Stanford



Maya M. Kasowski

Assistant Professor of Pathology, of Medicine (Pulmonary, Allergy and Critical Care Medicine) and, by courtesy, of Genetics

CLINICAL OFFICE (PRIMARY)

- **Department of Pathology**

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Bio

BIO

I am a clinical pathologist and assistant professor in the Departments of Medicine, Pathology, and Genetics (by courtesy) at Stanford. I completed my MD-PhD training at Yale University and my residency training and a post-doctoral fellowship in the Department of Genetics at Stanford University. My experiences as a clinical pathologist and genome scientist have made me passionate about applying cutting-edge technologies to primary patient specimens in order to characterize disease pathologies at the molecular level. The core focus of my lab is to study the mechanisms by which genetic variants influence the risk of disease through effects on intermediate molecular phenotypes.

CLINICAL FOCUS

- Anatomic and Clinical Pathology

ACADEMIC APPOINTMENTS

- Assistant Professor, Pathology
- Assistant Professor, Medicine - Pulmonary, Allergy & Critical Care Medicine
- Assistant Professor (By courtesy), Genetics
- Member, Bio-X
- Member, Wu Tsai Human Performance Alliance
- Member, Maternal & Child Health Research Institute (MCHRI)
- Member, Stanford Cancer Institute
- Member, Wu Tsai Neurosciences Institute

PROFESSIONAL EDUCATION

- Residency: Stanford University Pathology Residency (2019) CA
- Medical Education: Yale School Of Medicine (2016) CT

Teaching

COURSES

2026-27

- Frontiers in Biological Research: BIOC 215, DBIO 215, GENE 215 (Aut, Spr)

2025-26

- Frontiers in Biological Research: BIOC 215, DBIO 215, GENE 215 (Aut, Spr)

STANFORD ADVISEES

Doctoral Dissertation Advisor (AC)

Arpita Singhal

Postdoctoral Research Mentor

Seungbyn Baek

Doctoral (Program)

Shouvik Mani, Arpita Singhal

Publications

PUBLICATIONS

- **Emerging role of microplastics and nanoplastics in children's health.** *Pediatric research*
  Vu, J., Kasowski, M., Sampath, V., Nadeau, K. C.
  2026
- **An encyclopedia of the cord blood metabolome reveals maternal-fetal interactions and disease risk.** *Cell reports. Medicine*
  Lancaster, S., Mataraso, S., Reiss, J. D., Contrepois, K., Trowbridge, C. A., Michael, B., Simms, I., Ellenberger, M., Gibson, M., Clary, M., McGuire, L., Wong, F., Canfield, et al
  2026: 102548
- **Molecular mechanisms of air pollution-induced carcinogenesis and the emerging role of microplastics.** *Human genomics*
  Vu, J., Nadeau, K., Kasowski, M.
  2025
- **Peanut allergy oral immunotherapy drives single-cell multi-omic changes in peanut-reactive T cells associated with sustained unresponsiveness.** *Nature immunology*
  Han, X., Skatova, V., Mikelov, A., Ji, X., Hoh, R. A., Lee, J. Y., Cao, S., Seastedt, H., Schuetz, J., Fernandes, A., Singhal, A., Grubert, F., DeKruyff, et al
  2025
- **Deep learning-based cell type profiles reveal signatures of Alzheimer's disease resilience and resistance.** *Brain : a journal of neurology*
  Berson, E., Perna, A., Bukhari, S., Kim, Y., Xue, L., Seong, D., Mataraso, S., Ghanem, M., Chang, A. L., Montine, K. S., Keene, C. D., Kasowski, M., Aghaeepour, et al
  2025
- **DART-Eval: A Comprehensive DNA Language Model Evaluation Benchmark on Regulatory DNA.** *ArXiv*
  Patel, A., Singhal, A., Wang, A., Pampari, A., Kasowski, M., Kundaje, A.
  2025
- **DART-Eval: A Comprehensive DNA Language Model Evaluation Benchmark on Regulatory DNA.** *ArXiv*
  Patel, A., Singhal, A., Wang, A., Pampari, A., Kasowski, M., Kundaje, A.
  2025
- **Applications of Metabolomics and Lipidomics in the Neonatal Intensive Care Unit.** *NeoReviews*

Reiss, J. D., Mataraso, S. J., Holzapfel, L. F., Marić, I., Kasowski, M. M., Martin, C. R., Long, J. Z., Stevenson, D. K., Shaw, G. M.
2025; 26 (2): e100-e114

- **Deep Learning the Cis-Regulatory Code of Epigenomic Rewiring By Fusion Transcription Factors in Pediatric Leukemia**
Mani, S., Grubert, F., Gratzinger, D., Kundaje, A., Kasowski, M.
ELSEVIER.2024: 4993

