Serotonin depletion *in vivo* inhibits the branching of olfactory projection neurons in the lobster deutocerebrum. *Journal of Neuroscience* 20:7716-7721.

- Benton J, Beltz BS (2001) Effects of embryonic serotonin depletion on olfactory interneurons in lobsters. *Journal of Neurobiology* 46: 193-205.
- \*Doernberg S, Cromarty SI, Beltz BS, Kravitz EA (2001) Agonistic behavior in naïve juvenile lobsters depleted of serotonin by 5,7-dihydroxytryptamine. *Journal of Comparative Physiology A* 187(2): 91-103.
- Beltz BS, Benton JL, Sullivan JM (2001) Transient uptake of serotonin by newborn olfactory projection neurons may mediate their survival. *Proceedings of the National Academy of Science* 98:12730-12735.
- Sullivan JM, Beltz BS (2001) Neural pathways connecting the deutocerebrum and lateral protocerebrum in the brains of decapod crustaceans. *Journal of Comparative Neurology* 441:9-22.
- Sullivan JM, Beltz BS (2001) Development and connectivity of olfactory pathways in the brain of the lobster *Homarus americanus*. *Journal of Comparative Neurology* 441:23-43.
- Benton JL, Beltz BS (2002) Patterns of neurogenesis in the midbrain of embryonic lobsters are different from proliferation in the insect and crustacean ventral nerve cord. *Journal of Neurobiology* 53: 57-67.
- Goergen, E, \*Bagay LA, Rehm K, Benton JL, Beltz BS (2002) Circadian control of neurogenesis. *Journal of Neurobiology* 53: 90-95.
- Paul CA, Goergen EM, Beltz BS (2002) Exploring neurogenesis in crustaceans. *Journal of Undergraduate Neuroscience Education* 1:A18-A22.
- Richards KS, Simon DJ, Pulver SR, Beltz BS, Marder E (2003) Serotonin in the developing stomatogastric system of the lobster, *Homarus americanus*. *Journal of Neurobiology* 54:380-92.
- Beltz BS, \*Kordas K, \*Lee MM, \*Long JB, Benton JL, Sandeman DC (2003) Ecological, evolutionary and functional correlates of sensilla number and glomerular density in the olfactory system of decapod crustaceans. *Journal of Comparative Neurology* 455: 260-269.
- \*McKinzie ME, Benton JL, Beltz BS, Mellon DF (2003) Parasol cells of the hemiellipsoid body in the crayfish *Procambarus clarkii*: dendritic branching patterns and functional implications. *Journal of Comparative Neurology* 462:168-179.
- Beltz BS, Sandeman DC (2003) Regulation of life-long neurogenesis in the decapod crustacean brain. *Arthropod Structure and Development*,32:39-60.
- Sullivan JM, Beltz BS (2004) Evolutionary changes in the olfactory projection neuron pathways of eumalacostracan crustaceans. *Journal of Comparative Neurology* 470:25-38.
- Wildt M, Goergen EM, Benton JL, Sandeman DC, Beltz BS (2004) Regulation of serotonin levels by multiple light-entrainable endogenous rhythms *Journal of Experimental Biology* 207:3765-74.
- Sullivan JM, Beltz BS (2005) Integration and segregation of inputs to higher-order neuropils in the crayfish brain. *Journal of Comparative Neurology* 481:118-126.
- \*Brinkley CK, Kolodny NH, Kohler SJ, Sandeman DC, Beltz BS (2005) Magnetic resonance imaging at 9.4 T as a tool for studying functional and neural anatomy in non-vertebrates. *Journal of Neuroscience Methods* 146: 124-132.
- Beltz BS, Benton JL, Genco MC, Mellon DeF, Sullivan JM, Sandeman DC (2005) Regulation of adult neurogenesis in decapod crustaceans. *Bulletin of the Mt. Desert Island Biological Laboratory* 44:74-77.
- Sullivan JM, Beltz BS (2005) Newborn cells in the adult crayfish brain differentiate into distinct neuronal types. *Journal of Neurobiology*: Aug 19 [Epub ahead of print].
- Sullivan JM, Beltz BS (In Press) Adult neurogenesis in the central olfactory pathway in the absence of receptor neuron turnover. *European Journal of Neuroscience*.

