

Thomas B. Lentz, Ph.D.

Biotechnology Program

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CURRENT POSITION

Teaching Postdoctoral Fellow

2014 – present

Biotechnology Program – Dr. Robert M. Kelly

North Carolina State University in Raleigh, North Carolina

Scholarship of Teaching and Learning Projects

- 'Unique down to our microbes...' a classroom metagenomics activity
- Development of the course Virus Biotechnology: Pathogens to Therapeutics

Research Program: Ecology and Molecular Biology of Ranaviruses

- Prevalence of Ranavirus in herp populations of the US and abroad
- Molecular mechanisms of Ranavirus DNA replication

PREVIOUS POSITION

Postdoctoral Research Associate

2011 – 2014

Gene Therapy Center - Dr. R. Jude Samulski

University of North Carolina in Chapel Hill, North Carolina

Development and engineering of adeno-associated virus (AAV) as a vehicle for therapeutic gene delivery

- Mechanisms of interaction between AAV and host cell defenses
- Engineering tissue-specific enhancement of a liver tropic vector for AAT deficiency

EDUCATION

Ph.D. in Cellular and Molecular Biology – Dr. Daniel D. Loeb

2004 - 2010

University of Wisconsin in Madison, Wisconsin

B.S. [cum laude] in Molecular and Cellular Biology

2000 - 2004

Texas A&M University in College Station, Texas

Select Coursework

2002 - 2003

Virginia Tech in Blacksburg, Virginia

GRANTS AND AWARDS

Triangle Center for Evolutionary Medicine seed research grant (\$18,840) <i>Emerging human-mediated pathogens in North Carolina amphibians and reptiles</i> Co-Leader (responsible for molecular analyses)	2016
First Year Inquiry teacher grant (\$1000) Faculty development program for inquiry-based teaching	2016
NCSU Office of Faculty Development Summer Institute teaching grant (\$1000) Development and presentation of Virus Biotechnology course	2015
NCSU Office of Postdoctoral Affairs Professional Development Award (\$1000) CAST Faculty training courses in Universal Design for Learning	2015
NCSU Delta Captioning Grant (\$2200) Closed captioning of Virus Biotechnology course lectures	2015
Alpha-1 Foundation Postdoctoral Research Fellowship	2013 – 2014
NC Biotechnology Center – Event Sponsorship Grant	2013
American Society of Virology Travel Award	2012
Lineberger Cancer Center Postdoctoral Training Grant Appointment	2012 - 2013
NGEC Workshop Travel Award	2010
R. L. Kirschstein Training Grant Appointment	2008 - 2010
Vilas Travel Grant - Univ. of Wisconsin	2007 & 2008
Dr. Ilse L. Riegel Travel Award - Univ. of Wisconsin	2007
Hepatitis B Foundation Travel Award	2007

TEACHING EXPERIENCE

Instructor of Record – BIT 495/595 Virus Biotechnology: Pathogens to Therapeutics Developed course curriculum and assessed as SoTL research project Taught for 2 semesters	2015-2016
Instructor of Record – BIT 410/510 Manipulation of Recombinant DNA Taught for 3 semesters, 2 summer sessions	2014-2016
Instructor or Record – BIT 100 Current Topics in Biotechnology Taught for 4 semesters	2014-2016
Certificate in Reflective Teaching - NCSU Office of Faculty Development	2016
Faculty Training - NCSU First Year Inquiry Program	2016
SoTL Summer Institute - NCSU Office of Faculty Development	2015
Course Assistant – GreenLabs Environmental Capstone Course, University of North Carolina	2013
Guest Lecturer - Introductory Biology 100, University of North Carolina	2013
Teaching Certificate - Training Initiatives in Biomedical and Biological Sciences (TIBBS), University of North Carolina	2011
Development of new student orientation curriculum Cellular and Molecular Biology program - University of Wisconsin	2008

MENTORING EXPERIENCE

Undergraduate Research Advisor (North Carolina State University):

Andrew Duncan, BS '16 – Biological Sciences

Project: Elucidating Function of ORF95R in FV3 DNA Replication

Adam Miranda, BS '17 – Genetics

Project: Investigation of the Role of Frog Virus 3 Gene ORF60R in First Stage Viral DNA Replication

Ethan Fritch, BS '16 – Biological Sciences

Project: Screening for Frog Virus 3 in Frog Genera from Gabon, Africa

Gitanjali Talreja, BS '16 – Chemical Engineering

Project: Variability in Ranavirus Infection in Cell Lines of Cold-Blooded Vertebrates

Mentored students (University of North Carolina):

