SOCIETY for NEUROSCIENCE

1121 14th Street NW
Suite 1010
Washington, DC 20005

Phone (202) 962-4000
Fax (202) 962-4941
Web SfN.org

Module 2 Resource List: Direct Differentiation of Human iPS Cells into Neurons Using Transcription Factors

The resources below were selected by Nan Yang, faculty from Module 2 of Stem Cells and Reprogramming Methods for Neuroscience: An SfN Training Series. These resources supplement their presentation, "Direct Differentiation of Human iPS Cells into Neurons Using Transcription Factors."

Direct Conversion of Fibroblasts to Functional Neurons by Defined Factors

Induction of Human Neuronal Cells by Defined Transcription Factors

Transdifferentiation of Human Adult Peripheral Blood T Cells Into Neurons.

Rapid Conversion of Fibroblasts Into Functional Forebrain Gabaergic Interneurons by Directgenetic Reprogramming

Direct Generation of Functional Dopaminergic Neurons from Mouse and Human Fibroblasts

Direct Conversion of Human Fibroblasts to Dopaminergic Neurons

Direct Conversion of Human Fibroblasts to Induced Serotonergic Neurons

Generation of Functional Human Serotonergic Neurons from Fibroblasts

These studies lay the foundation for using transcription factor-directed somatic cell to neuronal lineage conversion for disease modeling work.

SOCIETY for NEUROSCIENCE
1121 14th Street NW
Suite 1010
Washington, DC 20005
Phone (202) 962-4000
Fax (202) 962-4941
Web SfN.org

Generation of Human Striatal Neurons by Microrna-Dependent Direct Conversion of Fibroblasts

Microrna-Mediated Conversion of Human Fibroblasts to Neurons

Small Molecules Take a Big Step by Converting Fibroblasts Into Neurons

Small-Molecule-Driven Direct Reprogramming of Mouse Fibroblasts into Functional Neurons

Generation of Oligodendroglial Cells by Direct Lineage Conversion

Transcription Factor–Mediated Reprogramming of Fibroblasts to Expandable, Myelinogenic Oligodendrocyte Progenitor Cells

These studies use other small molecules to achieve direct conversion or convert fibroblasts to glial cells.

Directly Reprogrammed Human Neurons Retain Aging-Associated Transcriptomic Signatures and Reveal Age-Related Nucleocytoplasmic Defects

Aging in a Dish: iPSC-Derived and Directly Induced Neurons for Studying Brain Aging and Age-Related Neurodegenerative Diseases

These papers demonstrate the advantage of using neurons generated by direct conversion from somatic cells to study age-related neurodegenerative disease.

Diverse Reprogramming Codes for Neuronal Identity

Myt1l Safeguards Neuronal Identity by Actively Repressing Many Non-Neuronal Fates

These papers demonstrate that in addition to its application in disease related studies, lineage-reprogramming studies provide a unique way to identify and study the transcriptional regulatory hierarchy for cell fate control.

SOCIETY for NEUROSCIENCE

1121 14th Street NW
Suite 1010
Washington, DC 20005

Phone (202) 962-4000
Fax (202) 962-4941
Web SfN.org

Generation Of Pure Gabaergic Neurons By Transcription Factor Programming

Rapid Single-Step Induction Of Functional Neurons From Human Pluripotent Stem Cells

Direct Induction and Functional Maturation of Forebrain GABAergic Neurons from Human Pluripotent Stem Cells

These studies use transcription factors to direct the differentiation of human ES/iPS cells to homogenous neuronal subtypes.

Human Neuropsychiatric Disease Modeling Using Conditional Deletion Reveals Synaptic Transmission Defects Caused by Heterozygous Mutations in NRXN1

Autism-associated SHANK3 Haploinsufficiency Causes Ih Channelopathy in Human Neurons

The Fragile X Mutation Impairs Homeostatic Plasticity in Human Neurons by Blocking Synaptic Retinoic Acid Signaling

These publications provide a few examples using human ES/iPS cell induced neuronal (iN) cells.