

<b>Research Interests</b>	Evolution of morphology, development and physiology, with an emphasis on the morphogenesis of ecologically relevant traits. Comparative approaches to the study of organogenesis. Developmental evolution of lung loss in amphibians.	
<b>Education</b>	<b>Harvard University</b>	2009 - 2015
	PhD. Supervisor: James Hanken Department of Organismic and Evolutionary Biology and Department of Herpetology, Museum of Comparative Zoology	
	<b>Reed College</b>	2002 - 2006
	Bachelor of Arts in Biology	
<b>Publications</b>	<p><i>Submitted:</i> <b>Lewis ZR</b>, Hanken J. Convergent heart evolution in lungless salamanders.</p> <p><i>In Preparation:</i> <b>Lewis ZR</b>, Dorantes JA, Hanken J. Neofunctionalization of a lung gene paralog may facilitate respiration in lungless salamanders.</p> <p><i>In Preparation:</i> <b>Lewis ZR</b>, Kerney RK, Hanken J. Lung development in lungless salamanders!</p> <p><i>In Preparation:</i> <b>Lewis ZR</b>, Hanken J. The genetic basis of lung loss in salamanders.</p> <p>McCarroll MN, <b>Lewis ZR</b>, Culbertson MD, Martin BL, Kimelman, D, Nechiporuk AV. 2012. Graded levels of Pax2a and Pax8 regulate cell differentiation during sensory placode formation. <i>Development</i> 139: 2740-2750.</p> <p>Culbertson MD, <b>Lewis ZR</b>, Nechiporuk AV. 2011. Chondrogenic and Gliogenic Subpopulations of Neural Crest Play Distinct Roles During the Assembly of Epibranchial Ganglia. <i>PLoS ONE</i> 6(9): e24443. doi:10.1371/journal.pone.0024443</p> <p><b>Lewis ZR</b>, McClellan MC, Postlethwait JH, Cresko WA, Kaplan RH. 2008. Female-Specific Increase in Primordial Germ Cells Marks Sex Differentiation in Threespine Stickleback (<i>Gasterosteus aculeatus</i>). <i>Journal of Morphology</i> 269(8): 909-921. [Cover Article]</p>	
<b>Grants and Awards</b>	<b>NSF Graduate Research Fellowship</b>	Sep. 2011 - Jun. 2015
	Title: "A developmental understanding of lung loss in salamanders."	
	<b>Honorable Mention, Brian K. Hall Award</b>	May. 2015
	From the Canadian Society of Zoologists. Runner up for best student talk.	
	<b>Harvard University Certificate of Distinction in Teaching</b>	Sep. 2014
	For Herpetology, Spring 2014.	
	<b>E.E. Williams Award, Society for the Study of Amphibians and Reptiles</b>	Apr. 2014
	For plethodontid transcriptome sequencing.	
	<b>Barbour Award, Museum of Comparative Zoology</b>	Apr. 2014
	Support for plethodontid fieldwork and collection.	
	<b>Robert G. Goelet Award, Museum of Comparative Zoology</b>	Apr. 2013
	For summer fieldwork and plethodontid embryo collection.	
	<b>First prize, Harvard Integrated Life Sciences Gallery Night</b>	Mar. 2013
	Photo submission to display of science artwork by Harvard graduate students.	
	<b>Sigma Xi Grant-in-Aid of Research</b>	Jan. 2013
	Support for Next Generation Sequencing.	
	<b>Kenneth Miyata Award, Museum of Comparative Zoology</b>	Apr. 2012
	Support for fieldwork.	

**The William F. Milton Fund Award, Harvard Medical School** 2011 - 2012  
\$39,940 awarded to ZRL and James Hanken for reagents and equipment for the project “Lung Development in Lungless Salamanders.”

**Elected to Phi Beta Kappa** May 2007

**Class of '21 Award** May 2007  
Awarded by Reed College upon graduation, in recognition of “creative work of notable character, involving an unusual degree of initiative and spontaneity.”

**Betty C. Liu Memorial Biology Research Fellowship** Feb. - Jul. 2007  
For the investigation of primordial germ cell proliferation in threespine stickleback.

**Selected  
Oral  
Presentations**

Lewis ZR, Dorantes JA, Hanken J. “Neofunctionalization of a lung gene paralog may facilitate respiration in lungless salamanders.” Society for Integrative and Comparative Biology annual meeting, Portland, OR, Jan. 2016.

