Grant A. King

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EDUCATION

University of California, Berkeley — **Berkeley, CA**
Ph.D., Molecular and Cell Biology. GPA: 3.99/4.00 — 08/2015—08/2022

Columbia University — **New York, NY**
Bachelor of Arts, Biology. GPA: 4.08/4.00 — 09/2011—05/2015

RESEARCH EXPERIENCE

Post-Doctoral Researcher — 12/2022 – Present

Advisor: Harmit Malik

- Investigating the host mechanisms regulating inheritance of a budding yeast model of extrachromosomal DNA (ecDNA), the 2 micron plasmid

Ph.D. and Post-Doctoral Researcher — 08/2015—11/2022

Thesis Committee: Elçin Ünal (Advisor), Jasper Rine, Rebecca Heald, James Olzmann

- Investigated the dynamic remodeling of the nuclear envelope during budding yeast meiosis, utilizing live-cell microscopy, electron microscopy, super-resolution microscopy, molecular biology, and classic yeast genetics.
- Discovered a novel nuclear quality control event during budding yeast meiosis: the formation and subsequent elimination of a membrane-bound structure containing nuclear pore complexes and age-induced damage (termed the Gametogenesis Uninherited Nuclear Compartment, or GUNC)
- Discovered and mechanistically characterized two novel nuclear pore complex remodeling events that occur during budding yeast meiosis – partial and full nuclear basket detachment – revealing new principles of nuclear basket organization
- Performed work meriting co-authorship rotating in the labs of Nicole King and Jasper Rine

Undergraduate Researcher. — 11/2012-05/2015

Advisors: Jonathan Dworkin and Stephen Goff, Columbia University; Britt Glaunsinger, University of California Berkeley

- Studied different microbiological topics in three labs including: (1) the interaction of host protein IQGAP1 and retroviral matrix proteins in the Goff lab; (2) the transcriptional activation of the Human Immunodeficiency Virus Long Terminal Repeat by the Kaposi's sarcoma-associated herpesvirus protein ORF45 in the Glaunsinger lab; and (3) the effect of spore size on outgrowth dynamics within the *Bacillus* genus in the Dworkin lab

PUBLICATIONS

King, G.A.*, Wettstein, R.*, Varberg, J., Chetlapalli, K., Walsh, M., Gillet, L., Hernández-Armenta, C., Beltrao, P., Aebersold, R., Jaspersen, S., Matos, J., Ünal, E. (2023). Meiotic Nuclear Pore Complex Remodeling Provides Key Insights into Nuclear Basket Organization. Journal of Cell Biology (* = equal contribution)

Spotlight by: Veldsink, A.C. and Veenhoff, L.M. (2023). How to unravel a basket: NPC reorganization during meiosis. Journal of Cell Biology. 222 (2): e20230144.

Goodman, J.S., **King, G.A.**, and Ünal E. (2020). Cellular quality control during gametogenesis. Experimental Cell Research.

King, G.A. and Ünal, E. (2020). The dynamic nuclear periphery as a facilitator of gamete health and rejuvenation. Current Genetics.

King, G.A.*, Goodman, J.S.*, Schick, J.G., Chetlapalli, K., Jorgens, D.M., McDonald, K.L, and Ünal, E. (2019). Meiotic cellular rejuvenation is coupled to nuclear remodeling in budding yeast. eLife. (* = equal contribution)

F1000 Recommended by: Sue Jaspersen; Etienne Schwob; Manuel Mendoza and Mercè Gomar-Alba

Wetzel, L.A., Levin, T.C., Hulett, R.E., Chan, D., **King, G.A.,** Aldayafleh, R., Booth, D.S., Sigg, M.A., and King, N. (2018). Predicted glycosyltransferases promote development and prevent spurious cell clumping in the choanoflagellate S. rosetta. eLife 7.

Janke R, **King G.A.,** Kupiec M, Rine J. (2018) Pivotal roles of PCNA loading and unloading in heterochromatin function. Proceedings of the National Academy of Sciences 115, E2030-E2039.

CONFERENCE TALKS

King, G.A., Wettstein, R., Varberg, J., Chetlapalli, K, Jaspersen, S., Matos, J., Ünal, E. Investigating nuclear pore complex modularity during budding yeast meiosis. UC Berkeley Cell and Developmental Biology (CDB) Retreat, Berkeley, 2021.

