

Jennifer R. Tenlen, Ph.D.
Associate Professor of Biology

Seattle Pacific University
3307 3rd Ave W., Ste 205
Seattle, WA 98119-1950

(206) 281-2007
tenlenj@spu.edu
<http://myhome.spu.edu/tenlenj/>

EDUCATION

- 2000 - 2007 **Ph.D., Molecular and Cellular Biology Program, University of Washington and Fred Hutchinson Cancer Research Center**
Dissertation: "Linking PAR polarity proteins to cell fate regulation: analysis of MEX-5 localization in *Caenorhabditis elegans* embryos"
Supervisor: Dr. James R. Priess.
- 1997 - 1998 **Master in Teaching (Secondary Education), Seattle University**
Thesis: "Does the block schedule improve teachers' feelings of efficacy in the high school classroom?"
Supervisor: Dr. David Marshak.
- 1991 - 1995 **B. S. in Biology with Honors, University of Puget Sound**
cum laude
Thesis, with distinction: "A protocol for starch gel electrophoresis of proteins from the foxglove, *Digitalis purpurea*"
Supervisor: Dr. Elizabeth Kirkpatrick.

PROFESSIONAL APPOINTMENTS

- 2017 - present **Associate Professor of Biology, Seattle Pacific University, Seattle, WA**
 - BIO 2101: General Biology I
 - BIO 2102: General Biology II
 - BIO 3320: Principles of Development
 - BIO 3325: Genetics
 - BIO 3899: Scientific Literature
 - BIO 4899: Natural Sciences Capstone
 - UCOL 1000: University Colloquium
- 2012 - 2017 **Assistant Professor of Biology, Seattle Pacific University, Seattle, WA**
- 2010 **Visiting Instructor, Department of Biological Sciences, Fayetteville State University, Fayetteville, NC**
 - BIO 200: Cell Biology
 - BIO 430: Special Topics: Genetic Pathways
- 2007 - 2012 **Postdoctoral Research Fellow, Department of Biology, University of North Carolina-Chapel Hill, Chapel Hill, NC**
 - with Dr. Bob Goldstein

GRANTS

- 2016 SDB Teaching/New Faculty Travel Grant. Travel to Society for Developmental Biology Annual Meeting, August 2016. \$500.
- 2016 - 2019 Principal Investigator, Murdock College Research Program for Natural Sciences. Analysis of germ cell specification in the tardigrade *Hypsibius dujardini*. \$39,720.
- 2015 - 2016 Principal Investigator, Faculty Research Grant, Seattle Pacific University. Are Blakely Island Deer Inbred? Assessing Genetic Diversity in an Isolated Population of Black-tailed Deer. \$3333.
- 2013 - 2016 Co-Principal Investigator, National Science Foundation TUES phase II. #7325436. Authentic discovery based research in college sciences curricula: Assessing the impacts on student and faculty. \$599,067 (direct plus indirect costs).
- 2008 - 2011 Seeding Postdoctoral Innovators in Research and Education (SPIRE) Postdoctoral Fellowship. University of North Carolina at Chapel Hill. National Institutes of Health grant K12GM000678.
- 2007 - 2008 Developmental Biology Postdoctoral Training Grant. University of North Carolina at Chapel Hill. National Institutes of Health grant T32HD046369.

AWARDS

- 2015 Junior Faculty Servant Award, Seattle Pacific University
- 2011 Postdoctoral Scholar Award for Excellence in Service, University of North Carolina at Chapel Hill
- 2009 Postdoctoral Scholar Award for Excellence in Mentoring, University of North Carolina at Chapel Hill
- 2006 Best Student Oral Presentation, 2006 Northwest Developmental Biology Meeting, Friday Harbor, WA
- 1999 Immunex Crystal Apple Award for Outstanding Teachers
- 1995 - 1996 Rotary Foundation Ambassadorial Scholar to Australia

PUBLICATIONS

Tenlen, J.R. (2018). Microinjection of dsRNA in tardigrades. *Cold Spring Harbor Protocols*. <http://dx.doi.org/10.1101/pdb.prot102368>.

Boothby, T.C., **Tenlen, J.R.**, Smith, F.W., Wang, J.R., Patanella, K.A., Nishimura, E.O., Tintori, S.C., Li, Q., Jones, C.D., Yandell, M., Messina, D.N., Glasscock, J. and Goldstein, B. (2015). Evidence for extensive horizontal gene transfer from the draft genome of a tardigrade. *Proc Natl Acad Sci USA* 112,15976-15981. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4702960/>

Tenlen, J.R., McCaskill, S* and Goldstein, B. (2013). RNA interference can be used to disrupt gene function in tardigrades. *Development Genes Evolution* 223, 171-181. <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3600081/>

Tenlen, J.R. (2011). Water bears. *World Book Online InfoFinder*. (Commissioned article)

