

JASON PELLETTIERI, Ph.D.

Professor and Chair, Department of Biology

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EDUCATION

Doctor of Philosophy

07/1998 - 08/2004

Johns Hopkins University School of Medicine, Baltimore, MD

Biochemistry, Cellular, and Molecular Biology Program

Bachelor of Arts

09/1990 - 05/1994

Middlebury College, Middlebury, VT

Biology

EXPERIENCE

Professor

08/2010 - present

Keene State College, Keene, NH

Department of Biology

Chair, 08/2021 - present

Full Professor, 06/2020 - present

Associate Professor, 08/2015 - 06/2020

Assistant Professor, 08/2010 - 08/2015

Adjunct Professor

08/2009 - 12/2009

Westminster College, Salt Lake City, UT

Department of Biology

Postdoctoral Fellow

10/2004 - 06/2010

University of Utah School of Medicine, Salt Lake City, UT

Department of Neurobiology and Anatomy

Mentor: Alejandro Sánchez Alvarado, HHMI Investigator

Research focus: Cell death in planarian regeneration

Doctoral Student

06/1998 - 08/2004

Johns Hopkins University School of Medicine, Baltimore, MD

Department of Molecular Biology and Genetics

Mentor: Geraldine Seydoux, HHMI Investigator

Dissertation: *minibrain-kinase-2* and coordinate control of protein

degradation at the egg-to-embryo transition in *Caenorhabditis elegans*

Laboratory Technician

01/1997 - 05/1998

Johns Hopkins University School of Medicine, Baltimore, MD

Department of Pediatrics

Research focus: Regulation of CLC chloride channel expression

Laboratory Technician

06/1995 - 01/1997

North American Vaccine, Inc., Beltsville, MD

Developed assays to monitor DTP vaccine for FDA compliance

FELLOWSHIPS & AWARDS

Research Associate

07/2008 - 06/2010

Howard Hughes Medical Institute

Postdoctoral research in Sánchez Alvarado Lab

Postdoctoral Fellow

07/2005 - 06/2008

Jane Coffin Childs Memorial Fund for Medical Research

Postdoctoral research in Sánchez Alvarado Lab

Ph.D. Research Award

04/2004

Hans Joaquim Prochaska Award

Thesis research in Seydoux Lab

PUBLICATIONS

Pittendreigh, M., Powers, K., Vimal Cruz, M., and **Pellettieri, J.** Quantitative analysis of planarian pigmentation. *Methods in Molecular Biology*. In press.

Abel, C., Powers, K., Gurung, G., and **Pellettieri, J.** 2022. Defined diets for freshwater planarians. *Developmental Dynamics*. 251(2):390-402.

Kimball, C., Powers, K., Dustin, J., Poirier, V., and **Pellettieri, J.** 2020. The exon junction complex is required for stem and progenitor cell maintenance in planarians. *Developmental Biology*. 457(1):119-127

Pellettieri, J. 2019. Regenerative tissue remodeling in planarians – the mysteries of morphallaxis. *Seminars in Cell and Developmental Biology*. 87:13-21

Stubenhaus, B. and **Pellettieri, J.** 2018. Detection of apoptotic cells in planarians by whole-mount TUNEL. *Methods in Molecular Biology*. 1774: 435-444

He, X., Lindsay-Mosher, N., Li, Y., Molinaro, A., **Pellettieri, J.**, and Pearson, B. 2017. FOX and ETS family transcription factors regulate the pigment cell lineage in planarians. *Development*. 144(24): 4540-4551

Stubenhaus, B., Dustin, J., Neverett, E., Beaudry, M., Nadeau, L., Burk-McCoy, E., He, X., Pearson, B., and **Pellettieri, J.** 2016. Light-induced depigmentation in planarians models the pathophysiology of acute porphyrias. *eLife*. 5:e14175

