

BIOGRAPHICAL SKETCH

NAME Andrea Calixto		POSITION TITLE Assistant Professor	
eRA COMMONS USER NAME acalixto			
EDUCATION/TRAINING (<i>Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.</i>)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR(s)	FIELD OF STUDY
University of Havana, Cuba Columbia University, USA Columbia University, USA P. Catholic University of Chile	B.S. MPhil/ MA Ph.D. Postdoc	1997 2002-2006 2002-2008 2009-2012	Microbiology Molecular Neurobiology Molecular Neurobiology Molecular Neurobiology Behavioral Genetics

A. Positions and Honors.

Positions

1992-1997 Undergraduate Student, University of Havana, Havana, Cuba.
 2000-2001 Graduate Student, Cold Spring Harbor Laboratory, New York, USA.
 2002-2008 Graduate Student, Columbia University, New York, USA.
 2009-2012 Postdoctoral Fellow, Catholic University of Chile, Santiago, Chile.
 2012-present Assistant Professor, Institute of Biotechnology, Universidad Mayor, Santiago, Chile.

Other Experience and Professional memberships

2010- present Member of the Chilean Society for Cell Biology

Honors:

1998 National Prize of the Academy of Sciences of Cuba
 1998 Conicyt Doctorate Fellowship
 2002 Columbia University Fellowship
 2009 Fondecyt Postdoctoral Fellowship

B. Selected peer-reviewed publications.

Primary research articles

Calixto A. Life without food and the implications for neurodegeneration. *Advances in Genetics*, Vol. 92. <http://dx.doi.org/10.1016/bs.adgen.2015.09.004>. (2015)

Kelley M, Yochem J, Krieg M, **Calixto A**, Heiman MG, Kuzmanov A, Meli V, Chalfie M, Goodman MB, Shaham S, Frand A, Fay DS. FBN-1, a fibrillin-related protein, is required for resistance of the epidermis to mechanical deformation during *C. elegans* embryogenesis. *eLife* Mar 23;4:doi:10.7554/eLife.06565 (2015)

Calixto A, Jara JS, Court FA. Diapause Formation and Downregulation of Insulin-Like Signaling via DAF-16/FOXO Delays Axonal Degeneration and Neuronal Loss. *PLoS Genet* 8(12): e1003141. doi:10.1371/journal.pgen.1003141 (2012)

Calixto A, Chelur D, Topalidou I, Xiaoyin Chen and Chalfie M. Enhanced neuronal RNAi in *C. elegans* using SID-1. **Nature Methods** 7, 554-559 (2010).

Calixto A, Ma C and Chalfie M. Conditional gene expression and RNAi using MEC-8- dependent splicing in *C.elegans*. **Nature Methods** 7, 407–411 (2010).

Huber TB, Schermer B, Müller RU, Höhne M, Bartram M, **Calixto A**, Hagmann H, Reinhardt C, et al. Podocin and MEC-2 bind cholesterol to regulate the activity of associated ion channels. **Proc. Natl. Acad. Sci. U S A.** 103; 17079-86 (2006).

Lehner B, **Calixto A**, Crombie C, Tischler J, Fortunato A, Chalfie M, Fraser AG. Loss of LIN-35, the *Caenorhabditis elegans* ortholog of the tumor suppressor p105Rb, results in enhanced RNA interference. **Genome Biol.**7:R4 (2006).

Lette G, Kritikou EA, Jaeggi M, **Calixto A**, Fraser AG, Kamath RS, Ahringer J, Hengartner MO. Genome-wide RNAi identifies p53-dependent and -independent regulators of germ cell apoptosis in *C. elegans*. **Cell Death Differ.** 11:1198-203 (2004).

Barros LF, Stutzin A, **Calixto A**, Catalán M, Castro J, Hetz C, Hermosilla T. Nonselective cation channels as effectors of free radical-induced rat liver cell necrosis **Hepatology** 33:114-22 (2001).

Foncea R, Gálvez A, Pérez V, Morales MP, **Calixto A**, Meléndez J, González-Jara F, Díaz-Araya G, Sapag-Hagar M, Sugden PH, LeRoith D, Lavandero S. Extracellular regulated kinase, but not protein kinase C, is an antiapoptotic signal of insulin-like growth factor-1 on cultured cardiac myocytes. **Biochem Biophys Res Commun.** 273:736-44 (2000).

Moro A, **Calixto A**, Suárez E, Araña MJ, Perea SE. Differential expression of the p27Kip1 mRNA in IFN-sensitive and resistant cell lines. **Biochem Biophys Res Commun.** 245:752-6 (1998).

Submitted

Manuscript in revision

RNAi-mediated diapause formation as a bacterial pathogen avoidance mechanism in *C. elegans*. Lidia Verdugo, Fernanda Palominos, Francisco Chavez, Andrea Calixto

Maintenance of touch neuron form and function is mediated by genes essential for survival. Pollak B and **Calixto A**.

In preparation

1. Diapause formation promotes neuronal regeneration. Caneo M and Calixto A.
2. Specific dietary components protect neurons from degenerating. Fuentes, A; Garcia, V, Realini, O and Calixto A.

