



Lacramioara Bintu

Assistant Professor of Bioengineering

 NIH Biosketch available Online

Bio

BIO

Lacra Bintu is an Assistant Professor in the Bioengineering Department at Stanford. Her lab performs single-cell and high-throughput measurements of chromatin and gene regulation dynamics, and uses these data to develop predictive models and improve mammalian cell engineering.

Lacra started working on the theory of gene regulation as an undergraduate with Jané Kondev from Brandeis University and Rob Phillips from Caltech. As a Physics PhD student in the lab of Carlos Bustamante at U.C. Berkeley, she used single-molecule methods to tease apart the molecular mechanisms of transcription through nucleosomes. She transitioned to studying the dynamics of epigenetic regulation in live cells during her postdoctoral fellowship with Michael Elowitz at Caltech.

ACADEMIC APPOINTMENTS

- Assistant Professor, Bioengineering
- Member, Bio-X

HONORS AND AWARDS

- Maximizing Investigators' Research Award, NIH-NIGMS (2018-2023)
- Career Award at the Scientific Interface, Burroughs Wellcome Fund (2015-2020)
- Postdoctoral Fellowship, Jane Coffin Childs Memorial Fund for Medical Research (2011-2014)
- Beckman Fellowship, California Institute of Technology (2011-2014)
- Harold M. Weintraub Graduate Student Award, Fred Hutchinson Center (2011)
- Outstanding Graduate Student Instructor Award, University of California, Berkeley (2006)
- Doris Brewer Cohen Endowment Award for best senior thesis, Brandeis University (2005)
- Wien International Scholarship, Brandeis University (2001-2005)

PROFESSIONAL EDUCATION

- Postdoctoral Fellow, California Institute of Technology , Biology and Biological Engineering (2016)
- Ph.D., University of California, Berkeley , Physics (2010)
- B.S., Brandeis University , Physics, Mathematics, Neuroscience (2005)

LINKS

- Bintu Lab Site: <https://bintulab.com/>

Teaching

COURSES

2023-24

- Genetic and Epigenetic Engineering: BIOE 204 (Spr)
- Molecular and Cellular Bioengineering: BIOE 300A (Win)

2022-23

- Genetic and Epigenetic Engineering: BIOE 204 (Spr)
- Molecular and Cellular Bioengineering: BIOE 300A (Win)

2021-22

- Molecular and Cellular Bioengineering: BIOE 300A (Win)
- Promoting Effective and Equitable Teaching in Bioengineering: BIOE 296 (Spr)

2020-21

- Molecular and Cellular Bioengineering: BIOE 300A (Win)

STANFORD ADVISEES

Doctoral Dissertation Reader (AC)

Noor Al-Sayyad, Ibtihal Elfaki, Nora Enright, Jesse Gibson, Mingxin Gu, Renee Hastings, Jinho Jeong, Yuxi Ke, Natalie Kolber, Betty Liu, Michael Montgomery, Julia Schaepe, Raeline Valbuena, Aaron Wilk

Postdoctoral Faculty Sponsor

Xinyu Feng, Yaara Finkel, Taihei Fujimori

Doctoral Dissertation Advisor (AC)

Cecelia Andrews, Shawn Cai, Eli Costa, Geo Janer Carattini, Adi Mukund, Carolina Rios-Martinez, Joydeb Sinha, Abby Thurm

Doctoral Dissertation Co-Advisor (AC)

Nicole DelRosso, Peter Suzuki

Undergraduate Major Advisor

Gloria Vergara Neyra

Doctoral (Program)

Bella Archibald, Beatriz Atsavaprane, Bianca Edozie, Maylin Fu, Ezra Haddad, Khoa Hoang, Aris Kare, Yuxi Ke, Tianyu Lu, Kasra Naftchi-Ardebili, Taylor Nguyen, Marija Pavlovic, Lara Weed, Mica Yang

GRADUATE AND FELLOWSHIP PROGRAM AFFILIATIONS

- Bioengineering (Phd Program)
- Biophysics (Phd Program)

Publications

PUBLICATIONS

- **High-throughput discovery and characterization of viral transcriptional effectors in human cells.** *Cell systems*
Ludwig, C. H., Thurm, A. R., Morgens, D. W., Yang, K. J., Tycko, J., Bassik, M. C., Glaunsinger, B. A., Bintu, L.

