



AMERICAN UNIVERSITY

WASHINGTON, DC

September 5, 2014

RISK MANAGEMENT &
ENVIRONMENTAL HEALTH & SAFETY

Elizabeth Ullrich, CHP
U. S. Nuclear Regulatory Commission
2100 Renaissance Boulevard
Renaissance Park
King of Prussia, PA 19406

Br. 2
03038560

03038560

Re: Application to Amend License No. 08-08371-06

Dear Ms. Ullrich:

The American University holds U. S. Nuclear Regulatory Commission (USNRC) License No. 08-08371-06. The purpose of this application is to add Dr. John R. Bracht to the current listing of Authorized Users on the license. His qualifications to serve in that capacity are enclosed, and he will receive additional training on the terms/conditions of License No. 08-08371-06 prior to his initial use of licensed radioactivity. The listing of Authorized Users, assuming the addition of Dr. Bracht is approved, should thus read as follows:

Albert M. Cheh, Ph.D.
Colin J. Saldanha, Ph.D.
John R. Bracht, Ph.D.

If there is anything that I can do to facilitate your review of this application, please do not hesitate to call me at (202) 885-2007. Thank you in advance for your assistance and we look forward to receiving our amended license.

Sincerely,

Leanne Wright
Leanne Wright, MPH,
Radiation Safety Officer

cc: A. Cheh
C. D. Berger (IEM)

584865

NMSS/RGN1 MATERIALS-002

RISK MANAGEMENT & SAFETY SERVICES

4400 MASSACHUSETTS AVENUE, NW WASHINGTON DC 20016-8151 202-885-2700 FAX: 202-885-3278

www.american.edu/finance/rmehs/

ENCLOSURE

EDUCATION

University of California, San Diego

Ph.D in Biology

Mentor: Dr. Amy E. Pasquinelli

Dissertation: *Analysis of lin-4 microRNA biogenesis and function in C. elegans*. Defended August 20, 2009.

New Mexico Tech

Bachelor of Science in Biology

GPA 3.96 (highest honors)

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University of New Mexico, Los Alamos

GPA 4.0

RESEARCH EXPERIENCE

2014-present

American University

Assistant Professor of Biology

2009 – 2014

Princeton University

Ruth L. Kirchstein Postdoctoral Research Fellow

Mentor: Dr. Laura F. Landweber

- Identified *de novo* methylation and hydroxymethylation of DNA in *Oxytricha* genome rearrangements
- Lead researcher on micronuclear genome project, contributor to small RNA paper and macronuclear genome project.

2002 – 2009

University of California, San Diego

Graduate Student

Mentor: Dr. Amy E. Pasquinelli

- Research on microRNA biogenesis and function in *C. elegans*
- Published on the biogenesis of *let-7*, *lin-4* and their mechanisms of target gene regulation

1996 – 2000

Los Alamos National Laboratory

Undergraduate Research Assistant, High-school Co-op student

- Biophysics group (P21), working with magnetic field sensors (known as SQUIDs) to measure magnetic fields emitted by the brain and heart
- Designed and built several calibration coils
- Computer programming: wrote a LabVIEW GUI to operate SQUID devices, MatLAB software for SQUID data analysis, and AutoCAD for systems design

TEACHING EXPERIENCE

2009-2014: Princeton undergraduate honors thesis mentoring

2003-2005 Teaching Assistant, UCSD. Classes: Biochemical Techniques, Genetics, and Structural Biochemistry.

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

AWARDS AND SCHOLARSHIPS

2014: Career Development Award from National Cancer Institute (K22)

2012: Ruth L. Kirchstein National Research Service Award (NRSA) Postdoctoral Fellowship

2009: Awarded a competitive 1-year NIH fellowship through NYU Parasitology Department for postdoctoral work on malaria with Dr. Karen Day. Declined the award to accept a postdoctoral position with Dr. Laura Landweber at Princeton University.

2003-2006 NIH Cellular and Molecular Genetics (CMG) Training Grant

2002-2003 Graduate Assistance in Areas of National Need (GAANN) Fellowship

 New Mexico Tech Silver Scholar (full-ride scholarship)

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PUBLICATIONS

Chen X¹, **Bracht JR**¹, 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, in press (Aug. 28, 2014). (¹ Equal contribution.)

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 AD, Stein EM, **Bracht JR**, Landweber LF. *Programmed Genome Processing in Ciliates*. Springer. New York, NY. In press.

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.

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).

Perspective: Horrell S., Chalker D. *Genome Biology: The Sleek and Oh-So Chic Oxytricha Nanochromosomes*. Current Biology April 8; 23(7):R284-5.

Perspective: Hoff, M. *Tantalizing Glimpses into a Fragmented Genome*. 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.

Perspective: Sontheimer E. *Small RNAs of Opposite Sign....But Same Absolute Value*. Cell. 2012 Dec 7;151(6):1157-1158.

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. Highly accessed. In 96th percentile on Altmetric (altmetric.com).

Perspective: Yi, S. *Birds do it, bees do it, worms and ciliates do it too: DNA methylation from unexpected corners of the tree of life*. Genome Biology 2012 Oct 17;13 (10):174.

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

Pasquinelli AE, Hunter SE, **Bracht J**. *MicroRNAs: A Developing Story*. Curr Opin Genet Dev. 2005 15:200-205

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.)