#### **Recent Abstracts** (2000-2004)

(Each of these abstracts represents either a poster presentation or a short talk at the meeting cited, on research that has not yet been published.)

- Harzsch S, Dirksen H, Beltz BS (2000) Development of pigment-dispersing-hormone immunoreactive neurons in the american lobster and the spider crab: Comparison with the insect circadian pacemaker system. *Society for Neuroscience Abstracts* 26:343.9.
- Benton JL, Beltz BS (2001) Serotonin, nitric oxide and neuronal proliferation in the olfactory pathway in lobsters. *Society for Neuroscience Abstracts* 27: 622.20.

- Goergen E, Paul CA, Beltz B (2003) Daily rhythm of neurogenesis during larval development in *Homarus americanus*. *Society for Neuroscience Abstracts* 29:.562.10.
- Benton JL, Goy MF, Beltz BS (2003) Nitric oxide affects serotonin levels and neuronal proliferation in the lobster olfactory pathway. *Society for Neuroscience Abstracts* 29:.562.13
- Wildt M, Goergen EM, Benton JL, Beltz BS (2004) Feeding alters brain serotonin levels and neurogenesis. *Society for Neuroscience Abstracts* 30: 382.17
- Sandeman D, Beltz B (2004) Neuronal proliferation in adult crayfish brain: Effects of CNS ablations, molt cycle and temperature. *Society for Neuroscience Abstracts* 30: 382.9.
- Beltz BS, Benton JL, Sandeman DC (2005) Adult Neurogenesis in the Crustacean Brain: Comparative Cell Cycle Dynamics and Regulatory Controls. *Society for Neuroscience Abstracts* 31: In press.
- Benton JL and Beltz BS (2005) Nitric oxide in the embryonic lobster brain: Regulation of neurogenesis and stabilization of olfactory glomeruli. *Society for Neuroscience Abstracts* 31: In press.
- Sullivan JM, Sandeman DC and Beltz BS (2005) Characterization of a putative stem/progenitor cell niche in the brain of an adult invertebrate, the crayfish *Procambarus clarkii*. *Society for Neuroscience Abstracts* 31: In press.