C. Attendance to Scientific Meetings

Oral presentations

Andrea Calixto. Bacteria-worm crosstalk in transgenerational strategies of survival, mediated by small RNA networks. First Latinamerican *C. elegans* Symposium, Pasteur Institute, Montevideo, Uruguay, Febrero 22-25, 2017.

Alberto J.M. Martin, Carolaing Gabaldon, Andrea Calixto and Tomas Perez-Acle. Combining miRNA and their regulators to understand the formation of diapause as transgenerational defense against pathogens in *C. elegans*. 2016, International Society for Computational Biology Latin America Bioinformatics Conference, Buenos Aires, Argentina

Lidia Verdugo, Fernanda Palominos, Carolina Sanchez, Yessenia Vasquez, Vinicius Maracaja, Francisco Chavez, **Andrea Calixto**. Small RNAs and RNAi machinery mediate transgenerational dauer formation in response to bacterial pathogens in *C. elegans*. International *C. elegans* Meeting UCLA 2015

Calixto A. Pathogen induced diapause is a transgenerational mechanism of defense in *C. elegans*. Chilean Society for Microbiology Meeting, Marbella, November 2013.

Calixto A, Jara JS, Court FA Diapause Formation and Downregulation of Insulin-Like Signaling via DAF-16/FOXO Delays Axonal Degeneration and Neuronal Loss. Chilean Society for Cell Biology, Annual Meeting, Puerto Varas, October 2012

Calixto A and Court F. Prevention of neuronal degeneration by changes in the metabolic state. 1st Argentinian *C. elegans* Symposium, University of Quilmes. Dec 2011.

Calixto A and Court F. Entry to dauer state prevents necrotic neuronal degeneration. International *C. elegans* Meeting UCLA 2011

Calixto A, Topalidou I and Chalfie M. SID-1 expression enhances neuronal RNAi. International *C. elegans* Meeting UCLA 2009

Calixto A, Neira I and Inestrosa N. Discovery of neuronal functions for lethal genes in *C. elegans* using RNAi. Annual Meeting Society of Cell Biology. Pucon 2009

Calixto A and Chalfie M. An *in vivo* system to regulate gene expression using a *mec-8*-dependent intron. International Worm Meeting UCLA 2005

Poster presentations

Carolaing Gabaldón, Marcela Legue, Alberto Martin, Tomas Perez-Acle, Andrea Calixto. sRNA-mRNA interaction networks underlie the formation of diapause as a transgenerational defense mechanism against bacterial pathogens, 2016, Aging, Metabolism, Stress, Pathogenesis, and Small RNAs in *C. elegans* Topic Meeting, University of Madison, Wisconsin, USA

Arlés Urrutia, Ornella Realini, Carlos Caris, Andrea Calixto. Transcriptomic strategies for identification of neuroprotective molecules in the bacterial diet of *Caenorhabditis elegans*, 2016, SoMiCh, Valdivia, Chile.

Mauricio Caneo, Vamshidhar Gade, Teymuraz Kurzchalia and Andrea Calixto. Biochemical strategies for the identification of neuroprotective molecules in the bacterial diet of *C. elegans*. 2016, SoMiCh, Valdivia, Chile.

Sebastian Urquiza, Mauricio Caneo, Andrea Calixto. Characterization of DLK-1 function in neuronal regeneration induced entry into diapause. 2016, SoMiCh, Valdivia, Chile.

Sebastián Urquiza, Mauricio Caneo, Andrea Calixto. Caracterización de la función de DLK-1 en regeneración neuronal inducida por la entrada en diapausa. Congreso Nacional de Estudiantes de Ingeniería en Biotecnología, Universidad Mayor, Santiago, Chile.

Carolaing Gabaldon, Lidia Verdugo, Marcela Legue, Alberto Martin, Tomas Pérez-Acle y Andrea Calixto. Los microRNAs mir-243, mir-51 y mir-52 son requeridos para la formación de diapausa como mecanismo transgeneracional de defensa en *C. elegans* frente a patógenos bacterianos”2016, SoMiCh, Valdivia, Chile.

Mauricio Caneo*, Mark Alkema, Andrea Calixto. Molecular requirements of axonal regeneration in diapause. International *C. elegans* Meeting UCLA 2015

A. Fuentes*, V. Garcia, MF. Palominos, A. Calixto. Diet affects neurodegenerative processes in *C. elegans*. International *C. elegans* Meeting UCLA 2015

Fuentes A. A, Garcia-Angulo V. A., Camicia F. and Calixto A. Diet affects neurodegenerative processes induced genetically in *C. elegans*. Chilean Society for Microbiology, XXXVI Annual Meeting, December 2nd-5th, 2014, La Serena, CHILE.

Garcia-Angulo V. A., Fuentes A. A, Camicia F. and Calixto A. Bacterial diet affects neurodegeneration in *Caenorhabditis elegans*. XXII Latinoamerican Society for Microbiology. November, 5th- 8th, 2014, Cartagena de Indias, COLOMBIA.

Caneo M. and Calixto A. Gene networks involved in axonal regrowth during diapause in *C. elegans*. Chilean Society for Neuroscience, X Annual Meeting, 1st-4th October, Valdivia, CHILE.

