

CHRISTINE E. SCHNITZLER, PH.D.

Associate Professor of Biology



I am an Associate Professor of Biology with tenure at the University of Florida's Whitney Laboratory for Marine Bioscience where I have been leading an independent research program for over nine years. I have a solid and consistent track record of obtaining research funding and producing high quality research publications both throughout my training and as the PI of my own laboratory. For the past 25 years, I have worked with early-diverging animal phyla, specifically cnidarians and ctenophores, with the aim of understanding the principles and mechanisms that underlie fundamental biological questions. Currently, my

research program is centered on one primary focus area: stem-cell and regenerative biology. My group is using experimental genetic approaches together with computational genomic and transcriptomic approaches to explore these research areas. My lab's main research organism is the colonial marine hydroid *Hydractinia*, chosen for its pluripotent adult stem cells, extraordinary regenerative capacity, immortality, ability to spawn thousands of eggs each week, and small and translucent tissues that are ideal for imaging. In 2020, I was awarded a five-year \$1.786 million NIH MIRA grant for Early-Stage Investigators to characterize stem cells in *Hydractinia*, and we have made significant progress on the topic.

My work establishing foundational genomic and transcriptomic resources for multiple species, as well as pioneering functional genomic techniques in *Hydractinia*, is allowing us to elucidate how stem cells maintain homeostasis and drive remarkable whole-body regeneration in this organism. I am currently culturing several strains of *Hydractinia symbiolongicarpus*, including transgenic lines. I have experience in functional genomics tool development for *Hydractinia*, including developing shRNA gene knockdown via electroporation of embryos, and CRISPR/Cas9 gene knock out and knock-in for *Hydractinia* embryos. We can create fluorescent transgenic reporter lines via random integration of plasmid DNA delivered via embryonic microinjection. My lab has also pioneered a flow cytometry-based identification and subsequent FACS isolation of *Hydractinia* stem cells and developed a method for cell cycle analyses. I am an expert in fluorescence microscopy, cell biology, molecular biology, comparative genomics, transcriptomics, computational biology, bioinformatics, and phylogenetics techniques. We make all data available to the wider community on our user-friendly *Hydractinia* web portal and I maintain a resource hub webpage for *Hydractinia*. In 2024, together with collaborators, I published the *Hydractinia* genome paper that included the first single-cell atlas of the animal and created a genome portal which makes all related data publicly available and interactive. In addition to the genomics and computational biology expertise that I gained as a postdoctoral fellow at the NIH, I have a strong background in experimental molecular and cellular biology research. I have mentored high school interns, undergraduate researchers, Ph.D. students, and postdoctoral fellows and focus on career development and growth in weekly one-on-one meetings with all trainees, as well as weekly lab meetings with the Schnitzler Lab group. I am also a founder and co-organizer of the biannual Cnidarian Model Systems Meeting ("Cnidofest") bringing together the entire cnidarian research community.

Christine E. Schnitzler, Ph.D.

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
National Human Genome Research Institute, National Institutes of Health, Bethesda, MD	Postdoctoral Fellow	07/2016	Comparative Genomics
Oregon State University, Corvallis, Oregon	Doctor of Philosophy (PHD)	06/2010	Integrative Biology (formerly Zoology)
Moss Landing Marine Labs, California State University-Monterey Bay, Moss Landing, California	Master of Science (MS)	05/2005	Marine Science
Children's Hospital Boston, Boston, Massachusetts	Other training	08/2001	Biomedical Research
Northwestern University, Evanston, Illinois	Bachelor of Science (BS)	06/1998	Environmental Science

