

CURRICULUM VITAE
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EDUCATION

2000 Ph.D. Molecular Biology, Vanderbilt University
1995 B.A. Biology, Middlebury College

PROFESSIONAL EXPERIENCE

2016-present Professor, Biology Department, Worcester State University
2015-present Director, Aisiku STEM Center, Worcester State University
2011-2016 Associate Professor, Biology Department, Worcester State University
2013 External Research Scholar, Institute for Research in Biomedicine, Barcelona, Spain
2011-2012 Biology Scholar, Transitions Residency, American Society for Microbiology
2008-2009 Biology Scholar, Research Residency, American Society for Microbiology
2006-2011 Assistant Professor, Biology Department, Worcester State University
2004-2006 Visiting Assistant Professor and Postdoctoral Fellow, Biology Department,
College of the Holy Cross
2000-2004 Postdoctoral Fellow, Program in Molecular Medicine, University of Massachusetts
Medical School

CAREER DEVELOPMENT

Workshops

2008-2018 Alumni Workshops, Genomics Education Partnership, annually
2015 AAC&U PKAL Summer Leadership Institute
2014 *Xenopus* Bioinformatics Workshop, Marine Biological Laboratories
2009-2015 Worcester State College Summer Institute, annually
2011-2015 Worcester State Winter Institute, annually
2012, 2013 iTeach Mobile Learning workshops
2010 Institutionalizing Integrative Learning: Faculty Development, Course Development &
Assessment
2009 AAC&U Engaging Departments Institute
2009 Designing Courses for Significant Learning Workshop
2007 Genomics Education Partnership workshop
2006 Certificate in College Teaching Program Colleges of Worcester Consortium, Inc.,
Certificate (completed 2006)
2005 Research Explorations in Genomics Workshop: Developing a Proposal for a Student-
Scientist Partnership
2005 Bridging Research & Teaching Workshop: Model Organisms to Bedside
2004 NSF Summer Microarray Workshop for Undergraduate Professors

FELLOWSHIPS AND AWARDS

Fellowships and Grants

- 2018-2023 NSF Noyce Grant DUE-1748400
MassTeach: A Statewide Strategy to Increase STEM Teacher Diversity at Scale
- 2016-2017 STEM Center Workforce Preparation Support Program - Greater Worcester
Community Foundation
- 2016-2017 Worcester State University Mini-grant - Function of the IFIH1 gene in *Xenopus laevis*
development
- 2014-2015 Worcester State University Mini-grant – Regulation of gene expression in early
Xenopus laevis development
- 2013-2014 Worcester State University Mini-grant – Cell cycle control in early *Xenopus laevis*
development
- 2011-2012 Worcester State University Mini-grant – Scholarship of Teaching and Learning in
Biology: Biology Scholars Program Transitions Residency
- 2009-2010 Worcester State College Mini-grant – Scholarship of Teaching and Learning in
Biology: The Use and Assessment of Research Based Laboratories in
Genetics
- 2008-2009 Worcester State College Mini-grant – Biology Scholar Research Residency: The Use
and Assessment of Research Based Laboratories in Biology
- 2002-2004 Individual National Research Service Award (NRSA) Postdoctoral Fellowship
- 2000-2001 Institutional Training Grant: Cell Biology of Development, 2000-2001

Awards

- 2015 Alden Excellence in Teaching Award, Worcester State University
- 2012 Worcester State University Extraordinary Dedication Award
- 2007 Inducted into Tri-Beta Biological Honor Society
- 2000 Graduate Research Excellence Award in Molecular Biology
- 1999 The Gisela Mosig Best Presenter's Award for the 1999 Molecular Biology Graduate
Research Symposium

