

CURRICULUM VITAE

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Education

2001 B. S. Biology (major), Chemistry and Statistics (minor),
Plymouth State College, Plymouth, N.H.
2000 - 2004 M. S. Department of Biochemistry and Molecular Biology,
University of New Hampshire.
2004 - Present Ph.D. Student, Department of Biochemistry and Molecular
Biology, University of New Hampshire.

Professional Experience

1997-1998 Tutor, Plymouth Academic Support Services (PASS), Anatomy and
Physiology, Vertebrate Zoology, Biology, Plymouth State College,
Plymouth, N.H.
1999-2000 Teaching Assistant, Department of Natural Science, Anatomy and
Physiology, Plymouth State College, Plymouth, N.H.
2000 Teaching Assistant, Department of Natural Science, General Biology,
Plymouth State College, Plymouth, N.H.
2000-2002 Teaching Assistant, Department of Biochemistry and Molecular Biology,
University of New Hampshire, Durham, N.H.
General Biology Laboratory (BIO 411)
General Biology Laboratory (BIO 412)
Biochemistry Laboratory (BCHM 659)
Ocean Technology (TECH 797)

2003 Adjunct Faculty Appointment, Department of Biochemistry and Molecular Biology, University of New Hampshire, Durham, N.H. Instructor for Biochemistry 659

Professional and Community Service

2001-2002 Graduate Student Organization representative for Department of Biochemistry and Molecular Biology, University of New Hampshire, Durham, N.H.

2002 Invited speaker, Plymouth State College, Plymouth, New Hampshire, Isolation and characterization of Gonadotropin Releasing Hormone from the Atlantic hagfish (*Myxine glutinosa*).

2002 Invited research assistant, University of Washington, Seattle, Washington. Friday Harbor Laboratories, San Juan Island, Effects of Immersion in Gonadotropin Releasing Hormone on Social Spawning in Several Vertebrate Taxa.

Professional Societies

Society for Integrative and Comparative Biology (SICB)
American Association for the Advancement of Science (AAAS)
The Society for Neuroscience (SfN)

Sources and Level of Support

Travel

2001 Awarded University of New Hampshire Center for Marine Biology Travel Grant to attend 2002 meeting of Society for Integrative and Comparative Biology (\$170).

2001 Awarded University of New Hampshire Graduate School Grant to attend 2002 meeting of Society for Integrative and Comparative Biology (\$200).

2002 Awarded University of New Hampshire Center for Marine Biology Travel Grant to attend 2003 meeting of Society for Integrative and Comparative Biology (\$226).

2002 Awarded University of New Hampshire Graduate School Grant to attend 2003 meeting of Society for Integrative and Comparative Biology (\$200).

2003 Awarded University of New Hampshire Center for Marine Biology Travel Grant to attend 2004 meeting of Society for Integrative and Comparative Biology (\$225).

- 2003 Awarded University of New Hampshire Graduate School Grant to attend 2004 meeting of Society for Integrative and Comparative Biology (\$200).
- 2004 Awarded University of New Hampshire Graduate School Grant to attend 2004 meeting of Society for Neuroscience (\$200).
- 2004 Awarded University of New Hampshire Center for Marine Biology Travel Grant to attend 2004 meeting of Society for Neuroscience (\$275).
- 2005 Awarded University of New Hampshire Center for Marine Biology Travel Grant to attend 15th International Congress of Comparative Endocrinology (\$170).
- 2006 Awarded University of New Hampshire Graduate School Grant to attend 2006 meeting of Society for Integrative and Comparative Biology (\$200).

Professional Honors

- 1999 Awarded Plymouth State College Anatomy and Physiology Undergraduate Fellowship for teaching assistant (\$1000).

Publications

Mickie L. Powell, **Scott I. Kavanaugh**, and Stacia A. Sower. Identification of a Functional Corpus Luteum in the Atlantic Hagfish, *Myxine glutinosa*. Gen. Comp. Endocrinol. (In Press) 2006.

Mickie L. Powell, **Scott I. Kavanaugh**, and Stacia A. Sower. Current Knowledge of Hagfish Reproduction: Implications for Fisheries Management. Integr. Comp. Biol. 45: 158-165, 2005.

Scott I. Kavanaugh, Adam R. Root, and Stacia A. Sower. The Distribution of Gonadotropin Releasing Hormone in the Tunicate *Ciona intestinalis*. Gen. Comp. Endocrinol. March 141(1): 76-83, 2005.

Scott I. Kavanaugh, Mickie L. Powell, and Stacia A. Sower. Seasonal Changes of Gonadotropin Releasing Hormone in Atlantic Hagfish, *Myxine glutinosa*. Gen. Comp. Endocrinol. January 15;140(2):136-143, 2005.

