



Module 2 Resource List: Morphological and Functional Analyses of Human Neurons

The resources below were selected by Zhiping Pang, faculty from Module 2 of Stem Cells and Reprogramming Methods for Neuroscience: An SfN Training Series. These resources supplement their presentations, “Morphological and Functional Analyses of Human Neurons.”

[How to Make and Define Human Neurons?](#)

This article provides a general guideline to making and defining human neurons.

[Predicting the Functional States of Human IPSC-Derived Neurons with Single-Cell RNA-Seq and Electrophysiology](#)

This article provides comprehensive information on electrophysiological properties and single cell gene expression patterns.

[Latrophilin GPCRS Direct Synapse Specificity by Coincident Binding of Flrts and Teneurins](#)

This article provides an excellent example of using comprehensive information of electrophysiological properties and single cell gene expression patterns.

[Superresolution Imaging of Chemical Synapses in the Brain](#)

This article provides resources for utilizing superresolution in neurons.

[Cell Diversity and Network Dynamics In Photosensitive Human Brain Organoids](#)

This article utilizes single cell RNAseq and EM analysis in human neurons.



[Monosynaptic Circuit Tracing with Glycoprotein-Deleted Rabies Viruses](#)

This review article by Edward M. Callaway and Liqun Luo focuses on viral mediated monosynaptic tracing.

[Monitoring Synaptic Transmission in Primary Neuronal Cultures Using Local Extracellular Stimulation](#)

This article describes methods for monitoring synaptic transmission in cultured neurons.

[Direct Conversion of Fibroblasts to Functional Neurons by Defined Factors](#)

This article provides an example of deriving neurons and conducting functional characterization

[Induction of Human Neuronal Cells by Defined Transcription Factors](#)

This article provides an example of deriving human neurons and conducting functional characterization.

[Rapid Single-Step Induction of Functional Neurons from Human Pluripotent Stem Cells](#)

This article provides an example of deriving human neurons from human pluripotent stem cells.

[Synaptic Dysregulation in A Human IPS Cell Model of Mental Disorders](#)

This article provides a good example of synaptic dysfunction in human neurons linked to mental disorders.

[Modelling Schizophrenia Using Human Induced Pluripotent Stem Cells](#)

This article provides a good example of synaptic dysfunction in human neurons linked to mental disorders.



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[A Model for Neural Development and Treatment of Rett Syndrome Using Human Induced Pluripotent Stem Cells](#)

This article utilizes morphometrics, electrophysiology, and calcium imaging to define properties of Rett neurons.

[Human Neuropsychiatric Disease Modeling Using Conditional Deletion Reveals Synaptic Transmission Defects Caused by Heterozygous Mutations in NRXN1](#)

This article provides an example of utilizing human neurons to model neuropsychiatric disease.