

## CURRICULUM VITAE

### **Sandra E. Encalada, PhD**

*Arlene and Arnold Goldstein Associate Professor*

The Scripps Research Institute  
Department of Molecular Medicine  
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**PERSONAL** Born: Quito, Ecuador. U.S. Citizen.

### **EDUCATION**

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- Ph. D. 2003 Molecular Genetics. Institute of Molecular Biology, University of Oregon, Eugene, Oregon. Laboratory of Dr. Bruce Bowerman.
- M. S. 1995 Population Genetics. Dept. of Wildlife Ecology and Conservation, University of Florida, Gainesville, Florida. Laboratories of Drs. Mike Miyamoto, Alan Bolten.
- B. A. 1992 Physics (major), Biology (minor). Earlham College, Richmond, Indiana.
- I. B. 1988 International Baccalaureate. The Armand Hammer United World College of the American West, Montezuma, New Mexico.

### **ACADEMIC APPOINTMENTS**

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| <b>The Scripps Research Institute, La Jolla, California</b>                               | 2021-Present |
| Associate Professor, Dept. of Molecular Medicine, Dorris Neuroscience Center Investigator |              |
| <b>The Scripps Research Institute, La Jolla, California</b>                               | 2011-2021    |
| Assistant Professor, Dept. of Molecular Medicine, Dorris Neuroscience Center Investigator |              |

### **RESEARCH TRAINING**

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- 2008-2011 Assistant Project Scientist. NIH/NIA Neuroplasticity of Aging Fellow. University of California, San Diego. Laboratory of Dr. Lawrence S. B. Goldstein.
- 2004-2007 Damon Runyon Cancer Research Foundation Postdoctoral Research Fellow. Dept. Cellular and Molecular Medicine, University of California, San Diego. Laboratory of Dr. Lawrence S. B. Goldstein.
- 2007 Visiting Scientist. Rocky Mountain Laboratories, NIAID, NIH, Hamilton, Montana. Laboratories of Dr. Gerry Baron and Dr. Byron Caughey.
- 1997-2003 Graduate Student. Institute of Molecular Biology, University of Oregon. Laboratory of Dr. Bruce Bowerman. *Dissertation Title*: Cell cycle regulation, spindle orientation and positioning in the early *Caenorhabditis elegans* embryo.
- 1997 Research Assistant. Department of Biology, University of Oregon.
- 1996-1997 Research Assistant. DNA Core Lab. University of Cincinnati.
- 1995 Research Assistant. Genetic Analysis Core Lab, Interdisciplinary Center for Biotechnology Research (ICBR), University of Florida.
- 1994-1995 Technician. DNA Sequencing Core, Interdisciplinary Center for Biotechnology Research (ICBR), University of Florida.

## HONORS AND AWARDS

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- 2020 Elected to Full Membership Sigma Xi, The Scientific Research Honor Society.
- 2020 Elected by the Advanced Imaging Center (AIC) at HHMI Janelia Research to participate in their Visiting Scientist Program to collaborate in the use of their correlative cryo-super-resolution (SR)/focused ion beam (FIB)-SEM microscope.
- 2018 Elected Co-Organizer and Co-Chair. ASCB (The American Society for Cell Biology) Special Interest Subgroup Symposium “Intracellular Cargo Transport by Molecular Motors: What a Mesh!”. ASCB 2018 Annual Meeting, San Diego, California.
- 2015-2017 The Glenn Foundation Award for Research in Biological Mechanisms of Aging.
- 2015 The Baxter Foundation Young Faculty Award.
- 2012-2016 The Ellison Medical Foundation New Scholar in Aging Award.
- 2009 Carl Storm Underrepresented Minority Fellowship. Gordon Conferences.
- 2009 Highly Qualified Personnel Oral Presentation Award, PrP-Canada 2009 Conference, Edmonton, Canada.
- 2008 Best Theme Poster, PrP-Canada 2008 Conference, Toronto, Canada.
- 2007-2009 Neuroplasticity of Aging NIH Postdoctoral Training Grant, UCSD.
- 2006 Cold Spring Harbor Laboratories Scholarship to attend summer course “Imaging Structure and Function in the Nervous System”.
- 2004 Keystone Symposia Scholarship to attend the Symposium: “Molecular Mechanisms of Transmissible Spongiform Encephalopathies (Prion Diseases). Snowbird, Utah.
- 2004-2007 Damon Runyon Cancer Research Foundation Postdoctoral Fellowship.
- 2004 NIH Minority Supplement Postdoctoral Fellowship.
- 2004 Life Sciences Research Foundation Postdoctoral Fellowship (declined).
- 2004 President’s Postdoctoral Fellowship, University of California (declined).
- 2004 The Giannini Foundation Postdoctoral Fellowship Finalist (declined).
- 1998-2003 NIH Biophysics and Molecular Biology Pre-doctoral Training Grant. Institute of Molecular Biology, University of Oregon.
- 1997-1998 Pre-doctoral Research Training Grant in Genetic Mechanisms of Evolution. Department of Biology, University of Oregon.
- 1995 Elected to Phi Kappa Phi Honor Society.
- 1994 Travel Award, Department of Wildlife Ecology and Conservation. University of Florida.
- 1993-1994 Research funding for graduate work, BEECS Genetic Analysis Core at the Interdisciplinary Center for Biotechnology Research (ICBR). University of Florida.
- 1992-1993 Research funding for graduate work, Archie Carr Center for Sea Turtle Research. University of Florida.
- 1992-1994 Tropical Conservation and Development Program and Program for Studies in Tropical Conservation Fellowship. University of Florida, Gainesville, Florida.
- 1988-1992 Full scholarship for four years undergraduate education, Earlham College, Richmond, Indiana.
- 1992 Elected to Sigma Xi, The Scientific Research Society Student Membership.
- 1991 Warren Staebler Scholarship, Earlham College, Richmond, Indiana.
- 1986-1988 Full Scholarship. The Armand Hammer United World College of the American West, Montezuma, New Mexico.

