OMB No. 0925-0001 and 0925-0002 (Rev. 09/17 Approved Through 03/31/2020)

BIOGRAPHICAL SKETCH

NAME: Andrea Calixto

POSITION TITLE: Full Professor

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Havana, Cuba	B.S.	1997	Microbiology
Columbia University, USA	MPhil/ MA	2002-2006	Molecular Biology
Columbia University, USA	Ph.D.	2002-2008	Molecular Biology, Behavioral Genetics, Genomics
P. Catholic University of Chile	Postdoctoral	2009-2012	Microbe-Host interaction and Behavioral Genetics

Academic positions

2009-2012	Postdoctoral Fellow, Catholic University of Chile, Santiago, Chile.
2012-2019	Assistant Professor, Center for Genomics and Bioinformatics, Universidad Mayor, Santiagode Chile
2016-present	Investigator, Centro Interdisciplinario de Neurociencia de Valparaiso, Valparaiso, Chile.
2021-present	Full Professor, Institute of Neuroscience, Universidad de Valparaiso.

Scientific statement

I have a broad background in the areas of Neuroscience, Microbiology and Molecular Biology. I have also developed tools to address methodological limitations to molecular intervention of the nervous system (Calixto et al., *Nature Methods* 2010). My current research is focused on understanding how bacterial metabolites and environmental changes affect life history traits. The traits we specifically study are the **degeneration** and regeneration **of neurons** and survival **behaviors** in animals. We use the nematode *Caenorhabditis elegans* and its dietary bacteria as model organisms (Palominos et al., 2017; Caneo et al., 2019). Both nematode and bacteria are genetically tractable, simplifying the detection of specific molecules and their effect on measurable characteristics. To identify these molecules we analyze their genomes, transcriptomes and metabolomes, followed by functional *in vivo* validation.

The research of our group focuses in two major scientific lines: 1) *The Discovery of Neuroprotective bacterial Metabolites and their mechanism of action in C. elegans*, and 2) *Transgenerational defensive strategies against bacterial pathogens.*

To identify bacterial enzymes and metabolites that delay and repair dying neurons, our lab uses a model of genetically triggered neuronal degeneration in *C. elegans* (Calixto et al., 2012). We use forward and reverse genetics to determine intrinsic (genetic, epigenetic) and extrinsic (environmental) susceptibility factors to neurodegeneration. We look for the molecular differences between protective and non-protective bacterial diets. Using mutant analysis of the individual bacterial genes, we have identified specific molecules that cause protection and regeneration of broken neurons (Urrutia et al, *Plos Biology*, 2020).

Work of our laboratory also discovered that animals defend themselves from pathogens by entering diapause, a behavioral strategy that is transmitted transgenerationally and ensures long term survival. By using simultaneous transcriptomic analysis of both mRNA and small RNAs from pathogens and worms, we aim at finding the molecular triggers of this novel defensive strategy. We hypothesize that the RNA interference machinery processes these molecules, changing the endogenous RNA repertoire, which ultimately shape behavior.

Published manuscripts

The Heritability of Behaviors Associated With the Host Gut Microbiota. **Front Immunol**, **2021**, doi.org/10.3389/fimmu.2021.6585512021. Marcia Manterola, MFernanda Palominos, **Andrea Calixto**.

Bacterial small RNAs and host epigenetic effectors of a transgenerational memory of pathogens in *C. elegans*. Biorxiv. ***https://doi.org/10.1101/2021.03.26.437277***.
Marcela Legüe, Blanca Aguila, Bernardo Pollak, **Andrea Calixto.**

Intergenerational pathogen-induced diapause in *C. elegans* is modulated by *mir-243*. ***mBio, 2020****doi: 10.1128/mBio.01950-20.* Carolaing Gabaldon, Marcela Legüe, M. Fernanda Palominos, Lidia Verdugo, Florence Gutzwiller, **Andrea Calixto**.

Bacterially produced metabolites protect *C. elegans* neurons from degeneration**.** ***Plos Biology***, **2020**. 18(3): e3000638. *doi.org/10.1371/journal.pbio.3000638*. Arles Urrutia, Victor A. Garcia, Andres Fuentes, Mauricio Caneo,Marcela Legüe, Sebastián Urquiza, Juan Ugalde, Paula Burdisso, **Andrea Calixto**.