Featured in *Science*, *Science Daily*, *Biomedical Picture of the Day*, *New Hampshire Public Radio*, *The Concord Monitor*, *The Keene Sentinel*, and *El Periódico* (Barcelona, Spain)

Bender, C., Fitzgerald, P., Tait, S., Llambi, F., McStay, G., Tupper, D., **Pellettieri, J.**, Sánchez Alvarado, A., Salvesen, G., and Green, D. 2012. Mitochondrial pathway of apoptosis is ancestral in metazoans. *P.N.A.S. USA*. 109(13): 4904-4909

Pellettieri, J., Fitzgerald, P., Watanabe, S., Mancuso, J., Green, D., and Sánchez Alvarado, A. 2010. Cell death and tissue remodeling in planarian regeneration. *Developmental Biology*. 338(1): 76-85

Recommended in *F1000 Prime*; over 300 citations

Pellettieri, J. and Sánchez Alvarado, A. 2007. Cell turnover and adult tissue homeostasis – from humans to planarians. *Annual Reviews in Genetics*. 41: 83-105

Stitzel, M., **Pellettieri, J.**, and Seydoux, G. 2006. The *C. elegans* DYRK kinase MBK-2 marks oocyte proteins for degradation in response to meiotic maturation. *Current Biology*. 16(1): 56-62

Pellettieri, J., Reinke, V., Kim, S., and Seydoux, G. 2003. Coordinate activation of maternal protein degradation during the egg-to-embryo transition in *C. elegans*. *Developmental Cell*. 5(3): 451-462

Pellettieri, J. and Seydoux, G. 2002. Anterior-posterior polarity in *C. elegans* and *Drosophila* – PARallels and differences. *Science*. 298(5600): 1946-1950

Blaisdell, C., **Pellettieri, J.**, Loughlin, C., Chu, S., and Zeitlin, P. 1999. Keratinocyte growth factor stimulates CLC-2 expression in primary fetal rat distal lung epithelial cells. *American Journal of Respiratory Cell and Molecular Biology*. 20(4): 842-847

Undergraduate Author

CURRENT RESEARCH FUNDING

NIH R15/AREA
09/2021 - 08/2022 **Metabolic control of porphyrin biosynthesis by mTOR signaling**
\$412,148 (\$299,573 direct costs)

PREVIOUS RESEARCH FUNDING

NSF RUI
08/2017 - 07/2021 **Functional analysis of the exon junction complex in planarians**
\$474,387 (\$339,206 direct costs)

NIH R15/AREA
02/2018 - 01/2021 **Functional analysis of the NMD pathway in regeneration**
\$416,179 (\$297,501 direct costs)

NIH NH-INBRE
05/2018 - 01/2019 **Targeted incentive grant**
\$15,000 (100% direct costs)

NIH NH-INBRE & KSC
08/2017 - 08/2019 **Salary support for research/teaching postdoctoral fellow**
~\$75,000 (100% direct costs)

NIH NH-INBRE
02/2016 - 08/2016 **Pilot screen for small molecule inhibitors of porphyrin biosynthesis**
\$32,000 (100% direct costs)

NIH R15/AREA
09/2014 - 12/2016 **Analysis of phagocyte function in apoptotic cell excretion**
\$306,802 (\$226,000 direct costs)

NSF EAGER
08/2014 - 07/2017 **Cell excretion, a novel mechanism of cell clearance**
\$152,546 (\$116,175 direct costs)

NIH NH-INBRE
07/2013 - 12/2014 **Light-induced pigment cell apoptosis**
\$120,192 (\$94,823 direct costs)

NIH NH-INBRE
10/2011 - 09/2012 **Molecular mechanisms of regenerative tissue remodeling**
\$14,973 (100% direct costs)

CLASSROOM TEACHING EXPERIENCE

Cell Biology
BIO312 **Sophomore-level core course**
Includes original research project in which students screen a small molecule library for compounds that impact planarian regeneration