## PROFESSIONAL ACTIVITY

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### Service at The Scripps Research Institute:

#### Committees:

- 2022 – present The Diversity Advisory Committee (DAC). ‘Mentorship, Teaching, and Development’ subcommittee member.
- 2020 - present The Diversity Advisory Committee (DAC). ‘Outreach and community engagement’ subcommittee member.

- 2012 - 2020,  
2021 - present Graduate Program Admissions Committee.
- 2012 - 2018 Western Association of School and Colleges (WASC) Scientific Communication Committee.

Graduate Student Committees:

- Keishla Sanchez Ortiz. 2022-present. Faculty advisor and member of graduate committee.
- Cristian Wulkop Gil. 2021-present. Member of graduate committee.
- Yi Wang. 2019-present. Faculty advisor and member of graduate committee.
- Hao Wang. 2018-present. Member of committee.
- Tai Chaiamarit. 2018-present. Faculty advisor and member of graduate committee.
- Paulo Onuchic. 2015-present. Chair and member of graduate committee.
- George Campbell. 2012-2018. Faculty advisor and member of graduate committee.
- Miguel Alves Ferreira. 2015-2017. Faculty advisor and member of graduate committee.

**Service to the scientific community:**

Organizational Committees:

- 2022 Elected Co-Organizer and Co-Chair. ASCB (The American Society for Cell Biology) Special Interest Subgroup Symposium “**Membrane Trafficking and Proteostasis in Neurons: Neurodegeneration, Autophagic, and Endolysosomal Pathways**”. ASCB December 2022 Annual Meeting, Washington, DC. In person.
- 2021 Elected Co-Chair of American Society for Cell Biology (ASCB) Minisymposium, **Neuronal Cell Dynamics**, at the Cell Bio Virtual 2021 ASCB|EMBO Meeting. In virtuo.
- 2019- present Board Member. National Scientific Advisory Council (NSAC). American Federation of Aging Research (AFAR).
- 2019 Co-organizer. Powerhour, GRC Aging Meeting, Newry Maine.
- 2019 Invited to participate. Tau Consortium “Multi-Partner Consortium to Expand Dementia Research in Latin America (ReDLat)”.
- 2018 Abstract Selection Committee. *C. elegans* Neuronal Development, Synaptic Function and Behavior Conference (*CeNeuro*). University of Madison, Wisconsin.
- 2016 Session Chair. *C. elegans* Aging Topics Meeting. Madison, Wisconsin.
- 2016 Lead Co-organizer. Symposium in honor of postdoctoral advisor Larry S. B. Goldstein, La Jolla, CA.
- 2010-2011 Ambassador for The American Society for Cell Biology (ASCB).
- 2005-2007 Association for Women in Science (AWIS) Website Committee member.
- 1993-1994 Co-President. Tropical Conservation and Development Student Group, University of Florida.

Grant Reviewing/Editorial Boards:

- 2022-present Associate Editor, *Frontiers in Biophysics*.
- 2022-present Handling Editor, *Journal of Neurochemistry* (International Society of Neurochemistry).
- 2019 *Ad-hoc* reviewer. NIH, Synapses, Cytoskeleton and Trafficking (SYN) Study Section.
- 2018 *Ad-hoc* reviewer. NIH, Cellular and Molecular Biology of Neurodegeneration (CMND) Study Section.
- 2018 Abstract reviewer and selection. *CeNEURO2018* Neuronal Development, Synaptic Function and Behavior. *C. elegans* Bi-annual Topic Meeting.
- 2016, 2017 *Ad-hoc* reviewer. NIH, Cellular and Molecular Biology of Neurodegeneration (CMND) Study Section.
- 2015-2016 Fellowship reviewer. NSF GRFP (Graduate Research Fellowship Program)
- 2015 Invited guest Associate Editor. *PLOS Genetics*.