Lewis ZR, Hanken J. “A transcriptional and morphological investigation of lung loss in salamanders.” Invited talk. Canadian Society of Zoologists annual meeting, Calgary, AB. May 2015.

Lewis ZR, Hanken J. “Take Another Little Piece of my Heart: Convergent heart evolution in independent lineages of lungless salamanders.” 6th Conference on the Biology of Plethodontid Salamanders, Tulsa, OK. May 2014.

Lewis ZR, Kerney RK, Dorantes JA, Hanken J. “Lung loss: Molecular and morphological Consequences.” International Congress of Vertebrate Morphology, Barcelona, Spain. July 2013.

Lewis ZR, Kerney RK, Dorantes JA, Hanken J. “Genetic and morphological vestiges of lost lungs in plethodontid salamanders.” Society for Integrative and Comparative Biology annual meeting, San Francisco, CA. Jan. 2013.

Lewis ZR, Kerney RK, Dorantes JA, Hanken J. “Pulmonary surfactant proteins are expressed in lungless salamanders.” Society for Integrative and Comparative Biology annual meeting, Charleston, SC. Jan. 2012.

**Selected  
Poster  
Presentations**

Lewis ZR, Hanken J. “A salamander model for atrial septal defects and cardiopulmonary evolution.” American Association of Anatomists annual meeting, Boston, MA. Mar. 2015.

Lewis ZR, Hanken J. “Co-evolution of heart and lung development in lungless salamanders.” Society for Integrative and Comparative Biology annual meeting, Austin, TX. Jan. 2014.

Lewis ZR, Kerney RK, Dorantes JA, Hanken J. “Extrapulmonary expression of surfactant proteins in lungless salamanders” Keystone Symposium: Lung Development, Cancer and Disease, Taos, NM. Feb. 2013.

Lewis ZR, Kerney RK, Hanken J. “Lung development in lungless salamanders!” Society for Developmental Biology annual meeting, Chicago, IL. Jul. 2011.

Lewis ZR, Kerney RK, Hanken J. “Lung Development in Lungless Salamanders!” Keystone Symposium: Lung Development and Repair, Santa Fe, NM. Feb. 2011.

Lewis ZR, Nechiporuk AV. “Origins of the epibranchial placodes and ganglia in zebrafish.” RIKEN CDB Symposium 2010 “Frontiers in Organogenesis,” Kobe, Japan. Mar. 2010.

**Teaching**

Teaching Fellow for “Foundations of Biodiversity” (OEB 10), Harvard University. Professors Elena Kramer, Brian Farrell, Andrew Richardson. Fall 2015.

Teaching Fellow for “Herpetology” (OEB 167), Harvard University. Professors James Hanken and Jonathan Losos. Two sections. Spring 2014.

Teaching Fellow for “Life Sciences 1b: Genetics, Genomics, and Evolution,” Harvard University. Spring 2013.

Teaching Fellow for “From Egg to Embryo to Organ” (MCB 118/SCRB 118), Harvard University. Professor Andrew McMahon. Fall 2010.

<b>Professional Service</b>	Peer Review: PNAS, Transactions of the Royal Society of South Africa Curator and content contributor for the Encyclopedia of Life	2010 - present
<b>Outreach</b>	Oral presentation, Shore Collaborative Henry Owens School, Chelsea, MA Oral presentation, Science at the Seashore, Cape Cod National Seashore Oral presentation, Pioneer Charter School of Science, Everett, MA Active member of Harvard Life Sciences Outreach and Gradwagon	2015 2013 2013 2010 - present
<b>Selected Work Experience</b>	<b>Oregon Health and Science University</b> Portland, OR Investigated the morphogenesis of the peripheral nervous system in zebrafish by single cell labeling and fate-mapping, working with Dr. Alex Nechiporuk.	Research Assistant II Feb. 2008 - Aug. 2009
	<b>Reed College</b> Portland, OR Researched gonadal sex differentiation in threespine stickleback under the guidance of Dr. Robert Kaplan and Dr. Maryanne McClellan.	Post-Baccalaureate Research Fellow Feb. - Jul. 2007
<b>Society Membership</b>	The Society for Integrative and Comparative Biology Society for Developmental Biology American Association of Anatomists The Herpetologists' League Society for the Study of Amphibians and Reptiles Canadian Society of Zoologists	2010 - 2011 - 2013 - 2013 - 2013 - 2015 -