Quantification of Bacteria Residing in *Caenorhabditis elegans* Intestine. ***Bio-protocol 2020*** 10(09): e3605. *doi:10.21769/BioProtoc.3605*. M. Fernanda Palominos and **Andrea Calixto**.

Inhibition of miR-378a-3p by Inflammation Enhances IL-33 Levels: A Novel Mechanism of Alarmin Modulation inUlcerative Colitis. ***Front Immunol***. ***2019*** 10: 2449 *doi: 10.3389/fimmu.2019.02449*. Dubois-Camacho K, Diaz- Jimenez D, De la Fuente M, Quera R, Simian D, Martínez M, Landskron G, Olivares-Morales M, Cidlowski JA, XuX, Gao G, Xie J, Chnaiderman J, Soto-Rifo R, González MJ, **Calixto A**, Hermoso MA.

Opposing action of NCoR1 and PGC-1α in mitochondrial redox homeostasis. ***Free Radic Biol Med***. ***2019*** *doi: 10.1016/j.freeradbiomed.2019.08.006*. Tanes I. Lima, Dimitrius Santiago P.S.F.Guimarães, André

G.Oliveira, HygorAraujo, Carlos H.G.Sponton, **Andrea Calixto**, Silas Pinto, Marcelo A.Mori, Joey Orofino, Valentina Perissi, Adrienne Mottis, Johan Auwerx, Leonardo Reis Silveira.

Worm corpses affect quantification of dauer recovery. ***microPublication Biology. 2019*** *10.17912/micropub.biology.00012.* Carolaing Gabaldon and **Andrea Calixto**.

Diapause induces functional axonal regeneration after necrotic insult in *C. elegans*. ***PLoS Genet. 2019****, doi: 10.1371/journal.pgen.1007863.* Mauricio Caneo, Victoria Julian, Alexandra B. Byrne, Mark J. Alkema, and **AndreaCalixto**.

Use of *C. elegans* diapause to study transgenerational responses to pathogen infection ***Methods Mol Biol. 2019,*** *doi:10.1007/978-1-4939-9000-9_16.* Francisco Chavez and **Andrea Calixto.**

RNA language in *Caenorhabditis elegans* and bacteria interspecies communication and memory. ***Current Opinion in Systems Biology***. ***2019***, *doi.org/10.1016/j.coisb.2018.08.005.* Marcela Legüe and **Andrea Calixto.**

Transgenerational Diapause as an Avoidance Strategy against Bacterial Pathogens in *Caenorhabditis elegans.* ***mBio2017****; doi:10.1128/mBio.01234-17* (2017). Palominos MF, Verdugo L, Gabaldon C, Pollak B, Ortíz-Severín J, VarasM, Chávez FP, and **Calixto A**.

Life without food and the implications for neurodegeneration. ***Advances in Genetics***, ***2015*** Volume 92. http://dx.doi.org/10.1016/bs.adgen.2015.09.004. **Andrea Calixto**.

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

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

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

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

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

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

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

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

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***. ***2000***. 273:736-44. 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.

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

Research support

Ongoing

1. CYTED grant P918PTE 3 years (2019-2022). Development of bacterial consortia for the treatment of neurodegenerative diseases. Discovery of neuronal roles for genes that cause lethality in *C. elegans*

Role: Principal Investigator

2. **Millennium Institute Interdisciplinary Center of Neuroscience of Valparaíso** – CINV

3. **Apoyo Redes Formacion de Centros (REDES190089):** 2 years **(2020-2022)**. Functional innovations underenergy constraints and the evolution of animal diapause.
Role: Co-investigator.

4. **Proyecto Apoyo Redes Formacion de Centros (REDES180138)**: 2 years. **(2019-2021).** Discovery of Neuroprotective bacterial metabolites and their mechanism of action in *C. elegans*.
Role: Principal Investigator

5. **Fondecyt regular [1181089]** 4 years research project (April 2018 to April 2022).

