Kara L. McKinley, Ph.D.

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APPOINTMENTS

01/2021-	Assistant Professor, Department of Stem Cell and Regenerative Biology, Harvard University Principal Faculty, Harvard Stem Cell Institute Associate Member, Broad Institute of Harvard and MIT
11/2016- 12/2020	Postdoctoral researcher, laboratories of Ron D. Vale and Ophir D. Klein, University of California, San Francisco Mechanisms of cell-type patterning during intestinal regeneration and renewal
07/2011- 10/2016	Graduate researcher, laboratory of Iain M. Cheeseman, Whitehead Institute/MIT Thesis title: Mechanisms for the propagation and recognition of human centromeres
03/2008- 05/2010	Undergraduate researcher, laboratory of Michael H. Hecht, Princeton University Thesis title: Conditionally essential and promiscuous functions of *de novo* designed proteins in *Escherichia coli*

EDUCATION

2010-2016	Ph.D., Department of Biology, Massachusetts Institute of Technology, Cambridge, MA
2006-2010	A.B., Department of Molecular Biology, Princeton University, Princeton, NJ

AWARDS

2023	Robertson Stem Cell Investigator, New York Stem Cell Foundation
2022	Searle Scholars Award, Searle Scholars Program
2021	Rosalind Franklin Young Investigator Award, Genetics Society of America
2021	Dale F. Frey Award for Breakthrough Scientists, Damon Runyon Cancer Research Foundation
2019	Regeneron Prize for Creative Innovation, Regeneron Pharmaceuticals
2016	Merton Bernfield Memorial Award for Graduate or Postdoctoral Research, American Society for Cell Biology
2016	Kaluza Prize for Excellence in Graduate Research, American Society for Cell Biology
2016	Harold M. Weintraub Graduate Student Award, Fred Hutchinson Cancer Research Center
2014	Abraham J. Siegel Award for outstanding graduate student, Whitehead Institute
2010	*Magna cum laude* in Molecular Biology*, Phi Beta Kappa* and *Sigma Xi*, Princeton University
2010	Blair Senior Thesis Prize in Molecular Biology, Princeton University
2007	Shapiro Prize for Academic Excellence, Princeton University

MENTORING

Postdoctoral Fellows

Jan 2022-	Dr. Çağrı Çevrim, email: cagri_cevrim@fas.harvard.edu
Jan 2022-	Dr. Taylor Skokan, email: taylor_skokan@fas.harvard.edu
March 2022-	Dr. Patricia Murphy, email: plmurphy@fas.harvard.edu

Graduate students

2021-	Claire Ang, MCO program, National Science Foundation Graduate Research Fellowship, email: claire.ang@fas.harvard.edu

Undergraduate students

2021-	Madelyn Mauro ‘23, HDRB concentration (thesis research), email: mmauro@college.harvard.edu
2021-	Jillian Wachira ‘22, HDRB concentration, email: jillianwachira@college.harvard.edu
Fall 2021	Kathryn Boit, ’23, HDRB concentration, email: kathrynboit@college.harvard.edu
Summer 2020	Caroline Noble ’22, HDRB concentration, email: carolinenoble@college.harvard.edu

CURRENT FUNDING

2023-2028 New York Stem Cell Foundation Robertson Stem Cell Investigator Award (PI: McKinley)
2022-2024 Massachusetts First Look Award, Massachusetts Life Science Center (PI: McKinley)
2022-2025 Searle Scholars Award, Searle Scholars Program (PI: McKinley)
2022 Star-Friedman Challenge Award, Harvard University (PI: McKinley)
2022-2025 Charles H. Hood Child Health Research Grant, Charles H. Hood Foundation (PI: McKinley)
2021-2024 Smith Family Award for Excellence in Biomedical Research, Smith Family Foundation (PI: McKinley)
2021-2023 Dale F. Frey Award for Breakthrough Scientists, Damon Runyon Cancer Research Foundation (PI: McKinley)
2021-2024 R00 Pathway to Independence Award, National Institute of Child Health and Human Development (PI: McKinley)

PAST GRANTS

2019-2021 K99 Pathway to Independence Award, National Institute of Child Health and Human Development (PI: McKinley)
2019 Program in Breakthrough Biomedical Research Postdoctoral Grant, University of California, San Francisco (PI: McKinley)
2017-2019 Postdoctoral fellowship, Damon Runyon Cancer Research Foundation (PI: McKinley)

TEACHING

Forthcoming
Spring 2023 Reproductive Biology (SCRB 135), Harvard College
Fall 2022 Integrated Biology (LS 50), Harvard College