PUBLICATIONS

- Elgin, S.C.R., Hauser, C., Holzen, T.M., Jones, C., Kleinschmit, A., Leatherman, J., and The
Genomics Education Partnership (2017) The GEP: Crowd-Sourcing Big Data Analysis with
Undergraduates. *Trends in Genetics* 33, 81-85.
- Leung, W, ...**Barnard, D.C.**, *Appiah, I., *Giddens, M.M.,...Elgin, S.C.R. (2015) Drosophila Muller F
elements maintain a distinct set of genomic properties over 40 million years of evolution. *G3:
GENES, GENOMES, GENETICS* 5, 719-40. [Total 940 student co-authors, 74 faculty co-
authors.]
- Lopatto D.... **Barnard, D**.... Elgin S.C.R. (73 authors). (2014) A Central Support System Can
Facilitate Implementation and Sustainability of a Classroom-Based Undergraduate Research
Experience (CURE) in Genomics. *CBE-Life Sci Educ* 13, 711-723.
- Shaffer, C.D., **Barnard, D**, ...Elgin S.C.R. (83 authors). (2014) A Course-Based Research
Experience: How Benefits Change with Increased Investment in Instructional Time. *CBE-Life Sci
Educ*, 13, 111-130.
- Shaffer, C.D....**Barnard, D**....and Elgin S.C.R. (53 authors). (2010) The Genomics Education
Partnership: Successful Integration of Research into Laboratory Classes at a Diverse Group of

Undergraduate Institutions. *CBE-Life Sci Educ* **9**, 55–69.

Lopatto, D....**Barnard, D.**...and Elgin, S.C. (38 authors). (2008) Undergraduate research: Genomics Education Partnership. *Science* **322**, 684-5.

Barnard, D.C., Cao, Q., and Richter, J.D. (2005) Differential phosphorylation controls Maskin association with eIF4E and localization on the mitotic apparatus. *Mol. Cell. Biol.* **25**, 7605-7615.

Barnard, D.C., Ryan, K., Manley, J.L., and Richter, J.D. (2004) Symplekin and xGLD-2 are required for CPEB-mediated cytoplasmic polyadenylation. *Cell* **119**, 641-651.

Mendez, R., **Barnard, D.**, and Richter, J. D. (2002) Differential mRNA translation and meiotic progression require Cdc2-mediated CPEB destruction. *EMBO J.* **21**, 1833-1844.

Barnard, D.C., Li, J., Peng, R. and Patton, J.G. (2002) Regulation of alternative splicing by SRp86 through the coactivation and repression of specific SR proteins. *RNA* **8**, 526-533.

Li, J., **Barnard, D.C.**, and Patton, J.G. (2002) A unique glutamic acid-lysine (EK) domain acts as a splicing inhibitor. *J. Biol. Chem.* **277**, 39485-39492.

Peng, R., Dye, B.T., Perez, I., **Barnard, D.C.**, Thompson, A.B., and Patton, J.G. (2002) PSF and p54nrb bind a conserved stem loop in U5 snRNA. *RNA* **8**, 1334-1347.

Barnard, D.C. and Patton, J.G. (2000) Identification and characterization of a novel serine-arginine rich splicing regulatory protein. *Mol. Cell. Biol.* **20**, 3049-3057.

Spatafora, G., *Sheets, M., *June, R., *Luyimbazi, D., *Howard, K., *Hulbert, R., ***Barnard, D.**, El Janne, M., and Hudson, M.C. (1999) Regulated expression of the *Streptococcus mutans dlt* genes correlates with intracellular polysaccharide accumulation. *J. Bacteriol.* **181**, 2363-2372.

Patton, J.G., Dye, B.T., **Barnard, D.C.**, and McAfee, J.G. (1997) Identification of pre-mRNA splicing factors and analysis of RNA-protein interaction. In *Analysis of mRNA Formation and Function*, J.D. Richter, ed. (San Diego: Academic Press), pp. 55-78.

Spatafora, G., *Rohrer, K., ***Barnard, D.**, and Michalek, S. (1995) *Streptococcus mutans* mutant that synthesizes elevated levels of intracellular polysaccharide is hypercariogenic *in vivo*. *Infect. Immun.* **63**, 2556-2563.