Developmental Biology
BIO478 **Upper-level elective course**
Includes semester-long research project in which students screen for regeneration genes in planarians using molecular biology techniques (see Kimball et al., *Developmental Biology*, 2020)

Senior Seminar
BIO495 **Capstone course for biology majors**
Required course for biology majors involving semester-long thesis project and preparation for professional life after college

Stem Cells and Regeneration
INBIO300 **General education course for non-science majors**
Includes original research project in which students test hypothesized effects of environmental variables on planarian regeneration (see Stubenhaus et al., *eLife*, 2016)

SELECTED PRESENTATIONS

- 2022 **Mount Desert Island Biological Laboratory**, Bar Harbor, ME: *Invited talk*
- 2021 **SpiraliaBase**, Online: *Invited presentation on using planarians in teaching and outreach*
- 2019 **Southern Maine Community College**, South Portland, ME: *Invited talk*
- 2019 **NIH Northeast Regional IDEa Conference**, Bretton Woods, NH: *Talk*
- 2019 **NIH NH-INBRE Meeting**, Bretton Woods, NH: *Talk*
- 2018 **International Symposium of Flatworm Biology**, Alghero, Italy: *Talk*
- 2018 **International Planarian Meeting**, Madison, WI: *Talk*
- 2016 **Harvard University, Museum of Comparative Zoology**, Cambridge, MA: *Invited talk*
- 2016 **University of Vermont, Department of Biology**, Burlington, VT: *Invited talk*
- 2016 **European Meeting on Planarian Biology**, Sant Feliu de Guixols, Spain: *Talk*
- 2016 **NIH NH-INBRE Meeting**, Bretton Woods, NH: *Led session on mentoring undergraduates*
- 2016 **University of Toronto, Department of Molecular Genetics**, Toronto, Canada: *Invited talk*
- 2016 **Gordon Research Conference, Chemistry & Biology of Tetrapyrroles**, Newport, RI: *Poster*
- 2016 **Wright State University, Department of Biology**, Dayton, OH: *Invited talk*
- 2016 **UMass Medical School, Worcester Area Worm Meeting**, Worcester, MA: *Invited talk*
- 2016 **College of the Holy Cross, Department of Biology**, Worcester, MA: *Invited talk*
- 2016 **MIT, Department of Biology**, Cambridge, MA: *Panel presentation on faculty careers at PUIs*
- 2015 **International Symposium of Flatworm Biology**, Oxford, United Kingdom: *Talk*
- 2015 **North American Planarian Meeting**, Chicago, IL: *Talk*
- 2014 **16th International Congress on Photobiology**, Córdoba, Argentina: *Talk*

SELECTED MENTEE RESEARCH AWARDS

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| Best Poster Award
2017 | Dartmouth College Big Data in the Life Sciences Symposium
<i>An animal model of acute porphyrias</i>
Haley Zanga, Leanna Landfair, and Jason Pellettieri |
| Best Poster Award
2017 | NIH NH-INBRE Annual Meeting
<i>Nonsense-mediated mRNA decay is required for planarian regeneration</i>
Sarai Roby, Samantha Boulanger, and Jason Pellettieri |
| Fellowship Award
2016 | B.E.S.T. Summer Undergraduate Research Fellowship
<i>Analysis of the exon junction complex in planarian stem cells</i>
Simone McEwan and Jason Pellettieri |
| Best Poster Award
2013 | Dartmouth College Integrative Biology Symposium
<i>Light-induced depigmentation in <i>Schmidtea mediterranea</i></i>
Brad Stubenhaus and Jason Pellettieri |
| Fellowship Award
2011 | Keene State College Summer Undergraduate Research Fellowship
<i>Genetic analysis of stem cell-mediated regeneration in planarians</i>
Amber Poirier and Jason Pellettieri |

