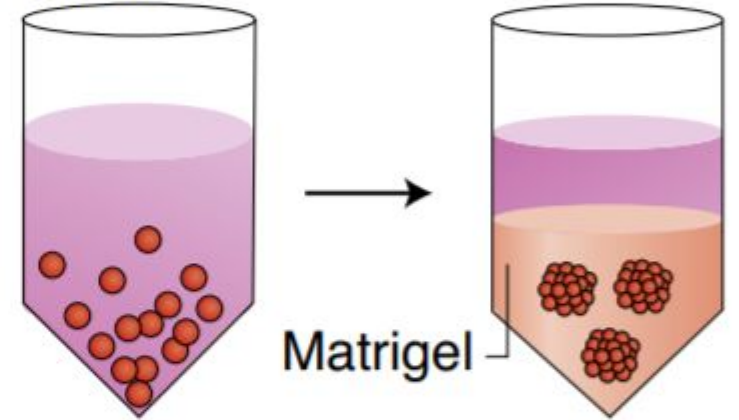
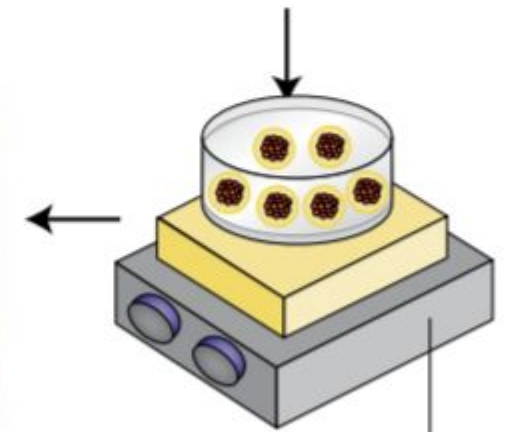


