

# Ben T. Larson

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## EDUCATION AND TRAINING

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### University of California, San Francisco

*Postdoc, Biophysics, Laboratory of Cell Geometry*

San Francisco, CA

2019-present

Mentor: Wallace Marshall

### Marine Biological Laboratory

*Physiology Course*

Woods Hole, MA

2016

### University of California, Berkeley

*PhD, Biophysics with Designated Emphasis in Computational Biology, Animal Origins Lab*

Berkeley, CA

2014-2019

Mentor: Nicole King

### National Institutes of Health, NHLBI

*Postbac, Biophysics, Laboratory of Molecular and Cellular Imaging*

Bethesda, MA

2012-2014

Mentor: Justin Taraska

### Reed College

*BA, Physics*

Portland, OR

2008-2012

## RESEARCH STATEMENT

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*Inspired by the intricate complexity and diversity of eukaryotes, I seek to deepen our understanding of how cells regulate shape and movement to thrive in various environments and of how these capacities evolve. To do so, I leverage my interdisciplinary training grounded in microscopy and quantitative data analysis to creatively address fundamental questions in cell biology.*

## FELLOWSHIPS, HONORS, AND AWARDS

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### Postdoctoral Fellowship

*Merck Fellow of the Jane Coffin Childs Memorial Fund for Medical Research*

2020-2023

### Graduate Research Fellowship

*National Science Foundation*

2016-2019

### Post-course Research Award

*Marine Biological Laboratory, Physiology Course*

2016

### Society of General Physiology Scholar

*Society of General Physiology*

2016

### Post-baccalaureate Intramural Research Training Award

*National Institutes of Health*

2012-2014

### Orloff Science Award

*National Institutes of Health*

2013

### Phi Beta Kappa

*Reed College*

2012

### Commendation for Academic Excellence

*Reed College*

2008-2012

### Ruby Grant for Student Collaborative Research

*Reed College*

2010

## PUBLICATIONS

[Google Scholar](#)

1. [BT Larson](#), J Garbus, JB Pollack, WF Marshall 2021  
**A unicellular walker embodies a finite state machine**  
*bioRxiv* doi: 10.1101/2021.02.26.433123
2. NT Chartier\*, A Mukherjee\*, J Pfanzelter\*, S Fürthauer, [BT Larson](#), M Kreysing, F Jülicher, SW Grill 2020  
**A hydraulic instability drives the cell death decision in the nematode germline**  
*bioRxiv* doi: 10.1101/2020.05.30.125864
3. [BT Larson](#), T Ruiz-Herrero, S Li, S Kumar, L Mahadevan, N King 2020  
**Biophysical principles of choanoflagellate self-organization**  
*Proc. Natl. Acad. Sci.* 117 (3)
4. T Brunet\*, [BT Larson](#)\*, TA Linden\*, MJA Vermeij, KL McDonald, N King 2019  
**Light-regulated collective contractility in a multicellular choanoflagellate**  
*Science* 366 (6463)
5. D Laundon, [BT Larson](#), KL McDonald, N King, P Burkhardt 2019  
**The architecture of cell differentiation in choanoflagellates and sponge choanocytes**  
*PLOS Bio.* 17 (4)
6. [BT Larson](#), KA Sochacki, JM Kindem, JW Taraska 2014  
**Systematic spatial mapping of proteins at exocytic and endocytic structures**  
*Mol. Bio. Cell* 25 (13)
7. MA Bedau and [BT Larson](#) 2013  
**Lessons from environmental ethics about the intrinsic value of synthetic life**  
GA Kaebnick and TH Murray (Ed.)  
*Synthetic biology and morality: artificial life and the bounds of nature*, MIT Press
8. KA Sochacki, [BT Larson](#), DC Sengupta, MP Daniels, G Shtengel, HF Hess, JW Taraska 2012  
**Imaging the post-fusion release and capture of a vesicle membrane protein**  
*Nat. Comm.* 3 (1)

\*denotes equal contribution

## SELECTED PRESENTATIONS

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|---|------------|
| <b>Build-a-Cell Seminar†</b><br><i>Various institutions, Online</i>   | 2020       |
| <b>Electronic Symposium on Protistology†</b><br><i>Various institutions, Online</i>                         | 2020       |
| <b>Biophysics Seminar†</b><br><i>Life Sciences Institute, Exeter University</i>                             | 2019       |
| <b>Bio Lunch†</b><br><i>Department of Applied Mathematics and Theoretical Physics, Cambridge University</i> | 2019       |
| <b>Beyond the Cell Atlas</b><br><i>Chan Zuckerberg Biohub</i>   | 2018       |
| <b>Size and Shape Workshop*</b><br><i>European Molecular Biology Organization</i>                           | 2018       |
| <b>International Choanoflagellate Workshop*,*</b><br><i>Station Biologique de Roscoff, UC Berkeley</i>      | 2015, 2017 |

<b>Integrated Microbial Biodiversity</b> <i>Canadian Institute for Advanced Research</i>	2016
<b>ASCB annual meeting</b> <i>American Society for Cell Biology</i>	2016
<b>BPS annual meeting</b> <i>Biophysical Society</i>	2014
	* Talk selected from abstract
	† Invited talk

## SKILLS

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**Wet lab:** Optical and electron microscopy, cell culture, environmental sampling and field work, basic molecular techniques, basic electronics and machining

**Computational:** Quantitative data analysis and data visualization, image analysis using Imaris, Fiji, and MATLAB, programming in MATLAB and C++, working knowledge of R, Python, Fortran, LabView, and Mathematica

## TEACHING AND OUTREACH

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**Undergraduate and PhD Student Mentor** 2017-present  
*Laboratory of Wallace Marshall, University of California, San Francisco*  
*Laboratory of Nicole King, University of California, Berkeley*

Mentored undergrads Kevin Marroquin, Sheel Chandra, and Jake Hira and MCB PhD student Max Ferrin.

**Data Science Mentor** 2018-present  
*Gaza Sky Geeks*

Included delivering lectures to Gaza's first tech hub covering topics in exploratory data analysis, basic approaches to quantitative analysis of data, and effective communication of results.

**Cell Biology and Microscopy Outreach** 2014-present  
*Various venues including the Exploratorium, California Academy of Science, Chabot Space & Science Center, and Oakland schools*

**Teaching Assistant**  
*Marine Biological Laboratory, Physiology Course, Woods Hole, MA* 2018  
*Evolution of Genomes, Cells, and Development, University of California, Berkeley* 2016

**Nuclear Reactor Operator** 2008-2012  
*Reed Research Reactor*

Licensed by Nuclear Regulatory Commission 2009, responsibilities included training new operators and giving tours to the public