Adam R. Root, Jocelyn D. Sanford, **Scott I. Kavanaugh**, and Stacia A. Sower. In Vitro and In Vivo Effects of GABA, Muscimol, and Bicuculline on Lamprey GnRH Concentration in the Brain of the Sea Lamprey, *Petromyzon marinus*. Comparative Biochemistry and Physiology Part A. August; 138 (4):493-501, 2004.

Powell, M.L., **S. Kavanaugh**, S. Sower. Seasonal Concentrations of Reproductive Steroids in the Gonads of the Atlantic Hagfish, *Myxine glutinosa*. J. Comp. Zool. 2004 April; 301A: 352-360.

Gorbman, A., A. Whiteley, **S. Kavanaugh**. Pheromonal stimulation of spawning release of gametes by gonadotropin releasing hormone (GnRH) in the chiton, *Mopalia sp.* Gen. Comp. Endocrinol. 2003 March;131(1):62-65.

Chapters

Sower, S.A., M.L. Powell and **S.I. Kavanaugh**. "Myziniiformes" IN: Grzimek's Animal Life Encyclopedia, 2nd Edition. Volumes 4-5, Fishes I-II, edited by Michael Hutchins, Dennis A. Thoney, Paul V. Loisel, and Neil Schlager. Farmington Hills, MI: Gale Group, 2003. Vol. 1 77-82.

Cover

General and Comparative Endocrinol. January 15;140(2):136-143, 2005.
"Hagfish gonadal development. The developmental stages and description of the gonad in *Myxine glutinosa* (Atlantic hagfish).

Published Abstracts

Powell, M.L., **S.I. Kavanaugh**, and S.A. Sower. 2003. Reproductive hormone concentrations in the Atlantic hagfish *Myxine glutinosa*. Integr. Comp. Biol. 43:814. Abst.

Kavanaugh, S.I., A. Gorbman, and S.A. Sower. 2003. The distribution of gonadotropin releasing hormone in the urochordate *Ciona intestinalis*. Integr. Comp. Biol. 43:883. Abst

Powell, M.L., **S.I. Kavanaugh**, S.A. Sower. 2002. Seasonal gonadal development in the Atlantic hagfish, *M. glutinosa*. Integr. Comp. Biol. 42 (6), 1297. Abst.

Kavanaugh, S.I., M.L. Powell, J.E. Davis, S.A. Sower. 2001. Sexuality and embryogenesis of the Atlantic Hagfish, *Myxine glutinosa*. Amer. Zool. 41 (6), 1490-1491. Abst.

Abstracts of Poster and Oral Presentations at National and International Meetings

Stacia A. Sower, Mickie L. Powell, Joanne E. Davis, and **Scott I. Kavanaugh**. 2001. Sexuality and Embryogenesis of the Atlantic Hagfish, *Myxine glutinosa*. Twenty- Eighth New England Endocrinology Conference, University of Connecticut.

Scott I. Kavanaugh, Mickie L. Powell, Joanne E. Davis, and Stacia A. Sower. 2002. Sexuality and Embryogenesis of the Atlantic Hagfish, *Myxine glutinosa*. Society for Integrative and Comparative Biology 2002 Annual Meeting, Anaheim, California.

Mickie L. Powell, **Scott I. Kavanaugh**, Stacia A. Sower. 2002. Seasonal Gonadal Development in the Atlantic Hagfish, *M. glutinosa*. Society for Integrative and Comparative Biology 2003 Annual Meeting, Toronto, Ontario.

S. Kavanaugh and S.A. Sower. 2003. Seasonal Changes in Gonadotropin Releasing Hormone in the Atlantic Hagfish *Myxine glutinosa*. JSPS-NSF Workshop, University of New Hampshire, May 31, 2003.

Scott I. Kavanaugh, Aubrey Gorbman, Stacia A. Sower. 2003. The Distribution of Gonadotropin Releasing Hormone in the Urochordate *Ciona intestinalis*. Thirtieth New England Endocrinology Conference, Dartmouth Medical School, Lebanon, New Hampshire.

Scott I. Kavanaugh, Aubrey Gorbman, Stacia A. Sower. 2003. The Distribution of Gonadotropin Releasing Hormone in the Urochordate *Ciona intestinalis*. Society for Integrative and Comparative Biology 2004 Annual Meeting, New Orleans, Louisiana.

S. Kavanaugh and S.A. Sower. 2003. Isolation of the Gonadotropin-Releasing Hormone and its Distribution by in situ Hybridization in the Tunicate *Ciona intestinalis*. JSPS-NSF Workshop, University of New Hampshire, May 28, 2004.

