

# CURRICULUM VITAE

**PATRICK M. BURTON**

BURTONP@WABASH.EDU

WABASH COLLEGE

DEPARTMENT OF BIOLOGY

CRAWFORDSVILLE, IN 47933

765-361-6218

---

## EDUCATION

**Boston University, Boston, MA**

Ph.D. in Biology, May 2005

**Williams College, Williamstown, MA**

B.A. in Biology with Honors, May 2000

## PROFESSIONAL EXPERIENCE

**Wabash College**, July 2007 – present

Assistant Professor of Biology

**University of Maryland**, September 2005 – June 2007

Advisor: Dr. Alexa Bely

Postdoctoral Researcher: Asexual and Regenerative Development in Oligochaetes.

**Boston University**, September 2000 – May 2005

Advisor: Dr. John Finnerty

Dissertation project: Comparable Deployment of Regulatory Genes across  
*Nematostella vectensis* Developmental Trajectories

**Boston University**, September 2000 – May 2005

Position: Teaching Fellow

Courses: BI107, BI108, BI109 (Honors): Introductory Biology

## PUBLICATIONS

Trevino,\* M, Stefanik, DJ, Rodriguez, R, Harmon,\* S, and PM Burton. Wnt/ $\beta$ -catenin signaling promotes oral fates during regeneration and embryogenesis in the cnidarian *Nematostella vectensis*. *In preparation*.

Burton, PM and Finnerty JR. 2009. Conserved and Novel Gene Expression between Regeneration and Asexual Fission in *Nematostella vectensis*. *Dev. Genes Evol.*

Burton, PM. 2008. Insights from diploblasts; the evolution of mesoderm and muscle. *J of Exp Zool B: Mol Dev Evol*, 310B:1, 5-14. [published online, 2006]

Reitzel, AR, Burton, PM, Krone, C, and Finnerty, JR. 2006. Comparison of developmental trajectories in the starlet sea anemone *Nematostella vectensis*: embryogenesis, regeneration, and two forms of asexual fission. *Invertebrate Biology* 126(2), 99-112.

Ryan, JF, Burton, PM, Mazza, M, Kwong, GK, Mullikin, JC, Rokhsar, DS, and Finnerty, JR. 2006. The cnidarian-bilaterian ancestor possessed at least 56 homeoboxes. Evidence from the sequenced genome of the starlet sea anemone, *Nematostella vectensis*. *Genome Biology* 7(7):R64.

Darling, JA, Reitzel, AR, Burton, PM, Mazza, ME, Ryan, JF, Sullivan, JC, and Finnerty, JR. 2005. Rising starlet: the starlet sea anemone, *Nematostella vectensis*. *BioEssays* 27(2):211-21.

Finnerty, JR, Pang, K, Burton, P, Paulson, D, and Martindale, MQ. 2004. Origins of bilateral symmetry: *Hox* and *dpp* expression in a sea anemone. *Science* 304, 1335-7.

Finnerty, JR, Paulson, D, Burton, P, Pang, K, and Martindale, MQ. 2003. Early evolution of a homeobox gene: the parahox gene *Gsx* in the Cnidaria and the Bilateria. *Evolution and Development* 5, 331-45.

#### POPULAR SCIENCE WRITING

Burton, Patrick. 2003. A Small School Atmosphere at a Large University. Boston University Teaching Newsletter. Vol 1 (2). Pp. 1-2.

Burton, PM. The Ontogeny of Evolution; Collecting Evolution. *Firsts: A Book Collector's Magazine*, March 2007.

#### INVITED TALKS

Burton, P. Development of a Cnidarian Sea Anemone and the Evolution of Regeneration. Depauw University. February 16<sup>th</sup>, 2011

Harmon,\* S. and Burton, P. 2010. Three modes of development, one genome: Understanding the relationship among Embryogenesis, Regeneration, and Asexual Reproduction. Indiana State University. April 8<sup>th</sup>, 2010.

Burton, P. Induction of oral fates in *Nematostella vectensis*. Indiana University-Purdue University Indianapolis. October 16<sup>th</sup>, 2009.