- **GLUT1 overexpression in CAR-T cells induces metabolic reprogramming and enhances potency.** *Nature communications*
Guerrero, J. A., Klysz, D. D., Chen, Y., Malipatlolla, M., Lone, J., Fowler, C., Stuani, L., May, A., Bashti, M., Xu, P., Huang, J., Michael, B., Contrepois, et al
2024; 15 (1): 8658

- **Deciphering the impact of genomic variation on function.** *Nature*
2024; 633 (8028): 47-57

- **Chromatin activity identifies differential gene regulation across human ancestries.** *Genome biology*
Pettie, K. P., Mumbach, M., Lea, A. J., Ayroles, J., Chang, H. Y., Kasowski, M., Fraser, H. B.
2024; 25 (1): 21

- **DART-Eval: A Comprehensive DNA Language Model Evaluation Benchmark on Regulatory DNA**
Patel, A., Singhal, A., Wang, A., Pampari, A., Kasowski, M., Kundaje, A.
edited by Globerson, A., Mackey, L., Belgrave, D., Fan, A., Paquet, U., Tomczak, J., Zhang, C.
NEURAL INFORMATION PROCESSING SYSTEMS (NIPS).2024

- **Author Correction: Perspectives on ENCODE.** *Nature*
ENCODE Project Consortium, Snyder, M. P., Gingeras, T. R., Moore, J. E., Weng, Z., Gerstein, M. B., Ren, B., Hardison, R. C., Stamatoyannopoulos, J. A., Graveley, B. R., Feingold, E. A., Pazin, M. J., Pagan, M., et al
2022

- **Author Correction: Expanded encyclopaedias of DNA elements in the human and mouse genomes.** *Nature*
ENCODE Project Consortium, Moore, J. E., Purcaro, M. J., Pratt, H. E., Epstein, C. B., Shoresh, N., Adrian, J., Kawli, T., Davis, C. A., Dobin, A., Kaul, R., Halow, J., Van Nostrand, E. L., et al
2022

- **Early peanut introduction wins over the HLA-DQA1*01:02 allele in the interplay between environment and genetics** *JOURNAL OF CLINICAL INVESTIGATION*
Manohar, M., Nadeau, K., Kasowski, M.
2022; 132 (1)

- **Chromatin accessibility associates with protein-RNA correlation in human cancer.** *Nature communications*
Sanghi, A., Gruber, J. J., Metwally, A., Jiang, L., Reynolds, W., Sunwoo, J., Orloff, L., Chang, H. Y., Kasowski, M., Snyder, M. P.
2021; 12 (1): 5732

- **Detection of cryptogenic malignancies from metagenomic whole genome sequencing of body fluids.** *Genome medicine*
Gu, W., Talevich, E., Hsu, E., Qi, Z., Urisman, A., Federman, S., Gopez, A., Arevalo, S., Gottschall, M., Liao, L., Tung, J., Chen, L., Lim, et al
2021; 13 (1): 98

- **Perspectives on ENCODE.** *Nature*
ENCODE Project Consortium, Snyder, M. P., Gingeras, T. R., Moore, J. E., Weng, Z., Gerstein, M. B., Ren, B., Hardison, R. C., Stamatoyannopoulos, J. A., Graveley, B. R., Feingold, E. A., Pazin, M. J., Pagan, M., et al
2020; 583 (7818): 693–98

- **Metabolomics in acute myeloid leukemia.** *Molecular genetics and metabolism*
Wojcicki, A. V., Kasowski, M. M., Sakamoto, K. M., Lacayo, N.
2020

- **Expanded encyclopaedias of DNA elements in the human and mouse genomes.** *Nature*
Moore, J. E., Purcaro, M. J., Pratt, H. E., Epstein, C. B., Shoresh, N. n., Adrian, J. n., Kawli, T. n., Davis, C. A., Dobin, A. n., Kaul, R. n., Halow, J. n., Van Nostrand, E. L., Freese, et al
2020; 583 (7818): 699–710

- **Remodeling of active endothelial enhancers is associated with aberrant gene-regulatory networks in pulmonary arterial hypertension.** *Nature communications*
  Reyes-Palomares, A. n., Gu, M. n., Grubert, F. n., Berest, I. n., Sa, S. n., Kasowski, M. n., Arnold, C. n., Shuai, M. n., Srivas, R. n., Miao, S. n., Li, D. n., Snyder, M. P., Rabinovitch, et al
  2020; 11 (1): 1673