King, G.A., Goodman, J.S., Schick, J.G., Chetlapalli, K., Jorgens, D.M., McDonald, K.L, and Ünal, E. Characterizing nuclear remodeling during budding yeast meiosis. UC Berkeley Genetics, Genomics, and Development (GGD) Retreat, Pacific Grove, 2019.

King, G.A., Goodman, J.S., Schick, J.G., Chetlapalli, K., Jorgens, D.M., McDonald, K.L, and Ünal, E. Global nuclear remodeling mediates the removal of age-induced damage during budding yeast gametogenesis. American Society for Cell Biology (ASCB) Meeting, San Diego, 2018.

King, G.A., Goodman, J.S., Schick, J.G., Chetlapalli, K., Jorgens, D.M., McDonald, K.L, and Ünal, E. Nuclear remodeling during budding yeast meiosis. UC Berkeley Genetics, Genomics, and Development (GGD) Retreat, Pacific Grove, 2017.

King, G.A., Goodman, J., Schick, J., Chetlapalli, K., Jorgens, D., McDonald, K., and Ünal, E. Nuclear remodeling during budding yeast meiosis. Bay Area Meeting on Organelle Biology, Berkeley, 2017.

POSTER PRESENTATIONS

King, G.A., Goodman, J., Chetlapalli, K., Schick, J., Jorgens, D., and Ünal, E. Elimination of Age-Induced Damage is Coupled.to Nuclear Pore Complex Remodeling during Meiotic Differentiation. UC Berkeley Genetics, Genomics, and Development (GGD) Retreat, Pacific Grove, 2018.

King, G.A., Sawyer, E., McDonald, K., and Ünal, E. Characterizing nuclear remodeling during budding yeast meiosis. EMBO Meeting on Nuclear Structure and Dynamics, L'Isle-sur-la-Sourge, France, 2017.

King, G.A., and Ünal, E. Characterizing nuclear pore complex remodeling during meiosis in budding yeast. UC Berkeley Genetics, Genomics, and Development (GGD) Retreat, Pacific Grove, 2016.

King, G.A., and Ünal, E. Characterizing nuclear pore complex remodeling during meiosis in budding yeast. UC Berkeley Cell and Developmental Biology (CDB) Retreat, Pacific Grove, 2016.

HONORS AND AWARDS

Damon Runyon Cancer Fellowship, HHMI Fellow	2023-
NSF Graduate Research Fellowship	2015-2020
Outstanding Graduate Student Instructor Award	2019
Best Graduate Student Talk, Genetics Genomics and Development (GGD) Retreat	2019
Summa Cum Laude, Columbia University	2015
Junior Phi Beta Kappa, Columbia University	2014

TEACHING, SERVICE, and MENTORSHIP

In-Lab Research Mentor Fall 2017 – Present

- Mentored a former UC Berkeley student – Keerthana Chetlapalli – for three years as an undergraduate, including for her award-winning honors thesis, and one year as a research technician. Our lab was her first research experience, and she is now a first-year graduate student in the Department of Biology at MIT.
- Served as a direct research mentor to three rotation students, including one who joined the lab, and to a summer student from the Howard University Advancing Diversity in Aging Research (ADAR) Program, guiding her through her first research experience.

Koshland Seminar Series Committee Member Fall 2019 – Spring 2021

- Served as a member of the student-run Koshland Seminar Series committee, coordinating in-person and virtual talks by Dr. John Pringle and Dr. Jennifer Lippincott-Schwartz.

Amgen Scholars Program, Graduate Assistant Summer 2017 and Summer 2018

- Led weekly meetings with a group of seven undergraduates to develop research projects and scientific communication skills during a 10-week summer research program.

Graduate Student Instructor, Genetics Laboratory Spring 2018

- Led 2 weekly four-hour lab classes for 50+ students in the genetics lab course MCB 140L, providing technical assistance to ensure the course ran smoothly and working one-on-one with students to ensure proficiency in lab technique.

Graduate Student Instructor, General Biology Lecture Fall 2016

- Led 3 weekly one-hour recitation sections for 80+ students in the introductory biology course Bio 1A, delivering lectures to clarify difficult concepts and preparing problems to help review material.

Introductory Biology Teaching Assistant Fall 2013, Fall 2014, Spring 2015

- For three semesters, led a weekly two-hour recitation section with over 25 students for Professor Deborah Mowshowitz' biology course, guiding students through review questions and developing mini-lectures to clarify key concepts.