#### PRESENTATIONS AT PROFESSIONAL MEETINGS

Harmon,\* S, Stefanik, D, and Burton, P. 2010. How many mouths are too many? Induction of oral fates in the cnidarian *Nematostella vectensis*. Society for Integrative and Comparative Biology

Burton, P, Vick,\* M, and Finnerty, J. 2009. Novel developmental mechanisms among embryogenesis, asexual fission, and regeneration in *Nematostella vectensis*. European Society for Evolutionary Biology.

Harmon,\* S, Vick,\* M, Tritle,\* B, and Burton, P. 2009. Cell Death and Division during Regeneration in the Sea Anemone *Nematostella*. Society for Integrative and Comparative Biology.

Burton, P and Bely, A. 2006. The evolution of regeneration and asexual development; a comparative study in naidine annelids. Integrating Evolution, Development and Genomics. University of California at Berkeley.

Burton, P, Pang, K, Krone, C, Martindale, M and Finnerty, J. 2006. The Evolution of Mesoderm – Insights from Outgroups. Society for Integrative and Comparative Biology. *In Symposium: Movers and Shakers; The Evolution and Development of Mesoderm*.

Burton, P, Finnerty, J and Bely, A. 2006. A New Approach to EvoDevo; Intraspecific Developmental Biology. Williams College Molecular Biology Reunion.

Burton, P, Pang, K, Krone, C, Martindale, M and Finnerty, J. 2004. *Nematostella*: A Model Outgroup for Bilaterian Evolution. Society for Developmental Biology.

Burton, P, Pang, K, Krone, C, Martindale, M, and Finnerty, J. 2004. An Endodermal Origin of Mesoderm. Northeast Regional Meeting of the Society for Developmental Biology.

Burton, P, Ryan, J, Pang, K, Eggen, M, Martindale, M, and Finnerty, J. 2003. Changes in gene expression during Embryogenesis, Regeneration, and Asexual Reproduction. Society for Developmental Biology.

Burton, P, Pang, K, Eggen, M, Martindale, M, and Finnerty, J. 2003. Hox Gene Expression Suggests a Role in Patterning Two Axes in *Nematostella*. Society for Molecular Biology and Evolution.

Burton, P, Pang, K, Eggen, M, Martindale, M, and Finnerty, J. 2003. Hox Expression in Cnidaria: An Unorthodox Role for Hox? Northeast Regional Meeting of the Society for Developmental Biology. Marine Biological Laboratory, Woods Hole, MA.

Burton, P, Mazza, M, Kwong, G, Martindale, M, and Finnerty, J. 2002. Early evolution of homeobox genes: Phylogenetic analysis of homeobox sequences from Protostomes, Deuterostomes and Cnidarians. Northeast Regional Meeting of the Society for Developmental Biology. Marine Biological Laboratory, Woods Hole, MA.

\* Wabash Student

#### **GRANT PROPOSALS**

- Investigating the cellular and molecular mechanisms across embryogenesis, regeneration, and asexual reproduction in the cnidarian *Nematostella vectensis*. National Institute of Health, Enhancing Developmental Biology Research at Undergraduate Institutions. May, 2010. \$355,188. *Not funded*.
- Sigma Xi Grants in Aid of Research, 2003. *Funded*

#### **FELLOWSHIPS AND AWARDS**

- Faculty Development, Wabash College, 2011 for attendance of Developmental Biology Teaching Workshop, Darling Marine Center, University of Maine, June 2011.
- Faculty Development, Wabash College, 2010 for attendance at The Council on Undergraduate Research Proposal Writing Institute, July 2010.
- Faculty Development, Wabash College, 2009 for presentation “Novel Developmental Mechanisms among Embryogenesis, Asexual Fission, and Regeneration in *Nematostella vectensis*.”
- Belmarich Award, 2005 for the Most Outstanding Doctoral Work in the Biological Sciences, Boston University
- Poster Competition, 3<sup>rd</sup> Place. 2003. Regional Meeting of the Society for Dev. Biol.
- Emerging Collector Award. 2003. Blackmon Book Collection Contest, Boston University. *for a collection of* first edition books on the Theory of Evolution.
- Swain Award for outstanding performance on the Qualifying Examination, 2002.
- Boston University Teaching Fellowships 2000-2005

#### **PROFESSIONAL MEMBERSHIPS**

- Society of Integrative and Comparative Biology
- Society for Developmental Biology
- Sigma Xi