2023; 14 (6): 482

- **CasKAS: direct profiling of genome-wide dCas9 and Cas9 specificity using ssDNA mapping.** *Genome biology*
Marinov, G. K., Kim, S. H., Bagdatli, S. T., Higashino, S. I., Trevino, A. E., Tycko, J., Wu, T., Bintu, L., Bassik, M. C., He, C., Kundaje, A., Greenleaf, W. J.
2023; 24 (1): 85
- **Large-scale mapping and mutagenesis of human transcriptional effector domains.** *Nature*
DelRosso, N., Tycko, J., Suzuki, P., Andrews, C., Mukund, A., Liangson, I., Ludwig, C., Spees, K., Fordyce, P., Bassik, M. C., Bintu, L.
2023
- **Single-Molecule Mapping of Chromatin Accessibility Using NOMe-seq/dSMF.** *Methods in molecular biology (Clifton, N.J.)*
Hinks, M., Marinov, G. K., Kundaje, A., Bintu, L., Greenleaf, W. J.
2023; 2611: 101-119
- **The sound of silence: Transgene silencing in mammalian cell engineering.** *Cell systems*
Cabera, A., Edelstein, H. I., Glykofrydis, F., Love, K. S., Palacios, S., Tycko, J., Zhang, M., Lensch, S., Shields, C. E., Livingston, M., Weiss, R., Zhao, H., Haynes, et al
2022; 13 (12): 950-973
- **Systematic discovery of recombinases for efficient integration of large DNA sequences into the human genome.** *Nature biotechnology*
Durrant, M. G., Fanton, A., Tycko, J., Hinks, M., Chandrasekaran, S. S., Perry, N. T., Schaepe, J., Du, P. P., Lotfy, P., Bassik, M. C., Bintu, L., Bhatt, A. S., Hsu, et al
2022
- **Dynamic spreading of chromatin-mediated gene silencing and reactivation between neighboring genes in single cells.** *eLife*
Lensch, S., Herschl, M. H., Ludwig, C. H., Sinha, J., Hinks, M. M., Mukund, A., Fujimori, T., Bintu, L.
2022; 11
- **Temporal signaling, population control, and information processing through chromatin-mediated gene regulation.** *Journal of theoretical biology*
Mukund, A., Bintu, L.
1800: 110977
- **Nanobody-mediated control of gene expression and epigenetic memory.** *Nature communications*
Van, M. V., Fujimori, T. n., Bintu, L. n.
2021; 12 (1): 537
- **High-Throughput Discovery and Characterization of Human Transcriptional Effectors.** *Cell*
Tycko, J. n., DelRosso, N. n., Hess, G. T., Aradhana, n. n., Banerjee, A. n., Mukund, A. n., Van, M. V., Ego, B. K., Yao, D. n., Spees, K. n., Suzuki, P. n., Marinov, G. K., Kundaje, et al
2020
- **Mapping chromatin modifications at the single cell level.** *Development (Cambridge, England)*
Ludwig, C. H., Bintu, L. n.
2019; 146 (12)
- **Mitigation of off-target toxicity in CRISPR-Cas9 screens for essential non-coding elements.** *Nature communications*
Tycko, J. n., Wainberg, M. n., Marinov, G. K., Ursu, O. n., Hess, G. T., Ego, B. K., Aradhana, n. n., Li, A. n., Truong, A. n., Trevino, A. E., Spees, K. n., Yao, D. n., Kaplow, et al
2019; 10 (1): 4063
- **Advancing towards a global mammalian gene regulation model through single-cell analysis and synthetic biology** *Current Opinion in Biomedical Engineering*
Tycko, J., Van, M. V., Elowitz, M. B., Bintu, L.
2017; 4: 174-193