Development of computational methods for the determination of causal-condition specific gene regulatory networks.
Role: Co-investigator

Past

2013-2017 FONDECYT Regular Competition 1131038

Diapause formation signaled by the RNAi machinery as a novel innate defense mechanism against bacterialpathogens.
Role: Principal Investigator

2013-2016 CONICYT Research Projects between Chile and the United States (2013-0041).

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

Role: Principal Investigator

2012-2015 Anillo ACT-1109 Conicyt

The Neuronal network initiative. Understanding Differential neuronal vulnerability in neurological diseases.Role: Associate Investigator

2009-2012 FONDECYT Postdoctoral 3100099

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

Role: Principal Investigator

Teaching

Graduate programs

Ph.D. Program in Neuroscience Universidad de Valparaiso

- Microbiome and behavior (coordinator)
- Developmental Biology (invited)

Ph.D. Program in Biomedical Sciences, Universidad de Chile

- Epigenetics (lecturer)

Master's program in Biomedical Sciences Universidad de Valparaiso

- Molecular Biology (lecturer)

Ph.D. Program Integrative Genomics Universidad Mayor

- Molecular Biology of the Cell (coordinator)
- RNA language in interspecies communication (coordinator)
- Microbiome and behavior (coordinator)
- Seminar Advances in Current Biology (coordinator)

Undergraduate programs

Universidad Mayor, school of Biotechnology
Cell Biology (coordinator). Best Teacher Prize 2019.
Cellular physiology (coordinator)
Neuroscience (coordinator)

Universidad de Chile
Developmental Biology (lecturer and practical course)

Current and past Mentoring

Postdoctoral associates:

- Florence Gutzwiller (from 2016-2017, currently postdoctoral associate at Univesidad Andres Bello)
- 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 Professor at the University of Antofagasta)

Doctoral thesis

- Carolaing Gabaldon (Universidad Mayor, graduated 2020)
- Arles Urrutia (Universidad Mayor, graduated 2020)
- Marcela Legue (Universidad Mayor, schedule to graduate 2021)
- Scarlett Delgado (Universidad de Valparaiso, scheduled to graduate 2021)
- Blanca Aguila (Universidad de Chile, joined 2020)

Master's thesis

- Maria Fernanda Palominos (graduated 2013, Transgenerational strategies of defense against pathogens in C. elegans mediated by RNAi, University of Chile)
- Mauricio Caneo (graduated 2016, Genetic analysis to discover neuronal gene networks involved in regenerationduring diapause, Universidad de Valparaiso.)
- Daniela Ponce (graduated 2017, Effects of diet on development, fertility and neuronal integrity in the nematode *Caenorhabditis elegans*, Universidad de Chile).

Undergraduate students

- Bernardo Pollak (P. Universidad Catolica de Chile, graduated 2012)
- Andres Fuentes (Universidad Mayor, graduated 2014)
- Sebastian Urquiza (Universidad Mayor, graduated 2020)
- Tomas Canepa (Universidad Mayor, scheduled to graduate 2021)
- Javiera Roman (Universidad Mayor, scheduled to graduate 2021)
- Fernanda Manrique (Universidad Mayor, joined 2019)

Attendance to Scientific Meetings (Oral presentations and Symposia)

Andrea Calixto. Symposium Neurogenetic and Neurogenomic: Microbiome and Neuropsychiatric diseases. LXXV CONGRESO SONEPSYN 2020. November 21-28th, 2020. Online Meeting.

Scarlett Delgado, Chiayu Chiu and **Andrea Calixto**. Following calcium under *mec-4d* neurodegeneration and regeneration in *Caenorhabditis elegans.* 1st Junior European Calcium Society Meeting: Calcium Signaling Across Scales, Kingdoms and Countries. October 21, 2020. Online Meeting.

Andrea Calixto. Bacterial metabolites change the fate of dying neurons. IBRO Symposium Neural mechanisms of ageing, stress and neurodegeneration. February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting, Rosario, Argentina.

Marcela Legüe and **Andrea Calixto**. Bacterial small RNA RsmY is required for a transgenerationally inherited behavior in *C. elegans*. February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting,Rosario, Argentina.