S. Kavanaugh and S.A. Sower. 2004. The distribution of gonadotropin releasing hormone in the tunicate *Ciona intestinalis*. Society for Neuroscience 2004 Annual Meeting, San Diego, California.

S. Kavanaugh, Masumi Nozaki, Stacia Sower. 2005. Characterization of gonadotropin-releasing hormone (GnRH) in the Atlantic hagfish *Myxine glutinosa*. 15th International Congress of Comparative Endocrinology, Boston, Massachusetts.

S. Kavanaugh, Adam Root, Stacia Sower. 2005. The distribution of gonadotropin releasing hormone in the tunicate *Ciona intestinalis*. 15th International Congress of Comparative Endocrinology, Boston, Massachusetts.

S. Kavanaugh, Masumi Nozaki, Stacia Sower. 2005. Characterization of gonadotropin-releasing hormone (GnRH) in the Atlantic hagfish *Myxine glutinosa*. 15th International Congress of Comparative Endocrinology Satellite Symposia, Reproductive Endocrine System in Agnathans and Protochordates.

S. Kavanaugh and S. A. Sower. 2006. Characterization of gonadotropin-releasing hormone (GnRH) in the Atlantic hagfish *Myxine glutinosa*. Society for Integrative and Comparative Biology 2006 Annual Meeting, Orlando, Florida.

Meetings Attended

- 2001 Twenty-Eighth New England Endocrinology Conference, University of Connecticut.

- 2002 Society for Integrative and Comparative Biology 2002 Annual Meeting Anaheim, California.

- 2002 Twenty-Ninth New England Endocrinology Conference, University of Massachusetts, Amherst.

- 2003 Society for Integrative and Comparative Biology 2003 Annual Meeting Toronto, Ontario.

- 2003 JSPS – NSF Workshop: Brain / Pituitary Hormones and Receptors of Agnathans, Ancient Osteichthyes and Crustaceans Annual Meeting, University of New Hampshire, Durham.

- 2003 Thirtieth New England Endocrinology Conference, Dartmouth Medical School, Lebanon, New Hampshire.

- 2004 Society for Integrative and Comparative Biology 2004 Annual Meeting, New Orleans, Louisiana.

- 2004 JSPS – NSF Workshop: Phylogeny of Brain-Pituitary Hormones and Receptors in Hagfish, Lampreys, Polypterus, and Tunicate.

- 2004 Society for Neuroscience 2004 Annual Meeting, San Diego, California.

- 2005 15th International Congress of Comparative Endocrinology, Boston, Massachusetts.

- 2005 15th International Congress of Comparative Endocrinology Satellite Symposia, Reproductive Endocrine System in Agnathans and Protochordates, Durham, New Hampshire.

- 2006 Society for Integrative and Comparative Biology 2006 Annual Meeting, Orlando, Florida.

Accession Number

AY186743

Experimental Techniques

- Molecular biology: RNA/DNA isolation, First strand synthesis, Second strand synthesis, Polymerase Chain Reaction, Reverse Transcriptase PCR, Ligation, Transformation, Plasmid preparation, Worked with bacterial strains, DH5 α , JM107, JM109, XL1-Blue, Y1090, Expression library construction and screening.
- MALDI-TOF (Axima CFR and QIT)
- In situ hybridization (DIG labeled and Fluorescent dual label)
- Iodination
- Transmission electron microscopy
- Spectrophotometry
- Thin layer chromatography
- Gel permeation chromatography
- HPLC (isocratic and gradient)
- Size exclusion chromatography
- Affinity chromatography
- Ion exchange chromatography
- Histology: fixation, embedding, microtome use, staining
- Enzymatic assays
- Radioimmunoassay (steroid and protein)
- Field collection and laboratory maintenance of Agnathans
- Training in radiation safety
- Environmental health and safety training
- Hazardous materials shipping training
- Drivers' safety training (required for operation of university vehicles)

Course Work

Graduate

Biochemical Regulatory Mechanisms

Biochemistry (2 semesters)

Biochemistry Seminar (8 semesters)

College Teaching

Endocrinology

Endocrine Disruptors

Molecular Genetics

Physical Biochemistry

Topics in Structural Determination Instrumentation / Mass Spectrophotometry

Undergraduate

Anatomy and Physiology (2 semesters)

Biochemistry

Biology of Sex Roles

Biotechnology

Cell Structure and Function

Evolution

General Chemistry (2 semesters)

General Physics (2 semesters)

Genetics

Introductory Biology (2 semesters)

Invertebrate Zoology

Microbiology

Organic Chemistry (2 semesters)

Transmission Electron Microscopy

Vertebrate Zoology