

JASON PELLETTIERI, Ph.D.

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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

08/2021 - present: Department Chair
06/2020 - present: Full Professor
08/2015 - 06/2020: Associate Professor
08/2010 - 08/2015: Assistant Professor

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, Ph.D.
National Academy of Sciences

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, Ph.D.
National Academy of Sciences

Dissertation: *minibrain-kinase-2* and coordinate control of protein degradation at the egg-to-embryo transition in *Caenorhabditis elegans*

Recipient of 2004 Hans Joaquim Prochaska Research Award

Laboratory Technician
01/1997 - 05/1998

Johns Hopkins University School of Medicine, Baltimore, MD
Department of Pediatrics

Laboratory Technician
06/1995 - 01/1997

North American Vaccine, Inc., Beltsville, MD
Department of Quality Control

FELLOWSHIPS

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

PUBLICATIONS

Woodcock, M. R., Powers, K., Snead, K., and **Pellettieri, J.** 2024. Flatworm transcriptomes reveal widespread parasitism by histophagous ciliates. *Genome Biology and Evolution*. 16(2): evae007.

Pittendreigh, M., Powers, K., Vimal Cruz, M., and **Pellettieri, J.** 2023. Quantitative analysis of planarian pigmentation. *Methods in Molecular Biology*. 2680: 253-261.

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

Stubenhau, 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

Stubenhau, 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 Keene Sentinel*, *The Concord Monitor*, 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 *Faculty Opinions*; over 350 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 - 08/2024
Metabolic control of porphyrin biosynthesis by mTOR signaling
\$412,148 (\$299,573 direct costs)

PREVIOUS RESEARCH FUNDING

NIH U24
04/2022 - 04/2024
UPLC analysis of porphyrin biochemistry in planarians
\$9,290 (100% direct costs)

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

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

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

NIH NH-INBRE
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
BIO-312
Sophomore-level core course
Includes original research project in which students screen a small molecule library for compounds that impact planarian regeneration

Biochemistry
BIO-375
Upper-level elective (team-taught)
Includes original research project in which students investigate effects of dietary or environmental variables on porphyrin biosynthesis in planarians

Developmental Biology
BIO-478
Upper-level elective
Includes semester-long research project in which students use bioinformatics and molecular biology approaches to screen for novel regeneration genes (see Kimball et al., *Developmental Biology*, 2020)

Senior Seminar
BIO-495
Capstone course for biology majors
Focus on career planning, networking with recent departmental alumni, and a primary literature review in an area of each student's choosing

Stem Cells and Regeneration
INBIO-301
General education course designed for non-science majors
Focus on medical ethics and societal impacts of biomedical research; includes original student research projects on planarian regeneration (see Stubenhaus et al., *eLife*, 2016)

SELECTED PRESENTATIONS

- 2024 **NIH National IDeA Symposium (NISBRE)**, Washington, DC: *Plenary talk*
- 2024 **NIH RI-INBRE Winter Retreat**, Smithfield, RI: *Keynote talk and panel discussion*
- 2023 **University of Georgia**, Athens, GA: *Invited talk*
- 2023 **NIH NH-INBRE Meeting**, Bretton Woods, NH: *Invited talk*
- 2022 **NIH National IDeA Symposium (NISBRE)**, Online: *Invited talk*
- 2022 **European Meeting on Planarian Biology**, Sant Feliu de Guixols, Spain: *Talk*
- 2022 **Mount Desert Island Biological Laboratory**, Bar Harbor, ME: *Invited talk*
- 2021 **SpiraliaBase**, Online: *Invited talk*
- 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: *Invited 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**, 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**, Toronto, Canada: *Invited talk*
- 2016 **Gordon Research Conference, Chemistry & Biology of Tetrapyrroles**, Newport, RI: *Poster*
- 2016 **Wright State University**, Dayton, OH: *Invited talk*
- 2016 **UMass Medical School, Worcester Area Worm Meeting**, Worcester, MA: *Invited talk*
- 2016 **College of the Holy Cross**, Worcester, MA: *Invited talk*
- 2016 **MIT**, Cambridge, MA: *Panel discussion 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*
- 2014 **Colby-Sawyer College**, New London, NH: *Invited talk*
- 2013 **North American Planarian Meeting**, Kansas City, MO: *Talk*
- 2013 **Plymouth State University**, Plymouth, NH: *Invited talk*
- 2011 **NIH NH-INBRE Meeting**, Whitefield, NH: *Invited talk on mentoring undergraduates*
- 2009 **Apoptosis and Cancer Meeting**, Hanover, NH: *Talk (rated scientific highlight)*
- 2008 **National Planarian Meeting**, Chicago, IL: *Talk and primary meeting organizer*
- 2007 **Cold Spring Harbor Laboratory Meeting on Cell Death**, Cold Spring Harbor, NY: *Talk*
- 2006 **Jane Coffin Childs Memorial Fund Symposium**, Lakeville, CT: *Poster*
- 2004 **Santa Cruz Conference on Developmental Biology**, Santa Cruz, CA: *Poster (best poster)*
- 2003 **International Worm Meeting**, Los Angeles, CA: *Talk*
- 2002 **American Society for Cell Biology Meeting**, San Francisco, CA: *Poster*
- 2002 **Santa Cruz Conference on Developmental Biology**, Santa Cruz, CA: *Poster*

