

# Dylan Burnette

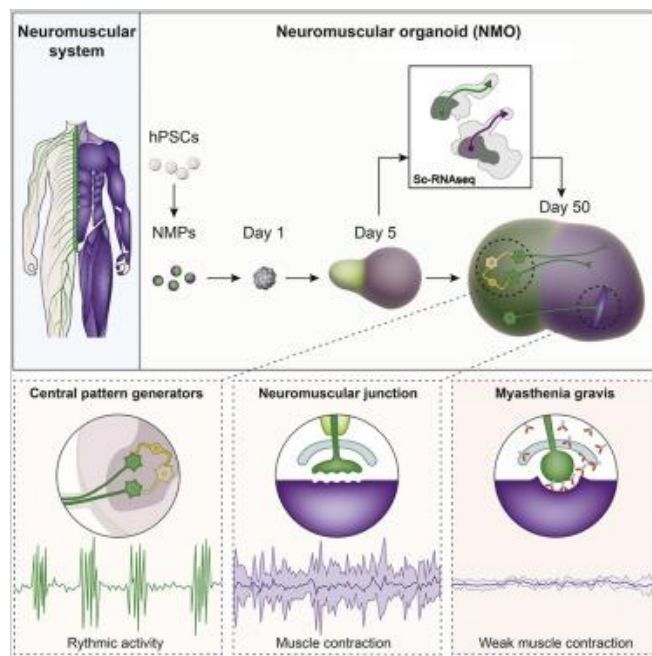
(Principal Investigator)

## 'Self-Organizing 3D Human Trunk Neuromuscular Organoids'

Faustino Martins JM et al.

Cell Stem Cell. January 2020, pii: S1934-5909(19)30525-9. doi: 10.1016/j.stem.2019.12.007

Neuromuscular junctions (NMJs) are chemical synapses between motor neurons and skeletal muscles, and control muscle contraction. Many neuromuscular diseases have no primary cause or known affected cell type, one being Myasthenia Gravis, caused by NMJ protein autoimmunity. This paper details the first hPSC-derived neuromuscular organoids, made from neuromesodermal progenitors. These organoids have spinal cord neurons, skeletal muscle cells, and terminal Schwann cells, a specialized NMJ cell type. These organoids develop contractility driven by NMJs and are electrophysiologically active. Treating NMJ organoids with antibodies from Myasthenia Gravis patients led to a phenotype similar to that in patients. The development of electrophysiologically active NMJ organoids provides a model system to investigate and potentially develop treatments for neuromuscular diseases.



Friday, February 14<sup>th</sup>, 2020

3131 MRBIII @ 4 pm