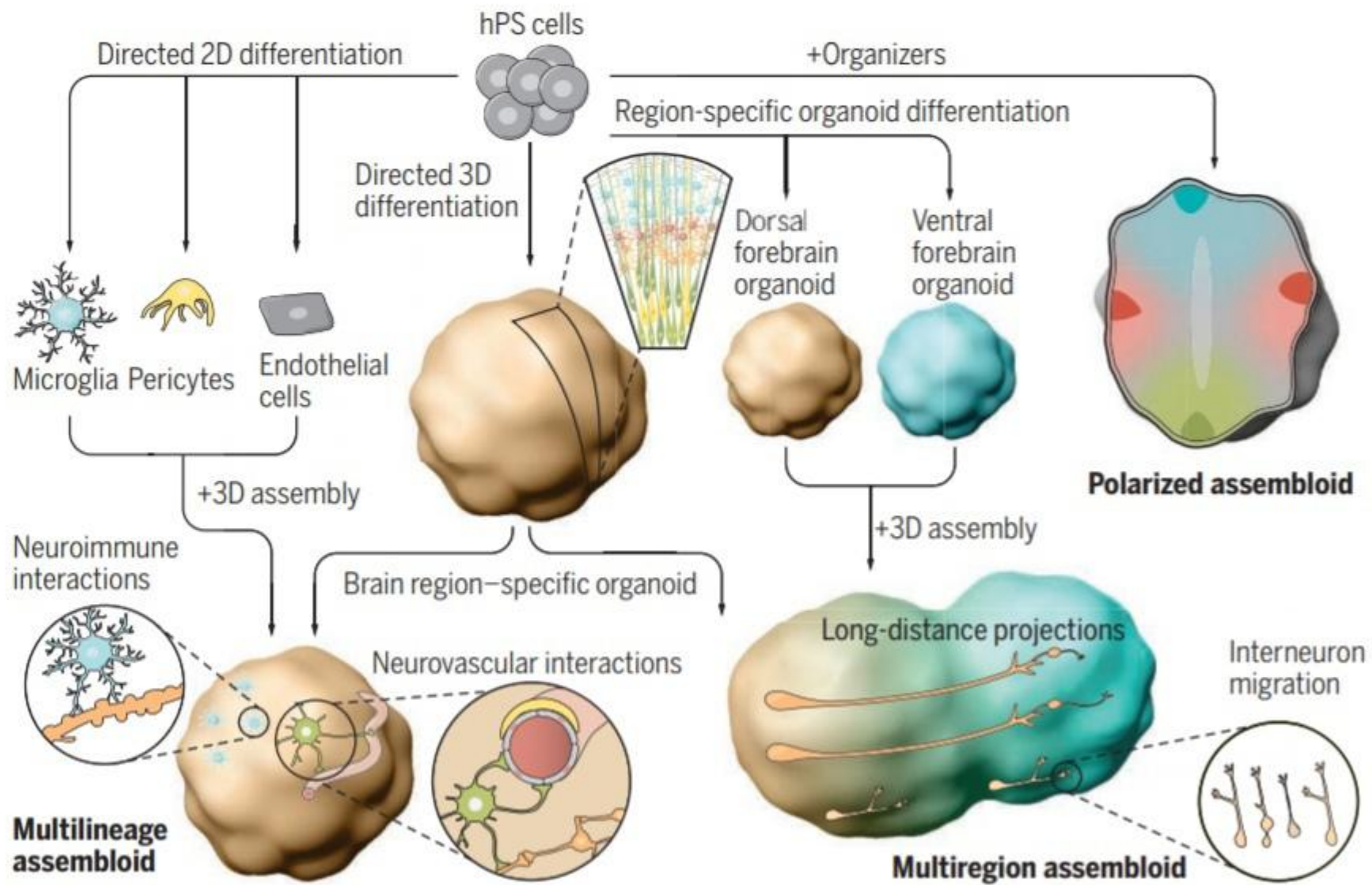
Aggregation

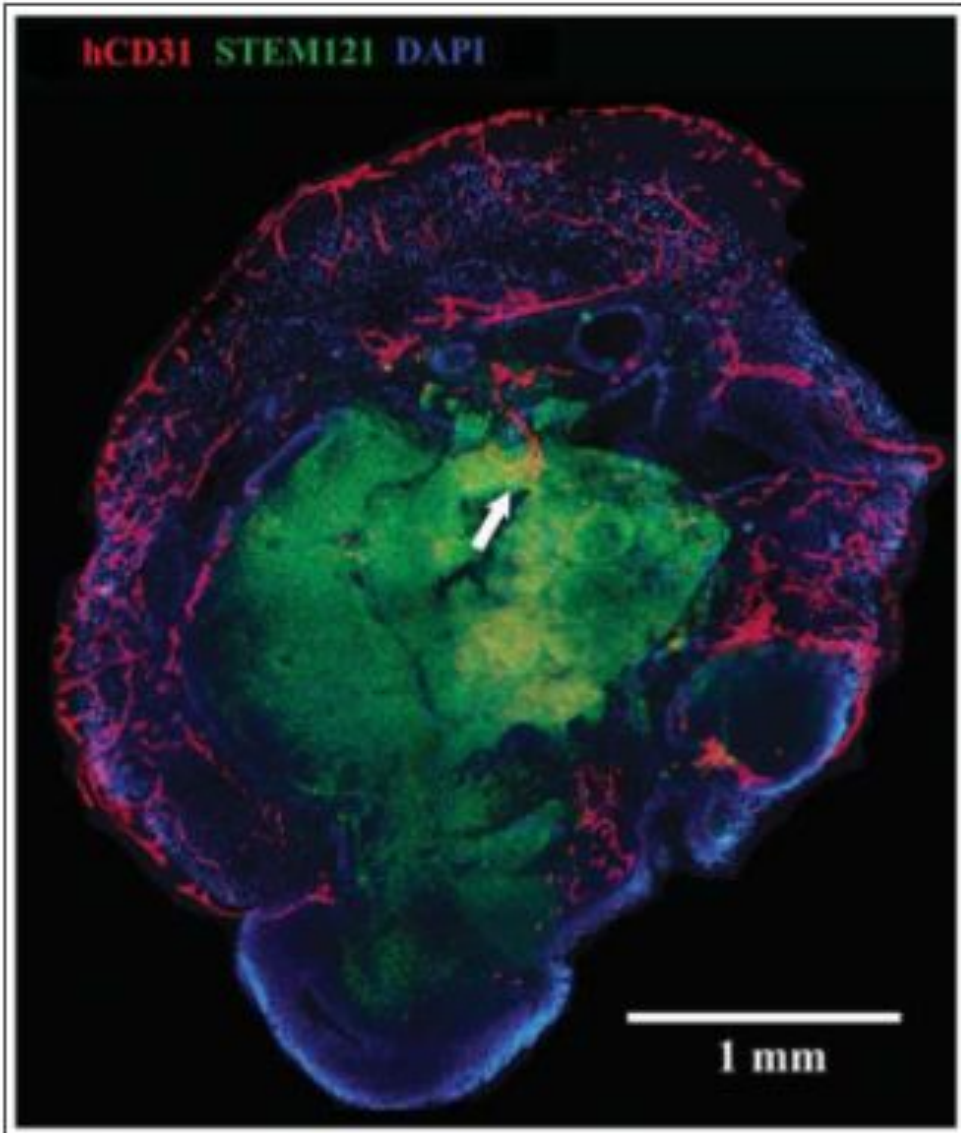


PD organoid

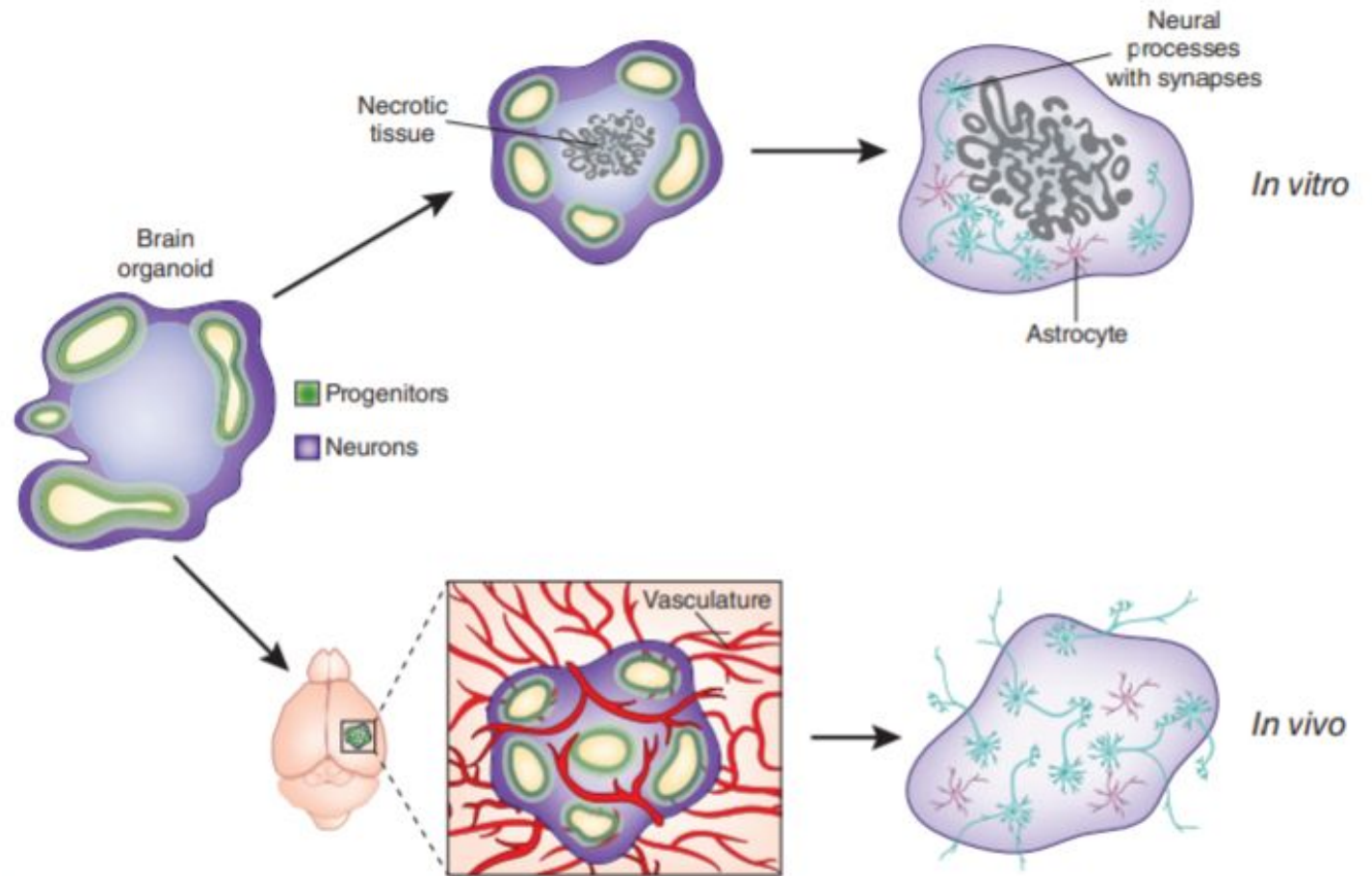


Orbital shaker



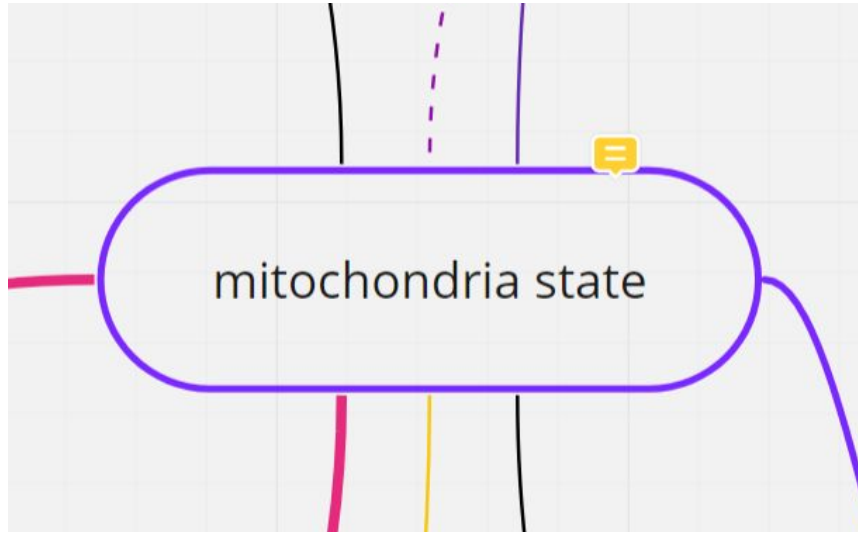


Missy T. Pham, 2018

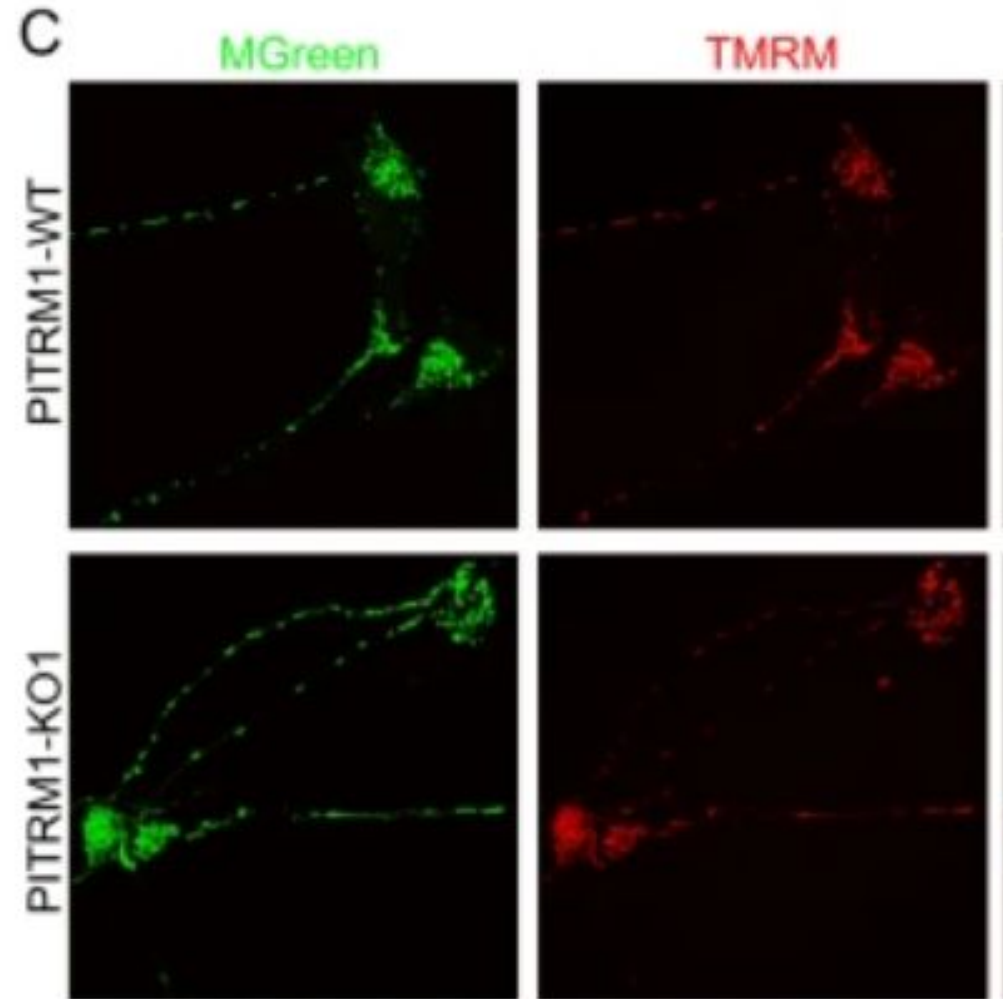