Past
Spring 2022 Reproductive Biology (SCRB 135), Harvard College

DIVERSITY, EQUITY, INCLUSION

Key contribution: Founder and organizer, *Leading Edge*, an initiative to promote gender diversity in the biomedical sciences (www.leadingedgesymposium.org)

Other contributions:
2021- Associate, *Women in Cell Biology Committee*, American Society for Cell Biology
2021- Panelist for DEI workshops: Intersections Science Fellows Program (9/27/2021), Genetics Society of America (2/9/2022), NIH MOSAIC program (1/19/2022), SACNAS UMass Med (6/13/22)
2018-2020 Mentor, *1000 Girls 1000 Futures*, a global program supporting high school girls interested in STEM
2018-2019 Mentor, *Students Rising Above*, a San Francisco non-profit supporting students from low-income backgrounds to become the first in their families to graduate from college

EXTERNAL SERVICE

2024 Co-vice chair, *Epithelial Stem Cells and Niches*, Gordon Research Conference
2021 Co-chair, *Replace, Repair, Regenerate* workshop, HHMI Janelia Research Campus (virtual)
2020 Co-chair, Special Interest Subgroup, *Epithelial Stem Cells*, American Society for Cell Biology Annual Meeting
2019 Co-chair, Special Interest Subgroup, *Epithelia and their Stem Cells*, American Society for Cell Biology Annual Meeting
2019 Co-chair, *Bay Area Cytoskeleton Symposium*
2018-2019 Abstract Review Task Force, American Society for Cell Biology Annual Meeting

PROFESSIONAL MEMBERSHIPS

2021- International Society for Regenerative Biology
2018- Society for Developmental Biology
2018- International Society for Stem Cell Research
2013- American Society for Cell Biology

PUBLICATIONS

NCBI My Bibliography: https://www.ncbi.nlm.nih.gov/myncbi/kara.mckinley.1/bibliography/public/

Google Scholar: https://scholar.google.com/citations?hl=en&user=ywI3CDUAAAAJ

*: Equal contribution; ^: corresponding author(s)

1. **McKinley, K. L.*,** Didychuk, A. L.*, Nicholas, D. A. & Termini, C. M. (2022). The transition phase: preparing to launch a laboratory. *Trends in Biochemical Sciences*, doi:https://doi.org/10.1016/j.tibs.2022.05.002.
2. Skokan, T.D., Hobmayer, B., **McKinley, K.L.**^, and Vale, R.D.^ (2021). Mechanical stress regulates macropinocytosis in *Hydra vulgaris. bioRxiv*. 2021.2012.2003.471193, doi:10.1101/2021.12.03.471193. *In revision.*
3. Skokan, T.D., Vale, R.D.^, and **McKinley, K.L.**^ (2020). Cell sorting in *Hydra vulgaris* arises from differing capacities for epithelialization between cell types. *Current Biology*. 2020 Oct 5;30(19):3713-3723.e3.
4. **McKinley, K.L.***, Castillo-Azofeifa, D.*, and Klein, O.D.^ (2020). Tools and Concepts for Interrogating and Defining Cellular Identity. *Cell Stem Cell 26*, 632-656.
5. Rodriguez-Rodriguez, J.A., Lewis, C., **McKinley, K.L**., Sikirzhytski, V., Corona, J., Maciejowski, J., Khodjakov, A., Cheeseman, I.M., and Jallepalli, P.V.^ (2018). Distinct Roles of RZZ and Bub1-KNL1 in Mitotic Checkpoint Signaling and Kinetochore Expansion. *Current Biology 28*, 3422-3429 e3425.
6. **McKinley, K.L.**, Stuurman, N., Royer, L.A., Schartner, C., Castillo-Azofeifa, D., Delling, M., Klein, O.D.^, and Vale, R.D.^ (2018). Cellular aspect ratio and cell division mechanics underlie the patterning of cell progeny in diverse mammalian epithelia. *Elife 7*. doi: 10.7554/eLife.36739
7. **McKinley, K.L.**^ (2018). Employing CRISPR/Cas9 genome engineering to dissect the molecular requirements for mitosis. *Methods in Cell Biology 144*, 75-105.
8. Guo, L.Y., Allu, P.K., Zandarashvili, L., **McKinley, K.L**., Sekulic, N., Dawicki-McKenna, J.M., Fachinetti, D., Logsdon, G.A., Jamiolkowski, R.M., Cleveland, D.W., Cheeseman, I.M., and Black, B.E.^ (2017). Centromeres are maintained by fastening CENP-A to DNA and directing an arginine anchor-dependent nucleosome transition. *Nature Communications 8*, 15775.
9. **McKinley, K.L.**^, and Cheeseman, I.M.^ (2017). Large-Scale Analysis of CRISPR/Cas9 Cell-Cycle Knockouts Reveals the Diversity of p53-Dependent Responses to Cell-Cycle Defects. *Developmental Cell 40*, 405-420.
10. **McKinley, K.L.^,** and Cheeseman, I.M.^ (2016). The Molecular Basis for Centromere Identity and Function. *Nature Reviews Molecular Cell Biology* 17(1):16-29.
11. **McKinley, K.L.,** Sekulic, N., Guo, L.Y., Tsinman, T., Black, B.E., and Cheeseman, I.M.^ (2015). The CENP-L-N Complex Forms a Critical Node in an Integrated Meshwork of Interactions at the Centromere-Kinetochore Interface. *Molecular Cell* 60(6): 886-98.
12. **McKinley, K.L**., and Cheeseman, I.M.^ (2014). Polo-like Kinase 1 Licenses CENP-A Deposition at Centromeres. *Cell* 158(2): 397–411.
13. Thiru, P., Kern, D. M., **McKinley, K. L**., Monda, J. K., Rago, F., Su, K.-C., Tsinman, T., Yarar, D., Bell, G.W., and Cheeseman, I.M.^ (2014). Kinetochore genes are coordinately upregulated in human tumors as part of a FoxM1-related cell division program. *Molecular Biology of the Cell* 25(13):1983-94.
14. Fisher, M. A., **McKinley, K. L**., Bradley, L. H., Viola, S. R., and Hecht, M. H.^ (2011). De novo designed proteins from a library of artificial sequences function in Escherichia coli and enable cell growth. *PloS one*, *6*(1), e15364.

