

Ben T. Larson

Genentech Hall N376
600 16th St
San Francisco, CA 94158

Email : benjamin.larson@ucsf.edu

Phone : (415) 514-4323

EDUCATION AND TRAINING

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

Inspired by the intricate complexity and diversity of eukaryotes, I seek to uncover principles by which cells control shape and movement to thrive in various environments. To do so, I leverage my interdisciplinary training grounded in microscopy and quantitative data analysis to creatively address fundamental questions at the interface of cell biology, biophysics, and evolution.

FELLOWSHIPS, HONORS, AND AWARDS

Merck Postdoctoral Fellowship

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

Orloff Science Award

National Institutes of Health

2013

Post-baccalaureate Intramural Research Training Award

National Institutes of Health

2012-2014

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 controlled by a microtubule-based 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 2021
A hydraulic instability drives the cell death decision in the nematode germline
Nat. Phys. doi: 10.1038/s41567-021-01235-x
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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|--|------------|
| ASCB annual meeting*
<i>American Society for Cell Biology</i> | 2016, 2021 |
| Biological Physics and Physical Biology Seminar†
<i>Independently organized</i> | 2021 |
| Stochastic Physics in Biology*
<i>Gordon Research Conference and Seminar</i> | 2021 |
| Cellular Dynamics and Models*
<i>Cold Spring Harbor Laboratory</i> | 2021 |
| BioWeb Conference†
<i>Department of Biological Sciences, Smith College</i> | 2021 |
| Build-a-Cell Seminar†
<i>NSF Build-a-Cell Network</i> | 2020 |
| Electronic Symposium on Protistology†
<i>Independently organized, various institutions</i> | 2020 |

Biophysics Seminar[†] <i>Life Sciences Institute, Exeter University</i>	2019
Bio Lunch[†] <i>Department of Applied Mathematics and Theoretical Physics, Cambridge University</i>	2019
Beyond the Cell Atlas <i>Chan Zuckerberg Biohub, UCSF</i>	2018
Size and Shape Workshop* <i>European Molecular Biology Organization, NCBS/INSTEM</i>	2018
International Choanoflagellate Workshop*,* <i>Station Biologique de Roscoff, UC Berkeley</i>	2015, 2017
Integrated Microbial Biodiversity <i>Canadian Institute for Advanced Research</i>	2016
BPS annual meeting <i>Biophysical Society</i>	2014

* Talk selected from abstract
[†] Invited talk

TEACHING, SERVICE, AND OUTREACH

Special Interest Subgroup Co-organizer

ASCB Annual Meeting, Cells in the wild: environmental influences on cell morphology and behavior 2021
 With Guillermina Ramirez-San Juan and David Booth.

Lead Instructor

Center for Cellular Construction, CCC Summer Course, San Francisco, CA 2021
 Guided research experience with students (undergrad-PhD) from SFSU and UCSF emphasizing quantitative image analysis.

Undergraduate and PhD Student Mentor

Laboratory of Wallace Marshall, University of California, San Francisco 2019-present
Laboratory of Nicole King, University of California, Berkeley 2017-2019
 Mentored undergrads Kevin Marroquin, Sheel Chandra, and Jake Hira (UCB), MCB PhD student Max Ferrin (UCB), Biophysics PhD student Greyson Lewis (UCSF), and MBL Physiology post-course research students Veronica Farmer (Vanderbilt) and Alice Herneisen (MIT).

Teaching Assistant

Marine Biological Laboratory, Physiology Course, Woods Hole, MA 2018, 2021
Evolution of Genomes, Cells, and Development, University of California, Berkeley 2016

Data Science Mentor

Gaza Sky Geeks 2018-present
 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.

Co-founder and Co-organizer

Cellular Basis of Patterns Working Group, University of California, Berkeley 2015-2017
 Interdepartmental seminar series dedicated to fostering a community of researchers interested in self-organization and pattern formation in biological systems. With Amy Shyer and Mike Levy.

Cell Biology and Microscopy Outreach

2014-present
Venues including the Exploratorium, California Academy of Sciences, Chabot Space & Science Center, and Oakland schools

Nuclear Reactor Operator

Reed Research Reactor 2008-2012
 Licensed by the Nuclear Regulatory Commission in 2009, responsibilities included training new operators and giving tours to the public