



## Single Cell Research in Progress Seminar Series

### “Elucidating the phenotypes of Autism Spectrum Disorders in iPSC-derived brain organoid by scRNA-seq”

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Host: Dr. Flora Vaccarino, MD

Harris Professor in the Child Study Center, Professor in the Department of Neuroscience

Zoom: <https://zoom.us/j/93100138305?pwd=U0E4UVZkdzRhTjVBSSswNzNGWXFFUT09>

Wednesday, March 10, 2021

12:00 p.m. to 1:00 p.m. Seminar



Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder with complex genetic risk factors that can be investigated *in vitro* using induced pluripotent stem cells (iPSC) from patients. Using a brain organoid 3D model, our lab studies how genetic predisposition to developing ASD impacts early development of the cortex. To understand how neuronal diversity and functions are affected we performed scRNA-seq to investigate genomic differences at the cell-type level. Here, we will describe the single-cell composition of early brain organoids by scRNA-seq and compare it to human postmortem cerebral cortex. We will focus on how differences in cell abundance and differential expression between probands and controls organoids can be assessed in scRNA-seq data. Finally, we will discuss how the heterogeneity of phenotypes observed *in vitro* can help decipher the complex neurobiology behind ASD.

Alexandre Jourdon has earned his PhD in neurobiology at University Paris VI in 2015 working on adult neural stem cells diversity in the brain. He joined the Vaccarino Lab in 2016 to study the genomics of brain organoids and ASD.

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