Tenlen, J.R., Molk, J.N., London, N.L., Page, B.D. and Priess, J.R. (2008). MEX-5 asymmetry in 1-cell *C. elegans* embryos requires PAR-4- and PAR-1-dependent phosphorylation. *Development* 135, 3665-3675. <http://dx.doi.org/10.1242/dev.027060>

* Denotes undergraduate student researcher

Rasmussen, J.P., English, K., **Tenlen, J.R.** and Priess, J.R. (2008). Notch signaling and morphogenesis of single-cell tubes in the *C. elegans* digestive tract. *Developmental Cell* 14, 559-569. <http://dx.doi.org/10.1016/j.devcel.2008.01.019>

Le, T.N., Blomstedt, C.K., Kuang, J., **Tenlen, J.**, Gaff, D.F., Hamill, J.D. and Neale, A.D. (2007). Desiccation-intolerance specific gene expression in leaf tissue of the resurrection plant *Sporobolus stapfianus*. *Functional Plant Biology* 34, 589-600. <http://dx.doi.org/10.1071/FP06231>

Page, B.D., Diede, S.J., **Tenlen, J.R.**, and Ferguson, E.L. (2007). EEL-1, a Hect E3 ubiquitin ligase, controls asymmetry and persistence of the SKN-1 transcription factor in the early *C. elegans* embryo. *Development* 134, 2303-2314. <http://dev.biologists.org/content/134/12/2303>

Tenlen, J.R.[†], Schisa, J.A.[†], Diede, S.J. and Page, B.D. (2006). Reduced dosage of *pos-1* suppresses Mex mutants and reveals complex interactions among CCCH zinc-finger proteins during *Caenorhabditis elegans* embryogenesis. *Genetics* 174, 1933-1945.

[†] These authors contributed equally to this work. <http://dx.doi.org/10.1534/genetics.105.052621>

Park, F.D., **Tenlen, J.R.** and Priess, J.R. (2004). *C. elegans* MOM-5/Frizzled functions in MOM-2/Wnt-independent cell polarity and is localized asymmetrically prior to cell division. *Current Biology* 14, 2252-2258. <http://dx.doi.org/10.1016/j.cub.2004.12.019>

SELECTED PRESENTATIONS (past 5 years)

Tenlen, J. (July 2018). Annotation and characterization of candidate germline development genes in a tardigrade genome. Society for Developmental Biology 77th Annual Meeting, Portland, OR.

Tenlen, J. and Wiebe, B.* (August 2017). Identification of Notch pathway components in the tardigrade *Hypsibius dujardini*. Poster presentation. Second Biennial Meeting, Pan-American Society for Evolutionary Developmental Biology, Calgary, Alberta, Canada.

Chiang, V.* , Dudgeon, D.* , Perry, A.* and **Tenlen, J.** (May 2017). Examining the role of candidate genes in early intestinal development of the nematode *Caenorhabditis elegans*. Oral presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Rodrigues, H.* and **Tenlen, J.** (May 2017). The effects of isolation on the genetic variation in the black-tailed deer population of Blakely Island, WA. Poster presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Tenlen, J. (February 2017). What can water bears teach us about development? Invited lecture. SPU Biology Club Meeting.

Hasanov, S.* and **Tenlen, J.** (November 2016). Identification and characterization of Vasa homologs in the tardigrade *Hypsibius dujardini*. Poster presentation. Murdock Charitable Trust College Science Research Conference, Spokane, WA.

Wiebe, B.* and **Tenlen, J.** (November 2017). Identifying homologs of Notch signaling pathway genes in the tardigrade *Hypsibius dujardini*. Poster presentation. Murdock Charitable Trust College Science Research Conference, Spokane, WA.

Tenlen, J., Chen, D., Houmiel, K., Lumpe, A. and Wood, D. (August 2016). Guiding Education

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through Novel Investigation (GENI): Using a reverse genetic screen in *Caenorhabditis elegans* to engage undergraduates in the research cycle. Poster presentation. Society for Developmental Biology 75th Annual Meeting, Boston, MA.

Tenlen, J., Chen, D., McFarland, B. and Wood, D. (November 2015). Integrating authentic research in curriculum to teach scientific inquiry and enhance student learning. Oral presentation. Network for Academic Renewal Conference: Crossing Boundaries: Transforming STEM Education, Seattle, WA.

Sanders, S. * and **Tenlen, J.** (November 2015). Identifying and characterizing the germline protein Vasa in the tardigrade *Hypsibius dujardini*. Poster presentation. Murdock Charitable Trust College Science Research Conference, Vancouver, WA.

Conn Busch, J. * and **Tenlen, J.** (November 2015). Tardigrades contain at least six putative proteins involved in gene silencing. Poster presentation. Murdock Charitable Trust College Science Research Conference, Vancouver, WA.

