



Baker Institute for Animal Health

DEDICATED TO THE STUDY OF VETERINARY INFECTIOUS DISEASES, IMMUNOLOGY,
CANCER, REPRODUCTION, GENOMICS AND EPIGENOMICS

[CVM](#) > [Departments, Centers and Institutes](#) > [Baker Institute](#) > [News](#) >

Danko named Robert N Noyce Assistant Professor in Life Sciences and Technology

Baker Institute researcher [Dr. Charles Danko](#) is the new Robert N. Noyce Assistant Professor in Life Sciences and Technology. The endowed professorship was awarded in recognition of Danko's innovative research that investigates the molecular switches that turn different genes in animal genomes on and off.

"It's an honor to be awarded the Noyce Professorship! There are so many creative young investigators at Cornell University, making this award particularly gratifying and humbling for me," said Danko, who is part of the Department of Biomedical Sciences.

All cells in the body carry the same genes, but individual cells develop into bone, skin, muscle and other tissues based on the complex network of switches that regulate when different genes are expressed. These switches are responsible for maintaining all of the necessary processes of the body, and thus can be underlying factors in many types of disease.

Danko takes an unusual, two-pronged approach to studying the rules that govern these switches by combining molecular biology techniques with computational biology and machine learning. His lab members gather genetic and gene expression data using advanced technologies like single cell sequencing, CRISPR gene editing, and ChRO-seq, a method developed in his lab that pinpoints all the locations along the genome where a gene is about to be turned on. Members of his group also develop software tools to analyze the mountains of data generated by these techniques, to interpret how the networks of switches operate.

Through these two approaches, members of Danko's lab are investigating the genetic variations that contribute to autoimmune disease, and the mutations that lead to colon cancer and a type of brain cancer called glioblastoma. They are also identifying how changes in gene regulation have contributed to the evolution of humans and other animal species.

Danko has collaborations with multiple departments across Cornell University. Additionally, his lab members share the computational tools they develop with the international research community.

Ultimately, a clearer understanding of the molecular switches that control all life processes will enable Danko and other researchers to answer fundamental biological questions concerning cellular function, animal development, evolution and disease.

The chair is endowed by Ann S. Bowers, an alumna of Cornell University, in memory of her husband, Robert N. Noyce, an American physicist who invented the integrated circuit and co-founded Intel Corporation. The assistant professorship supports junior faculty who show excellent scientific achievement and potential in the fields of genomics, engineering and technology.

Written by Patricia Waldron

