SOCIETY for NEUROSCIENCE

1121 14th Street NW
Suite 1010
Washington, DC 20005

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

Module 1 Resource List: Generating and Genome Editing iPSCs

The resources below were selected by Valentina Lo Sardo, faculty from Module 1 of Stem Cells and Reprogramming Methods for Neuroscience: An SfN Training Series. These resources supplement their presentation, "Generating and Genome Editing iPSCs."

Use these resources to better understand how to generate iPSCs with different reprogramming methods and cell sources. The supporting resources will give also an overview on different type of genome editing techniques.

Induction of Pluripotent Stem Cells from Adult Human Fibroblasts by Defined Factors

Induced Pluripotent Stem Cell Lines Derived from Human Somatic Cells

Takahashi et al and Yu et al, both published in 2007, describe the first derivations of induced pluripotent stem cell from human somatic cells.

Induced Pluripotent Stem Cells: Past, Present, and Future

In this 2012 review, Shinya Yamanaka gives an historical overview about reprogramming, how iPSCs have been used, and their potential.

Induced Pluripotent Stem Cell Technology: A Decade of Progress

In this 2017 review, Shi et al describe progress that has been done since the discovery of iPSCs and their use in disease modeling and drug discovery.

Induced Pluripotent Stem Cells in Disease Modelling and Drug Discovery

In this recent review, Rowe and Daley describe the latest advances in using iPSCs with organoids and interspecies chimeras for disease modeling and drug discovery.

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

Methods for Making Induced Pluripotent Stem Cells: Reprogramming À La Carte

Gonzáles et al describe different methods of reprogramming in this 2011 paper.

Influence of Donor Age on Induced Pluripotent Stem Cells

Lo Sardo et al describe the derivation of iPSCs with episomal vectors starting from PBMCs. The paper discusses the influence and impact of the age of the donor on iPSCs on the genomic and epigenetic level.

RNA Sequence Analysis Reveals Macroscopic Somatic Clonal Expansion Across Normal Tissues

Yizhak and colleagues show the presence of genetic clones carrying different somatic mutations in normal tissue.

Mutated Clones Are the New Normal

Comment by Cristian Tomasetti on Yizhak et al.

Somatic Copy Number Mosaicism in Human Skin Revealed by Induced Pluripotent Stem Cells

Abyzov et al describe somatic mosaicism in human fibroblasts revealed by iPSC generation.

Genome Sequencing of Mouse Induced Pluripotent Stem Cells Reveals Retroelement Stability and Infrequent DNA Rearrangement During Reprogramming

Quinlan et al describe presence of CNVs in miPSCs.

Human Pluripotent Stem Cells Recurrently Acquire and Expand Dominant Negative P53 Mutations

Merkle et al describe the recurrence of p53 mutations in human pluripotent cells.

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

Origins of Programmable Nucleases for Genome Engineering

Chandrasegaran and Carroll describe origins, development, features, and applications of programmable nucleases for genome editing.

Induced Pluripotent Stem Cells Meet Genome Editing

In this 2016 review, Hockemeyer and Jaenisch give an overview of iPSCs and genome editing.

Genome Engineering with Targetable Nucleases

Dana Carroll describes different type of nucleases and the basics of genome editing.

Therapeutic Gene Editing: Delivery and Regulatory Perspectives

Therapeutic Genome Editing: Prospects and Challenges

In these two reviews, the authors describe different type of genome editing techniques and their impacts in disease studies as well as possible therapeutic prospects.

Gene Editing in Human Stem Cells Using Zinc Finger Nucleases and Integrase-Defective Lentiviral Vector Delivery

Lombardo et al describe the first use of ZNF nuclease in human embryonic stem cells.

Genetic Engineering of Human Pluripotent Cells Using TALE Nucleases

Hockemeyer et al describe genome editing of human stem cells with TALENs.

Stem Cells, Genome Editing, and the Path to Translational Medicine

In this 2018 review in Cell, Soldner and Jaenisch discuss how iPSC technology, genome engineering, and genomic technologies can come together to understand complex neurological human disease.

SOCIETY for NEUROSCIENCE

1121 14th Street NW
Suite 1010
Washington, DC 20005

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

Parkinson-Associated Risk Variant in Distal Enhancer of A-Synuclein Modulates Target Gene Expression

Soldner et al describe the study of a Parkinson-associated risk variant in a distal enhancer by using iPSCs and neuronal differentiation.

Unveiling the Role of the Most Impactful Cardiovascular Risk Locus through Haplotype Editing

Lo Sardo et al describe the use of isogenic lines of human iPSCs and TALENs to study a genomic locus responsible for susceptibility to cardiovascular disease. This paper is used in the presentation as an example of study design for a complex genetic disease.