- 2012 Grant reviewer. California Department of Public Health (CDPH) Alzheimer's Disease Program.
- 2011-present *Ad-hoc* reviewer for journals: *FASEB*, *Physical Biology*, *eLIFE*, *Current Biology*, *Current Genomics*, *PLoS Genetics*, *Prion*, *Neural Regeneration Research*, *Communications Biology*, *iScience*, *ACS Chemical Biology*, *Science Advances*, *Nature Communications*.

### Teaching, Mentoring, and Outreach:

- 2022 Lecturer. Biophysics of Condensates – Function and Disease. Scripps Research, June.
- 2021 Lecturer. Biology of Aging Course. Tufts University, April (Virtual).
- 2020 Lecturer. Phase Separation Course in Biology BIOL530 SP20. The Scripps Research Institute.
- 2014 Science Saturday Seminar Series. Lecturer. The Scripps Research Institute. <http://www.ucsd.tv/search-details.aspx?showID=28682>
- 2011-Present Lecturer. Fundamentals of Neuroscience, NEURO410. The Scripps Research Institute.
- 2011-Present Lecturer. Cell Biology, CB224 and BIOL430. The Scripps Research Institute.
- 2011-2013 Lecturer. Molecular Biology, MB214. The Scripps Research Institute.
- 1998 Teaching Assistant. Developmental Biology. Dept. of Biology, University of Oregon.
- 1998 Teaching Assistant. Evolution. Dept. of Biology, University of Oregon.
- 1997-1998 Teaching Assistant. Genetics. Dept. of Biology, University of Oregon.
- 1994 Teaching Assistant. Wildlife Issues. Dept. of Wildlife Ecology and Conservation, University of Florida.
- 1992 Head Teaching Assistant. Invertebrate Zoology. Dept. of Biology, Earlham College.
- 1992 Teaching Assistant. Biological Diversity. Dept. of Biology, Earlham College.
- 1990-1991 Head Teaching Assistant. General Physics I and II. Dept. of Physics, Earlham College.
- 1989 Head Teaching Assistant. Super Spanish I and II. Dept. of Spanish, Earlham College.

### **SOCIETY MEMBERSHIPS**

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- International Society for Neurochemistry, 2022-present
- Genetics Society of America, 2010-present
- Biophysical Society, 2010-present
- The American Society for Cell Biology (ASCB), 2002-present
- Society for Neuroscience, 2007-2008
- Association for Women in Science (AWIS), 2005-2008
- Phi Kappa Phi, 1995
- Sigma Xi, The Scientific Research Society, 1992 (student membership), 2020 (full membership).

### **SPEAKING ENGAGEMENTS**

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#### **Keynote Lectures**

2020

- Keynote speaker. Molecular Biology Institute, University of Oregon. Annual Retreat.

2019

- Keynote speaker. 2019 Australian *C. elegans* Symposium. Queensland, Australia.
- Keynote session speaker. Biology of Aging Gordon Research Conference (GRC). Newry, Maine.
- Keynote speaker. Neuroscience Research Institute (NRI), University of California Santa Barbara.

2018

- Keynote speaker. Penn State University. Motors Modeling Meeting, May.

**Invited Lectures or Speaker**

2022

- The American Society for Cell Biology (ASCB) Special Interest Subgroup (Co-Chair and Co-Organizer) “Mechanisms of Autophagic and Endolysosomal Trafficking in Neuronal Function and Neurodegeneration”. Washington, DC, December. In person.
- Chan-Zuckerberg Neurodegeneration Challenge Network (NDCN) Featured Webinar. October.
- Department of Neuroscience and Regenerative Medicine, Augusta College of Medicine, August University. In person (October).
- Center for Alzheimer’s And Neurodegenerative Diseases (CAND) Online Seminar. UT Southwestern Medical Center. Invited by Lorena Saelices and Marc Diamond. Virtual (January).

2021

- “The Cytoskeleton of Neurons and Glia” Seminar Series. Invited by Oliver Glomb. Virtual (December).
- “Motors in Quarantine” Webminar Series. Invited by Anne Straube. Virtual (November).
- Neurozoom Talks (organized by Aaron Gitler and Zilong Qiu). Invited by Aaron Gitler. Virtual (August).
- “Membrane Trafficking” Seminar Series. Invited by Felix Campelo. Virtual (May).
- Biology of Aging Course. Tufts University. Invited by Allen Taylor. Virtual (April).
- EMBO workshop on Molecular Neurobiology. Original in 2020, Crete, Greece. Invited by Elena Seiradake. Now Virtual (May).
- 4<sup>th</sup> Annual La Jolla Aging Meeting. Salk Institute, La Jolla, California (March). 2020
- Proteostasis Consortium Seminar Series (October).
- Cold Spring Harbor Laboratory Neurodegenerative Diseases: Biology and Therapeutics (December).
- Tau Consortium “Multi-Partner Consortium to Expand Dementia Research in Latin America (ReDLat)”, San Francisco, California (February).