INVITED TALKS

Forthcoming

May 2023	Mount Sinai, Black Family Stem Cell Institute, New York, NY
November 2022	Cornell University, Department of Biomedical Sciences, Ithaca, NY
October 2022	Michigan State University, Institute for Quantitative Health Sciences and Department of OB/GYN, Grand Rapids and East Lansing, MI
October 2022	8th International Conference on Stem Cell Engineering, Boston, MA
September 2022	University of California, San Diego, Division of Regenerative Medicine, La Jolla, CA

Past

August 2022	Santa Cruz Developmental Biology Meeting, Santa Cruz, CA
June 2022	Whitehead Institute for Biomedical Research, Cambridge, MA
May 2022	Building Advanced Multicellular Systems in 3D, Basel, Switzerland (Keynote)
March 2022	Boston University, Department of Biochemistry, Boston, MA
March 2022	Vienna Biocentre, Vienna, Austria (Keynote)

December 2021 University of Pennsylvania, Institute for Regenerative Medicine, Philadelphia, PA
April 2021 University of Massachusetts, Amherst, Molecular and Cellular Biology Seminar Series, Virtual
February 2021 North Carolina State University, Tissue Engineering Seminar Series, Virtual

Before starting at Harvard
December 2020 American Society for Cell Biology Annual Meeting, Reconstituting Cell Biology Subgroup, Virtual
April 2020 University of Illinois, Urbana-Champaign, MCB Rising Stars Seminar Series, Urbana, IL*(Canceled – COVID19)*
March 2020 Association of Biomolecular Resource Facilities Annual Meeting, Organoid Imaging Session, Palm Springs, CA
January 2020 Rockefeller University, New York, NY
January 2020 University of Pennsylvania, Department of Cell and Developmental Biology, Philadelphia, PA
January 2020 Sloan Kettering Institute, Programs in Cell Biology and Developmental Biology, New York, NY
January 2020 Columbia Stem Cell Initiative at Columbia University, New York, NY
January 2020 Yale University, Departments of Cell Biology, Cellular and Molecular Physiology, and Molecular Cellular and Developmental Biology, New Haven, CT
January 2020 Cold Spring Harbor Laboratory, NY
January 2020 Massachusetts Institute of Technology, Department of Biology and Koch Institute, Cambridge, MA
January 2020 University of Chicago, Department of Molecular Genetics and Cell Biology, Chicago, IL
December 2019 Stanford University, Department of Developmental Biology, Palo Alto, CA
December 2019 American Society for Cell Biology Annual Meeting, Epithelia and Stem Cells Subgroup, Washington DC
December 2019 University of Texas Southwestern Medical Center, Department of Pharmacology, Dallas, TX