Arles Urrutia and **Andrea Calixto**. Bacterially produced metabolites protect *C. elegans* neurons from degeneration.February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting, Rosario, Argentina.

Andrea Calixto. RNA language in interspecies communication and transgenerational memory. November 5th-8th, 2019. RNA biology Symposium, XXXXI Congreso Chileno de Microbiología, Puerto Varas, Chile.

Marcela Legüe, Carolaing Gabaldon and **Andrea Calixto**. RNA language in *Caenorhabditis elegans* and bacteria interspecies communication and transgenerational memory. September 30-October 4, 2019. Molecular Biosystems Conference Eukaryotic Gene Regulation & Functional Genomics. Puerto Varas.

Marcela Legüe and **Andrea Calixto**. *C. elegans* diapause formation as a defense mechanism against pathogens requires bacterial RsmY. June 20th-24th, 2019. International *C. elegans* Meeting UCLA.

Arles Urrutia and **Andrea Calixto**. Bacterially produced neurotransmitter protects neurons from degeneration. June20th-24th. International *C. elegans* Meeting UCLA 2019

Andrea Calixto. Transgenerational diapause as an avoidance strategy against bacterial pathogens in *Caenorhabditiselegans. Simposio ALAM* November 13-16, 2018. Parque Araucano, Santiago de Chile.

Urrutia Arles, Fuentes Andrés, García-Angulo Víctor, Caneo Mauricio, Gutzwiller Florence, Kurzchalia Teymuras, **Calixto Andrea**. Lifesaver molecules for *C. elegans* neurons produced by bacterial diet.

September, 25-28, 2018 XLI Annual Meeting of the Chilean Biochemistry and Molecular Biology Society, Iquique, Chile.

Andrea Calixto. Lifesaver molecules for *C. elegans* neurons found in bacterial diets. 47th Annual Meeting of the Brazilian Society for Biochemistry and Molecular Biology (SBBq), Joinville, SC, Brazil, May 26th to 29th, 2018.

Andrea Calixto. Transgenerational strategies against pathogens mediated by small RNAs in *C. elegans*. SymposiumNew Horizons in Epigenetics. Fundacion Ciencia y Vida. January 16th, 2018.

Carolaing Gabaldon and **Andrea Calixto**. *mir-243* is required for diapause formation in *C. elegans* as a transgenerational defense mechanism against bacterial pathogens. Molecular Biosystems Conference Eukaryotic Gene Regulation & Functional Genomics September 23-26, 2017, Puerto Varas, Chile.

Andrea Calixto. Bacteria-worm crosstalk in transgenerational strategies of survival, mediated by small RNA networks. First Latin American *C. elegans* Symposium, Pasteur Institute, Montevideo, Uruguay, February 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/FOXODelays 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* MeetingUCLA 2011

Calixto A, Topalidou I and Chalfie M. SID-1 expression enhances neuronal RNAi. International *C. elegans* MeetingUCLA 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. InternationalWorm Meeting UCLA 2005

Attendance to Scientific Meetings (Poster Presentations)

Ilvanna Salas and **Andrea Calixto**. Strategies to study *C. elegans* dauer energetics and microbiome influence. February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting, Rosario, Argentina.

Blanca Aguila, Marcela Legue, Bernardo Pollak and **Andrea Calixto**. Can bacterial sRNAs RsmY and RsmZ cause a behavioral change in C. elegans? A road to a paradigm shift in holobiont communication. February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting, Rosario, Argentina.

Scarlett Delgado, Chiayu Chiu and Andrea Calixto. Two-photon imaging to follow the path of neuronal degeneration and regeneration in *Caenorhabditis elegans*. February 19th-21st, 2020. Bolsa de Comercio de Rosario. 2nd Latin American Worm Meeting, Rosario, Argentina.

Marcela Legue, Florence Gutzwiller and **Andrea Calixto**. *C. elegans* diapause formation as a defense mechanism against *P. aeruginosa* infection is mediated by bacterial quorum sensing regulator rsmY. September 30-October 4, 2019. Molecular Biosystems Conference Eukaryotic Gene Regulation & Functional Genomics. Puerto Varas, Chile.

