Celther POLSKA

HUMAN INDUCED PLURIPOTENT STEM CELL DERIVATIVES

an excellent tool for your research

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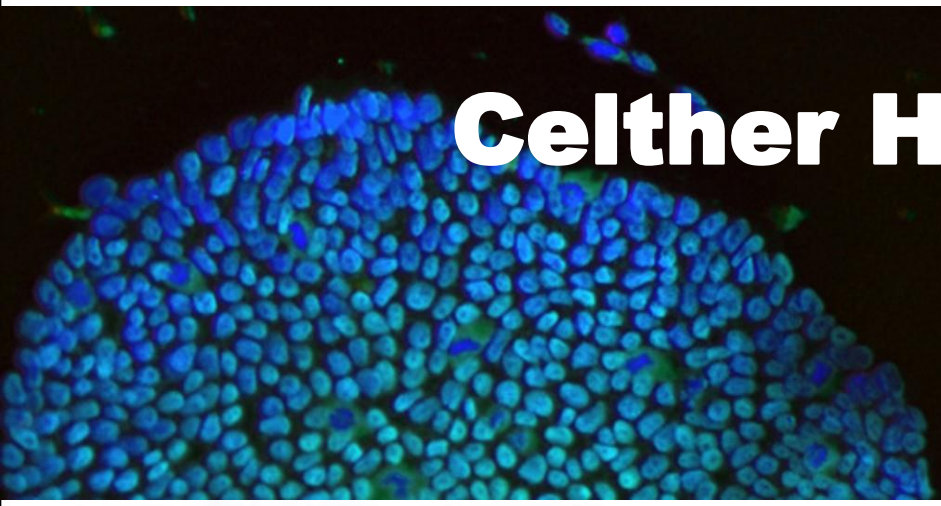
Celther Human iPS cells



Celther human induced pluripotent stem cells (iPS cells) can be easily differentiated to iNS cells, induced cardiomyocytes or hepatocytes as well as other specialised cell lines.

Key hallmarks of iPS cells:

- Observed expression of surface proteins (Tra1-81 and Tra1-60) characteristic for iPS cells
- Retained the ability to differentiate to cells originating from all three germ layers
- Derived from human dermal fibroblasts

Molecular markers:

Sox2, Oct4, Nanog

Description	Celther Cat. No.:
CLTH/iPS cells	CL05001-CLTH

APPLICATIONS:

- Drug discovery
- Toxicity screening
- Differentiation and fate choice
- Tissue and organ development
- Disease modelling

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Human Induced Neural Stem Cells

Description	Celther Cat. No.:
CLTH/iNS cells	CL 05002-CLTH

Key hallmarks of iNSc:

- Derived from iPS cells
- Self-renewing
- Multipotent stem cells of nervous system
- Can be differentiated into neurons, astrocytes, oligodendrocytes (in appropriate conditions).
- iNSc poliferate and remain viable and pure in monolayer culture for weeks, enabling assessment of both acute and subchronic responses

Molecular markers:

Sox1, Sox2, Nestin, Musashi-1

APPLICATIONS:

- Drug discovery
- Toxicity screening
- Differentiation and fate choice
- Tissue and organ development
- Epigenetic profiling
- Disease modelling
- Tissue engineering
- Cell and gene therapy
- Transplantation experiments

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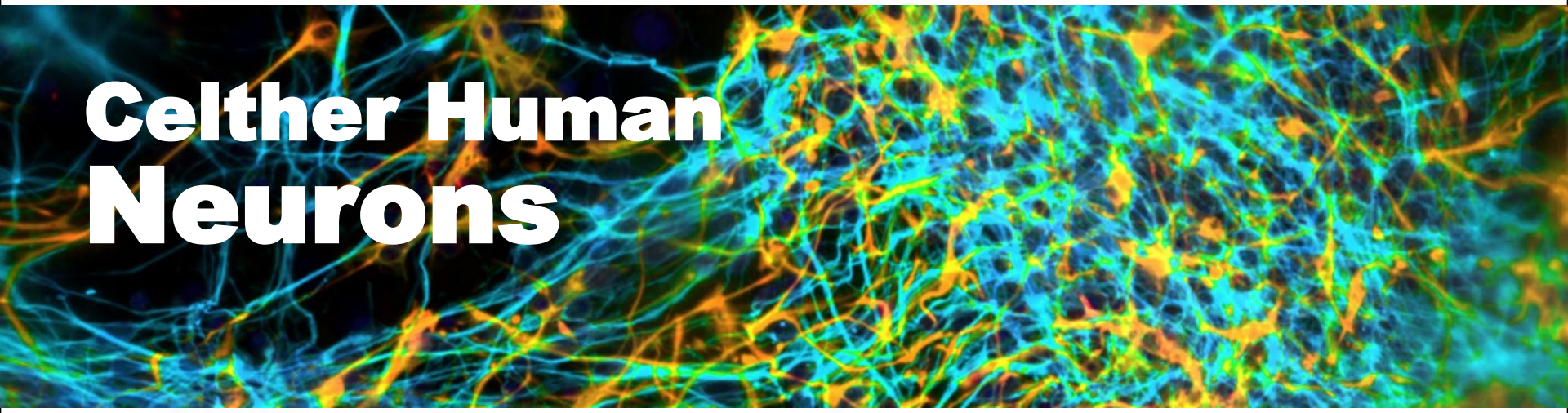