APPOINTMENTS & POSITIONS

2022 - Present	Associate Professor, Whitney Laboratory for Marine Bioscience, University of Florida, St. Augustine, Florida
2016 - Present	Guest Researcher, National Human Genome Research Institute, Bethesda, Maryland
2016 - 2022	Assistant Professor, Whitney Laboratory for Marine Bioscience, University of Florida, St Augustine, Florida
2015 - 2016	Research Fellow, Division of Intramural Research, Computational and Statistical Genomics Branch, National Human Genome Research Institute, NIH, Bethesda, Maryland
2011 - 2014	Instructor, University of the District of Columbia, Washington, District of Columbia
2010 - 2015	Postdoctoral Fellow, Division of Intramural Research, Computational and Statistical Genomics Branch, National Human Genome Research Institute, NIH, Bethesda, Maryland
2005 - 2010	Graduate Research Assistant, Oregon State University, Corvallis, Oregon
2001 - 2005	Research Technician, Monterey Bay Aquarium Research Institute, Moss Landing, California
1999 - 2001	Research Technician, Children's Hospital Boston, Boston, Massachusetts

SYNERGISTIC ACTIVITIES

Teaching/Mentoring: I currently serve as the primary mentor for one Ph.D. student, Qingru (Sue) Xu, one postdoctoral fellow, Dr. Zachary Lane, and our lab manager, Dr. Danielle de Jong. I serve on thesis committees for five additional UF Biology Ph.D. students. I give guest lectures in a Stem Cell Biology course at UF. In December 2024, I was a remote instructor for an "Evolution of Coloniality and Modularity" course at the Centro de Biologia Marinha (CEBIMAR) of the Universidade de São Paulo.

External Service: I am currently a co-organizer of the 2026 Cnidarian Model Systems Meeting (aka

Christine E. Schnitzler, Ph.D.

Cnidofest 2026). I was a co-organizer of the NSF IOS-supported 2022 Cnidofest meeting. I was the host and co-organizer for the NSF IOS-supported Cnidofest 2018 held at the Whitney Lab. I was a co-organizer of the Hydroidfest 2016 Meeting, an NSF IOS-supported meeting of hydroid biologists. I was an organizing member of the Ctenopaloosa 2016 Meeting, an NSF IOS-supported meeting of ctenophore biologists held at the Whitney Lab. I have also served as an NIH and NSF review panel member, an ad hoc reviewer for several NSF grants, and as a reviewer for many peer-reviewed journals.

Internal Service: I have served on several committees in the Biology Department at UF and at Whitney Lab including multiple faculty search committees, the Biology Department Graduate Admissions committee, and the Biology Department Graduate committee. I am currently Chairing the Whitney Faculty Search committee and serving on the Biology Department Graduate Committee. I also organize our JCDC weekly seminar series.

Outreach: I have participated as an invited panel member in the “Girls Can” empowerment event for underserved high school girls in Putnam County, FL for several years. I have given lab tours to several groups including precollege students from the University of Florida’s Center for Precollegiate Education and Training and undergraduates from UF in a Marine Ecology course. I have participated in the Whitney Traveling Zoo program for K-3 students, which brings live marine invertebrates to their classroom, and I have participated in STEM night at a local elementary school. I have also given lectures to the Whitney docents who contribute to the Scientist for a Day at Whitney Labs Program for students in grades 4-6 and have presented to the public in the Evenings at Whitney monthly seminar series. My lab ran the Adult Day at Whitney – Nature’s Regenerators Program in Fall 2025.

PUBLICATIONS (FIVE CURRENT)

Song J, de Jong D, Waletich J, Baxeavanis AD, **Schnitzler CE**. An updated and spatially validated somatic single-cell atlas of *Hydractinia symbiolongicarpus*. *BMC Genomics*. 2025 Dec 11;26(1):1097. PubMed Central PMCID: PMC12699878.

Moreland RT, **Schnitzler CE**, Zhang S, Singh S, Wolfsberg TG, Baxeavanis AD. The *Hydractinia* Genome Project Portal: multi-omic annotation and visualization of *Hydractinia* genomic datasets. *Bioinformatics Advances*. 2025 Oct 15;5(1):vbaf215. PubMed Central PMCID: PMC12624445.