2019

- Tau Consortium. San Diego, California (August).
- Medical Research Council (MRC), Cambridge, England (May).
- University of Oxford. Dept. Biochemistry, Oxford, England (May).
- Cell Dynamics: Organelle-Cytoskeleton Interface. Lisbon, Portugal (May).

2018

- ASCB (American Society for Cell Biology) Special Interest Subgroup Symposium “Neuronal Cytoskeleton: A Complex Interplay of Cytoarchitecture and Dynamics”, San Diego, California (December).
- 2<sup>nd</sup> Annual La Jolla Aging Meeting. Salk Institute, La Jolla, California (April).
- Gordon Research Conference (GRC) “Cytoskeletal Motors”. Mount Snow, Vermont (July).
- *C. elegans* Neuronal Development, Synaptic Function and Behavior Conference. Madison, WI (June).

2017

- 1<sup>st</sup> Annual La Jolla Aging Meeting. Salk Institute, La Jolla, California (April).

2016

- Stanford University. Frontiers of Aging Seminar Series (April).

2015

- Glenn Symposium on Aging. Salk Institute, La Jolla, California.
- The Molecular and Experimental Faculty Series, The Scripps Research Institute, La Jolla, California.

- Gordon Research Conference (GRC) “Stress Proteins in Growth, Development & Disease”. Il Ciocco (Barga), Italy.
  - 20<sup>th</sup> Midwest Stress Response and Molecular Chaperone Meeting, Northwestern University, Evanston, IL. January.
- 2014
- University of Iowa. Department of Biology (July).
- 2013
- University of Oregon. Institute of Molecular Biology (May).
  - Society for Neuroscience Mini-symposium. San Diego, California, November 9.
  - “Old Capital Club” Lecture. Monterey, California. November.
- 2012
- University of Washington. Biochemistry Department, April.
  - University of California, Riverside. Department of Biology, May.
  - Oregon Health Sciences University. Jungers Center for Neurosciences Research, June
- 2011
- Special Interest Subgroup meeting for the American Society for Cell Biology (ASCB) Meeting “Nonconventional Functions of Molecular Motors”, Denver, Colorado.
  - The Automated Molecular Imaging Group (AMI) Forum, The Scripps Research Institute, La Jolla, California.
  - The Molecular and Experimental Faculty Series, The Scripps Research Institute, La Jolla, California.
- 2009
- “PrP (Prion)-Canada 2009” Conference, Edmonton, Canada.
  - Molecular Membrane Biology Gordon Conference, Andover, NH.
  - Abcam 2<sup>nd</sup> Annual International “Molecular Mechanisms of Aging and Age Related Diseases” Meeting, Puerto Vallarta, Mexico, March.
- 2008
- “PrP (Prion)-Canada 2008” Conference, Protein Conversion Satellite Event, Toronto, Canada.
- 2005
- International Institute for Complex Adaptive Matter (I2CAM) on “Protein aggregation and amyloid formation in systemic and neurodegenerative disease: physical, molecular and biological approaches” Conference. Lausanne, Switzerland.
- 2002
- European *C. elegans* Meeting. Italy.
- 1996
- American Society of ichthyologists and Herpetologists.
- 1995
- Sea Turtle Conservation Genetics Symposium, Miami, Florida.
  - Society for the Study of Amphibians and Reptiles.
  - “Biochemistry in Marine Biotechnology” Conference. University of La Habana, Cuba.
- 1994
- Society for the Study of Amphibians and Reptiles and The Herpetologists’ League joint meeting. Symposium: “Turtle Phylogeography”. Athens, Georgia.
  - “Population genetics and conservation of marine turtles” Symposium, Gainesville, Florida.
  - Joint meetings of the American Society of Naturalists, Society for Molecular Biology and Evolution, Society of Systematic Biologists, and the Society for the Study of Evolution.
  - Fourteenth Annual Symposium on Sea Turtle Biology and Conservation.
- 1993
- Thirteenth Annual Symposium on Sea Turtle Biology and Conservation.

**CONTRIBUTED PAPERS AND ATTENDANCE AT PROFESSIONAL MEETINGS**

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- 2022 Protein Homeostasis in Health and Disease (April).

