

# The use of induced pluripotent stem cells in the study of neurodevelopmental disorders

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## PARTNERS AND COLLABORATIONS

### Organisation

**Name of the organisation** Katholieke Universiteit Leuven (KUL)

**Department** Human Genetics

**Country** Belgium

**Geographical Area** Flemish Region

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research
<b>Type of method</b>	In vitro - Ex vivo
<b>Specify the type of cells/tissues/organs</b>	Fibroblasts

## DESCRIPTION

### Method keywords

IPSC

Stem cells

differentiation

cell culture

organoid

CrispR

### **Scientific area keywords**

neurodevelopmental disorders

Rett syndrome

MECP2

MECP2 duplication syndrome

intellectual disability

### **Method description**

We have successfully set-up the iPSC technology and are able to derive human cortical neurons for the study of neurodevelopmental disorders e.g. the MECP2 duplication syndrome (published) and other projects in the lab (ongoing). We also create isogenic lines using CrispR-Cas technology. All lines are human derived. We use the iPSC to derive specific subtypes of neurons and study differentiation capacity and morphology. We also study neuronal synaptic connectivity. For certain diseases, we also study migration capacity.

### **Lab equipment**

#### **Method status**

Still in development

History of use

Published in peer reviewed journal

## **PROS, CONS & FUTURE POTENTIAL**

### **Advantages**

To study processes underlying cognitive and behavioral function at a molecular and cellular level in a human context.

### **Challenges**

High cost.

## **REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION**

## References

Nageshappa et al., Mol Psychiatry 2016

## Associated documents

*Coordinated by*



*Financed by*