* denotes undergraduate co-author

MEETING PRESENTATIONS

*Urbina, D., *Olivieri, J., and **Barnard, D.** (2018) Interferon Induced with Helicase C Domain in Xenopus Oocyte Maturation. Northeast Regional Meeting of the Society for Developmental Biology, Marine Biological Laboratory Woods Hole, MA

Barnard, D., and Fowler, M. (2017) Forging a Campus Community for STEM: Galvanizing Students and Faculty Around a New STEM Center. TRANSFORMING STEM HIGHER EDUCATION Discovery, Innovation, and the Value of Evidence. San Francisco, CA

Barnard, D., Larrivee, L., and Andreatta, J. (2016) Implementation of Interdisciplinary Student Research Semester: Design Phase. Association of American Colleges and Universities (AAC&U) TRANSFORMING UNDERGRADUATE STEM EDUCATION: Implications for 21st Century Society. Boston, MA.

*Spaziante, B., *Urbina, D., and **Barnard, D.** (2015) Interferon Induced with Helicase C Domain in *Xenopus* Oocyte Maturation. Northeast Regional Meeting of the Society for Developmental Biology, Marine Biological Laboratory Woods Hole, MA.

Barnard, D. (2015). CRE in Bioinformatics. Education Session Presentation, Northeast Regional Meeting of the Society for Developmental Biology, Marine Biological Laboratory Woods Hole, MA.

*Appiah, I., and **Barnard, D.** (2013) Annotation of the 2nd 3L Control Region of the chromosome of *Drosophila erecta*. 19th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA.

*Appiah, I., and **Barnard, D.** (2013) Oocyte Maturation: The Effects of Bisphenol A (BPA) Has On The Process. 19th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA.

Barnard, D.C. (2012) Inverting the Genetics Classroom. *Genetics 2010: Model Organisms to Cancer Biology*, Washington D.C.

†**Barnard, D.C.** (2012) Using Enhanced Podcasts to Invert the Genetics Classroom. *Genetics 2010: Model Organisms to Cancer Biology Pedagogy Workshop*, Washington D.C.

Barnard, D.C. (2010) Efficacy of Enhanced Podcasts to Improve Student Learning in Genetics. *Genetics 2010: Model Organisms to Human Biology*, Boston, MA.

†**Barnard, D.C., Dawson, L., Fynan, E.F., Soltano, E., Marshall, P.A.** (2009) Mapping LEAP Essential Outcomes: Integrating Department and General Education Goals. *NEEAN Fall Forum*, Worcester, MA.

*Routhier, A., *Macharia, E., *Bollinger, J., *Ngo, T., Molecular Biology Fall 2009 (BI371), **Barnard, D.** (2010) Annotation of three fosmids on the 3L *Drosophila erecta* chromosome reveals conserved genes. *16th Annual Massachusetts Statewide Undergraduate Research Conference*, University of Massachusetts, Amherst, MA.

Barnard, D.C., *Hafez, D.H., *Jones, P.L., *Lavoie, P., *Sammartino, D., Ledbetter, M.L.S. (2006) Analysis of Gene Expression Following Disruption of Gap Junction Mediated Cell-Cell Communication by Ouabain. *46th Annual Meeting, The American Society for Cell Biology*, San Diego, CA.

Barnard, D.C., and Ledbetter, M.L.S. (2006) Teaching Postdoctoral Fellowship: A Means of Faculty Development and Curriculum Enhancement. *National Conference of the Council on Undergraduate Research*, DePauw University, Greencastle, ID.

*Jones, P., *Lavoie, P, *Sammartino, D., **Barnard, D., and Ledbetter, M.L.S.** (2005) Microarray analysis of cultured cells whose communication is inhibited by ouabain. *Gap Junction Conference*, Whistler, BC.