- 2021 ASCB Cell Bio Virtual Meeting. Virtual (December).
- 2021 Tau Consortium Investigators' Meeting (TCIM 22). Virtual (February).
- 2014 *C. elegans* Aging, Metabolism, Stress, Pathogenesis and Small RNAs Meeting, Madison, WI. **Poster.**
- 2008 PrP-Canada 2008. **Poster.**
- 2007 Molecular Transport and Trafficking. Howard Hughes Medical Institute Science Meeting, Janelia Farm.
- 2006 Molecular Mechanisms of Transmissible Spongiform Encephalopathies (Prion Diseases) Keystone Symposium. **Poster.**
- 2002 The 42<sup>nd</sup> American Society for Cell Biology Annual Meeting. **Poster.**
- 2000 West Coast Worm Meeting. **Poster.**
- 1999 12<sup>th</sup> International *C. elegans* meeting. **Poster.**
- 1992 Sixth National Conference on Undergraduate Research. **Poster.**
- 1991 Indiana Academy of Science, Bloomington, Indiana. **Poster.**

## MENTORED PERSONNEL

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### Current:

#### Graduate Students (3)

- Tai Chaiamarit. Skaggs-Oxford Scholar 2017-present. PhD Graduate Student (2018-2023). Royal Thai Government Scholarship from the Development and Promotion of Science and Technology Talents Project (DPST).
- Yin Wu. PhD Graduate Student. Tafamidis Fellowship. May 2019-2021.
- Keishla Sanchez-Ortiz. PhD Graduate Student (November 2021-present). Dorris Neuroscience Scholar Fellowship (July 2022-January 2023).
- Kiera Fleck. PhD Graduate Student (August 2022-present).

#### Postdoctoral Fellows (2)

- Kiley Hughes, PhD. May 2022-present. NIH Training Grant "Neuropsychopharmacology: Multidisciplinary Training" (2022-2025).
- Subhalakshmi Guha, PhD. August 2022 -present. CTW Foundation Postdoctoral Fellowship from Scripps Research (2022-2023).

### Previous:

#### Postdoctoral Fellows (7):

- Adriaan Verhelle, PhD. 2018-2022. Dorris Neuroscience Scholar Fellowship (October 2020-April 2021).
- Andre Leitao, PhD. 2020-2021. George E. Hewitt Foundation for Medical Research Postdoctoral Fellowship (2020-2021). Currently Postdoctoral Researcher at UCSD.
- Kayalvizhi Madhivanan, PhD. September 2015 – May, 2020. George E. Hewitt Foundation for Medical Research Postdoctoral Fellowship (2017-2020). Currently Assistant Project Scientist UCSD.
- Adeola Adeyemo, PhD. 2017-2019. NIH-NIA Diversity Supplement. Currently Technical Support Scientist at Advanced Cell Diagnostics.
- Romain Chassefeyre, PhD. 2014-2017. George E. Hewitt Foundation for Medical Research Postdoctoral Fellowship (2014-2017). Currently a Scientist at Evotec, Toulouse, France.
- Erin Greiner, PhD. 2013-2015 (co-mentored with Dr. Jeffery W. Kelly). George E. Hewitt Foundation for Medical Research Postdoctoral Fellowship (2013-2016). Currently Technical Applications Scientist at Illumina, San Diego.

- Sylvia Neumann, PhD. 2012-2015. Postdoctoral Fellow. American Heart Foundation Postdoctoral Fellowship (2011-2013). Currently Project Scientist and Lab Manager, University of California, Los Angeles.

Graduate Students (2):

- George Campbell, PhD. 2012-2018. PhD Graduate Student. Achievement Rewards for College Scientists (ARCS) Fellowship (2013). TL1 graduate trainee on U54 Institutional Clinical and Translational Science Training Grant Award (2012-2017). Currently a postdoctoral fellow at Harvard University.
- Miguel Alves Ferreira, PhD. 2015-2017. Exchange graduate student. Graduated 2019 with a PhD from University of Porto, Portugal.

Rotation Students (19):

- Cristian Wulkop-Gil. August 3, 2020 - November 25, 2020.
- Chung Chih Liu. November 2018-March 2019.
- Julia Jones. November 2018-March 2019.
- Lara Ibrahim. November 2018-February 2019.
- Ana Verduzco. August 2018-November 2018.
- Amanda Sul. August 2018-November 2018.
- Hao Wang. January 2018-March 2018.
- Carlos Aguirre. August-November 2016.
- Belle Noxon. August-November 2016.
- Whitney Baldrige. August-November 2016.
- Paulo Onuchic. August 2015-November 2015.
- Cong Ba Dinh.
- Cecilia Monteiro. August 2014-November 2014.
- Rigo Citron-Colon. August 2014-November 2014.
- Alyson Smith. August 2013-November 2013.
- Eveline Lee. August 2013-November 2013.
- Jennifer Kefauver. August 2012-November 2012.
- Linxuan Yan. August 2012-November 2012.
- Han-Hsuan Liu. August 2012-November 2012.