Carolaing Gabaldon, A. J. Martin, **Andrea Calixto**. Transcription factors involved in dauer formation under pathogenesis identified by analysis of knowledge-based networks. September 30-October 4, 2019. Molecular Biosystems Conference Eukaryotic Gene Regulation & Functional Genomics. Puerto Varas, Chile.

Carolaing Gabaldon, Victor Garcia and **Andrea Calixto**. *Carnobacterium inhibens* a bacterium innocuous for its fishnatural host kills *Caenorhabditis elegans*. June 20th-24th, 2019. International *C. elegans* Meeting UCLA.

Sebastian Urquiza, Arles Urrutia and **Andrea Calixto**. Natural microbiome of Chilean *C. elegans* isolates and their relationship with neuroprotection. June 20th-24th, 2019. International *C. elegans* Meeting UCLA.

Scarlett Delgado, Chiayu Chiu and **Andrea Calixto**. *In vivo* two-photon calcium imaging to measure neuronal activity under a pro-regenerative condition in *Caenorhabditis elegans*. June 20th-24th, 2019.

International *C. elegans*Meeting UCLA.

Carolaing Gabaldon, Alberto Martin and **Andrea Calixto**. Transcription factors involved in dauer formation under pathogenesis identified by analysis of knowledge-based networks. June 20th-24th, 2019. International *C. elegans* Meeting UCLA.

Marcela Legue, Florence Gutzwiller and **Andrea Calixto**. Small RNA transcriptomic landscape unveils putative epigenetic effectors of transgenerational memory of interspecies communication. Sept 11th-15th, 2018. Cold SpringHarbor Laboratory Meetings. Epigenetics and Chromatin. CSHL, New York.

Sebastian Urquiza, Arles Urrutia and **Andrea Calixto**. Diapause changes in size and number of mitochondria in *Caenorhabditis elegans.* June 28th-June 1st, 2018. *C. elegans* Meeting University of Madison, Wisconsin, 2018.

Carolaing Gabaldón, Lidia Verdugo, Sebastián Contreras, Leandro Murgas, Alberto J.M. Martin and **Andrea Calixto**. *mir-243* and *mir-51* are required for diapause formation in *C. elegans* as a transgenerational defense mechanism against bacterial pathogens. June 28th-June 1st, 2018. *C. elegans* Meeting University of Madison, Wisconsin, 2018.

Mauricio Caneo, Mark Alkema and **Andrea Calixto**. Neuronal somas suffice for morphofunctional regeneration during diapause in *C. elegans*. June 23-28, 2018. *C. elegans* Neuro Meeting University of Madison, Wisconsin, 2018.

Carolaing Gabaldon and **Andrea Calixto**. *mir-243* is required for diapause formation in *C. elegans* as a transgenerational defense mechanism against bacterial pathogens. September 23-26, 2017. Molecular Biosystems Conference Eukaryotic Gene Regulation & Functional Genomics. Puerto Varas, Chile.

mir-243, mir-51 and *mir-52* are required for diapause formation in *C. elegans* as a transgenerational defense mechanism against bacterial pathogens. Carolaing Gabaldon, Lidia Verdugo, Alberto.J. M Martin, Carlos Caris, **Andrea Calixto**. International *C. elegans* Meeting UCLA 2017

New triggers, old targets: Searching for bacterial small RNAs that elicit an interkingdom RNAi-based behavioral response. Marcela Legüe, Carlos Caris, Alberto Martin, Lidia Verdugo, **Andrea Calixto**. International *C. elegans* Meeting UCLA 2017

Strategies for identifying neuroprotective molecules in the bacterial diet of *Caenorhabditis elegans*. Arles Urrutia, Ornella Realini, J. Carlos Caris, Víctor García-Angulo, Mauricio Caneo, **Andrea Calixto**. International *C. elegans* Meeting UCLA 2017

Carolaing Gabaldón, Marcela Legue, Alberto J.M. Martin, Tomas Perez-Acle, **Andrea Calixto**. sRNA-mRNAinteraction networks underlie the formation of diapause as a transgenerational defense mechanism against bacterial pathogens. *C. elegans* Meeting University of Madison, Wisconsin, 2016

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 Latin American 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 Societyfor 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.* ChileanSociety 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 RNAimachinery. International *C. elegans* Meeting UCLA 2013

Chavez F, Pollak B, Ortiz J, and Calixto A. *Pseudomonas aeruginosa* induces diapause formation in *Caenorhabditiselegans*: 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 of the Society for Cell Biology. Pucon 2010.

