

## *Curriculum Vitae*

**John H. Horne, Ph.D.**

Department of Biology  
University of New Orleans  
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New Orleans, Louisiana 70122

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### **EDUCATION**

#### **Ph.D. Cell Biology**

Duke University  
Durham, North Carolina

#### **B.S. Zoology**

University of Florida  
Gainesville, Florida

### **PROFESSIONAL EXPERIENCE**

#### **Professor of the Practice**

Department of Biology  
University of New Orleans  
New Orleans, Louisiana

**August 2015 – present**

#### **Courses:**

General Biology I; General Biology II; Cell and Molecular Biology, Biology Learning Community

#### **Research:**

The focus of my scholarship at the University of New Orleans is discipline-based educational research aimed at facilitating the implementation of active learning and inquiry-based approaches into the undergraduate biology curriculum. Another interest is identifying ways to facilitate collaboration among faculty for implementing evidence-based teaching approaches.

#### **Associate Professor and Chair**

Department of Biology  
Pace University  
Pleasantville, New York

**2012 – 2015**

#### **Courses:**

General Biology I (for majors) lecture and lab; General Biology II lecture, Genetics lecture and lab; Cell and Molecular Biology lecture and lab; Neurobiology lecture; Biology and Contemporary Society (non-majors) lecture and lab

#### **Research:**

The goal of my research is to identify the genes that mediate the morphological differentiation of neurons in the developing nervous system. We can visualize the cell shape changes involved in this differentiation process in live zebrafish embryos using fluorescence imaging of early neurons expressing the green fluorescent protein (GFP). My students and I have also developed a gene loss-of-function approach using *in vivo* electroporation, which gives us precise temporal control over the loss-of-function and allows us to assess the function of genes used at multiple steps during development. Currently, we are using this loss-of-function approach to identify the genes necessary for development of the olfactory system in zebrafish.

#### **Administrative and Service:**

Chair, Department of Biology and Health Sciences (2012 – present)  
Provost's SEAT Subcommittee on Teaching Practices (2014 – present)

Content Consultant, Pace University School of Education, NSF TLQP Inquiry Grant (2009 – present)  
Chair, Dyson College Pre-Health Committee (2013 – present)  
Co-Chair, Provost's Engineering Task Force (2013 – present)  
Co-Chair, Department of Biology Curriculum Committee (2012 – 2015)  
Reviewer, National Science Foundation Review Panel, Arlington, VA (2013)  
Mentor, Pleasantville High School Science Research Course (2013 – 2014)  
Associate Chair, Department of Biology and Health Science, (2010 – 2012)  
Mentor, Ossining High School Fundamentals of Science Research Course (2010 – 2012)

**Visiting Assistant Professor** **1/1/2014 – 7/1/2014**  
Lewis-Sigler Institute for Integrative Genomics  
Princeton University  
Princeton, New Jersey

**Course:**

Integrated Science Curriculum course in Genetics. Co-taught with Professor Eric Wieschaus.

**Assistant Professor and Associate Chair** **2010 – 2012**  
Department of Biology  
Pace University  
Pleasantville, New York

**Assistant Professor** **2006 – 2012**  
Department of Biology  
Pace University  
Pleasantville, New York

**Visiting Assistant Professor** **2005 – 2006**  
Department of Biology  
Hamilton College  
Clinton, New York

**Courses:**

Introduction to Biology (majors) lecture and lab; Cell Biology lecture and lab; the Biology of Stem Cells (writing enhanced)

**Senior Editor** **2003 – 2005**  
*Nature Cell Biology*  
Boston, Massachusetts

**Responsibilities:**

My main responsibilities at *Nature Cell Biology* were the initial evaluation and screening of research manuscripts, making the first decision on whether manuscripts were peer reviewed, identifying appropriate reviewers, managing the review process, and deciding on publication. In addition, I edited research articles, review articles, and News and Views; and wrote editorials, News and Views, highlights for the website, and press releases.

**Associate Editor** **2000 – 2003**  
*Nature Neuroscience*  
New York, New York  
(Responsibilities were essentially the same as those for my position at *Nature Cell Biology*.)

**Postdoctoral Fellow** **1999 – 2000**  
Laboratory of Dr. Scott Fraser  
Department of Biology  
California Institute of Technology  
Pasadena, California

**Research:**

During my one-and-a-half years in the Fraser lab I was able to develop an *in vivo* imaging technique that could be used to identify the genes necessary for guidance and growth of axons during development of the visual system in *Xenopus laevis* tadpoles.

**Postdoctoral Fellow**

**1997 – 1998**

Laboratory of Dr. David Ogden  
Division of Neurophysiology  
National Institute for Medical Research  
Mill Hill, London, United Kingdom

**Research:**

During my one year postdoc with David Ogden, I worked on the design, synthesis, and characterization of a new calcium indicator that localized to specific membrane compartments in neurons. I also carried out patch-clamp studies in dorsal root ganglion neurons comparing the kinetics of calcium increases and calmodulin activation.