2011 – 2014

Graduate – K. Woodard, K. Liang

Undergraduate – E. Huh

Mentored students (University of Wisconsin - Madison):

2005 - 2010

Graduate - T. Iempridee, A. Robinson, A. Swick, B. Sibert, D. Primer

SERVICE AND OUTREACH

Organizer - outreach education collaboration

2015-2016

North Carolina School for the Deaf

Organizer – NCSU Biotechnology program table (public event)

2014-15

NCSU Open House, Raleigh, NC

Co-organizer - *The Nexus of Gene Therapy and Regenerative Medicine*

2013

Joint symposium, UNC Gene Therapy Center and WFU Institute for Regenerative Medicine

Co-organizer – UNC Gene Therapy Center public table (public event)

2013

NC Museum of Nat. Sci. Innovations in Health Day, Raleigh, NC

Volunteer Scientist – UNC Science Expo (public event)

2013

DNA Day organizing committee, Chapel Hill, NC

Volunteer Teacher – Science class (primary school)

2011

El Centro Hispano, Durham, NC

PROFESSIONAL INVOLVEMENT

American Society for Microbiology

2016 - Present

North Carolina Herpetological Society

2013 - Present

NC Partners in Amphibian and Reptile Conservation (PARC) - member

2013 - Present

UNC Green Labs Committee

2012 - 2014

American Society of Virology

2012 - 2013

American Society of Gene and Cell Therapy – associate member

2009 - 2013

Vilas Travel Grant Review Committee – Univ. of Wisconsin Graduate School

2009

PRESENTED ABSTRACTS

"Modes of Inquiry-Based Learning in a Laboratory Virus Biotechnology Course." (Talk) **American Society of Microbiology Conference for Undergraduate Educators**, July 2016 – Bethesda, Maryland.

"Unique Down to Our Microbes – Assessment of an Inquiry-Based Metagenomics Activity." (Poster) **American Society of Microbiology Conference for Undergraduate Educators**, July 2016 – Bethesda, Maryland.

"Bench to Classroom: Exploration of Ranavirus as a Teaching Laboratory Model System." (Poster) **International Symposium on Ranaviruses**, May 2015 – Gainesville, Florida.

"Insight into the mechanism of enhancement of AAV vector transduction by adenovirus proteins E1B55k/E4orf6." (Poster) **Joint Symposium of UNC – Gene Therapy Center and WFU – Institute of Regenerative Medicine**, Feb. 2013 – Winston-Salem, North Carolina.

"Adenovirus proteins E1B55k/E4orf6 reveal novel insight into the role of the DNA damage response pathway in AAV transduction." (Talk) **American Society for Virology**, July 2012 – Madison, Wisconsin.

"Insight into the mechanism of increased transduction of AAV vectors with Ad proteins E1B55k/E4orf6 and generalization to other substrates of the cellular DNA damage response pathway." (Poster) **American Society for Gene and Cell Therapy Meeting**, May 2012 – Philadelphia, Pennsylvania.

"Generation of Novel Rep Proteins with Engineered Nicking Specificity: Implications toward Targeted Integration and Gene Correction." (Poster) **Northwest Genome Engineering Consortium Workshop**, Nov. 2010 – Seattle, Washington.

"The Envelope Proteins are Responsible for Heterogeneity in the 3' End of HBV Plus-Strand DNA." (Talk) **Molecular Biology of Hepatitis B Viruses** meeting, Sept. 2009 - Tours, France.

"Viral Envelope Proteins Regulate Accumulation of the Viral Genome during Human Hepatitis B Virus Replication." (Poster) **McArdle Symposium on Cancer**, June 2009 - Madison, Wisconsin.

"Human Hepatitis B Virus Envelope Proteins Contribute to Regulating Synthesis of the Nuclear Form of the Viral Genome." (Poster) **McArdle Symposium on Cancer**, Nov. 2008 - Madison, Wisconsin.

"HBV Envelope Proteins Prevent Complete Elongation of Plus-Strand DNA." (Poster) **Molecular Biology of Hepatitis B Viruses** meeting, Aug. 2008 - San Diego, California.

"The Contribution of Envelope Proteins to Regulation of HBV cccDNA Synthesis in Cell Culture." (Talk) **Molecular Biology of Hepatitis B Viruses** meeting, Sept. 2007 - Rome, Italy.

"A Cell Culture System to Study the Accumulation and Maintenance of cccDNA during HBV Replication." (Poster) **Molecular Biology of Hepatitis B Viruses** meeting, Sept. 2005 - Heidelberg, Germany.