JASON PELLETTIERI, Ph.D.

Professor and Chair, Department of Biology
Keene State College, Keene, NH
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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

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 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 NH-INBRE **Cell fate specification by nonsense-mediated mRNA decay**
09/2024 - 06/2025 $54,145 ($38,999 direct costs)

NIH NH-INBRE **Targeted incentive grants**
09/2024 - 06/2025 $26,378 ($19,000 direct costs)

PREVIOUS RESEARCH FUNDING

NIH R15/AREA **Metabolic control of porphyrin biosynthesis by mTOR signaling**
09/2021 - 08/2024 $412,148 ($299,573 direct costs)

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

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

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

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

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

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

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

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

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

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

SELECTED PRESENTATIONS

2024 **European Meeting on Planarian Biology,** Platja d' Aro, Spain: *Talk*

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*

SELECTED PRESENTATIONS (continued)

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 **Jane Coffin Childs Memorial Fund Symposium,** Lakeville, CT: *Poster*

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)*

SELECTED MENTEE RESEARCH AWARDS

Best Poster Award
2022
NIH NH-INBRE Meeting
Spatiotemporal analysis of the stem cell response to injury in planarians
Emily Cornell du Houx, Ashley Seel, Shannon Berry, and Jason Pellettieri

Best Poster Award
2017
Dartmouth College Big Data in the Life Sciences Symposium
An animal model of acute porphyrias
Haley Zanga, Leanna Landfair, and Jason Pellettieri

Best Poster Award
2017
NIH NH-INBRE Meeting
Nonsense-mediated mRNA decay is required for planarian regeneration
Sarai Roby, Samantha Boulanger, and Jason Pellettieri

Fellowship Award
2016
Keene State College Summer Undergraduate Research Fellowship
Analysis of the exon junction complex in planarian stem cells
Simone McEwan and Jason Pellettieri

Best Poster Award
2013
Dartmouth College Integrative Biology Symposium
Light-induced depigmentation in Schmidtea mediterranea
Brad Stubenhaus and Jason Pellettieri

Fellowship Award
2011
Keene State College Summer Undergraduate Research Fellowship
Genetic analysis of stem cell-mediated regeneration in planarians
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
Associate Director of External Manufacturing

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

CLASSROOM TEACHING EXPERIENCE

Cell Biology
BIO-312
Sophomore-level core course
Includes original research project in which students screen for effects of small molecules on rates of stem cell division in planarians

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 in planarians (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
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)

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, stem cells, and regeneration 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 *Cell Reports*, *Development*, *Developmental Biology*, *eLife*, and *Stem Cell Reports*
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

Member
2011 - 2013
Program for Undergraduate Research Experiences Committee
Organized program devoted to increasing the number of 1st- and 2nd-year students participating in research and scholarship experiences