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

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

Calixto A, Green J and Chalfie M. Identification of genes that are synthetic lethal with the alternative splicing factorgene *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

Organization of Courses and International Meetings
Course Organization and Teaching

Small Brains Big Ideas Las Cruces, October 2021
Small Brains Big Ideas Las Cruces, April 2019
Small Brains Big Ideas November 2016
Neural Systems and Behavior. Woods Hole Massachusetts July 2014
Small Brains Big Ideas Plus October 2014
Small Brains Big Ideas Plus November 2012
Small Brains Big Ideas Plus November 2010

Meeting Organization
1st *C. elegans* Latin American Meeting, Montevideo, 2017
2nd *C. elegans* Latin American Meeting, Rosario, 2020
3rd *C. elegans* Latin American Meeting, Valparaiso 2022

Administration
Associative grants

Member of the organizing and executive team of the grant “Nodos para la Aceleración de Impacto Territorial de la CTCI”. I will be an active member in the execution and supervision of this grant, which aims at discovering and bridging the gaps in education, scientific development, connectivity with the

enterprise and all productive sectors of the Macrozone Valparaiso-Coquimbo.

Coordinator and director of the CYTED Project "Generation of microbial consortia for the treatment of neurodegenerative diseases. This is an ANID-CYTED (Iberoamerican Agency for Scientific Development) joint Project. My role is to direct and coordinate the network, which is formed by investigators of Chile, Argentina and Mexico.

Grant ANID-Apoyo a la Formación de Redes Internacionales.
I direct the Network between CINV and the Max Planck Institute in Dresden, Germany, which includes bilateral training, course organization and the use of foreign equipment.

The organization of the Latin American Network of *C. elegans* researchers.
This organization consists in the permanent support of young and established researchers within the region in terms of resources, training and travels. I have participated in the organization of meetings courses and symposia involving *C. elegans* research since 2010.

Academic

Funding member of the Doctorate in Integrative Genomics of Universidad Mayor.
Member of the academic committee of this, design of course structure and course coordination (2014-2019).

President of the Evaluation committee of the Doctorate in *Integrative Genomics, Universidad Mayor* (2018-2019).

Invited seminars (2018-2020)

New York University Seminar, New York, USA. Bacterial RNAs in interspecies communication and host behavior.December 8th, 2020.

Millennium Institute BNI, Universidad de Chile. Bacterial metabolites and their mechanisms of action in *C. elegans*
neurodegeneration. August 10th, 2020.

Institute of Molecular and Cellular Biology, Rosario, Argentina. *Bacterial dietary impact on neuronal repair in C.elegans.* September 13th, 2019.

Cátedra del Futuro, Universidad Mayor. *Neuroproteccion en la comida: Lecciones de un gusano y sus bacterias*.September 5th, 2019.

Centro Interdisciplinario de Neurociencias Seminar. *Bacterial GABA protects neurons from degeneration*.Universidad de Valparaiso. December 7th, 2018.

Department of Genetics Seminar. *RNA language in interspecies communication and transgenerational memory.*
School of Medicine, University of Chile. October 5, 2018.

ACCDIS Seminar. Interspecies systems biology reveals bacterial metabolites protecting *C. elegans* neurons Schoolof Medicine, University of Chile. July, 19th, 2018.