Barnard, D.C. and Richter, J.D. (2001) Phosphorylation of the translational repressor maskin during development. *4th West Coast Meeting on mRNA Stability and Translation*, Seattle, WA.

†**Barnard, D.C.** and Patton J.G. (1999) Identification of a serine-arginine rich protein that promotes distal splice site selection". *Eukaryotic mRNA Processing Meeting*, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

†**Barnard, D.C.** and Patton J.G. (1998) Identification of a serine-arginine rich protein that antagonizes the effect of SR proteins on alternative site selection. *3rd Annual Meeting of the RNA Society*, Madison, WI.

*June, R., ***Barnard, D.**, and Spatafora, G. (1996) Monitoring expression of a glg:cat transcriptional fusion in *Streptococcus mutans*. *96th General Meeting, American Society for Microbiology*, New Orleans, LA.

***Barnard D.**, *Christenberry, V., and Spatafora, G. (1995) Monitoring glg gene expression in *Streptococcus mutans*". *95th General Meeting, American Society for Microbiology*, Washington, DC.

* denotes undergraduate co-author; † denotes platform presentation; underscore denotes presenting author(s)

PROFESSIONAL ACTIVITIES AND SERVICE

Undergraduate Research Partnerships

2007-present Genomics Education Partnership

Invited Seminars and Talks

2016 Alden Excellence in Teaching Award Lecture

2015 "A 'Tail' of Two Cities (and an mRNA)" Tri-Beta Biology Honors talk, Worcester State University

2015 "Sabbatical Research Fall 2014: Continuing a Collaboration" Worcester State University Board of Trustees

2005 "Applications of Bioinformatics: addressing biological problems through computational means" Chemistry Department Seminar, College of the Holy Cross, Worcester, MA.

2002 "Polyadenylation and translational control during development" Molecular Biology and Biochemistry Student-Selected Speaker, Middlebury College, Middlebury, VT.

Current Society Memberships

Society for Developmental Biology (SDB)

Genetics Society of America (GSA)

GSA Education Special Interest Group

Society for the Advancement of Biology Education Research (SABER)

American Association for the Advancement of Science (AAAS)

Sigma Xi

Beta Beta Beta Biological Honor Society, Chi Iota Chapter

Professional Service

2017-Present Genomics Education Partnership, Vice-Chair Professional Development and Mentoring Committee

2014-2019 Editor, CBE—Life Sciences Education (CBE-LSE)

Senior Editor 2017-2019

CBE-LSE representative to Genetics Society of America

2011 National Science Foundation (NSF) Review Panel

2010 Genetics Focus group for W.H. Freeman Publishers

2009 Medical Research Alliance of New York Institutional BioSafety Committee (BRANY)
2007-2008 Massachusetts Life Sciences Talent Initiative Academic Task Force

Ad Hoc Reviewer: *Genetics*
GSA PREP resources
Cell Biology Education – Life Sciences Education
Molecular Cellular Biology
Developmental Biology
Currents in Teaching and Learning

SERVICE TO THE UNIVERSITY COMMUNITY

University Wide

2018 First Amendment Working Group
2015-present Director, Aisiku STEM Center, Worcester State University
2014, 2017 University Promotions Committee (AY 2014-15, 2017-18)
2017-Present Occupational Therapy Faculty Position Search Committee
2013-2014 Strategic Planning Oversight Committee
2013 Mobile Learning Taskforce
2010-2013 Vice Chair, NEASC Accreditation Self-Study Steering Committee
2010 Integrative Learning Working Group & Facilitator of Discussion Series
2009 Strategic Planning Learning Outcomes and Assessment Subcommittee Chair
2009 Engaging Departments Institute, Worcester State College Working Group
2010 Assessment Director Position Search Committee

Center for Teaching and Learning

2006-present Advisory Board Member
2006-2014 Faculty Development Committee, Colleges of Worcester Consortium, Inc.
Worcester State University Representative
2007-2008 Co-facilitator of Alden Teaching Fellows cohort on technology in teaching
2008-present Advisory Board for *Currents in Teaching and Learning*

