

John Russell Bracht

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EDUCATION

University of California, San Diego: Ph.D Biology, August 2009. Dissertation: *Analysis of lin-4 microRNA biogenesis and function in C. elegans*. (Mentor: Amy Pasquinelli)

New Mexico Tech: Bachelor of Science in Biology, *summa cum laude* 2001

University of New Mexico, Los Alamos: freshman year, 1998

POSITIONS HELD

American University: Assistant Professor of Biology, 2014-present

Princeton University: Postdoctoral Research Fellow, 2009-2014 (Mentor: Laura Landweber)

Los Alamos National Laboratory: Undergraduate Research Assistant, High-school Co-op student

HONORS & AWARDS

Jack Child Teaching with Technology Award, American University, 2015, shared with Sonya Grier.

AU Summer Scholars & Artist Award (as a mentor), American University, 2014.

Postdoctoral Fellowship, Ruth L. Kirchstein (F32) NRSA, NIH (NIGMS), 2012-2014.

Postdoctoral Fellowship, New York University Parasitology dept. (declined), 2009. Accepted funded postdoctoral position at Princeton University with Laura Landweber.

New Mexico Tech Silver Scholar, 1998-2001. Full tuition.

TEACHING EXPERIENCE (* new course preparation)

***BIO-489 (undergraduate) & *Bio-689 (graduate) Biotechnology**. Spring 2016.

***BIO-487 (undergraduate) & *BIO-687 (graduate) Genomics**. Fall 2015.

***BIO-596: Computational Genomics**. Spring 2015. Winner of Jack Child Teaching with Technology award, shared with Sonya Grier.

Journal Club (not for credit): Fall 2014, Summer 2015.

Graduate Teaching Assistant, UC San Diego 2003-2005.

Volunteer Science Explainer. Bradbury Science Museum, Los Alamos NM. 1995-1996.

RESEARCH ARTICLES (^a = AU graduate student, † = AU undergraduate student)

Bracht JR^{1*}, Wang X^{1*}, Shetty K, Chen X, Uttarotai G^a, Callihan E†, McCloud S, Clay D, Wang J, Nowacki M, Landweber LF*. *Chromosome fusions triggered by noncoding RNA*. RNA Biology, In Press 2016. (1 Equal contribution. * Corresponding.)

Chen X¹, **Bracht JR¹**, Goldman A, Swart E, Dolzhenko E, Swart E, Clay D, Perlman DH, Doak TG, Stuart A, Amemiya C, Landweber LF. *The architecture of a scrambled genome reveals massive levels of genomic rearrangement during development*. Cell. 2014 Aug 28;158(5):1187-98. (1 Equal contribution.)

Swart E, **Bracht JR**, Magrini V, Minx P, Chen X, Zhou Y, Khurana J, Goldman AD, Nowacki M, Schotanus K, *et al*. *The Oxytricha trifallax Macronuclear Genome: A Complex Eukaryotic Genome with over 16,000 Tiny Chromosomes*. PLoS Biology. 2013 Jan 29;11(1).

Fang W, Wang X, **Bracht JR**, Nowacki M, Landweber LF. *Piwi-Interacting RNAs Protect DNA Against Loss During Oxytricha Genome Rearrangement*. Cell. 2012 Dec 7;151(6):1243-1255.

Bracht JR*, Perlman DH, Landweber LF*. *Cytosine methylation and hydroxymethylation mark DNA for elimination in Oxytricha trifallax*. Genome Biology. 2012 Oct 17;13(10):R99. *corresponding.