SELECTED LAB ALUMNI

Ryan Woodcock, Ph.D. Postdoc	Medaille College , Buffalo, NY Assistant Professor of Biology
Semon Randall Class of 2021	MCPHS , Worcester, MA Pharm.D. Student
Brian Stevens Class of 2020	National Institutes of Health , Bethesda, MD Postbaccalaureate IRTA, Davies Lab
Allie Tolles Class of 2019	UMass Medical School , Worcester, MA Research Technician, Lodato Lab
Casey Kimball Class of 2017	Intellia Therapeutics , Cambridge, MA Associate Scientist
Vanessa Poirier Class of 2017	University of South Carolina , Columbia, SC Pharm.D. Student, College of Pharmacy
Megan Beaudry, Ph.D. Class of 2016	University of Georgia College of Public Health , Athens, GA Doctor of Philosophy, Glenn Lab
Emily Neverett, M.S. Class of 2015	University of New Haven , New Haven, CT Master of Science, Forensic Science
Maggie Kelly, D.V.M. Class of 2015	Purdue University College of Veterinary Medicine , West Lafayette, IN Doctor of Veterinary Medicine
Brad Stubenhaus, M.S. Class of 2014	Johns Hopkins University School of Medicine , Baltimore, MD Master of Science, Molecular Biology
Sarah Anderson, Ph.D. Class of 2013	UMass Medical School , Worcester, MA Doctor of Philosophy, Pukkila-Worley Lab

See [lab website](#) for complete list

SELECTED PROFESSIONAL SERVICE

Panel Reviewer 2020 - present	NIH Rhode Island INBRE Peer review of grant applications
Reviewer 2012 - present	Over 20 journals, including <i>Cell Reports</i>, <i>Development</i>, <i>Developmental Biology</i>, <i>eLife</i>, and <i>Stem Cell Research</i> Peer review of primary research articles
Ad Hoc Reviewer 2012 - present	National Science Foundation, Integrative Organismal Systems Peer review of grant applications
External Evaluator 2016	University of Toronto, Department of Molecular Genetics Written review of Ph.D. thesis and oral examiner for thesis defense
Panel Reviewer 2015	National Science Foundation, Integrative Organismal Systems Peer review of grant applications, Developmental Systems Cluster
Creator & Producer 2012 - 2015	Online Developmental Biology (YouTube) Video lectures on selected topics in developmental biology

SELECTED INSTITUTIONAL SERVICE

Chair 2021 - present	Department of Biology Lead course scheduling, student advising, curriculum reform and assessment, adjunct faculty searches, and evaluation of faculty colleagues; manage departmental budget
Faculty Mentor 2018 - present	NIH NH-INBRE Provide institutional mentorship for junior faculty funded by NH-INBRE
Faculty Coordinator 2015 - 2017	Center for Creative Inquiry Founding member of center providing internal funding and other support for undergraduate research, scholarship, and creative endeavors
Member 2014 - 2015	Business Liaison Committee Helped to organize scholarship program sponsored by NH businesses and seminar series on careers in regional industries
Member 2012 - 2013	Undergraduate Scholarly Activity Committee Recommended institutional measures for expanding faculty and student involvement in research, scholarship, and creative endeavors

SELECTED COMMUNITY SERVICE

Member 2018 - present	Peterborough Heritage Commission Volunteer for organization dedicated to preserving and enhancing the cultural and historic resources of the town of Peterborough, NH
Instructor 2013 - present	Science outreach project, Monadnock Regional High School Lead annual research experience exploring effects of environmental variables on planarian regeneration for MRHS honors biology students
Instructor 2022	Short course in stem cell biology, MDI Biological Laboratory Taught students from Southern Maine Community College advanced techniques through engagement in discovery-based planarian research
Instructor 2021	Tech Camp, University of New Hampshire Taught high school students and teachers about stem cell biology and regeneration in a two-week course funded by an NIH SEPA grant
Instructor 2011 - 2014	Science outreach project, Peterborough Elementary School Led annual microcopy demonstration for elementary school students