

Reyna I. Martinez-De Luna, Ph.D.
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EDUCATION

Doctor of Philosophy in Molecular, Cellular and Developmental Biology, September 2009

The Ohio State University, Columbus, OH

Dissertation: *The regulation and function of the Retinal Homeobox (Rx) gene in the developing and regenerating retina of pre-metamorphic Xenopus laevis*

Advisor: Heithem M. El-Hodiri, Ph.D.

Bachelor of Science in Biology, June 2001

University of Puerto Rico at Humacao, Humacao, PR

summa cum laude

RESEARCH EXPERIENCE

Post-doctoral researcher, November 2009-present

Department of Ophthalmology, Center for Vision Research, Upstate Medical University, Syracuse, NY

Investigating the function of Maturin, a novel gene involved in primary neurogenesis in *X. laevis*.

Doctoral student researcher, March 2005-September 2009

Department of Molecular and Human Genetics, The Research Institute at Nationwide Children's Hospital, Columbus, OH

Studied the regulation and function of the Retinal Homeobox (Rx) gene during retinal development and regeneration in pre-metamorphic *Xenopus laevis*. Characterized retinal regeneration in *X. laevis* tadpoles to describe in detail the process of retinal regeneration, which was previously uncharacterized in pre-metamorphic *X. laevis*.

Doctoral student researcher, September 2002-March 2005

Department of Anatomy and Physiology, The Ohio State University, Columbus, OH

Studied the effect of disease related mutations in the sarcoplasmic reticulum protein Calsequestrin in calcium uptake and release.

Undergraduate student researcher, August 1999- May 2001

Department of Biology, University of Puerto Rico at Humacao, Humacao, PR

Studied the localization of the neurotransmitter Substance-P in the dorsal root ganglia of *Rana pipiens* using immunohistochemistry techniques.

Research intern, Summer 1999

Department of Biology, University of Illinois at Chicago, Chicago, IL

Studied the UNC-11A protein in the *Caenorhabditis elegans* nervous system. Characterized putative UNC-11A interacting proteins in *C. elegans* using yeast-two-hybrid assay.

AWARDS AND FELLOWSHIPS

Runner up poster award, Northeast Society for Developmental Biology Regional Meeting, Woods Hole, MA. April 2012.

Best oral presentation award, *Beyond the Doctorate Research Day*, Upstate Medical University, Syracuse, NY. March 2012.

Carl Storm Underrepresented Minority Travel Fellowship, Visual Systems Development Gordon Research Conference 2008 Biannual meeting. Newport, RI.

Young Investigator Fellowship Awards for Females in Vision Research, Prevent Blindness Ohio (PBO) June 2008 - August 2008

Travel award, Association for Research in Vision and Ophthalmology (ARVO) 2008 Annual Meeting. Ft. Lauderdale, FL.

Travel award, 59th Annual Symposium on Cancer Research: Stem cells in cancer and regenerative medicine. M.D. Anderson Cancer Center, Houston, TX. October 2006.

National Research Service Award (NRSA) Pre-doctoral fellowship, National Institutes of Health, NHLBI, September 2004 – March 2005. Declined.

Molecular Life Sciences Fellowship (MLS), September 2001-March 2005, The Ohio State University, Columbus Ohio

The Ohio State University Institutional Fellowship, September 2001-2002

Minority Access to Research Careers (MARC) Fellowship, National Institutes of Health, August 2000- June 2001, University of Humacao at Puerto Rico, Humacao, PR

PUBLICATIONS

Martinez-De Luna RI, Ku, RY, Lyou, Y, Zuber M.E. 2012. Maturin: a novel component of the proneural pathway that functions with Pak3 to control cell cycle exit and differentiation during primary neurogenesis. Submitted to Developmental Biology.

Martinez-De Luna RI, Kelly LE, El-Hodiri HM. 2011. The Retinal Homeobox (Rx) gene is necessary for retinal regeneration. *Developmental Biology* 353:10.

Martinez-De Luna RI, Moose HE, Kelly LE, Nekkalapudi S, El-Hodiri HM. 2010. Regulation of retinal homeobox gene transcription by cooperative activity among cis-elements. *Gene* 467: 13.

Pan Y, **Martinez-De Luna RI**, Lou CH, Nekkalapudi S, Kelly LE, Sater AK, El-Hodiri HM. 2010. Regulation of photoreceptor gene expression by the retinal homeobox (Rx) gene product. *Developmental Biology* 339: 494.

Wilson JM, **Martinez-De Luna RI**, El-Hodiri HM, Smith R, King MW, Mescher AL, Neff AW, Belecky-Adams TL. 2010. RNA helicase Ddx39 is expressed in the developing central nervous system, limb, otic vesicle, branchial arches and facial mesenchyme of *Xenopus laevis*. *Gene expression patterns* 10:44.

Martinez-De Luna, RI, and El-Hodiri, H.M. 2007. The *Xenopus* ortholog of the nuclear hormone receptor *Nr2e3* is primarily expressed in developing photoreceptors. *International Journal of Developmental Biology* 51: 235.

PRESENTATIONS

Oral Presentations

Martinez-De Luna, R.I., Ku, R.Y., Lyou, Y., Zuber M.E. 2012. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Beyond the Doctorate Research Day. SUNY Upstate Medical University. Syracuse, N.Y.

