Stanford

Ashby Morrison

Associate Professor of Biology

CONTACT INFORMATION

- **Alternate Contact**

  Pamela Hernandez - Administrative Assistant

  Email pahern96@stanford.edu

  Tel 562-315-3555

Bio

ACADEMIC APPOINTMENTS

- Associate Professor, Biology
- Assistant Professor, Biology
- Member, Bio-X
- Member, Cardiovascular Institute
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute

HONORS AND AWARDS

- Pathways to Independence Award (K99/R00), NIH (2009-2012)
- Kimmel Scholar Award, Sidney Kimmel Foundation for Cancer Research (2010-2012)
- Terman Fellow Award, Hewlett Foundation (2010-2013)

PROFESSIONAL EDUCATION

- Ph.D., Baylor College of Medicine , Biomedical Sciences (2004)

LINKS

- Morrison Lab Website: https://www.morrisonlabatstanford.org

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Our research interests are to elucidate the contribution of chromatin to mechanisms that promote genomic integrity. The regulation of chromatin is a crucial component of DNA metabolism and processing in eukaryotic organisms. Chromatin-remodeling complexes, modified histones, and higher order chromatin structure are all factors influencing genome stability. We utilize an integrated approach of genetic, biochemical, and molecular techniques, in both yeast and mammalian systems, to examine the involvement of chromatin in processes that prevent genome instability and the pathogenesis of disease.

Teaching

COURSES

2021-22

- Becoming a Resilient Scientist: BIO 315 (Win)
- The Chromatin-Regulated Genome: BIO 110, BIO 210 (Spr)

2020-21

- Becoming a Resilient Scientist: BIO 315 (Win, Spr)

2019-20

- The Chromatin-Regulated Genome: BIO 110, BIO 210 (Spr)

2018-19

- Chromatin Regulation of the Genome: BIO 110, BIO 210 (Spr)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Jinho Jeong, Derek Le, Ju-Hyung Park, Lauren Pope, Mike Van

Master's Program Advisor

Eric Liu

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Biology (School of Humanities and Sciences) (Phd Program)
- Cancer Biology (Phd Program)

Publications

PUBLICATIONS

- **Cancer Cell Metabolism Connects Epigenetic Modifications to Transcriptional Regulation.** *The FEBS journal*
  Morrison, A. J.
  2021
- **Recognition of Histone Crotonylation by Taf14 Links Metabolic State to Gene Expression.** *Molecular cell*
  Gowans, G. J., Bridgers, J. B., Zhang, J., Dronamraju, R., Burnetti, A., King, D. A., Thiengmany, A. V., Shinsky, S. A., Bhanu, N. V., Garcia, B. A., Buchler, N. E., Strahl, B. D., Morrison, et al
  2019
- **INO80 Chromatin Remodeling Coordinates Metabolic Homeostasis with Cell Division** *CELL REPORTS*
  Gowans, G. J., Schep, A. N., Wong, K., King, D. A., Greenleaf, W. J., Morrison, A. J.
  2018; 22 (3): 611–23
- **The INO80 chromatin remodeler sustains metabolic stability by promoting TOR signaling and regulating histone acetylation.** *PLoS genetics*
  Beckwith, S. L., Schwartz, E. K., García-Nieto, P. E., King, D. A., Gowans, G. J., Wong, K. M., Eckley, T. L., Paraschuk, A. P., Peltan, E. L., Lee, L. R., Yao, W. n., Morrison, A. J.
  2018; 14 (2): e1007216
- **Carcinogen susceptibility is regulated by genome architecture and predicts cancer mutagenesis.** *The EMBO journal*
  García-Nieto, P. E., Schwartz, E. K., King, D. A., Paulsen, J. n., Collas, P. n., Herrera, R. E., Morrison, A. J.
  2017; 36 (19): 2829–43