Undergraduate Students (3):

- Desi Martin. June 2017-August 2017.
- Krystal Lawrence. June 2014-September 2014.
- Leena McCann. August 2011-September 2011.

Technicians/Research Assistants (7):

- Jesse Hulahan 2019-May 2020.
- Amrita Rathi. 2017-2019.
- Nirvan Rouzbeh. 2015-2017. Currently a PhD graduate student at the University of Montana.
- Diana Porrás Gonzalez. 2014-2015. Technician. Currently a PhD graduate student at Heidelberg University Hospital.
- Jesse Holt. 2013-2014. Technician.
- Cynthia Cho, 2011-2013. Laboratory Assistant. Currently Staff Research Associate at University of California, San Francisco.
- Andrew Huang. 2012-2013. Laboratory Technician. Currently a senior undergraduate at the University of California, San Diego.

**PUBLICATIONS**

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A list of our published work can also be found at:

<http://www.ncbi.nlm.nih.gov/myncbi/sandra.encalada.1/bibliography/47914298/public/?sort=date&direction=ascending>

### **Publications:**

1. Chaiamarit T, Verhelle A, **Encalada SE**. Fluorescence Live Imaging Assays to Characterize Cell Surface Protein Internalization and Endosomal Sorting in Axons of Primary Mouse Hippocampal Neurons. *Bio-protocols*, in review.
2. Yoon L, Botham RC, Verhelle A, Sanz-Martinez P, Xu J, Cole CM, Tan EP, Chou CC, Cuoco CA, Massey LA, Labra S, Elia LP, Ta A, Ardejani MS, Lee K, Kline GM, Xiao Q, Cano-Franco S, Lyang NJ, Hou WC, Yu A, Fox S, Ko Y, Wulkop-Gil C, Ibrahim LH, Jiang S, Meneses A, Nelson LT, Peng H, Lipton SA, Bollong MJ, Hansen M, Morimoto RI, Petrassi HM, Wiseman RL, Powers ET, Finkbeiner S, Garza D, Finley D, Prado MA, Dikic I, Frydman J\*, Johnson KA\*, Silva MC\*, Haggarty SJ\*, Stolz A\*, **Encalada SE\***, Jeffery W. Kelly\*. **2022**. mTOR inhibitor-independent autophagy activator ameliorates tauopathy and prionopathy neurodegeneration phenotypes. *bioRxiv* doi: <https://doi.org/10.1101/2022.09.29.509997>  
\* Co-corresponding authors.
3. Chassefeyre R, Chaiamarit T, Verhelle A, Novak SW, Andrade LR, Manor U, **Encalada SE**. **2021**. Endosomal Sorting Drives the Formation of Mutant Prion Endogresomes. *Science Advances* Dec 24;7(52):eabg3693. Pubmed PMID: 34936461; Pubmed PMCID: PMC8694590. **Cover article**, *Science Advances* 7(52), 22 December 2021; DOI: 10.1126/sciadv.abg3693.  
Cited in Faculty Opinions:  
Galli T: 2022. <https://facultyopinions.com/article/741357007>
4. Nieto-Torres JL, **Encalada SE**, Hansen M. **2021**. LC3B phosphorylation: Autophagosome's ticket for a ride toward the cell nucleus. *Autophagy*, DOI: 10.1080/15548627.2021.1961073.
5. Race B, Williams K, Baune C, Striebel JF, **Encalada SE**, Chesebro B. **2021**. Deletion of *Kif5c* does not alter prion disease tempo or spread in mouse brain. *Viruses* 13(7), 1391; <https://doi.org/10.3390/v13071391>.
6. Nieto-Torres JL, Shanahan S-L, Chassefeyre R, Landeras-Bueno S, **Encalada SE\***, Hansen M\*. **2021**. LC3 phosphorylation regulates FYCO1 binding and directional transport of autophagosomes. *Current Biology* Aug 9;31(15):3440-3449.e7. doi: 10.1016/j.cub.2021.05.052. Epub 2021 Jun 18. PubMed PMID: 34146484; NIHMSID:NIHMS1717570.  
\* Co-corresponding authors.
7. Butler VJ, Salazar DA, Soriano-Castell D, Alves-Ferreira M, Dennissen FJA, Vohra M, Oses-Prieto JA, Li KH, Wang AL, Jing B, Li B, Groisman A, Gutierrez E, Mooney S, Burlingame AL, Ashrafi K, Mandelkow EM, **Encalada SE**, Kao AW. **2018**. Tau/MAPT disease-associated variant A152T alters tau function and toxicity via impaired retrograde axonal transport. *Hum Mol Genet*. Epub 2018/12/28. doi: 10.1093/hmg/ddy442. PubMed PMID: 30590647. PMCID: PMC6489414.
8. Madhivanan K GE, Alves-Ferreira M, Soriano-Castell D, Rouzbeh N, Aguirre CA, Paulsson JF, Chapman J, Jian X, Ooi FK, Lemos C, Dillin A, Prahlad V, Kelly JW, **Encalada SE**. **2018**. Cellular clearance of circulating transthyretin decreases cell non-autonomous proteotoxicity in *Caenorhabditis elegans*. *Proc Natl Acad Sci U S A*. Aug 14;115(33):E7710-E7719. doi: 10.1073/pnas.1801117115. Epub 2018 Jul 30. PubMed PMID: 30061394; PubMed Central PMCID: PMC6099907.
9. Neumann S, Chassefeyre R, Campbell GE, **Encalada SE**. **2017**. KymoAnalyzer: a software tool for the quantitative analysis of intracellular transport in neurons, *Traffic* Jan;18(1):71-88. doi: 10.1111/tra.12456. Epub 2016 Dec 11. PubMed PMID: 27770501; PubMed Central PMCID: PMC5473519.

