

Jacqueline Barlow, PhD

Department of Microbiology and Molecular Genetics
University of California, Davis
One Shields Avenue
Davis, CA 95616
jhbarlow@ucdavis.edu

Education and Research Experience

- 2014 – present** **Assistant Professor (Appointment started November 2014)**
Department of Microbiology and Molecular Genetics
University of California, Davis
- 2008 – 2014** **Postdoctoral Fellow**
Laboratory of Genome Integrity, National Cancer Institute, NIH, Bethesda, MD
Supervisor: Dr. Andre Nussenzweig
Project: Genome-wide mapping of replication-induced DNA damage
- 2001 – 2008** **PhD Genetics and Development**
Department of Genetics and Development, Columbia University, NY, NY
Supervisor: Dr. Rodney Rothstein
Project: Cell cycle regulation of the DNA damage response
- 1999 – 2000** **Honors Undergraduate Research Thesis Student**
Department of Biology, Rice University, Houston TX
Supervisor: Dr. Richard Gomer
Project: Identification of novel genes involved in *D. discoideum* development
- 1997 – 1998** **Summer Medical and Research Training Student**
Department of Cell Biology, Baylor College of Medicine, Houston, TX
Supervisor: Dr. Austin Cooney
Project: Role of orphan receptors in development and embryogenesis

Teaching Experience

- 01/2017-present** **Instructor of record**, Introductory Microbiology (MIC102), University of California, Davis
- 03/2017-present** **Instructor of record**, Cancer Biology (MIC175) University of California, Davis
- 04/2016** **Guest Lecturer**, Cancer Biology (MIC 275) University of California, Davis
- 03-6/2016** **Instructor**, Introductory Microbiology (MIC102), University of California, Davis
- 04/2015** **Guest lecturer**, Advanced Topics in Immunology (MMI 291), University of California, Davis
- 07/2013 and 2014** **Organizer and co-leader**, Journal Club for NIH summer interns “Genome-wide approaches to Studying Cancer,” NIH, Bethesda, MD

- 09/2011** **Lecturer**, DNA Repair Mechanisms, Immunology Class for new fellows,
Experimental Immunology Branch, NIH, Bethesda, MD
- 2006-2007** **Co-Director and Founder, Mott Hall Scientific Mentoring, Columbia University College
of Physicians and Surgeons (P&S) Club**
Directive: Recruit, train and support MD and PhD candidates as mentors to 7th and 8th
grade science fair participants at Mott Hall School in Harlem.
- 2005-2006** **Mott Hall After-School Science Enrichment Mentor**
Project: NASA Space Settlement Design Contest (team of 11 7th and 8th grade
students; group won Honorable Mention, project title: "Evo")

Fellowships and Awards

- 2014** CAMPOS Scholar, University of California, Davis
- 2014** K22 Career Development Award (1K22CA188106-01), NCI
- 2013** NIH Fellows Award for Research Excellence
- 2008** Samuel W. Rover and Lewis Rover Award for Genetics and Development
- 2005-2007** Kirschstein-NRSA Predoctoral Fellowship, NIH
- 2004-2005** NIH Predoctoral fellowship

Presentations

- 1) Albany 2019 Conversation in biomolecular structure and dynamics. Albany NY, 2019 (invited speaker).
- 2) Mutagenesis Gordon Research Conference, "Mechanisms of intrinsic and induced genome instability."
Newry ME, 2018. (oral presentation)
- 3) Transcription-Replication crosstalk and genome instability, Jacques Monod Conferences,
Roscoff, FR, 2016 (oral presentation).
- 4) UC Davis Comprehensive Cancer Center, 22nd Annual cancer Research Symposium (invited speaker).
- 5) DNA Replication and Recombination, Keystone Symposia Conference, Whistler, CA, 2015 (poster).
- 6) UC Davis Comprehensive Cancer Center, 20th Annual cancer Research Symposium (invited speaker).
- 7) Nuclear Organization and Function Meeting, Cold Spring Harbor, NY, 2014 (oral presentation).
- 8) Chromosome Architecture in Human Cancers Workshop, National Cancer Institute, Rockville, MD,
2013 (oral presentation)
- 9) Invited Speaker, Department of Biological Sciences Seminar, University of Southern California, Los
Angeles CA, 2013 (oral presentation)