**Graduate Student**

**1991 – 1997**

Laboratory of Dr. Tobias Meyer  
Department of Cell Biology  
Duke University  
Durham, North Carolina

**Research:**

My thesis research focused on understanding regulatory mechanisms that control the temporal and spatial patterns of calcium signals in mast cells. I investigated the regulation of the IP<sub>3</sub> receptor calcium channel, and also developed a new membrane localized calcium indicator in order to analyze the spatial aspects of IP<sub>3</sub>-mediated calcium signals.

**Research Assistant**

**1989 – 1991**

Laboratory of Dr. Lubert Stryer  
Department of Cell Biology  
Stanford University  
Stanford, California

**Research Assistant**

**1988 – 1989**

Laboratory of Dr. Richard Sullivan  
Department of Hematology  
Boston University Medical School  
Boston, Massachusetts

**PEDAGOGY**

**Content Consultant – Pace University School of Education, NSF TLQP Inquiry Grant**

Pace University, 2009 – present

**Participant – HHMI Summer Institute for Undergraduate Education in Biology**

Harvard University – June 11-16, 2012

**GRANTS, FELLOWSHIPS, AND AWARDS**

**Principle Investigator: NSF Major Research Instrumentation Grant**

**2011 – 2014**

“MRI: Acquisition of a Confocal Microscope for Research and Undergraduate Research Training at Pace University” (*Funded: September 1, 2011*)

Funding: **\$335,972.00**

National Science Foundation  
Major Research Instrumentation Program  
Pace University  
Pleasantville, New York

**Principle Investigator: NIH Academic Research Enhancement Award (R15) 2008 – 2012**

“Using Time-Resolved Genetics to Determine the Function of PI3-Kinase Signaling in the Development of Neuronal Morphology” (**funded on first submission**)

Funding: **\$205,819.00** (Direct: \$150,000.00; Indirect: \$55,819.00)

National Institutes of Health  
National Institute of Mental Health  
Pace University  
Pleasantville, New York

**Postdoctoral Fellowship 2000**

American Cancer Society  
California Institute of Technology  
Pasadena, California

**Postdoctoral Fellowship 2000**

NRSA  
National Institutes of Health  
California Institute of Technology  
Pasadena, California  
(Note: declined due to acceptance of the ACS fellowship)

**Postdoctoral Fellowship 1997 – 1998**

Medical Research Council  
National Institute for Medical Research  
Mill Hill, London, UK

**BOOK CHAPTERS**

John H. Horne. “Targeting the zebrafish nervous system using *in vivo* electroporation.” In, *Neuromethods: Electroporation Methods and Neuroscience* (Springer)  
In Press (Publication expected April 2015)

**RESEARCH PUBLICATIONS (\*undergraduate student author)**

Borges R.M., Horne J.H., Melo A., Vidal J.T., Vieceli F.M., Melo M.O., Kanno T.Y., Fraser S.E., and Yan C.Y. A detailed description of an economical setup for electroporation of chick embryos *in ovo*. *Braz J Med Biol Res.* **46**: 752-757. doi: 10.1590/1414-431X20133232. (2013)

\***Hoegler, K.J.**, Distel, M., Köster, R.W., and Horne, J.H. “Targeting Olfactory Bulb Neurons Using Combined *In Vivo* Electroporation and Gal4-Based Enhancer Trap Zebrafish Lines.” *Journal of Visualized Experiments* Aug 15;(54). pii: 2964. doi: 10.3791/2964. (2011)

\***Hoegler, K.J.** and Horne, J.H. “Targeting the zebrafish optic tectum using *in vivo* electroporation”, *Cold Spring Harbor Protocols*. Jul 1;2010(7):pdb.prot5463. doi: 10.1101/pdb.prot5463. (2010)

\***Kera, S.A.**, \***Agerwala, S.M.**, and Horne, J.H. “The temporal resolution of *in vivo* electroporation in zebrafish: a method for time-resolved loss-of-function.” *Zebrafish* Mar;7(1):97-108. doi: 10.1089/zeb.2009.0620. (2010)

Milikan JM, Carter TD, Horne JH, Tzortzopoulos A, Torok K, Bolsover SR. “Integration of calcium signals by calmodulin in rat sensory neurons.” *Eur. J. Neurosci.* **4**, 661-670 (2002)

Horne, J.H. Invited Review Article, "Regulatory and spatial aspects of inositol trisphosphate-mediated calcium signaling." *Cell Biochemistry and Biophysics* **30**, 267-286 (1999)

Horne, J.H. and Meyer, T. "Membrane attachment of a dextran based calcium indicator, CAAX green, using an isoprenoid lipid encoding peptide." *Cell Calcium* **25**, 1-7 (1999)

Horne, J.H., and Meyer, T. "Elementary calcium release units induced by inositol trisphosphate." *Science* **276**,1690-1693 (1997).