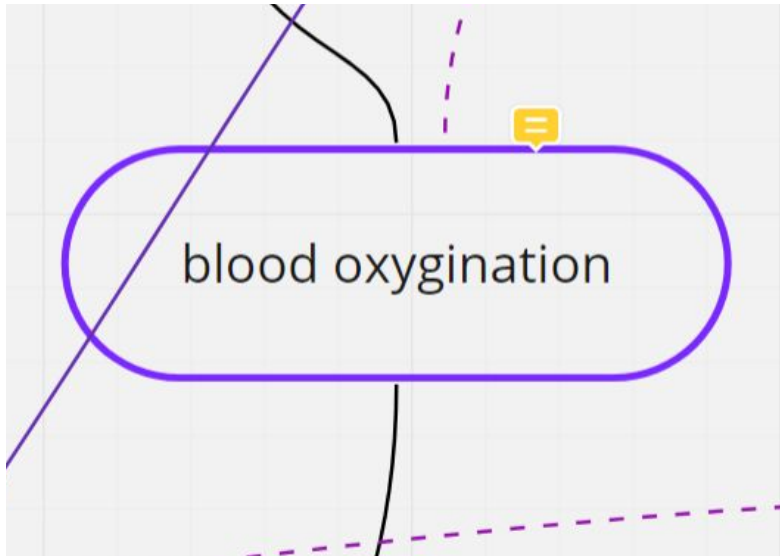
Lancaster M.A., 2018

Loss of function of the mitochondrial peptidase PITRM1 induces proteotoxic stress and Alzheimer's disease-like pathology in human cerebral organoids (Pérez M.J. et al, 2020)