Saleh, C. *, Long, E., and **Tenlen, J.** (August 2015). Genetic diversity of Blakely Island black-tailed deer (*Odocoileus hemionus*). Oral presentation. SPU Summer Science Research Symposium, Seattle, WA.

Tenlen, J., Boothby, T., Smith, F. and Goldstein, B. (August 2015). Techniques and Resources for the Molecular, Cell Biological and Genetic Analysis of Tardigrades. Poster presentation. Inaugural 2015 Meeting, Pan-American Society for Evolutionary Developmental Biology, Berkeley, CA.

Tenlen, J. and Murphy, K. (June 2015). Guiding Education through Novel Investigation (GENI): Facilitating authentic research in the teaching lab. Mini-workshop presentation. 37th Annual Association for Biology Laboratory Education Meeting, Boston, MA.

Ryan, D.Z. * and **Tenlen, J.** (May 2015). Functional analysis of a conserved germline gene in tardigrades. Poster presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Ouellette, Q. * and **Tenlen, J.** (May 2015). Identification of *mex-5* homologues in divergent nematodes. Poster presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Burns, J. *, Griesbach, L. *, Eissmann, T. *, Heindel, M. *, **Tenlen, J.** and Wood, D. (May 2015). Uncovering Novel Genetic Pathways in *Caenorhabditis elegans*. Oral presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Tenlen, J. (April 2017, May 2015, May 2014). Evolution of of a developmental biologist. Invited lecture. Women in Science course, Seattle Pacific University, Seattle, WA.

Tenlen, J. (March 2015). Evolution of germline development: lessons from water bears. Keynote presentation. Washington Junior Science and Humanities Symposium, Seattle, WA.

Lord, C. *, Nielsen, P. *, and **Tenlen, J.** (November 2014). Identifying homologs of conserved germline development proteins in tardigrades. Poster presentation. Murdock Charitable Trust College Science Research Conference, Vancouver, WA.

Tenlen, J.R., McFarland, B. and Wood, D. (October 2014). Guiding education using novel investigation in the teaching lab. Invited lecture. 2014 American Society for Microbiology Northwest Branch Meeting.

Tenlen, J.R., Chen, D., Heppert, J., Lumpe, A. and Wood, D. (July 2014). Developing a reverse genetic screen in *Caenorhabditis elegans* as a model for collaborative, authentic research in college science courses. Poster presentation. Society for Developmental Biology 73rd Annual Meeting, Seattle, WA.

Gephart, J.* and **Tenlen, J.** (May 2014). Discovering a Piwi-like gene in tardigrades. Poster presentation. Erickson Undergraduate Research Conference, Seattle, WA.

Tenlen, J. (March 2013). Development of the tardigrade *Hypsibius dujardini* as a new model system for evo-devo studies. Oral presentation. 2013 Northwest Society for Developmental Biology Conference. Friday Harbor, WA.

RELATED WORK EXPERIENCE

- 2007 - 2012 **Academic Coach**, NIH-funded Initiative for Maximizing Student Diversity training program, University of North Carolina at Chapel Hill, Chapel Hill, NC
- 2002 - 2006 **Teaching assistant and Mentor**, Science Education Partnership Program, Fred Hutchinson Cancer Research Center, Seattle, WA
- 2002 **Teaching Assistant**, Dept. of Biology, University of Washington, Seattle, WA
- 1999 - 2000 **Biology teacher**, John F. Kennedy High School, Burien, WA
- 1998 - 1999 **Science teacher**, Franklin High School, Seattle, WA
- 1997 **Research Technician I**, Molecular Cytogenetics, Fred Hutchinson Cancer Research Center
- 1996 **Postgraduate Honours Research**, Department of Genetics and Development, Monash University, Melbourne, Australia

SERVICE

- 2018-present Member, SPU Campus Council
- 2016 - 2018 CAS-STEM Representative, SPU Faculty Council
- March 2016 Reviewer, National Science Foundation Evolution of Development Mechanisms panel
- 2015 - 2019 Panelist, SPU Faith and Science Club events (six sessions)
- April 2015 Panelist, Biological & Social Deconstructions of Race, SPU Biology Club
- 2015 - present Reviewer, Genetics Society of America Peer-Reviewed Education Portal
- 2015 - present Judge, Northwest Association for Biomedical Research Middle School Essay Contest
- 2014 - 2016 Member, SPU Curriculum Committee
- 2014 & 2017 Member, SPU Department of Biology Laboratory Coordinator Search Committee
- 2013 - present Member, Biotechnology Academy Steering Committee, Ballard High School
- 2013 - present Member, SPU Erickson Undergraduate Research Conference Committee; Committee Chair since 2017
- 2012 - present Manuscript reviewer: PLoS ONE

PROFESSIONAL ASSOCIATIONS

- 2014 - present Pan-American Society for Evolutionary Developmental Biology
- 2005 - present Genetics Society of America
- 2005 - present Society for Developmental Biology