Verdugo L, Palominos MF, Chávez FP, and Calixto A. RNAi-mediated diapause formation as a bacterial pathogen avoidance mechanism in *C. elegans*. Chilean Society for Microbiology, XXXVI Annual Meeting, December 2nd-5th, 2014, La Serena, CHILE.

Palominos MF, Garcia VA, and Calixto A **Diet modulates behavioral responses in *Caenorhabditis elegans***. Chilean Society for Microbiology, XXXVI Annual Meeting, December 2nd-5th, 2014, La Serena, CHILE.

Fuentes A and **Calixto A**. Diapause protects neurons from degeneration and promotes axonal regrowth. International *C. elegans* Meeting UCLA 2013

Palominos MF, Verdugo L, Chavez F and **Calixto A**. Pathogen induced diapause formation requires the RNAi machinery. International *C. elegans* Meeting UCLA 2013

Chavez F, Pollak B, Ortiz J, and **Calixto A**. *Pseudomonas aeruginosa* induces diapause formation in *Caenorhabditis elegans*: A link between antibacterial immunity and RNAi. Annual Meeting Society of Cell Biology. Puerto Varas 2011.

Calixto A, Pollak B, Neira I and Inestrosa N. Lifting the veil of silence: Neuronal functions for lethal genes in *C. elegans*. Annual Meeting Society of Cell Biology. Pucon 2010.

Pollak B, Chavez F and **Calixto A**. Associative Learning in *C.elegans*: Worms know what's good for them. Annual Meeting Society of Cell Biology. Pucon 2010.

Pollak B and **Calixto A**. A World of *Wormptions* (WormNeuroRNAi 1.0) Annual Meeting Society of Cell Biology. Pucon 2010.

Pollak B, Neira I, Inestrosa N and **Calixto A**. Jumping over the silence: Discovering postembryonic neuronal functions for lethal genes in *C. elegans*. 5th Latin American Society for Developmental Biology International Meeting. Santa Cruz 2010.

Neira I, Rojas M, Figueroa G, Inestrosa N and **Calixto A**. Bacterial polyamines act as a strong attractant in feeding behavior of *C. elegans*. Annual Meeting Society of Cell Biology. Pucon 2010.

Calixto A, Green J and Chalfie M. Identification of genes that are synthetic lethal with the alternative splicing factor gene *mec-8* using a genome-wide RNAi screen. International *C. elegans* Meeting UCLA 2007

Calixto A, Zhang S and Chalfie M. MEC-8 regulates the alternative splicing of *mec-2*. International *C. elegans* Meeting UCLA 2003

Jaeggi M, **Calixto A**, Milstein S, Fraser A, Kamath K, Zipperlen P, Martinez-Campos M, Ahringer J, Hengartner M. RNA interference, a way to check for inhibitors involved in germline cell death. International *C. elegans* Meeting UCLA 2001

D. Courses

Neural Systems and Behavior. Woodshole Massachusetts July 2014.

Small Brains Big Ideas Plus. University of Chile, October 2014

Small Brains Big Ideas Plus. University of Chile, November 2012

Small Brains Big Ideas Plus. University of Chile, November 2010

Teaching

Molecular Biology of the Cell (coordinator). Integrative Genomics PhD program Universidad Mayor

Cellular physiology. (coordinator) Undergraduate program Biotechnology Universidad Mayor

Neuroscience. (coordinator) Undergraduate program Biotechnology Universidad Mayor

Molecular Biology. (lecturer) Masters program in Biomedical Sciences

E. Research Support.

Ongoing

2013-2016 National Commission for Scientific & Technological Research (CONICYT) Research Projects between Chile and the United States.

Title: Analysis of gene regulatory networks that modulate behavior upon bacterial pathogenesis.

Role: Principal Investigator

2013-2017 National Fund for Scientific & Technological Development (FONDECYT) Regular Competition 1131038

Title: Diapause formation signaled by the RNAi machinery as a novel innate defense mechanism against bacterial pathogens.

Role: Principal Investigator

2012-2015 Anillo ACT-1109 Conicyt

Title: The Neuronal network initiative. Understanding Differential neuronal vulnerability in neurological diseases.

Role: Associated Investigator

Past

2009-2012 National Fund for Scientific & Technological Development (FONDECYT) Postdoctoral Competition 3100099

Title: Discovery of neuronal roles for genes that cause lethality in *C.elegans* using RNA interference.

Role: Principal Investigator

F. Mentorship

Postdoctoral associates:

Victor Garcia (currently Assistant Professor at the Medical School, Universidad de Chile)

Federico Camicia (currently postdoctoral associate at the University of Buenos Aires)

Ivan Neira (currently Assistant Professor at the University of Antofagasta)

Doctoral students:

Marcela Legue (Universidad Mayor)

Masters students

Mauricio Caneo (Universidad de Valparaiso)

Maria Fernanda Palominos (currently at the PhD program CINV, University of Valparaiso)

Undergraduate students:

Bernardo Pollak (currently at the PhD program in Cambridge University, UK)

Andres Fuentes (Universidad Mayor)