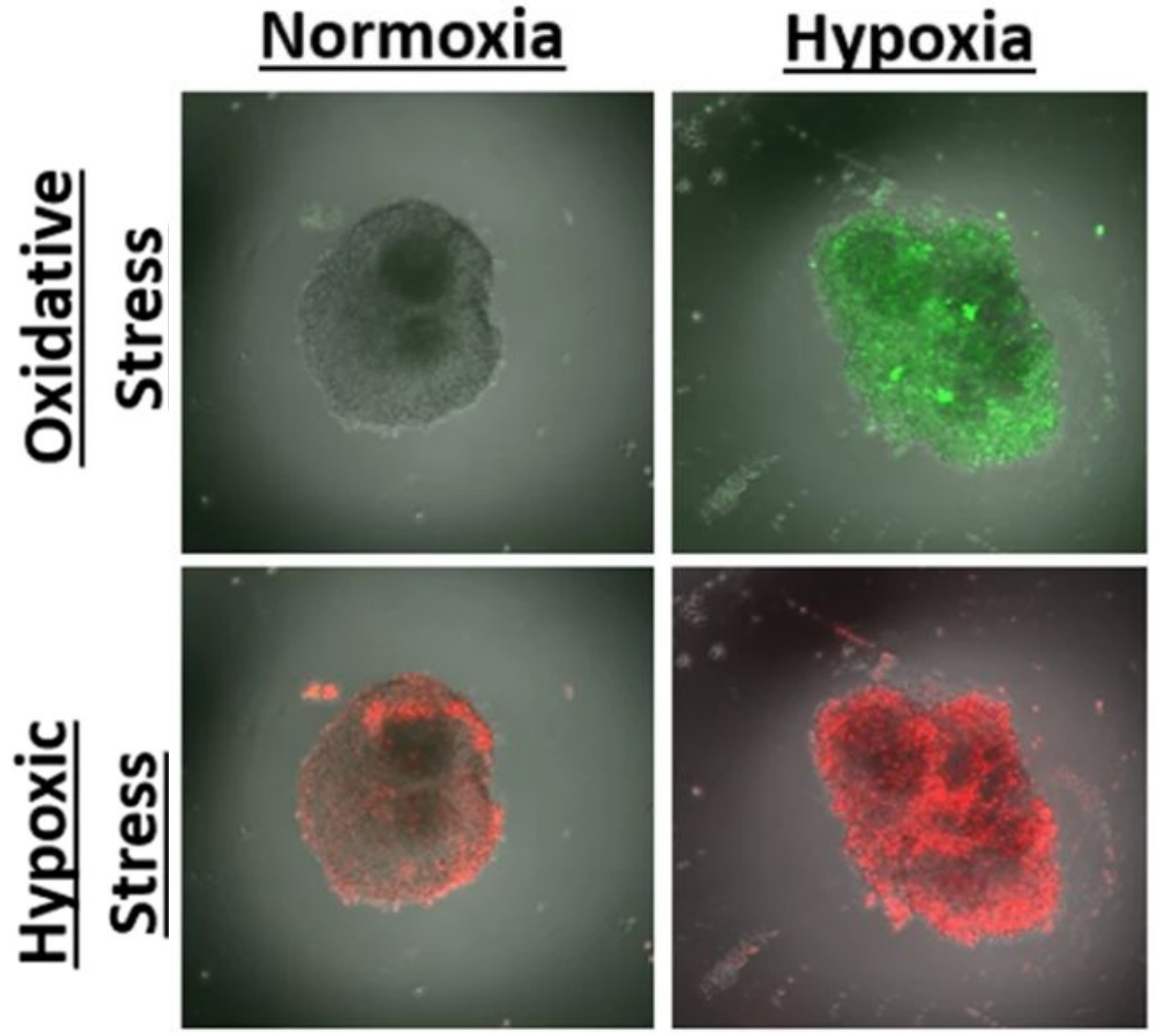


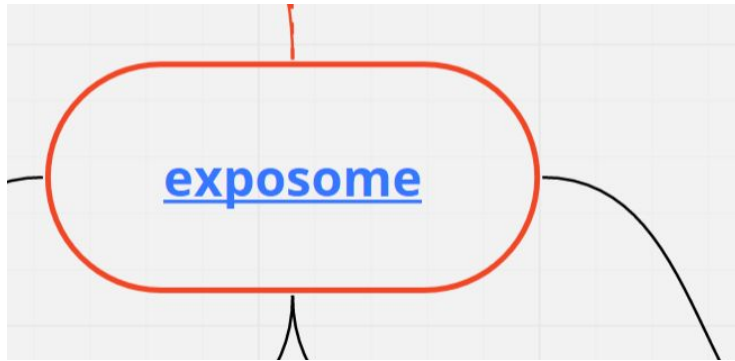
REVIEW:
Tools and approaches for analyzing the role of mitochondria in health, development and disease using human cerebral organoids (Michał Liput et al, 2021)