- 10) Mammalian DNA Repair, Gordon Research Conference, Ventura, CA, 2013 (oral presentation)
- 11) Cell Cycle Symposium, NIH, Bethesda, MD, 2012 (oral presentation)
- 12) Chromosome Dynamics, Gordon Conference, West Dover, VT, 2011 (poster presentation)
- 13) National Graduate Student Research Festival, NIH, Bethesda, MD, 2008 (poster presentation)
- 14) Salk/Caltech DNA Replication and Genome Integrity Meeting, San Diego, CA, 2006 (oral presentation)
- 15) Yeast Genetics and Molecular Biology Meeting, Princeton University, NJ, 2006 (oral presentation)
- 16) Genome Integrity Discussion Group, New York Academy of Science, New York, NY, 2005 (oral presentation)
- 17) Mechanisms of DNA Replication and Recombination Keystone Symposium, Keystone, CO, 2005 (poster presentation)
- 18) Cell Cycle Symposium, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, 2004 (poster presentation)

Publications

Waisertreiger, I., Popovich, K., Block, M., Anderson, K. R., and Barlow, J. H. Visualizing locus-specific sister chromatid exchange reveals differential patterns of replication stress-induced fragile site breakage. *Oncogene*. doi: 10.1038/s41388-019-1054-5.

Lopes-Contreras, A.J., Specks, J., Barlow, J.H., Ambrogio, C., Desler, C., Vikinsson, S., Rodrigo-Perez, S., Green, H., Rasmussen, L.J., Murga, M., Nussenzweig, A., and Fernandez-Capetillo, O. Increased Rrm2 dosage reduces fragile site breakage and prolongs survival of ATR mutant mice. *Genes Dev.* 29(7):690-5. 2015.
<https://www.ncbi.nlm.nih.gov/pubmed/25838540>

Barlow, J. H. and Nussenzweig, A. replication initiation and genome instability: a crossroads for DNA and RNA synthesis. *Cell Mol Life Sci.* 71(23): 4545-59. 2014. <https://www.ncbi.nlm.nih.gov/pubmed/25238783>

Barlow, J.H.*, Faryabi, R. B.*, Callen, E., Wong, N., Malhowski, A., Chen, H.T., Gutierrez-Cruz, G., Sun, H., McKinnon, P., Wright, G., Casellas, R., Robbiani, D.F., Staudt, L., Fernandez-Capetillo, O., and Nussenzweig, A. A novel class of early replicating fragile sites that contribute to genome instability in B cell lymphomas. *Cell*.152: 620-632, 2013.

<https://www.ncbi.nlm.nih.gov/pubmed/23352430>

Published commentary:

McCarthy, N. (2013) "DNA repair: in at the beginning." *Nat. Rev. Cancer.* 13 (3):147.

Glover, T.W., & T.E. Wilson (2013). "Breaking news on fragile sites in cancer." *Cancer Cell.* 23(2):137-9.

Mortusewicz, O., Herr, P., and T. Helleday. "Early replication fragile sites: where replication-transcription collisions cause genetic instability." *EMBO J.* 32(4):493-495.

Bothmer, A., Robbiani, D.F., Di Virgilio, M., Bunting, S.F., Klein, I.A., Feldhahn, N.A., Barlow, J.H., Chen, H., Bosque, D., Callen, E., Nussenzweig, A., and Nussenzweig, M.C. Regulation of DNA End Joining, Resection, and Immunoglobulin Class Switch Recombination by 53BP1. *Molecular Cell.* 42(3):319-329, 2011.
<https://www.ncbi.nlm.nih.gov/pubmed/21549309>

Barlow, J.H. and Rothstein, R. Timing is everything: cell cycle control of Rad52. *Cell Division.* 5:7, 2010.
<https://www.ncbi.nlm.nih.gov/pubmed/20178629>

Barlow, J.H. and Rothstein, R. Rad52 recruitment is DNA replication independent and regulated by Cdc28 and the Mec1 kinase. EMBO Journal. 28(8):1121-30, 2009.

<https://www.ncbi.nlm.nih.gov/pubmed/19262568>

Barlow, J.H., Lisby, M. and Rothstein, R. Differential regulation of the cellular response to DNA double-strand breaks in G1. Molecular Cell. 30:73-85, 2008.

<https://www.ncbi.nlm.nih.gov/pubmed/18406328>

Published commentary: Wyman, C., Warmerdam, D.O., and R. Kanaar. (2008). "From DNA end chemistry to cell cycle response: the importance of structure, even when it's broken." Mol. Cell. 30(1): 5-6.

Lisby, M., Barlow, J.H., Burgess, R.C., and Rothstein, R. Choreography of the DNA damage response: spatiotemporal relationships among checkpoint and repair proteins. Cell. 118:699-713, 2004.

<https://www.ncbi.nlm.nih.gov/pubmed/15369670>

*these authors contributed equally to this work.