Center for Teaching and Learning Workshop Leader/Co-leader

2015 Planning for the Unexpected: Using Podcasts to Engage Students When School is Closed
2015 Flipping your Classroom: A Discussion on Pedagogies, Techniques & Assessments
2014 Sabbatical Planning
2013 Open Discussion Flipping the Classroom
2011 Blackboard and Student Learning, Concept Mapping
2011 Using BlackBoard to Enhance Learning
2007 Blackboard Hands-On Lab Session

LASC

2010 First year Experience Working group
2010 Web site development
2009 NSP sub-committee (AY 2009-2010)

Biology Department and Related

2007-Present Departmental Assessment Committee Chair
2009-2013 Course Coordinator: Introduction to Cellular and Molecular Biology (BI 141)
2007-present Worcester State University Pre-Med Committee
2007-present Worcester State University NMT Advisory Board

2008-2017 Biology Faculty Search Committees (2008, 2011, 2016, 2017)
2009 Graduate Research Symposium Session Moderator

Masters Research Advisor: Travis Williams (in progress)
Urjit Patel (in progress)
Adam Medeiros M.S. August, 2013
Jeremy Champlin, M.S. August, 2013
Zeynep Mirza, M.S. May, 2013
Rebecca Moore, M.S. December, 2012
Kwasi Ofori, M.S. May, 2010
Susanne Scesney, M.S. May, 2010
Christian Braithwaite, M.S. August, 2009
Heather Gladwin, M.S. August, 2008
Paul Labrousse, M.S. December, 2007

Undergraduate researchers:

Student or Course	Project
Diego Urbina * ¥	Molecular cloning of an RNA helicase in <i>Xenopus laevis</i> oocytes
Jennifer Oliveri * ¥	Molecular cloning of an RNA helicase in <i>Xenopus laevis</i> oocytes
MFouad Faris *	Annotation of <i>Drosophila elegans</i> genome - TSS (GEP)
Matthew Kupersmith *	Annotation of <i>Drosophila biarmapias</i> genome - TSS (GEP)
Bioinformatics BT378 (2017)	Annotation of <i>Drosophila ficusphila</i> genome (GEP)
Abena Darkwah	Annotation of <i>Drosophila biarmapias</i> genome (GEP)
Bioinformatics BT378 (2015)	Annotation of <i>Drosophila biarmapias</i> genome (GEP)
Brittany Spaziante * ¥	Inhibition of an RNA helicase in <i>Xenopus laevis</i> oocytes
Beth Gallant §	Identification and inhibition of an RNA helicase in <i>Xenopus laevis</i> oocytes
Alexander Brown	Annotation of <i>Drosophila biarmapias</i> genome (GEP)
Isaac Appiah * § † ¥	Annotation of <i>Drosophila erecta</i> genome (GEP) BPA effects on <i>Xenopus laevis</i> meiosis
Derek Laplaca *	Identification of Pannexin genes in <i>Xenopus laevis</i>
Katherine Figella *	Annotation of <i>Rubrobacter radiotolerans</i>
Aija Nicholopoulos §	Annotation of <i>Rubrobacter radiotolerans</i>
Molecular Biology BI 371 (2009) * ¥ ‡	Annotation of <i>Drosophila erecta</i> genome (GEP)
Alexis Smith *	Annotation of <i>Drosophila erecta</i> genome (GEP)
Christopher Doty *	Annotation of <i>Drosophila erecta</i> genome (GEP)
Michelle Giddens †	Annotation of <i>Drosophila erecta</i> genome (GEP)

§ Received Aisiku Undergraduate Research Summer Fellowship to support research

† Author on GENES|GENOMES|GENETICS paper

‡ Contribution to GENES|GENOMES|GENETICS paper

¥ Presented poster of work at regional meeting

* Presented poster of work at WSU Celebration of Scholarship and Creativity

Curriculum Vitae

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