- **Landscape of cohesin-mediated chromatin loops in the human genome.** *Nature*
  Grubert, F. n., Srivas, R. n., Spacek, D. V., Kasowski, M. n., Ruiz-Velasco, M. n., Sinnott-Armstrong, N. n., Greenside, P. n., Narasimha, A. n., Liu, Q. n., Geller, B. n., Sanghi, A. n., Kulik, M. n., Sa, et al
  2020; 583 (7818): 737–43

- **An improved ATAC-seq protocol reduces background and enables interrogation of frozen tissues.** *Nature methods*
  Corces, M. R., Trevino, A. E., Hamilton, E. G., Greenside, P. G., Sinnott-Armstrong, N. A., Vesuna, S. n., Satpathy, A. T., Rubin, A. J., Montine, K. S., Wu, B. n., Kathiria, A. n., Cho, S. W., Mumbach, et al
  2017

- **Genetic Control of Chromatin States in Humans Involves Local and Distal Chromosomal Interactions** *CELL*
  Grubert, F., Zaugg, J. B., Kasowski, M., Ursu, O., Spacek, D. V., Martin, A. R., Greenside, P., Srivas, R., Phanstiel, D. H., Pekowska, A., Heidari, N., Euskirchen, G., Huber, et al
  2015; 162 (5): 1051-1065

- **Genetic Control of Chromatin States in Humans Involves Local and Distal Chromosomal Interactions.** *Cell*
  Grubert, F., Zaugg, J. B., Kasowski, M., Ursu, O., Spacek, D. V., Martin, A. R., Greenside, P., Srivas, R., Phanstiel, D. H., Pekowska, A., Heidari, N., Euskirchen, G., Huber, et al
  2015; 162 (5): 1051-1065

- **Genome-wide map of regulatory interactions in the human genome** *GENOME RESEARCH*
  Heidari, N., Phanstiel, D. H., He, C., Grubert, F., Jahanbani, F., Kasowski, M., Zhang, M. Q., Snyder, M. P.
  2014; 24 (12): 1905-1917

- **Extensive Variation in Chromatin States Across Humans** *SCIENCE*
  Kasowski, M., Kyriazopoulou-Panagiotopoulou, S., Grubert, F., Zaugg, J. B., Kundaje, A., Liu, Y., Boyle, A. P., Zhang, Q. C., Zakharia, F., Spacek, D. V., Li, J., Xie, D., Olarerin-George, et al
  2013; 342 (6159): 750-752

- **An integrated encyclopedia of DNA elements in the human genome** *NATURE*
  Dunham, I., Kundaje, A., Aldred, S. F., Collins, P. J., Davis, C., Doyle, F., Epstein, C. B., Frietze, S., Harrow, J., Kaul, R., Khatun, J., Lajoie, B. R., Landt, et al
  2012; 489 (7414): 57-74

- **Architecture of the human regulatory network derived from ENCODE data** *NATURE*
  Gerstein, M. B., Kundaje, A., Hariharan, M., Landt, S. G., Yan, K., Cheng, C., Mu, X. J., Khurana, E., Rozowsky, J., Alexander, R., Min, R., Alves, P., Abyzov, et al
  2012; 489 (7414): 91-100

- **Annotation of functional variation in personal genomes using RegulomeDB** *GENOME RESEARCH*
  Boyle, A. P., Hong, E. L., Hariharan, M., Cheng, Y., Schaub, M. A., Kasowski, M., Karczewski, K. J., Park, J., Hitz, B. C., Weng, S., Cherry, J. M., Snyder, M.
  2012; 22 (9): 1790-1797

- **Personal Omics Profiling Reveals Dynamic Molecular and Medical Phenotypes** *CELL*
  Chen, R., Mias, G. I., Li-Pook-Than, J., Jiang, L., Lam, H. Y., Chen, R., Miriami, E., Karczewski, K. J., Hariharan, M., Dewey, F. E., Cheng, Y., Clark, M. J., Im, et al
  2012; 148 (6): 1293-1307

- **A User's Guide to the Encyclopedia of DNA Elements (ENCODE)** *PLOS BIOLOGY*
  Myers, R. M., Stamatoyannopoulos, J., Snyder, M., Dunham, I., Hardison, R. C., Bernstein, B. E., Gingeras, T. R., Kent, W. J., Birney, E., Wold, B., Crawford, G. E., Bernstein, B. E., Epstein, et al
  2011; 9 (4)

- **Variation in Transcription Factor Binding Among Humans** *SCIENCE*

Kasowski, M., Grubert, F., Heffelfinger, C., Hariharan, M., Asabere, A., Waszak, S. M., Habegger, L., Rozowsky, J., Shi, M., Urban, A. E., Hong, M., Karczewski, K. J., Huber, et al
2010; 328 (5975): 232-235