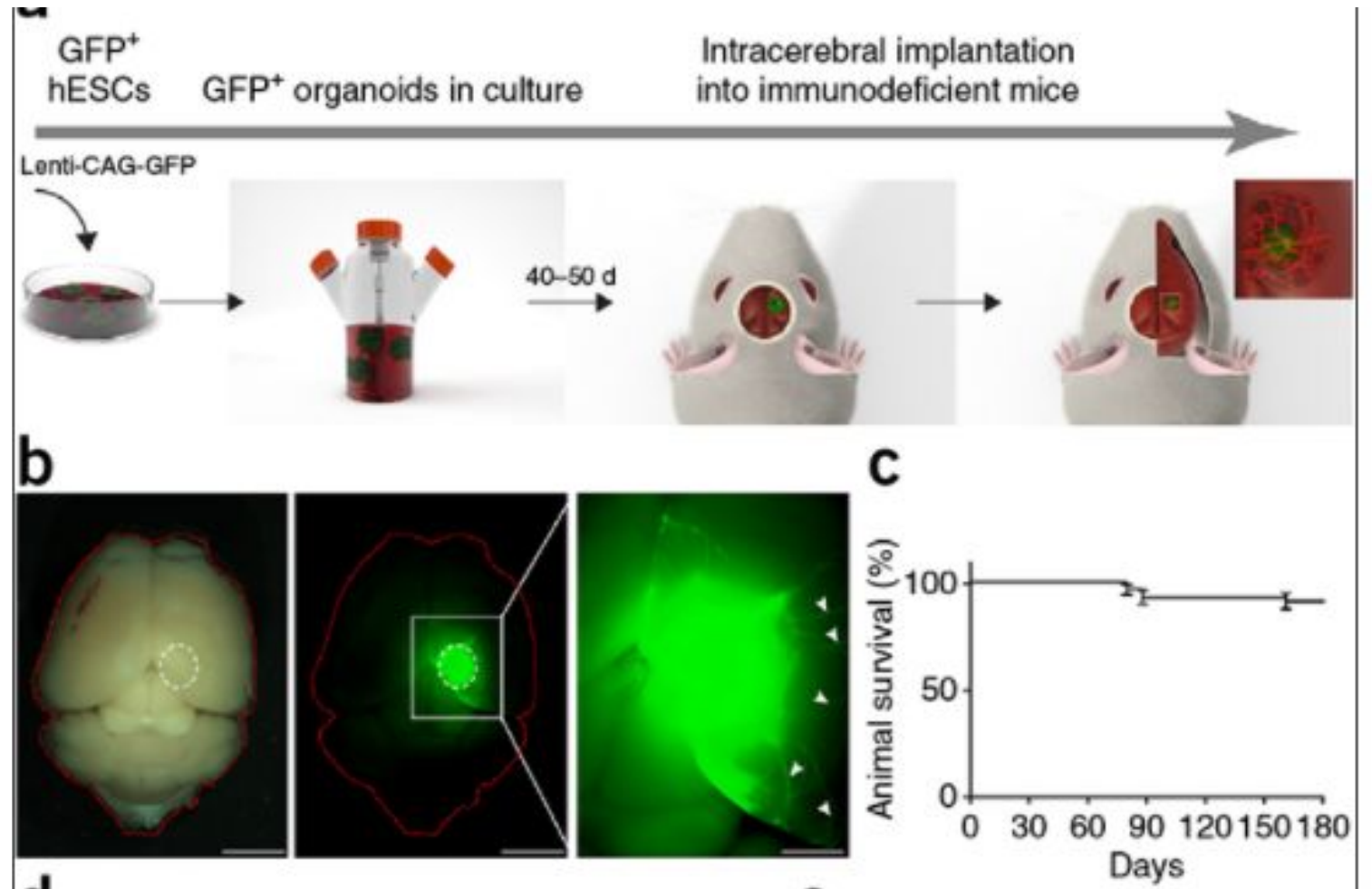


Multicellular 3D Neurovascular Unit Model for Assessing Hypoxia and Neuroinflammation Induced Blood-Brain Barrier Dysfunction (Nzou G. et al., 2020)



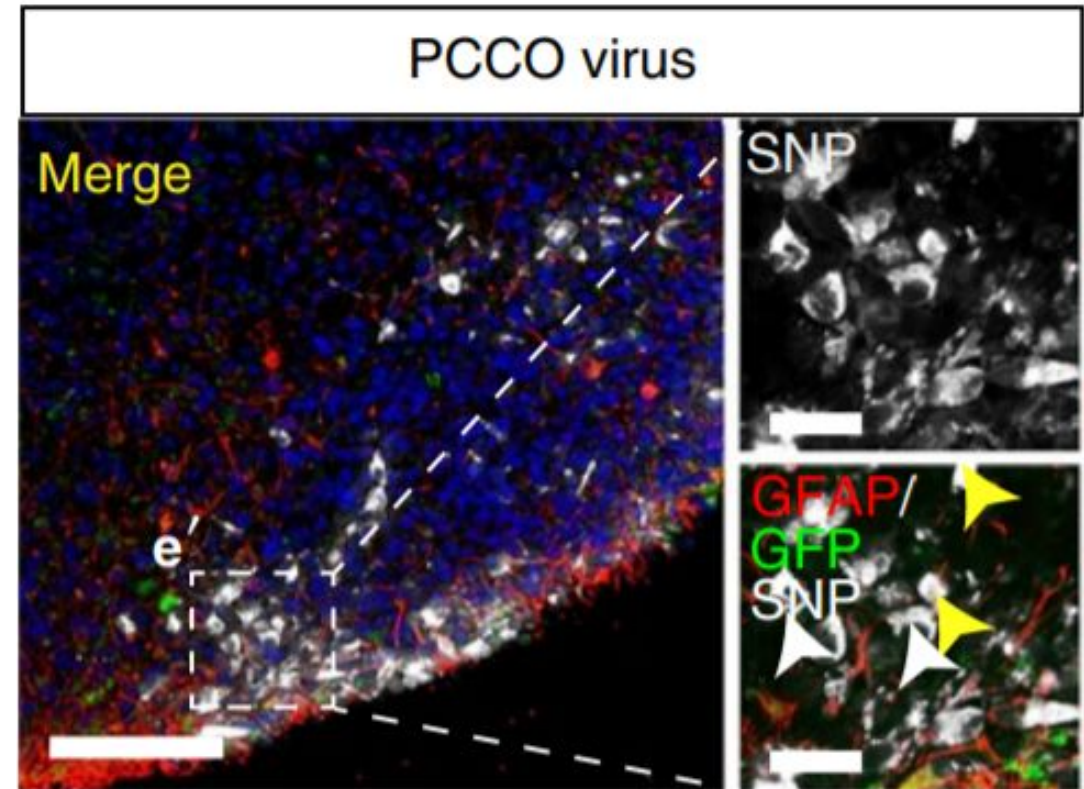
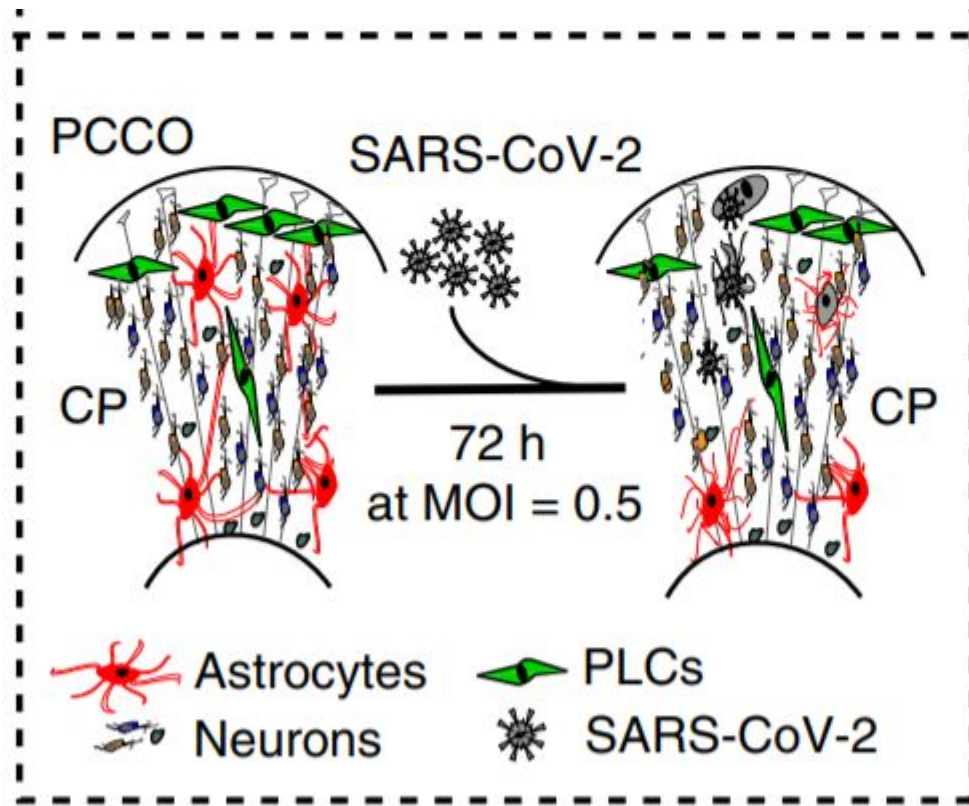