Horne, J.H., and Meyer, T. "Luminal calcium regulates the inositol trisphosphate receptor of rat basophilic leukemia cells at a cytosolic site." *Biochemistry* **34**:12738-1274. (1995)

Sullivan, R., Griffin, J.D., Wright, J., Melnick, D.A., Leavitt, J.L., Fredette, J.P., Horne, J.H. Jr., Lyman, C.A., Lazzari, K.G., and Simons, E.R. "Effect of recombinant human granulocyte-macrophage colony-stimulating factor on intracellular pH in mature granulocytes." *BLOOD* **72**:1665-1673 (1988)

### **INVITED TALKS**

"Using *In Vivo* Electroporation for Time-Resolved Genetics in Zebrafish Neural Development"  
Department of Molecular Pharmacology, Physiology and Biophysics Invited Lecture – March 2010  
Brown University, Providence, Rhode Island

"Characterizing *In Vivo* Electroporation as a Method for Time-Resolved Genetics in Zebrafish"  
ENI Network Invited Lecture – July 2009  
GMBH Institute of Developmental Genetics, Munich, Germany

### **CONFERENCE PRESENTATIONS**

(\*student presenter)

\*Ruchi H. Sheth and John H. Horne

The Role of DCC for Mitral Cell Axon Guidance in Zebrafish  
Society for Developmental Biology Annual Meeting – June, 2013  
Cancun, Mexico

Kelly R. Fisher and John H. Horne

Loss-of-Function Analysis of Rac Function In Development of the Zebrafish Olfactory Bulb  
Society for Developmental Biology Annual Meeting – July, 2012  
Montreal, Canada

Kristi M. Powers, Stacy J. Thomas, and John H. Horne

"The Role of Rac1 in Development of the Zebrafish Olfactory Bulb"  
Society for Developmental Biology Annual Meeting – July, 2011  
Chicago, Illinois

Kenric J. Hoegler and John H. Horne

"Spatial and Temporal Targeting of GFP Expression in Zebrafish Using Combined *in vivo*  
Electroporation and Gal4-based Enhancer Trap Transgenic Lines"  
Society for Developmental Biology Annual Meeting – July, 2010  
Albuquerque, New Mexico

\*Kenric J. Hoegler, \*Kiryil N. Shada, and John H. Horne "Using *In Vivo* Electroporation for Gene  
Expression and Loss-of-Function Analysis of the Differentiation of Optic Tectum Neurons"  
Society for Neuroscience Annual Conference – October 2009  
Chicago, Illinois

John H. Horne "Characterizing *In Vivo* Electroporation as a Method for Time-Resolved

Genetics in Zebrafish”  
ENI Network Invited Lecture – July 2009  
GMBH Institute of Developmental Genetics, Munich, Germany

Scott A. Kera, Suneel M. Agerwala, and John H. Horne “Using *In Vivo* Electroporation for Time-Resolved Genetics in Zebrafish”  
6<sup>th</sup> European Zebrafish Genetics and Development Meeting – July 2009  
Rome, Italy

Scott Kera, Suneel Agerwala, and John H. Horne “Using *In Vivo* Electroporation for Loss-of-Function Analysis in Zebrafish”  
Society for Neuroscience Annual Conference – November 2008  
Washington DC

\*Scott Kera and John H. Horne “Developing Time-Resolved Genetics in Zebrafish”  
Columbia Undergraduate Research Symposium – May 2008  
Columbia University  
New York, New York

\*Suneel Agerwala, \*Scott Kera, and John H. Horne “Time-Resolved Genetics in Zebrafish”  
Society for Neuroscience Annual Conference – October 2007  
San Diego, California

## **STUDENT RESEARCH PROJECTS MENTORED**

### **2006-2007 Academic Year**

Scott Kera – Zebrafish embryology and microscopy  
Suneel Agerwala – Zebrafish embryology and microscopy

### **2007-2008 Academic Year**

Scott Kera – Measuring the spatial resolution of in vivo electroporation  
Suneel Agerwala – Measuring the temporal resolution of in vivo electroporation  
Tamara Doiley – Bioinformatic identification of the zebrafish PI3-kinase genes  
Daniela Gambino – DNA plasmid preparation  
Emily Brown – Neurobiological theory of synesthesia (*Honor Thesis*)

### **2008-2009 Academic Year**

Kenric Hoegler – Targeting the zebrafish optic tectum using in vivo electroporation  
Kyril Shada – Targeting the zebrafish optic tectum using in vivo electroporation  
Brett Kantrowitz – Zebrafish microscopy  
Shirley Idumonyi – Stem cell therapy and Parkinson’s disease (*Honors Thesis*)