PUBLICATIONS IN REVIEW / REVISION

Bracht JR¹, Wang X¹, Shetty K, Chen X, Nowacki M, Landweber LF. *Chromosome fusions triggered by noncoding RNA*. Submitted. (¹ Equal contribution.)

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.

PRESENTATIONS

Bracht JR, Wang X, Shetty K, Chen X, Nowacki M, Landweber LF. *Chromosome fusions triggered by noncoding RNA*. Oct. 2013
Integrated Science Shorts Seminar Series, Princeton University.

Bracht JR, Wang X, Shetty K, Chen X, Nowacki M, Landweber LF. *Oxytricha chromosome fusions triggered by noncoding RNA*. July 10, 2013.
Platform – Ciliate Molecular Biology FASEB meeting, Steamboat Springs, Colorado.

Bracht JR, Perlman DH, Landweber LF. *Cytosine methylation and hydroxymethylation mark DNA for elimination in Oxytricha trifallax*. March 18, 2012.
Poster – Epigenetics & Chromatin, conference proceeding:
Bracht et al., Epigenetics & Chromatin 2013, 6 (Suppl 1):P8

Bracht JR, Perlman DH, Landweber LF. *Cytosine methylation and hydroxymethylation mark DNA for elimination in Oxytricha trifallax*. Dec 3, 2012.
Platform – New York Academy of Sciences Genome Integrity meeting. NY, NY.

Bracht JR, Nowacki M, Landweber LF. *RNA-mediated Transgenerational Epigenetic Inheritance of DNA Rearrangements and Copy Number*. January 2012.
Platform — Plant and Animal Genome XX, San Diego, CA.

Bracht JR, Goldman A, Dolzhenko E, Landweber LF. *Glimpses into Oxytricha's scrambled germline genome*. Sept. 2011
Integrated Science Shorts Seminar Series, Princeton University.

Bracht JR, Goldman A, Swart E, Nowacki M, Dolzhenko E, Landweber LF. *Two genomes in one cell: exploring the scrambled germline of Oxytricha*. Sept 2011
High Throughput Sequencing Users Group Seminar Series, Princeton University.

Bracht JR, Goldman A, Swart E, Fang W, Dolzhenko E, Landweber LF. *Uses of NextGen and LastGen Tools in the Analysis of Oxytricha trifallax*. July 2011
Workshop — International Ciliate Conference, Crete, Greece.

Bracht J, Pasquinelli AE. 2007. *A screen for microRNA pathway components uncovers a novel allele of Argonaute-Like Gene 1*.
Poster – International RNA Meeting, Madison, WI

- 'Bagga' S, **Bracht J**, Hunter S, Massirer K, Holtz J, Eachus R, Pasquinelli AE. 2005. *MicroRNAs Direct Target mRNA Degradation in C. elegans*.
Platform – International Worm Meeting, Los Angeles, CA
- Bracht J**, Pasquinelli AE. 2005. *Genetic and Molecular Analyses of MicroRNA Biogenesis in C. elegans*.
Poster– International RNA Meeting, Banff, Canada
- Bracht J**, Hunter S, Eachus R, Weeks P, Pasquinelli AE. 2004. *Trans-splicing and polyadenylation of let-7 microRNA primary transcripts*.
Platform – West Coast Worm Meeting, Santa Barbara CA.

Media Coverage

- Mole, B. *Epigenetic Enigmas*. TheScientist, Oct. 17, 2012 (based on *Oxytricha* methylation paper in Genome Biology)
- Attari, N. *Rebel worms and mixed-up ciliates: DNA methylation as you have never seen it before*. BioMed Central Blog Oct. 17, 2012 (based on *Oxytricha* methylation paper in Genome Biology)

Leadership in the Scientific Community

Co-organizer of Molecular Biology postdoc lunch seminar series.

- Central role in integrating EEB talks into the seminar series, acting as liaison with EEB professors to identify speakers
 - Key role in communicating upcoming talks to both Molecular Biology and EEB departments
 - Introducing speakers and hosting visiting scholars
 - Advocating for postdocs as an undervalued community within Princeton University
-

Princeton University: *Environmental Health & Safety*

September 3, 2014

Statement of Radiation Safety Training

Dear Sir or Madam:

I am writing to certify that Dr. John Bracht, a former postdoctoral research fellow in the Ecology & Evolutionary Biology Department at Princeton University, has completed training in the use, handling and disposal of radioisotopes at Princeton University. He completed initial radiation safety training on December 4, 2009, and attended annual radiation safety refresher training for 2010-2014. Initial radiation safety training at Princeton University consists of the review of seven web-based Radiation Basics modules, successful completion of a test on those modules, and a 2-hour Radioactive Materials Safety Class. Training presents information about the physical properties, characteristics, and biological effects of radiation, NJ Department of Environmental Protection regulations, safe radioisotope work practices, and specific details about the radiation safety program at Princeton University.

If you have any questions or need additional information, please contact me at 609-258-6252 or by email at dupre@princeton.edu.

Sincerely,



Sue M. Dupre
Radiation Safety Officer
Princeton University

SMD/smd

This is to acknowledge the receipt of your letter application dated

9-5-14, and to inform you that the initial processing which includes an administrative review has been performed.

Amend: 08-08371-06
There were no administrative omissions. Your application was assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned Mail Control Number 584865.
When calling to inquire about this action, please refer to this control number.
You may call us on (610) 337-5398, or 337-5260.

NRC FORM 532 (R1)
(6-96)

Sincerely,
Licensing Assistance Team Leader