An *in vivo* model of functional and vascularized human brain organoids (Mansour, A. A. et al., 2018)



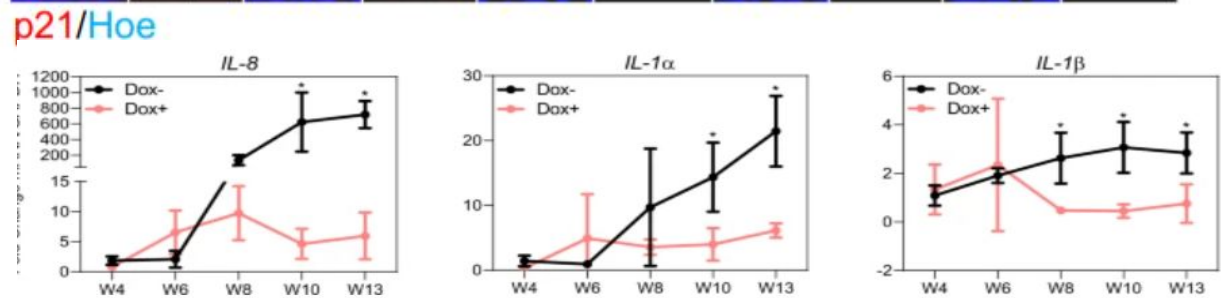
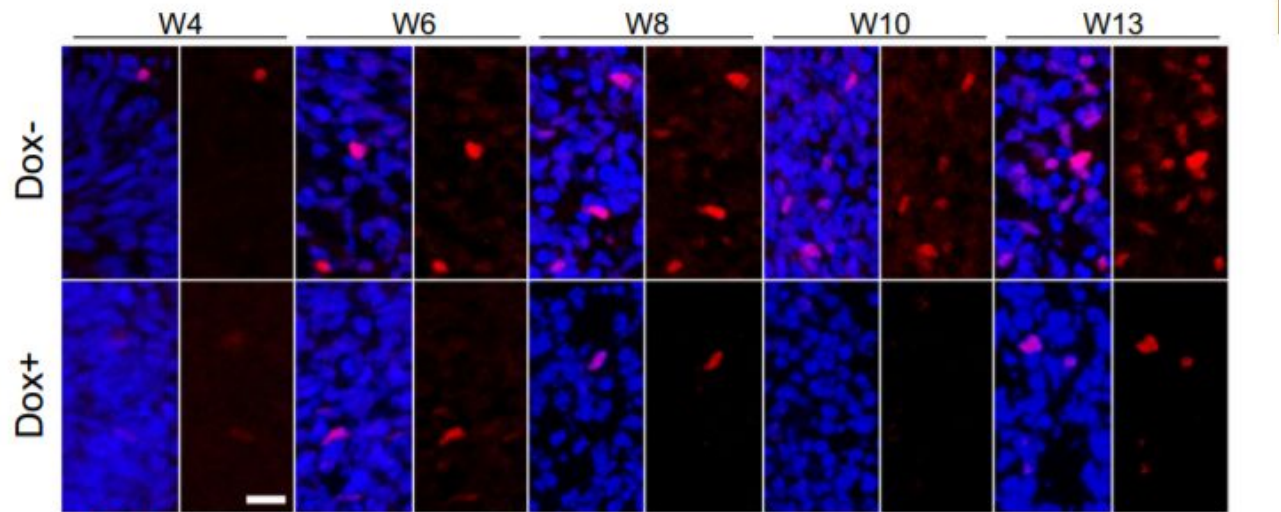
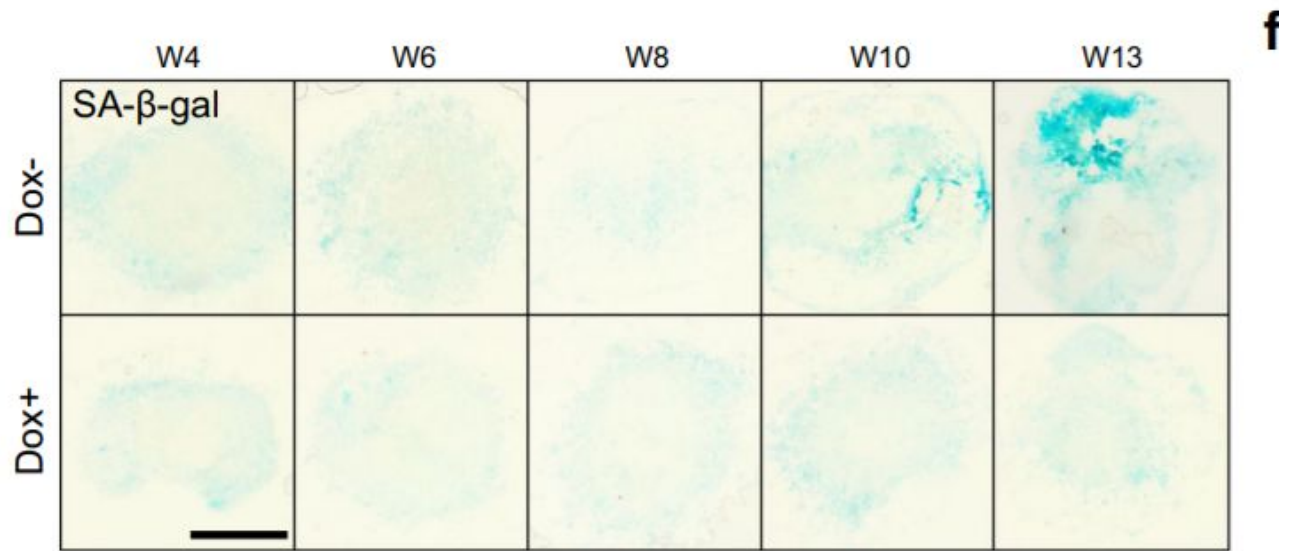
exposome