Schnitzler CE, Song J, de Jong D. How Single-Cell Transcriptomics of *Hydractinia* Is Informing the Evolution of Cnidarian Sensory Systems. *Integrative and Comparative Biology*. 2025 Sep 26;65(3):701-712. PubMed Central PMCID: PMC12464821.

Leach WB, Babonis L, Juliano CE, Nakanishi N, **Schnitzler CE**, Steinmetz PRH, Layden MJ. Discoveries and innovations in cnidarian biology at Cnidofest 2024. *EvoDevo*. 2025 Jun 16;16(1):9. PubMed Central PMCID: PMC12172373.

Schnitzler CE, Chang E, Waletich J, Quiroga-Artigas G, Yee Wong W, Nguyen A, Barreira SN., Doonan L, Gonzalez P, Koren S, Gahan JM., Sanders SM., Bradshaw B, DuBuc TQ., Febrimarsa F, de Jong D, Nawrocki EP., Larson A, Klasfeld S, Gornik SG., Moreland R, Wolfsberg TG., Phillippy AM., Mullikin JC., Simakov O, Cartwright P, Nicotra M, Frank U, Baxeavanis AD. The genome of the colonial hydroid *Hydractinia* reveals their stem cells utilize a toolkit of evolutionarily shared genes with all animals. *Genome Research*. 2024 Apr 25;34(3):498-513. PubMed Central PMCID: PMC11067881.

PUBLICATIONS (FIVE RELEVANT)

Cazet JF, Siebert S, Little HM, Bertemes P, Primack AS, Ladurner P, AchRAINER M, Fredriksen MT,

Christine E. Schnitzler, Ph.D.

Moreland RT, Singh S, Zhang S, Wolfsberg TG, **Schnitzler CE**, Baxevanis AD, Simakov O, Hobmayer B, Juliano CE. A chromosome-scale epigenetic map of the *Hydra* genome reveals conserved regulators of cell state. *Genome Research*. 2023 Feb;33(2):283-298. PubMed Central PMCID: PMC10069465.

Quiroga-Artigas G, de Jong D, **Schnitzler CE**. GNL3 is an evolutionarily conserved stem cell gene influencing cell proliferation, animal growth and regeneration in the hydrozoan *Hydractinia*. *Open Biology*. 2022 Sep;12(9):220120. PubMed Central PMCID: PMC9449814.

Quiroga-Artigas G, Duscher A, Lundquist K, Waletich J, **Schnitzler CE**. Gene knockdown via electroporation of short hairpin RNAs in embryos of the marine hydroid *Hydractinia symbiolongicarpus*. *Scientific Reports*. 2020 Jul 30;10(1):12806. PubMed Central PMCID: PMC7393174.

DuBuc TQ, **Schnitzler CE**, Chrysostomou E, McMahon ET, Febrimarsa, Gahan JM, Buggie T, Gornik SG, Hanley S, Barreira SN, Gonzalez P, Baxevanis AD, Frank U. Transcription factor AP2 controls cnidarian germ cell induction. *Science*. 2020 Feb 14;367(6479):757-762. PubMed Central PMCID: PMC7025884.

Siebert S, Farrell JA, Cazet JF, Abeykoon Y, Primack AS, **Schnitzler CE**, Juliano CE. Stem cell differentiation trajectories in *Hydra* resolved at single-cell resolution. *Science*. 2019 Jul 26;365(6451) PubMed Central PMCID: PMC7104783.

CURRENT RESEARCH SUPPORT

NIH R35 MIRA for Early Stage Investigators (ESIs): Characterizing the molecular regulators of stem cell populations during homeostasis and regeneration in *Hydractinia*, an emerging cnidarian research organism. (\$1,786,642 Total Costs). Role: PI. 2020-2026 with 1-year NCE.

NIH R35 MIRA Equipment Supplement to NIH R35 MIRA for a transgenic animal workstation including a Zeiss microinjection rig plus Sutter microinjector. (\$70,583 Total Costs). Role: PI. 2023-2025.