- **Endocardial/endothelial angiocrines regulate cardiomyocyte development and maturation and induce features of ventricular non-compaction.** *European heart journal*
  Rhee, S., Paik, D. T., Yang, J. Y., Nagelberg, D., Williams, I., Tian, L., Roth, R., Chandy, M., Ban, J., Belbachir, N., Kim, S., Zhang, H., Phansalkar, et al
  2021
- **Somatic mutation distributions in cancer genomes vary with three-dimensional chromatin structure.** *Nature genetics*
  Akdemir, K. C., Le, V. T., Kim, J. M., Killcoyne, S., King, D. A., Lin, Y., Tian, Y., Inoue, A., Amin, S. B., Robinson, F. S., Nimmakayalu, M., Herrera, R. E., Lynn, et al
  2020
- **Chromatin-remodeling links metabolic signaling to gene expression.** *Molecular metabolism*
  Morrison, A. J.
  2020: 100973
- **The somatic mutation landscape of the human body.** *Genome biology*
  Garcia-Nieto, P. E., Morrison, A. J., Fraser, H. B.
  2019; 20 (1): 298
- **Endothelial deletion of Ino80 disrupts coronary angiogenesis and causes congenital heart disease.** *Nature communications*
  Rhee, S. n., Chung, J. I., King, D. A., D'amato, G. n., Paik, D. T., Duan, A. n., Chang, A. n., Nagelberg, D. n., Sharma, B. n., Jeong, Y. n., Diehn, M. n., Wu, J. C., Morrison, et al
  2018; 9 (1): 368
- **The Yeast INO80 Complex Operates as a Tunable DNA Length-Sensitive Switch to Regulate Nucleosome Sliding.** *Molecular cell*
  Zhou, C. Y., Johnson, S. L., Lee, L. J., Longhurst, A. D., Beckwith, S. L., Johnson, M. J., Morrison, A. J., Narlikar, G. J.
  2018; 69 (4): 677–88.e9
- **Genome maintenance functions of the INO80 chromatin remodeller** *PHILOSOPHICAL TRANSACTIONS OF THE ROYAL SOCIETY B-BIOLOGICAL SCIENCES*
  Morrison, A. J.
  2017; 372 (1731)
- **The INO80 Complex Requires the Arp5-Ies6 Subcomplex for Chromatin Remodeling and Metabolic Regulation** *MOLECULAR AND CELLULAR BIOLOGY*
  Yao, W., King, D. A., Beckwith, S. L., Gowans, G. J., Yen, K., Zhou, C., Morrison, A. J.
  2016; 36 (6): 979-991
- **The INO80 Complex Requires the Arp5-Ies6 Subcomplex for Chromatin Remodeling and Metabolic Regulation.** *Molecular and cellular biology*
  Yao, W. n., King, D. A., Beckwith, S. L., Gowans, G. J., Yen, K. n., Zhou, C. n., Morrison, A. J.
  2016; 36 (6): 979–91
- **Assembly of the Arp5 (Actin-related Protein) Subunit Involved in Distinct INO80 Chromatin Remodeling Activities** *JOURNAL OF BIOLOGICAL CHEMISTRY*
  Yao, W., Beckwith, S. L., Zheng, T., Young, T., Dinh, V. T., Ranjan, A., Morrison, A. J.
  2015; 290 (42): 25700-25709
- **Association of Taf14 with acetylated histone H3 directs gene transcription and the DNA damage response.** *Genes & development*
  Shanle, E. K., Andrews, F. H., Meriesh, H., McDaniel, S. L., Dronamraju, R., DiFiore, J. V., Jha, D., Wozniak, G. G., Bridgers, J. B., Kerschner, J. L., Krajewski, K., Martín, G. M., Morrison, et al
  2015; 29 (17): 1795-1800
- **Transcriptome profiling of Set5 and Set1 methyltransferases: Tools for visualization of gene expression.** *Genomics data*
  Martín, G. M., King, D. A., Garcia-Nieto, P. E., Morrison, A. J.
  2014; 2: 216-218
- **Set5 and Set1 cooperate to repress gene expression at telomeres and retrotransposons.** *Epigenetics*
  Martín, G. M., King, D. A., Green, E. M., Garcia-Nieto, P. E., Alexander, R., Collins, S. R., Krogan, N. J., Gozani, O. P., Morrison, A. J.
  2014; 9 (4): 513-522
- **New marks on the block Set5 methylates H4 lysines 5, 8 and 12** *NUCLEUS-AUSTIN*
  Green, E. M., Morrison, A. J., Gozani, O.

2012; 3 (4): 335-339

- **Chromatin remodelling beyond transcription: the INO80 and SWR1 complexes** *NATURE REVIEWS MOLECULAR CELL BIOLOGY*
  Morrison, A. J., Shen, X.
  2009; 10 (6): 373-384
- **Mec1/Tel1 phosphorylation of the INO80 Chromatin Remodeling Complex Influences DNA damage checkpoint responses** *CELL*
  Morrison, A. J., Kim, J., Person, M. D., Highland, J., Xiao, J., Wehr, T. S., Hensley, S., Bao, Y., Shen, J., Collins, S. R., Weissman, J. S., Delrow, J., Krogan, et al
  2007; 130 (3): 499-511
- **INO80 and gamma-H2AX interaction links ATP-dependent chromatin remodeling to DNA damage repair** *CELL*
  Morrison, A. J., Highland, J., Krogan, N. J., Arbel-Eden, A., Greenblatt, J. F., Haber, J. E., Shen, X. T.
  2004; 119 (6): 767-775
- **Rb targets histone H3 methylation and HP1 to promoters** *NATURE*
  Nielsen, S. J., Schneider, R., Bauer, U. M., Bannister, A. J., Morrison, A., O'Carroll, D., Firestein, R., Cleary, M., Jenuwein, T., Herrera, R. E., Kouzarides, T.
  2001; 412 (6846): 561-565