Active International Collaborations

- Max Planck Institute (Teymuras Kurzchalia, supported by REDES grant)
- Instituto de Biologia Molecular de Rosario (Diego de Mendoza, supported by REDES grant and CYTED grant)
- Universidad Autonoma de Mexico (Ernesto Perez Rueda, supported by CYTED grant)
- University of Massachusetts at Worcester (Victor Ambros, supported by a Conicyt-USA grant)
- University of Washington, Seattle (Irini Topalidou)

Appearances in the media

1. Radio Interview about the long lasting effect of hunger and malnutrition in future generations. Radio Meridional. May 27th, 2021. https://we.tl/t-x0uDfkfDr5; https://www.youtube.com/watch?v=80gk80Wr6iE.
2. Article in the press "The effects of hunger derived from the pandemic could last generations". El Mostrador. May 19th, 2021. https://www.elmostrador.cl/cultura/2021/05/19/neurocientifica-advierte-que-el-hambre-de-la-pandemia-afectara-a-generaciones-futuras-de-manera-irreversible/

3. Article in website Entorno Inteligente. May 19th, 2021. https://www.entornointeligente.com/neurocientfica-advierte-que-el-hambre-de-la-pandemia-afectar-a-generaciones-futuras-de-manera-irreversible/

4. Radio Interview in scientific program "Fresh Air" about the heritability of learned experiences in *C. elegans*. Radio Duna, February 23rd, 2021. https://www.youtube.com/watch?v=cKx04cRUwNg

5. Interview in National Television on the celebration of the International Day of Women and Girls in Science. February 11th, 2021. https://www.youtube.com/watch?v=YXjGU6VWObg

6. Festival of Authors-Santiago. Conversations "Brains under lock-down": The effects of confinement on the nervous system. October 3rd, 2020. https://pluglatam.live/encuentros/

7. Festival of Science- Video series organized by the Ministry of Science. What is the curiosity? November 11th-15th, 2020. https://www.youtube.com/watch?v=QjDdMZKOl6M&t=10s

8. Festival of Science- Video series organized by the Ministry of Science. What is knowledge? November

11th-15th, 2020. https://www.youtube.com/watch?v=ejkG7lKl968&t=1s&ab_channel=CienciaPublica

9. Opinion in press article "Scientists show that intestinal microbiota influences learning and memory". Newspaper *Las Ultimas Noticias***,** October 7th, 2020. https://www.lun.com/Pages/NewsDetail.aspx?dt=2020-10%2007&NewsID=458489&BodyID=0&PaginaId=11

10. Article in the press "Recommended Books, records and movies, by Andrea Calixto, scientist of the month" Newspaper *La Tercera- Que Pasa* Magazine, August 22nd, 2020.

11. Article in the press "Can Sleep prevent diseases caused by the stress of the pandemic?" Newspaper *Las Ultimas Noticias*, July 22nd, 2020. http://www.lun.com/Pages/NewsDetail.aspx?dt=2020-07-22&PaginaId=8&bodyid=0

12. Interview in National Television "Program Conectados", Are we what we eat? July 26th, 2020. (online international broadcasting).

13. Interview in Argentinian television "On the organization of the Latin American Meeting of *C. elegans* in Rosario". February 21st, 2020. https://youtu.be/aV65ndNoRYU

14. Interview in National Television "On the celebration of the International Day of Women and Girls in Science". February 12th, 2020. https://youtu.be/CdOfRCAQ3ug

15. Article in the press "Scientists investigate the neuronal regeneration using a worm". Newspaper *Hoy por Hoy*, January 7th, 2019. http://www.hoyxhoy.cl/2019/01/07/full/cuerpo-principal/6/

16. Radio Interview in scientific program "Hibernation induces the regeneration of broken neurons". January 11th, 2019. *Radio Pauta*. https://youtu.be/bHSOPn5CreI

17. Tertulias Porteñas "Are we our food?" Centex Center in Valparaíso. April 2nd, 2018. https://m.elmostrador.cl/cultura/2018/04/02/ciclo-tertulias-portenas-somos-lo-que-comemos-en-centex-valparaiso/

18. Article in the press "First Tertulia Porteña of 2018. Newspaper *El Mercurio de Valparaíso*, April 19th, 2018. https://www.mercuriovalpo.cl/impresa/2018/04/19/full/cuerpo-principal/27/

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20. Article in the press "Scientist discovers how worms inherit mechanisms of survival to their progenies". Newspaper *Las Ultimas Noticias*, December 26th, 2017. http://www.lun.com/Pages/NewsDetail.aspx?dt=2017-12-26&PaginaId=32&bodyid=0