

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- Postdoctoral researcher, laboratory of Ron D. Vale, University of California, San Francisco
12/2020 Mechanisms of cell-type patterning during intestinal regeneration and renewal

07/2011- Graduate researcher, laboratory of Iain M. Cheeseman, Whitehead Institute/MIT
10/2016 Thesis title: Mechanisms for the propagation and recognition of human centromeres

03/2008- Undergraduate researcher, laboratory of Michael H. Hecht, Princeton University
05/2010 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

HONORS

2021 Smith Family Award for Excellence in Biomedical Research, Smith Family Foundation
2021 Dale F. Frey Award for Breakthrough Scientists, Damon Runyon Cancer Research Foundation
2019-2024 K99/R00 Pathway to Independence Award, National Institute of Child Health and Human Development
2019 Regeneron Prize for Creative Innovation, Regeneron Pharmaceuticals
2019 Program in Breakthrough Biomedical Research Postdoctoral Grant, University of California, San Francisco
2017-2019 Postdoctoral fellowship, Damon Runyon Cancer Research Foundation
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, Princeton University
2010 *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

PUBLICATIONS

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

*: Co-first authors; ^: corresponding author(s)

1. 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.
2. **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.
3. Rodriguez-Rodriguez, J.A., Lewis, C., **McKinley, K.L.**, Sikirzhyski, 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.

4. **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
5. **McKinley, K.L.**[^] (2018). Employing CRISPR/Cas9 genome engineering to dissect the molecular requirements for mitosis. *Methods in Cell Biology* 144, 75-105.
6. 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.
7. **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.
8. **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.
9. **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.
10. **McKinley, K.L.**, and Cheeseman, I.M.[^] (2014). Polo-like Kinase 1 Licenses CENP-A Deposition at Centromeres. *Cell* 158(2): 397-411.
11. 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.
12. 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.

EXTERNAL TALKS

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| April 2021 | University of Massachusetts, Amherst, Molecular and Cellular Biology Seminar Series, Virtual |
| February 2021 | North Carolina State University, Tissue Engineering Seminar Series, Virtual |
| 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 (<i>Cancelled – COVID19</i>) |
| 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 |
| October 2019 | Harvard University, Department of Stem Cell and Regenerative Biology, Cambridge, MA |
| June 2019 | France-USA Stem Cell Symposium, Los Angeles, CA |
| May 2019 | Bay Area Stem Cell Conference, Asilomar, CA |
| December 2018 | American Society for Cell Biology Annual Meeting, Organoid Mini-symposium, San Diego, CA |
| December 2018 | American Society for Cell Biology Annual Meeting, Stem Cell Special Interest Subgroup, San Diego, CA |
| August 2018 | Gordon Research Conference, Tissue Niches and Resident Stem Cells in Adult Epithelia, Waterville Valley, NH |
| June 2018 | Bay Area Cytoskeleton Symposium, San Francisco, CA |
| April 2018 | Intestinal Stem Cell Consortium Biannual Meeting, Los Angeles, CA |
| December 2016 | American Society for Cell Biology Annual Meeting, Cell Cycle Mini-symposium, San Francisco, CA |
| June 2016 | Chromosome Segregation and Aneuploidy Meeting, Galway, Ireland |
| December 2013 | American Society for Cell Biology Annual Meeting, Chromosome Segregation Mini-symposium, New Orleans, LA |

MENTORING

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| 2021- | Graduate Student, Harvard MCO program Claire Ang, email: claire.ang@fas.harvard.edu |
| 2021- | Undergraduate Students, Harvard HDRB concentration Madelyn Mauro '23, email: mmauro@college.harvard.edu Jillian Wachira '22, email: jillianwachira@college.harvard.edu |
| Summer 2020 | Undergraduate Student, Harvard HDRB concentration Caroline Noble '22, email: carolinenoble@college.harvard.edu |
| 2017- | Graduate Student, UCSF Tetrad Program Taylor Skokan, email: taylor.skokan@ucsf.edu |
| 2013-2017 | Rotating MIT and UCSF graduate students |
| 2013 | Master's student, Charlotte Pennings (subsequent position: graduate student at Utrecht University) |

TEACHING

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| Spring 2014 | Teaching Assistant, Undergraduate Cell Biology (7.06), MIT |
| Fall 2011 | Teaching Assistant, Graduate Biochemistry (7.51), MIT |

SERVICE AND OUTREACH

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| 2021 | Co-organizer, <i>Replace, Repair, Regenerate</i> workshop, Janelia Research Campus (virtual) |
| 2021 | Associate, <i>Women in Cell Biology Committee</i> , American Society for Cell Biology |
| 2020 | Co-chair, Special Interest Subgroup, <i>Epithelial Stem Cells</i> , American Society for Cell Biology Annual Meeting |
| 2019- | Founder and organizer, <i>Leading Edge Symposium</i> , an annual postdoctoral symposium to promote gender diversity in the biomedical sciences (www.leadingedgesymposium.org) |
| 2019 | Co-chair, Special Interest Subgroup, <i>Epithelia and their Stem Cells</i> , American Society for Cell Biology Annual Meeting |
| 2019 | Organizing Committee, <i>Bay Area Cytoskeleton Symposium</i> |
| 2018-2020 | Mentor, <i>1000 Girls 1000 Futures</i> , a global program supporting high school girls interested in STEM |
| 2018-2019 | Mentor, <i>Students Rising Above</i> , a San Francisco non-profit supporting students from low-income backgrounds to become the first in their families to graduate from college |
| 2018-2019 | Abstract Review Task Force, American Society for Cell Biology Annual Meeting |

PROFESSIONAL MEMBERSHIPS

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

REFERENCES

Graduate advisor

Iain M. Cheeseman, Ph.D.
Member and Associate Director, Whitehead Institute
Professor, Department of Biology
Massachusetts Institute of Technology
E-mail: icheese@wi.mit.edu

Postdoctoral advisor

Ron D. Vale, Ph.D.
Executive Director, Janelia Research Campus
Investigator, Howard Hughes Medical Institute
Professor, Cellular and Molecular Pharmacology
University of California, San Francisco
Email: valer@janelia.hhmi.org

Ophir D. Klein, M.D., Ph.D.
Professor, Orofacial Sciences and Pediatrics
Charles J. Epstein Professor of Human Genetics
Director, Program in Craniofacial Biology
University of California, San Francisco
Email: ophir.klein@ucsf.edu