### RESEARCH FUNDING

- 1985 - 1988 NIMH Grant #2-ROI-MH40321, *Development of amine neurons and associated behaviors* (3 years - \$224,793 - direct costs)
- 1987 - 1990 NIH Program Project Grant #NS25915 *Development of amine and peptide neurons* (3 years - B.Beltz portion, subcontracted to Wellesley College as of 8/1/88 - \$89,864 - direct costs)
- 1988 - 1991 NSF Grant #BNS-8718938 years (\$212,980 - direct and indirect costs)
- 1988 - 1989 NSF REU Supplemental Undergraduate Funding (\$3,500)
- 1988 - 1990 NSF Instrumentation and Laboratory Improvement (ILI) Grant #USE-8851888. *Immunological Techniques in the Undergraduate Laboratory* (Co-P.I. with Beverly Blazar / \$81,484 - direct costs)
- 1988 - 1989 NIH BRSG #1-S15-NS26700 Small Instrument Program. P.I. with Beverly Blazar and Howard Eichenbaum) (\$6,350 direct costs for -80°C freezer)
- 1988 - 1989 BRSG Wellesley College Award (\$1,800)
- 1988 - 1993 Howard Hughes Electrophysiology Program. (Beltz portion - \$25,200)
- 1989 - 1994 NSF Presidential Young Investigator Award BNS-958169. *Development of Asymmetry in the Nervous System* (\$25,000 base award per year plus matching funds)
- 1991 - 1993 NSF Instrumentation and Laboratory Improvement (ILI) Grant #USE-9152022, *An Integrated Approach to Teaching Developmental Biology* (Co-P.I. with Mary Coyne and Carol Ann Paul) (\$48,700 direct costs total)
- 1991 - 1994 NSF Competing renewal for BNS-8718938, *Developmental Plasticity in Identifiable Neurons*. Funded but declined the award in order to accept NS-25915 (see below)
- 1991 - 1997 NIH #NS-25915, *Development of Amine Neurons and their Targets* (\$90,000 direct cost average per annum)
- 1993 NSF International Programs: U.S.-Australia Cooperative Science program, *Neural Connectivity and Processing in the Crustacean Brain*. Funded but declined in order to accept the Fogarty Fellowship (below)
- Fogarty International Fellowship, NIH, for sabbatical study at the University of New South Wales, Sydney, Australia *Neural Connectivity and Processing in the Crustacean Brain* (\$18,000)
- 1995 - 1997 NSF Instrumentation and Laboratory Improvement (ILI) Program, *The Compound Microscope: A Tool for Visualizing Dynamic Phenomena in Cells* (\$81,000)
- 1996 - 1999 NSF Grant, *Amines and Agonistic Behavior in Crustaceans* (\$135,000/3 years)
- 1997 - 2000 NSF Grant, *Development and Maturation of Olfactory Centers in The Lobster: Influences of Serotonin and Adult Neurogenesis* (\$217,000/3 years)



*Research Funding (continued)*

- 1999 – 2000 NSF Grant, *Amines and Agonistic Behavior in Crustaceans*. A collaborative project with D.H. Edwards (Georgia State University), E.A. Kravitz (Harvard Medical School) and R.H. Huber (Bowling Green State University) (\$40,000/1 year)
- 1999-2000 NSF Major Research Instrumentation (MRI) Program, *The Confocal Microscope: Teaching and Research Explorations in an Undergraduate College Setting* (\$324,857, for acquisition of a confocal laser scanning microscope)
- 2000-2002 Brachman Hoffman Fellowship, Wellesley College, *Have ecological factors influences the evolution of the neural pathway for olfaction?* (\$38,038 direct costs, over two years)
- 2001-2004 NSF Grant, *Development and Maturation of Olfactory Centers in the Lobster: Influences of Serotonin and Adult Neurogenesis* (\$426,000/3 years)
- 2001-2003 NSF Major Research Instrumentation (MRI) Program, *Acquisition of a Magnetic Resonance Imaging Accessory for a Bruker 400 MHz NMR Spectrometer* (P.I. with Nancy Kolodny, Joanne Berger-Sweeney and Susan Kohler)(\$184,623/2 years)
- 2003-2005 Staley Fellowship, Wellesley College, *Circadian Control of Neurogenesis: The Day-Night Cycle, Cell Proliferation and Regulation by Serotonin* (\$39,660/2 years)
- 2004-2008 NSF Grant, *Development and Maturation of Olfactory Centers in the Lobster: Influences of Serotonin and Adult Neurogenesis* (\$500,000/4 years)
- 2004 Maren Fellowship, Mt. Desert Island Biological Laboratory (\$17,000; summer support)  
Fiske Award, Wellesley College, *Mt. Desert Island Biological Lab: Summer 2004* (\$2,000/summer laboratory expenses)
- 2005 Maren Fellowship, Mt. Desert Island Biological Laboratory (\$15,000; summer support)  
Brachman Hoffman Small Grant, Wellesley College, *Mini-Mitter Devices for Monitoring Circadian Activity Patterns* (\$2,800/one-time equipment purchase)  
NIH, National Institutes of Mental Health, *Environmental Control of Neurogenesis* (\$1,388,000/5 years; direct and indirect costs)  
NSF Research Experiences for Teachers (RET) Supplement (\$8,335/direct and indirect costs; one year award)