A human three-dimensional neural-perivascular 'assembloid' promotes astrocytic development and enables modeling of SARS-CoV-2 neuropathology (Wang L. et al, 2021)





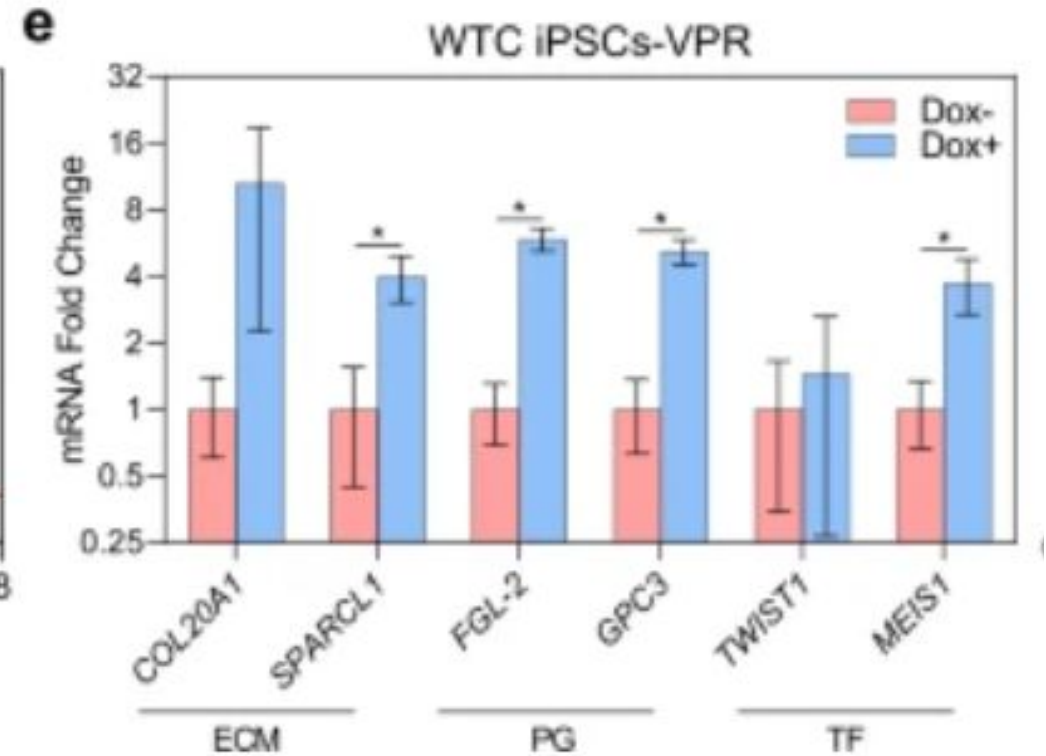
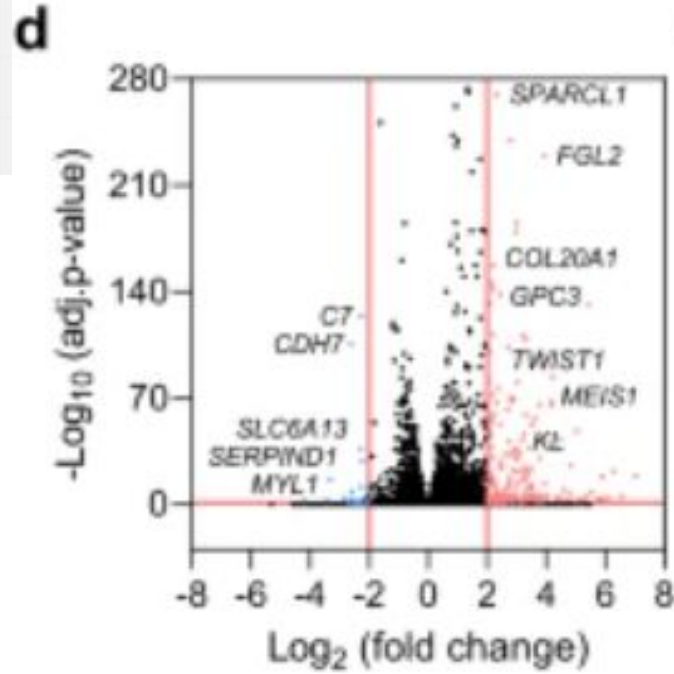
**Klotho inhibits neuronal senescence
in human brain organoids
(Shaker M.R., 2021)**