Martinez-De Luna, R.I., Lyou, Y., Zuber M.E. 2011. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Beyond the Doctorate Research Day. SUNY Upstate Medical University. Syracuse, N.Y.

Martinez-De Luna, R.I., Lyou, Y., Zuber M.E. 2010. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Invited lecture. Minority Access to Research Careers Seminar. University of Puerto Rico at Humacao, Humacao, P.R.

Martinez-De Luna, R.I., El-Hodiri, H.M. 2008. Retinal progenitor cell specification and maintenance by Retinal Homeobox (Rx) function after retinal damage. Prevent Blindness Ohio Scientific Forum. Columbus, OH.

Martinez-De Luna, R.I., El-Hodiri, H.M. 2008. Retinal progenitor cells mediating retinal regeneration in pre-metamorphic *Xenopus laevis* are not exclusively of RPE origin. Association for Research in Vision and Ophthalmology (ARVO), Annual meeting. Fort Lauderdale, FL.

Martinez-De Luna, R.I., Periasamy, M. 2004. The Role of Calsequestrin in Calcium Buffering in the Cardiac Sarcoplasmic Reticulum. The Ohio State University, Molecular, Cellular and Developmental Biology student third year talk. The Ohio State University. Columbus, OH.

Martinez-De Luna, R.I., Chinapen, S., Hernandez, C. 2000. Substance P-labeled cell bodies are present in the dorsal root ganglia of *Rana pipiens*. University of Puerto Rico Access for Minority Participation National Research Symposium. Rio Piedras, PR.

Martinez-De Luna, R.I., Alfonso, A. 1999. Characterization of Putative UNC-11A Interacting Proteins. University of Illinois at Chicago Summer Research Opportunities Symposium, Chicago, IL.

Poster Presentations

Martinez-De Luna, R.I., Ku, R.Y., Lyou, Y., Zuber M.E. 2012. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Visual Systems Development Gordon Conference, New London, NH.

Martinez-De Luna, R.I., Ku, R.Y., Lyou, Y., Zuber M.E. 2012. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Northeast Society for Developmental Biology Regional Meeting, Woods Hole, MA.

Martinez-De Luna, R.I., Ku, R.Y., Lyou, Y., Zuber M.E. 2011. Maturin is a novel protein required for primary neurogenesis in *Xenopus laevis*. Society for Neuroscience Annual Meeting, Washington D.C.

Martinez-De Luna, R.I., El-Hodiri H.M. 2009. Silencing the Retinal Homeobox (Rx) gene impairs retinal regeneration in pre-metamorphic *Xenopus laevis*. Association for Research in Vision and Ophthalmology, Annual Meeting. Fort Lauderdale, FL.

Martinez-De Luna, R.I., El-Hodiri H.M. 2007. Appearance of retinal progenitor cells after resection of the retina in pre-metamorphic *Xenopus laevis*. Association for Research in Vision and Ophthalmology, Annual Meeting. Fort Lauderdale, FL.

Martinez-De Luna, R.I., El-Hodiri, H.M. 2006. Appearance of retinal progenitor cells after partial retinal removal in the retina of pre-metamorphic *Xenopus laevis*. 9th Annual Great Lakes Vision Research Conference. University of Michigan. Ann Arbor, Michigan.

Martinez-De Luna, R.I., El-Hodiri, H.M. 2006. Appearance of retinal progenitor cells after partial retinal removal in the retina of pre-metamorphic *Xenopus laevis*. 59th Annual Symposium on Cancer Research: Stem cells in cancer and regenerative medicine. M.D. Anderson Cancer Center. Houston, TX.

Martinez-De Luna, R.I., Nekkhalapudi, S., El-Hodiri, H.M. 2006. Expression of the retinal homeobox (Rx) gene is up-regulated during *Xenopus laevis* retinal regeneration.

Association for Research in Vision and Ophthalmology, Annual Meeting. Fort Lauderdale, FL.

Martinez-De Luna, R.I., Nekkhalapudi, S., El-Hodiri, H.M. 2005. Expression of the retinal homeobox (Rx) gene is up-regulated during *Xenopus laevis* retinal regeneration. 8th Annual Great Lakes Vision Research Conference. University of Cincinnati. Cincinnati, OH.

Martinez-De Luna, R.I., Chinapen, S., Hernandez, C. 2001. Substance P labeled cell bodies are present in the dorsal root ganglia of *Rana pipiens*. Minority Access to Research Careers (MARC) National Conference. Washington D.C.

PROFESSIONAL ASSOCIATIONS

Society for Developmental Biology (SDB), March 2012-present.

Association for the American Advancement of Science (AAAS), January 2012-present.

Society for Neuroscience (SFN), 2011-present.

VOLUNTARY CONTRIBUTIONS

Monthly cover story writer for Ciencia Puerto Rico. Responsible for interviewing a selected individual and writing the monthly cover story for the Ciencia Puerto Rico website (www.cienciapr.org).

TECHNICAL SKILLS

Experience with standard molecular biology and biochemistry techniques: gene cloning, PCR, RT-PCR, qPCR, in situ hybridization, RNA interference, DNA sequence analysis, Western blotting, immunoprecipitation and pulldown assays. Proficient in standard histology procedures such as paraffin and OCT embedding, paraffin and cryo sectioning, histological staining and immunohistochemistry. Expertise in *Xenopus laevis* transgenesis and design and delivery of small hairpin RNAs in *Xenopus* embryos. Experience with mouse model design, generation and maintenance.