### **2009-2010 Academic Year**

Kenric Hoegler – Targeting the zebrafish olfactory bulb using in vivo electroporation  
Kerri Mclean – Characterization of PI3-kinase expression in zebrafish embryos  
Michael Colarusso – Zebrafish transfection and microscopy  
Ryan Finnerty – Localization of RFP expression in the Mu-GA80 transgenic zebrafish line  
R. J. Penalosa – Time-course of RFP expression in the Mu-GA80 transgenic zebrafish line  
Matthew Hartog – Localization of RFP expression in the Mu-6380 transgenic zebrafish line  
Nicolas Del Bene – Time-course RFP expression in the Mu-6380 transgenic zebrafish line  
Julia Dank – Disorders of cerebral spinal fluid (*Senior Library Research Project*)

### **2010-2011 Academic Year**

Rosa Grisanti – Characterization of Rac1 expression in zebrafish embryos  
Jason Jones – Cloning of the zebrafish Rac1 gene into the pGEM vector  
Stacy Thomas – Rac1 loss-of-function analysis in the olfactory bulb

Kristi Powers – Rac1 loss-of-function analysis in the olfactory bulb  
Joseph Booz – Localization of Rac1 expression in zebrafish  
Virginia Hong – Time-course of Rac1 expression in zebrafish  
Elana Sitnik – *Ossining High School Student* – Developing zebrafish metastasis model  
Alicia Parlon – New therapies for epilepsy (*Senior Library Research Project*)

#### **2011-2012 Academic Year**

Kelly Fisher – Rac1 loss-of-function analysis in the olfactory bulb  
Ruchi Sheth -- DCC loss-of-function analysis in the olfactory bulb  
Reginald Anyichie – Rac1 loss-of-function analysis in the olfactory bulb  
Jennette Ruivo – Localization of Rac1 and Rac3 expression in zebrafish  
Stephen Sizensky – Time-course of Rac1 and Rac3 expression in zebrafish  
Jennifer Rohr – Localization of Rac1 and Rac3 expression in zebrafish  
Elana Sitnik – Ossining High School Student – Developing zebrafish metastasis model

#### **2012-2013 Academic Year**

Kelly Fisher – Rac1 loss-of-function analysis in the olfactory bulb  
Ruchi Sheth – DCC loss-of-function analysis in the olfactory bulb  
Reginald Anyichie – In vivo electroporation in the GA-6380 transgenic line  
Brian Keegan – Identifying a new telencephalic axon guidance target in the forebrain

#### **2013-2014 Academic Year**

Kimberly Duffy – In situ characterization of DCC expression  
Stephanie Munoz – In situ characterization of Netrin expression  
Nicholas Mulvhill – DCC loss-of-function analysis in the olfactory bulb  
Tucker Coburn – Pleasantville High School Student – Zebrafish development

#### **2014-2015 Academic Year**

Nicholas Mulvhill – DCC loss-of-function analysis in the olfactory bulb  
Ethan Warshowsky – Rac1 loss-of-function analysis in the olfactory bulb

#### **EDITORIALS**

##### **“Creating controversy”**

Jack Horne, *Nature Cell Biology* **7**, 99-99 (February 2005)

##### **“Speaking up”**

Jack Horne, *Nature Cell Biology* **6**, 171-171 (March 2004)

##### **“The risks of exclusion”**

Jack Horne, *Nature Neuroscience* **6**, 203-203 (March 2003)

##### **“Crossing the pond”**

Jack Horne, *Nature Neuroscience* **5**, 817-817 (September 2002)

#### **NEWS AND VIEWS**

##### **“Huntingtin and the vicious circle”**

Jack Horne, *Nature Cell Biology* **7**, 650-650 (July 2005)

##### **“On the bright side of microarrays”**

Jack Horne, *Nature Cell Biology* **7**, 550-550 (01 Jun 2005)

##### **“New neurons?”**

Jack Horne, *Nature Cell Biology* **6**, 287-287 (April 2004)

##### **“A filopodial synapse?”**

Jack Horne, *Nature Cell Biology* **5**, 1047-1047 (December 2003)

**“Curling with kinesin”**

Jack Horne, *Nature Cell Biology* **5**, 696-696 (August 2003)

**“How ephrins sculpt dendritic spines”**

Jack Horne, *Nature Neuroscience* **5**, 1113-1113 (November 2002)

**“The short p75 neurotrophin receptor is long on function”**

Jack Horne, *Nature Neuroscience* **4**, 970-970 (October 2001)

**“Keep your eye off the ball”**

Jack Horne, *Nature Neuroscience* **3**, 1236-1236 (December 2000)