SELECTED MENTEE RESEARCH AWARDS

Best Poster Award 2022	NIH NH-INBRE Meeting <i>Spatiotemporal analysis of the stem cell response to injury in planarians</i> Emily Cornell du Houx, Ashley Seel, Shannon Berry, and Jason Pellettieri
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 Meeting <i>Nonsense-mediated mRNA decay is required for planarian regeneration</i> Sarai Roby, Samantha Boulanger, and Jason Pellettieri
Fellowship Award 2016	Keene State College 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	Trocaire College , Buffalo, NY Assistant Professor of Biology
Semon Randall Class of 2021	MCPHS , Worcester, MA Doctor of Pharmacy
Brian Stevens Class of 2020	Northwestern University , Evanston, IL Ph.D. Student, Petersen Lab
Allie Tolles Class of 2019	UMass Medical School , Worcester, MA Research Associate, Lodato Lab
Haley Zanga Class of 2018	Loyola University Chicago , Chicago, IL Medical Student
Casey Machamer Class of 2017	Viridian Therapeutics , Waltham, MA Manager - Materials Management and Logistics
Megan Beaudry, Ph.D. Class of 2016	University of Georgia College of Public Health , Athens, GA Doctor of Philosophy, Environmental Health 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
Brett Murray, M.D. Class of 2013	Boston University , Boston, MA Doctor of Medicine
Sarah Anderson, Ph.D. Class of 2013	UMass Medical School , Worcester, MA Doctor of Philosophy, Biomedical Sciences

SCIENCE COMMUNICATION & OUTREACH

Mentor 2022 - present	Classroom projects for New Hampshire middle and high schools Provide planarians and technical support for middle and high school teachers developing hands-on activities for their science classes
Instructor 2021 - present	Tech Camp, University of New Hampshire Teach middle and high school students and teachers about stem cells and regeneration in annual two-week course funded by NIH SEPA grant
Instructor 2013 - present	Science outreach project, Monadnock Regional High School Lead annual research experience in which honors biology students explore the effects of environmental variables on planarian regeneration
Instructor 2022, 2024	Short course in planarian regeneration, MDI Biological Laboratory Teach core concepts in molecular biology to students from Southern Maine Community College with NIH Maine INBRE funding
Writer 2023	Addgene Blog Guest blog post on course-based undergraduate research experiences
Creator 2017	Lab website Overview of grant-funded research projects geared toward undergraduate students and members of the general public
Creator 2012 - 2015	Online Developmental Biology Video lectures on selected topics in developmental biology

SELECTED PROFESSIONAL SERVICE

Principal Investigator 2023 - present	NIH NH-INBRE Research Support and Training Grant Manage institutional award supporting Keene State College Faculty and students participating in biomedical research
External Consultant 2022 - present	NIH Rhode Island INBRE External mentoring consultant for NIH RI-INBRE-funded faculty
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 Reports</i> Ad hoc peer review of primary research articles
Reviewer 2012 - present	National Science Foundation, Integrative Organismal Systems Ad hoc peer review of grant applications
Reviewer 2020 - 2022	NIH Rhode Island INBRE Panel 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
Reviewer 2015	National Science Foundation, Integrative Organismal Systems Panel review of grant applications, Developmental Systems Cluster

SELECTED INSTITUTIONAL SERVICE**Chair**

2021 - present

Department of Biology

Lead curriculum reform and assessment, faculty and staff searches, mentoring and evaluation of faculty and staff, course scheduling, and student advising; manage departmental budget and equipment

Mentor

2018 - present

NIH NH-INBRE

Provide institutional mentorship for 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 technology industries

Member

2012 - 2013

Undergraduate Scholarly Activity Committee

Recommended institutional measures for expanding faculty and student involvement in research, scholarship, and creative endeavors