

Lacra Bintu (lbintu@stanford.edu) is an **Associate Professor of Bioengineering** and a member of the **Biophysics Program** and **Bio-X Institute** at **Stanford University**. She has B.S. in Physics, Mathematics, and Neuroscience from Brandeis University. As an undergrad, she worked with Jané Kondev and Rob Phillips on theoretical models of gene regulation. She did her PhD in Physics at University of California Berkeley, in the lab of Carlos Bustamante, where she used single-molecule methods to study the biophysics of RNA polymerase II elongation on nucleosomal templates. As a postdoc at Caltech with Michael Elowitz, Lacra used single-cell time-lapse microscopy to study chromatin-mediated gene regulation in mammalian cells.

Lacra started her lab at Stanford in 2017. Her group uses high-throughput synthetic biology, single-cell measurements, and mathematical modeling to distill the basic principles of gene regulation in mammalian cells and develop new tools for gene regulation control. Her lab developed a method for testing 10,000-100,000 protein sequences in human cells for their effects on gene regulation, and used this method to discover new activation and repression domains across ~1600 human transcription factors and ~1500 viral proteins, and determine what amino acids are important for their function. Using single-cell measurements, her lab showed that chromatin-mediated repression and activation can spread between neighboring genes, even across insulators, and that this spreading is associated with epigenetic memory. The lab also develops tools for gene regulation in human cells, for example nanobodies against chromatin regulators for repression and epigenetic memory, and CRISPR-based synthetic activators and repressors.

For her work on gene regulation, Lacra won various awards, including the Harold M. Weintraub Graduate Student Award, the Jane Coffins Childs Postdoctoral Fellowship, the Career Award at the Scientific Interface (CASI) from the Burroughs Wellcome Fund, and the Maximizing Investigators' Research Award (MIRA) from the National Institute of General Medical Sciences. Lacra is co-chair of the 4D Nucleome Consortium Imaging Working Group, and a member of the Genome Technology Development Working Group of the National Human Genome Research Institute.