10. Rangaraju S, Solis GM, Thompson RC, Gomez-Amaro RL, Kurian L, **Encalada SE**, Niculescu AB, Salomon DR, Petrascheck M. **2015**. Suppression of transcriptional drift extends *C. elegans* lifespan by postponing the onset of mortality. *eLife* 4. doi: 10.7554/eLife.08833. PubMed PMID: 26623667.
  11. Baranczak A, Liu Y, Connelly S, Dan DU, W-E, Greiner ER, Genereux JC, Wiseman RL, Eisele YS, Bradbury NC, Dong J, Noodleman L, Sharpless KB, Wilson IA, **Encalada SE\***, Kelly JW\*. **2015**. A Fluorogenic Aryl Fluorosulfate for Intraorganellar Transthyretin Imaging in Living Cells and in *Caenorhabditis elegans*" *J. Am. Chem. Soc.*, 137(23):7404-14. doi: 10.1021/jacs.5b03042. PubMed PMID: 26051248; NIHMSID 696951.\***Corresponding authors**.
  12. Eisele YS, Monteiro C, Fearn C, **Encalada SE**, Wiseman RL, Powers ET, Kelly JW. **2015**. Targeting Protein Aggregation to Ameliorate Degenerative Diseases. *Nature Reviews Drug Discovery* Nov;14(11):759-80. doi:10.1038/nrd4593. Published online 4 September 2015; NIHMSID 696850.
  13. Neumann S, Campbell GE, Szpankowski L, Goldstein LSB, **Encalada SE\***. **2014**. Composition of Molecular Motors on Moving Axonal Cargo Using "Cargo Mapping" Analysis. *J. Vis. Exp.* (92), October 30, e52029, doi:10.3791/52029. \***Corresponding author**.
  14. **Encalada SE\***, Goldstein LSB\*. **2014**. Biophysical challenges to axonal transport: motor-cargo deficiencies and neurodegeneration. *Annu Rev Biophys.* 43:7.1-7.29. doi:10.1146/annurev-biophys-051013-022746.\***Corresponding authors**.
  15. Otero MG, Alloatti M, Cromberg LE, Almenar-Queralt A, **Encalada SE**, Pozo Devoto VM, Goldstein LSB, Falzone TL. **2014**. Fast axonal transport of the proteasome complex depends on membrane interaction and molecular motor function. *J. Cell Sci.* 127: 1537-1549.
  16. Szpankowski LJ, **Encalada SE**, Goldstein LSB. **2012**. Subpixel colocalization reveals amyloid precursor protein-dependent kinesin-1 and dynein association with axonal vesicles. *Proc Natl Acad Sci U S A.* 109(22):8582-7. PMID:PMC3365224.
- Cited in Faculty of 1000:  
Stephens D: F1000Prime.com/716397807#eval791802858
17. **Encalada SE\***, Szpankowski LJ, Xia CH, \*Goldstein LSB. **2011**. Stable Kinesin and Dynein Assemblies Drive the Axonal Transport of Mammalian Prion Protein Vesicles. *Cell* 144: 551–565. PMID:PMC3576050. \* **Corresponding authors**.  
 Cited in Faculty of 1000:  
 Sheng Z: 2011. F1000.com/8671969  
 Kuta A, Fisher E: 2011. F1000.com/8866956  
 Cited in Alzheimer Research Forum:  
<http://www.alzforum.org/pap/annotation.asp?powID=114594#>  
<http://www.alzforum.org/new/detail.asp?id=2712>
18. **Encalada SE**, Goldstein LSB. **2009**. Axonal Transport of the Prion Protein and Prion Neuroinvasion. In: The New Encyclopedia of Neuroscience (Larry Squire, ed.). Elsevier, Oxford, UK, pp. 1071-1075.
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#### In preparation:

