Seminar/Talk

Chromatin Dynamics throughout Development: A view from the cortex

Mariano Gabitto
Simons' Center for Computational Biology

Host: Lora Sweeney

Interneurons within the mature cortex are remarkably diverse in their morphology, connectivity, and transcriptional signatures. How developmental changes in chromatin structure contribute to the emergence of distinct interneuron subtypes is unknown. In recent years, single-cell ATAC-seq has become the leading assay for probing the chromatin regulatory landscape. How do we discover structure in this high-dimensional data and use it to understand interneuron development? During this talk I will describe ChromA, a Bayesian state-space model to characterize chromatin information. I will use this model to describe the chromatin developmental landscape of cortical Interneurons. By focusing on the parvalbumin (PV)- and somatostatin (SST)-positive populations, which comprise the two largest cardinal classes of interneurons, I identify three epochs during which chromatin is refined. After identifying enriched transcriptional regulators at different epochs, I harness transcriptional and chromatin information to calculate cell type specific gene regulatory networks. The remodeling of the gene regulatory networks during development echoes chromatin remodeling during different epochs.

Tuesday, October 20, 2020 01:30pm - 02:30pm
Online

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