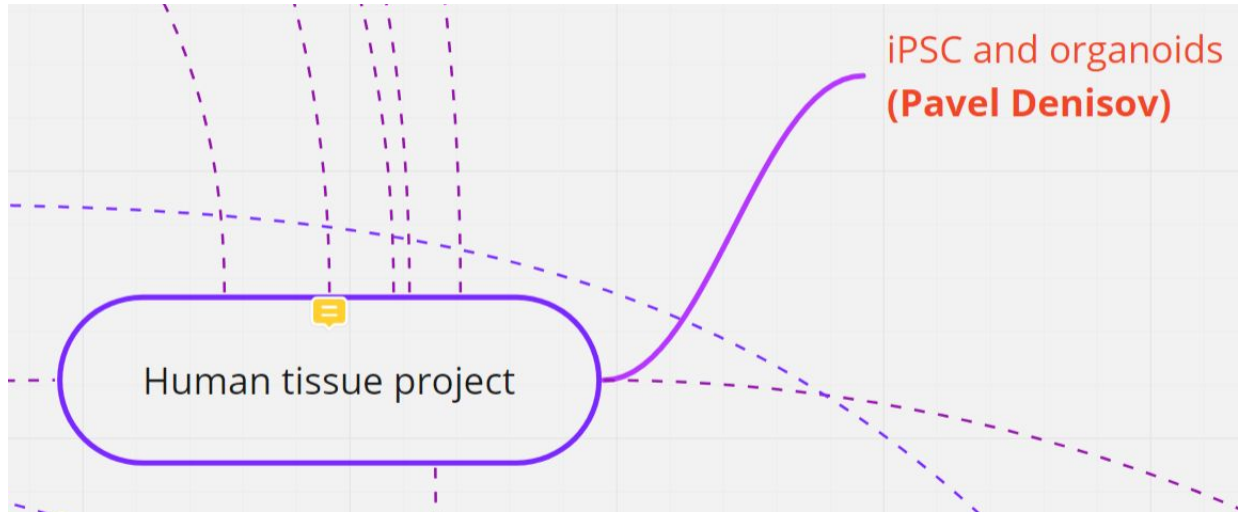


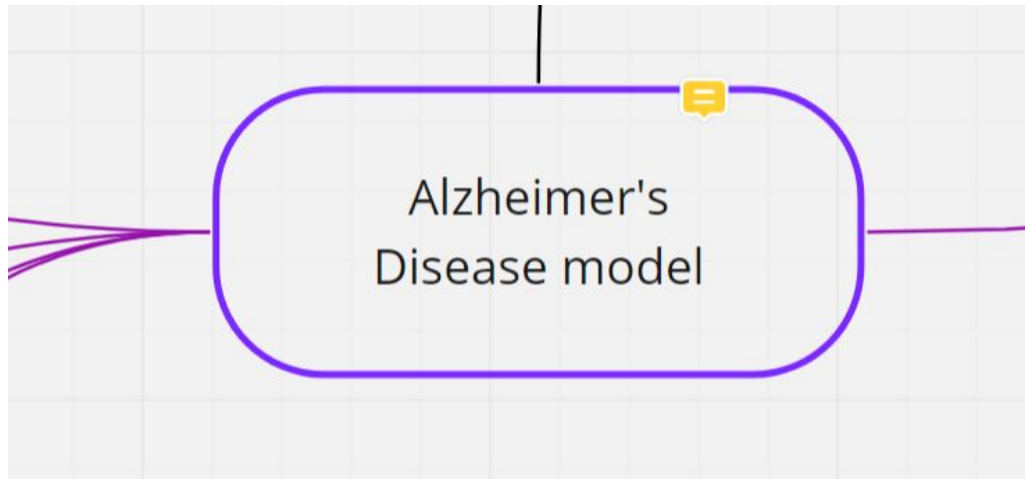
Extracellular matrix
(Yulia Dembitskaya)

Klotho inhibits neuronal senescence in human brain organoids (Shaker M.R., 2021)

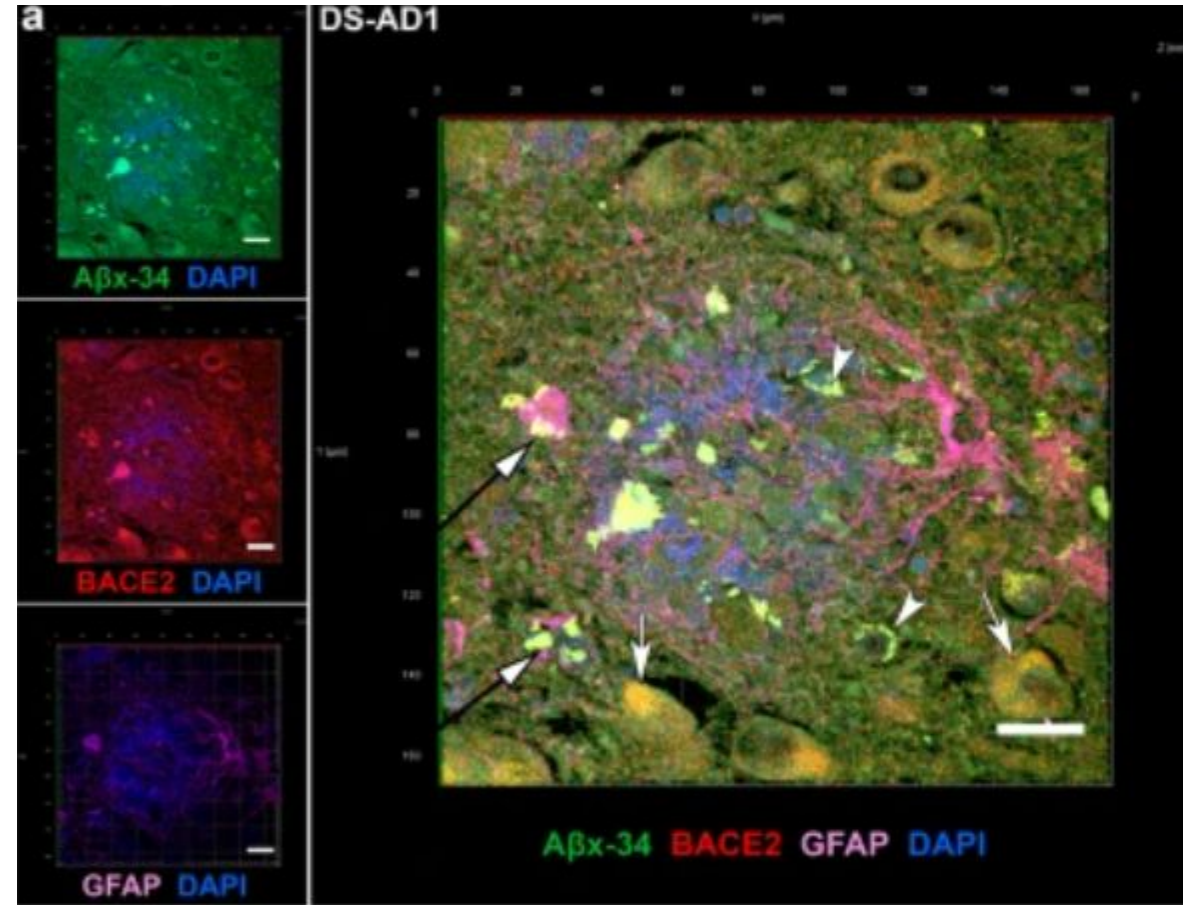
ECM ?
PNNs ?







- РОЛЬ В ПАТОГЕНЕЗЕ КОНКРЕТНЫХ ГЕНОВ (CRISPR/Cas9)
- АССАМБЛОИДЫ: МИКРОГЛИЯ, НЕЙРОВОСПАЛЕНИЕ
- ПЛАТФОРМА ДЛЯ СКРИНИНГА ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ



Alić I. et al, 2020