34. **Encalada SE**, Sigurdson C, Hegde RS. Endosomal Pathways and Axon-Soma Compartmentalization of Protein Aggregation. Invited Review at *Trends in Neuroscience*. In preparation.
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#### **GRANT SUPPORT**

##### Current

1R01AG076745-01 Encalada (PI)  
NIH/NIA

\$2.37M (D)

04/01/2022-03/31/2027

**Mechanisms of Mutant Prion Protein Aggregation Within Endolysosomal Pathways**

The goal of this grant is to understand the role of endolysosomal pathways in the formation of neurotoxic axonal misfolded prion protein aggregates, by focusing on the elucidation of their composition, ultrastructure, and mechanism of formation in mammalian axons.

Role: PI

**Pending**

1R21 AG072642-01A1 Encalada (PI) \$275K (D) 04/01/2022-03/31/2024

NIH/NIA (received request from PO to submit respond to Summary Statement. Award decision will be made by end of fiscal year 2022).

**Endosomal Pathways Underlying the Diversity of Tau Strain Uptake and Aggregate Formation**

The aim of the proposed research is generate a detailed portrait of the distinctive neuronal uptake routes, intracellular transport dynamics, and intra-neuronal endosomal aggregation profiles of various tau strains.

1R01NS131648 Encalada (PI) Petrascheck (PI) \$2.42M (D) 04/01/2023-03/31/2028

NIH/NIA (submitted on June 6, 2022)

**Activation of Neuronal Degradative Pathways to Ameliorate Prion Disease**

In this application, we propose the pre-trial testing of candidate compounds in cellular and mouse models of prion disease, and to identify target mechanisms of action by which compounds prevent or alleviate neuronal dysfunction in these models.

**Completed Grant Support**

1R01AG049483 Encalada (PI) 08/01/2016-08/01/2021

NIH/NIA

**Mechanisms of toxicity in *C. elegans* models of Transthyretin amyloidosis**

This project aims to scrutinize the cell non-autonomous mechanisms of cellular neuronal dysfunction in transthyretin (TTR) amyloid diseases by characterizing *C. elegans* models of TTR toxicity.

Role: PI

1R01AG049483-S1 Encalada (PI) 08/01/2016-08/01/2021

NIH/NIA

**Mechanisms of toxicity in *C. elegans* models of Transthyretin amyloidosis**

The goal of this project is to characterize the mechanisms of Tau intracellular and inter-cellular movement in mammalian models of disease.

Role: PI

1R01AG049483-Diversity Supplement Encalada (PI) 08/01/2016-08/01/2021

NIH/NIA

**Mechanisms of toxicity in *C. elegans* models of Transthyretin amyloidosis**

The goal of this project is to characterize the mechanisms of Tau intracellular and inter-cellular movement in mammalian models of disease.

Role: PI

The Glenn Award for Research in Biological Mechanisms of Aging

Encalada (PI) 10/30/2015-10/30/2017

This is a one-time unsolicited young faculty award provided to researchers investigating the biology of aging.

EMF AG-NS-0950-1 Encalada (PI) 07/03/2012 -07/02/2016

The Ellison Medical Foundation New Scholar Award

**Dissecting the Relationships Between Aging, Axonal Transport Regulation, and Aggregation**

The goal of this grant is to characterize the relationships between the aging process, axonal transport, and protein aggregation in *Caenorhabditis elegans* and in mammalian neurons. An aim of this grant is to build *C. elegans* and cell culture models of aggregation diseases, including prion and Alzheimer's (amyloid beta) disease models to test whether axonal transport is impaired during aging in neurons in these models. Indeed, the main focus of the Ellison grant is to investigate the role of transport in longevity. As such therefore, the Ellison and the current grant do not overlap but are complementary because in the current application we characterize TTR toxicity models in *C. elegans* and as part of this proposal, we plan to evaluate axonal transport defects in TTR transgenic models (not included in the Ellison grant).

Role: PI

5 P01 AG031097-04 (Kelly, Manning, Dillin)

02/01/2009-01/31/2014

NIH/NIA

**Molecular Mechanisms linking Aging, Abeta Proteotoxicity, and Neurodegeneration**

This project aims to investigate how organismal aging in general is linked to the fidelity of protein folding and neurodegeneration and how cells normally handle ongoing aggregation.

Role: PI Core D

The Baxter Foundation Young Faculty Award Encalada (PI)

06/01/2015 -06/01/2016

**Transport and traffic jams: movement inside neurons to understand neurodegeneration**

This is a one-time young faculty award given to assistant professors to support their laboratories research prior to obtaining a NIH grant. The award will support our projects focused on the elucidation of regulation of motor transport and the role of transport impairments in the initiation of neurodegeneration.

Role: PI