

Livia Dawn Songster

Curriculum vitae ♦ osongste@ucsd.edu ♦ La Jolla, CA

EDUCATION

- PhD in Biological Sciences**, Quantitative Biology Track, University of California - San Diego **Aug. 2019 to Present**
Cumulative GPA: 4.00/4.00
- Bachelor of Science in Biochemistry**, Minor in Marine Biology, Graduated with Distinction **May 2018**
College of Biological Sciences, University of Minnesota - Twin Cities; Minneapolis, MN
Cumulative GPA: 3.77/4.00
- Study Abroad**, DIS Biomedicine Program; *Copenhagen, Denmark* **Jan. 2017 to May 2017**
Study Abroad, Coral Reef Ecology SCUBA Trip; *Roatán, Honduras* **Dec. 2017 to Jan. 2018**

RESEARCH EXPERIENCE

- Graduate Student**, University of California, San Diego **Apr. 2020 to Present**
Advisor: Dr. Samara Reck-Peterson
- ♦ Investigating the molecular mechanisms of organelle hitchhiking transport in the filamentous fungus *Aspergillus nidulans*
 - ♦ Techniques: molecular biology; genetics; biochemistry; quantitative image analysis; microscopy (widefield, confocal)
- Staff Researcher I**, University of Minnesota **May 2018 to Aug. 2019**
Advisor: Dr. Margaret Titus
- ♦ Investigated how filopodia tune directed migration in the amoeba *Dictyostelium* (Schroder, Songster *et al.* 2020, in preparation)
 - ♦ Techniques: molecular biology; cell culture; quantitative image analysis; microscopy (widefield, confocal, TIRF)
- Undergraduate Researcher**, University of Minnesota **Sept. 2017 to May 2018**
Advisor: Dr. Margaret Titus
- ♦ Found that optimum filopodia formation *in vivo* requires cooperation of two non-muscle myosin 7 tail domains in *Dictyostelium* (Arthur, Songster, *et al.* 2019, *PNAS*)
 - ♦ Techniques: microbiology; microscopy (widefield, confocal); SDS/native gel electrophoresis; western blots
- Undergraduate Researcher**, University of Minnesota **May 2016 to Sept. 2016, May 2017 to Sept. 2017**
Advisor: Dr. David Thomas
- ♦ Quantified structural changes caused by familial cardiomyopathy point mutations in cardiac myosin II *in vitro*
 - ♦ Techniques: molecular biology; protein purification; biochemistry; EPR spectroscopy; structural biology; biophysics
- Undergraduate Researcher**, University of Copenhagen, Denmark **Mar. 2017 to May 2017**
Advisor: Dr. Knud Jensen
- ♦ Analyzed the glucoamylase digestion efficiency of different maltose isomers under varied pH conditions
 - ♦ Techniques: NMR spectroscopy; HPLC; enzyme activity assays; kinetics

TEACHING

- Graduate Instructional Apprentice**, University of California, San Diego **Sept. 2020 to Dec. 2020**
 - ♦ BIMM 120 Microbiology; *Advisor: Dr. Eric Allen*
- Bioinformatics Teaching Assistant**, University of Minnesota **Sept. 2016 to Dec. 2016, Nov. 2017 to May 2018**
Advisor: Catharine Kirkpatrick
- ♦ Taught students how to analyze large metagenomic data using command line/UNIX, Python, MATLAB, and RStudio

PUBLICATIONS

Ashley L. Arthur, **Livia D. Songster**, Helena Sirkia, Carlos M. Kikuti, Fernanda P. Borrega, Anne Houdusse, and Margaret A. Titus. Optimized filopodia formation requires myosin tail domain cooperation. *Proc Natl Acad Sci*. Published 14 October 2019; doi: 10.1073/pnas.1901527116

John Salogiannis, Jenna R. Christensen, **Livia D. Songster**, Adriana Aguilar-Maldonado, Nandini Shukla, and Samara L. Reck-Peterson. PxdA interacts with the DipA phosphatase to regulate endosomal hitchhiking of peroxisomes. *Mol Biol Cell*. Published 21 January 2021. doi: 10.1091/mbc.E20-08-0559

MANUSCRIPTS IN PREPARATION

Annika Schroder*, **Livia D. Songster***, Yahor Savich, and Margaret A. Titus. Filopodia enhance migration speed in amoeboid chemotaxis. In revision at *Mol Biol Cell*, January 2021.

***Co-first author**

POSTER PRESENTATIONS

1. **Livia D. Songster** and Margaret A. Titus. The function of filopodia in gradient sensing, directional persistence, and adhesion during amoeboid chemotaxis. *University of MN Annual Muscle Symposium*; Minneapolis, MN. Poster presented 17 May 2019.
2. **Livia D. Songster**, Ashley L. Arthur, Anne Houdusse, and Margaret A. Titus. The myosin 7 post lever arm and MyTH4-FERM2 domain collaborate in filopodia formation. *American Society for Cell Biology/European Molecular Biology Organization Annual Meeting*; San Diego, CA. Poster presented 10 December 2018.
3. **Livia D. Songster**, Ashley L. Arthur, Anne Houdusse, and Margaret A. Titus. Role of MyTH4-FERM myosin in filopod initiation within *Dictyostelium discoideum*. *University of MN Undergraduate Spring Research Symposium*; Minneapolis, MN. Poster presented 20 April 2018.
4. **Livia D. Songster**, Ashley L. Arthur, Anne Houdusse, and Margaret A. Titus. Role of MyTH4-FERM myosin in filopod initiation within *Dictyostelium discoideum*. *National Conference for Undergraduate Research*; Edmond, OK. Poster presented 7 April 2018.

SCHOLARSHIPS AND AWARDS

UCSD Ruth Stern Fellowship	2020
UCSD Quantitative Integrative Biology T32 Training Grant	2020-2022
UCSD Student Housing Opportunity for Recruitment Enhancement (SHORE) Award	2019-2025
UMN Undergraduate Research Opportunities Program (UROP) Fellowship	2017-2018
National Conference for Undergraduate Research (NCUR) Travel Scholarship	2018
UMN College of Biological Sciences Dean's List	2015-2018
UMN National Scholarship Award	2014-2018
UMN Bioproducts & Biosystems Academic Leadership Scholarship	2014-2015

COMMITTEES AND STUDENT ORGANIZATIONS

UCSD Biological Sciences Graduate Recruitment Committee, Co-Chair	2020-2021
UCSD Biology PhD Graduate Student Council (BPGSC), First year representative	2019-2020
UMN Exploring Countries & Cultures in Biological Sciences Club, Co-founder	2017-2018
UMN Marine Biology Club, Member	2017-2018

SERVICE

PassioInveta PhD Blog, Science writer and editor	Oct. 2020 to Present
UCSD Graduate Application Mentorship Program (GradAMP), Graduate mentor	Aug. 2020 to Present
Women Organization for Research Mentoring in STEM (WORM), Graduate mentor	Dec. 2019 to Present

Girls Who Code Club, Facilitator at Kearny Senior High School
Biology Education and Art for Science Innovation (BioEASI), Member
American Diabetes Association, Student advocate & volunteer

Oct. 2019 to Present
Sept. 2019 to Present
Sept. 2015 to Dec. 2017