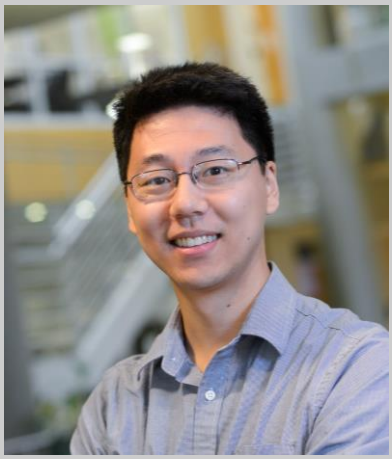
NC STATE UNIVERSITY

Comparative Medicine Institute

Albert Keung



Professor of Chemical and Biomolecular Engineering

B.S. Stanford University, CA
Ph.D. University of California, Berkeley, CA

Chromatin in Synthetic Biology and Cellular Engineering

Research emphasis:

Dr. Keung's laboratory develops new synthetic biology approaches to study the fundamentals of gene regulation, intervene in disease, and create next generation biological circuits for cellular engineering in regenerative medicine and biotechnology. Common to these areas of research is the lab's interest in engineering *chromatin* as a powerful repository of information layered upon the genome. The group continues to develop molecular tools that functionally perturb chromatin state and structure at specific genomic locations, including disease loci and artificially inserted DNA sequences.

Application:

- Cerebral Organoids
- Synthetic biology of chromatin
- Eukaryotic gene regulation
- Neurodevelopmental Disorders

Collaboration potential:

- In vitro models of the human brain
- Synthetic biology tools to study chromatin biology
- Gene regulation tools for eukaryotic cellular engineering

Selected publications:

Keung AJ, Khalil AS, A unifying model of epigenetic regulation, Science, (Perspective), 2016.

Keung AJ, Bashor CJ, Kiriakov S, Collins JJ, Khalil AS, Using Targeted Chromatin Regulators to Engineer Combinatorial and Spatial Transcriptional Regulation, Cell, 2014.

Keung AJ, Asuri P, Kumar S, Schaffer DV, Soft Substrates Promote the Early Neurogenic Differentiation but not Self-Renewal of Human Pluripotent Stem Cells, Integrative Biology, 2012.

Keung AJ, Pardo EdJ, Schaffer DV, Kumar S, Rho GTPases Mediate the Mechanosensitive Lineage Commitment of Neural Stem Cells, Stem Cells, 2011.

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