- Bracht JR¹**, Van Wynsberghe PM¹, Mondol V, Pasquinelli AE. *Regulation of lin-4 miRNA expression, organismal growth and development by a conserved RNA binding protein in C. elegans.* Dev Biol. 2010 Dec 15;348(2):210-21. (1 Equal contribution.)
- Bagga S, **Bracht J**, Hunter S, Massirer K, Holtz J, Eachus R, Pasquinelli AE. *Regulation by let-7 and lin-4 miRNAs results in target mRNA degradation.* Cell. 2005 Aug 26;122(4):553-563
- Bracht J¹**, Hunter S¹, Eachus R, Weeks P, Pasquinelli AE. *Trans-splicing and polyadenylation of let-7 microRNA primary transcripts.* RNA. 2004 10:1586-1594 (1 Equal contribution.)

REVIEW ARTICLES & BOOK CHAPTERS († = AU undergraduate student)

- Bracht JR***, Ferraro EM†, Bracht KA. *How do cysts know when to hatch? The role of ecological communication in awakening latent life.* Biocommunication of Ciliates. Edited by Guenther Witzany and Mariusz Nowacki. Springer. 2016 97:119 (* corresponding.)
- Bracht JR.** *Beyond transcriptional silencing: Is cytosine methylation a widely conserved eukaryotic DNA elimination mechanism?* BioEssays. April 2014 36(4):346-52.
- Bracht JR.** *Chapter 18: RNA-mediated somatic genome rearrangement in ciliates.* In: Somatic Genome Variation of Animals, Plants and Microorganisms. Edited by Xiu-Quing Li. Wiley-Blackwell. In press.
- Goldman, A. D., Stein, E. M., **Bracht, J. R.** and L. F. Landweber (2014) Programmed Genome Processing in Ciliates. In Discrete and Topological Models in Molecular Biology. N. Jonoska and M. Saito (eds.), Springer-Verlag, Berlin, 273-287.
- Bracht JR**, Fang W, Goldman AD, Dolzhenko E, Stein EM, Landweber LF. *Genomes on the Edge: Programmed Genome Instability in Ciliates.* Cell. 2013 Jan 31;152(3):406-416.
- Pasquinelli AE*, Hunter SE, **Bracht J.** *MicroRNAs: A Developing Story.* Curr Opin Genet Dev. 2005 15:200-205 (*corresponding.)

PUBLICATIONS IN PREPARATION, REVIEW, OR REVISION

- Bracht JR**, Higgins B, Wang K, Angeleska A, Dolzhenko E, Fang W, Chen X, Landweber LF. *Oxytricha: a model of genome catastrophe and recovery.* Submitted.

GRANTS

- DC NASA Space Grant Consortium, AU STEM Faculty Summer Research Program 2016, \$18,320
- Faculty Research Support Grant, American University, 2016-2017, \$22,845. Co-PI with Colin Saldanha and Kathryn Walters-Conte.
- Mellon Faculty Development Fund, American University, 2015-2016, \$4,000.
- Faculty Research Support Grant, American University, 2015-2016, \$10,000. Co-PI with Katie DeCicco-Skinner.
- Career Development Award (K22), NIH (National Cancer Institute), 2014-2017, \$456,819.
- Ruth L. Kirchstein (F32) NRSA Postdoctoral Fellowship, NIH (NIGMS), 2012-2014, \$106,132.

SERVICE

- Undergraduate Committee, American University, 2014-present.
- Alternate Radiation Safety Officer, American University, 2014-present.
- Postdoc Seminar Series Co-organizer, Princeton University, 2012-2014.

PLENARY PRESENTATIONS

- Wake Forest Physics Department Seminar Series, March 4, 2015
- Catholic University Biology Department Seminar Series, September 15, 2014
- Ciliate Molecular Biology FASEB meeting, Steamboat Springs, Colorado, July 10, 2013.
- New York Academy of Sciences Genome Integrity meeting, NY, NY, Dec 3, 2012.
- Plant and Animal Genome XX, San Diego, CA, January 2012.
- High Throughput Sequencing Users Group Seminar Series, Princeton University, Sept 2011
- Integrated Science Shorts Seminar Series, Princeton University, Oct. 2013, Sept. 2011
- West Coast Worm Meeting, Santa Barbara CA, 2004.