Celther Human Neurons

Key hallmarks of neurons:

- Derived from iNS cells
- Exhibit functional characteristics similar to native human neurons
- High quality, highly pure neurons

Morphology:

- Stable adherent single-cells
- Typical neuronal morphology with branching neurites

Molecular markers:
βIII-Tubulin, Map2, Tau

Description	Celther Cat. No.:
CLTH/Neurons	CL 05005-CLTH

APPLICATIONS:

- Understanding the mechanism of human nervous system
- Preclinical drug discovery
- Neurotoxicity testing
- Predictive disease modeling
- Basic cellular research

Celther Human Astrocytes

Description	Celther Cat. No.:
CLTH/Astrocytes	CL 05004-CLTH

Key hallmarks of Astrocytes:

- Derived from human induced neural stem cells
- Exhibit functional characteristics similar to native human astrocytes
- Homogenous and reproducible: Celther Astrocytes are highly pure, providing biologically relevant and reproducible results.
- High quality, high purity human astrocytes

Morphology:
Typical star-like morphology

Molecular markers:
GFAP

APPLICATIONS:

- Astrocyte-mediated neurotoxicity
- Neurogenesis research
- Injury
- Drug development
- Parkinson's disease
- Alzheimer's disease
- Blood brain barrier modeling

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Celther Human Cardiomyocytes

Description	Celther Cat. No.:
CLTH/Cardiomyocytes	CL 05003-CLTH

Key hallmarks of cariomyocytes:

- Derived from iPS cells
- Exhibit functional characteristics similar to native human cardiomyocytes
- Demonstrate spontaneously beating

Morphology

- Adherent monolayer or adherent spheroids
- Morphology with sarcomeres & striated myofibers
- Increased cell size
- Enhanced protein synthesis
- Higher organization of the sarcomere

Molecular markers:

Myh6

APPLICATIONS:

- Drug discovery
- Improving the predictability of drug efficacy
- Toxicity screens
- Cellular electrophysiology
- GPCR modulation
- Bioenergetics
- Contractility
- Kinase profiling
- Ca2+ cycling

Celther Human Hepatocytes

Under development

Key hallmarks of Hepatocytes:

- Derived from human induced pluripotent stem cells
- Exhibit hepatocyte characteristics and functions

Morphology:

- Adherent monolayer; polarized phenotype
- Functional bile canalicular network
- Polynucleation

Molecular markers:
Albumin, alpha-1-antitrypsin

Description	Celther Cat. No.:
CLTH/Hepatocytes	CL 05006-CLTH

APPLICATIONS:

- Drug metabolism
- Hepatotoxicity testing
- Cytochrome P450 induction/inhibition
- Viral infectivity

Celther Human Insulin Producing Cells (IPC)

Under development

Description	Celther Cat. No.:
CLTH/IPC	CL 05007-CLTH

Key hallmarks of IPC:

- Delivered from human iPS cells
- Similar to human pancreatic beta cells confirmed
- by qPCR and immunocytochemistry
- Insulin production confirmed by ELISA

Molecular markers:

High expression specific genes related to pancreatic β-cell development and function, such as Pdx1, Ngn3, MafA and insulin

APPLICATION:

- Beta cells development
- Functions researches
- Testing of the efficacy of drugs that stimulate insulin secretion

Celther Human iPS cells with chromosome 21 trisomy

Description	Celther Cat. No.:
CLTH/DS- iPSc	CL 05009-CLTH
CLTH/DS- iNSc	CL 05010-CLTH
CLTH/DS- Endoderm	CL 05011-CLTH

Key hallmarks of iPSc with chromosome 21 trisomy:

- Generated from cells derived from patients with Down Syndrome
- Express pluripotent genes
- Exhibit normal proliferation.
- Can be differentiated into neuronal (CLTH/DS – iNSc) and endoderm cells (CLTH/DS – endoderm)

Molecular markers:

TRA1-60 and TRA1-80

APPLICATIONS:

- Study human 21 trisomy
- Better understanding of how problems tied to Down syndrome originate
- Learn the effect of trisomy on neuron development

Celther human iPS cells with chromosome 18 trisomy

Under development

Description	Celther Cat. No.:
CLTH/T18 - iPSc	CL 05012-CLTH

Trisomy 18, also called Edwards syndrome, is a chromosomal condition associated with abnormalities in many parts of the body. Individuals with trisomy 18 often have slow growth before birth (intrauterine growth retardation) and a low birth weight. Affected individuals may have heart defects and abnormalities of other organs that develop before birth. Other features of trisomy 18 include a small, abnormally shaped head; a small jaw and mouth; and clenched fists with overlapping fingers.

Key hallmarks of iPSc with chromosome 18 trisomy:

- Generated from cells derived from patients with Edwards Syndrome
- Express pluripotent genes
- Exhibit normal proliferation.

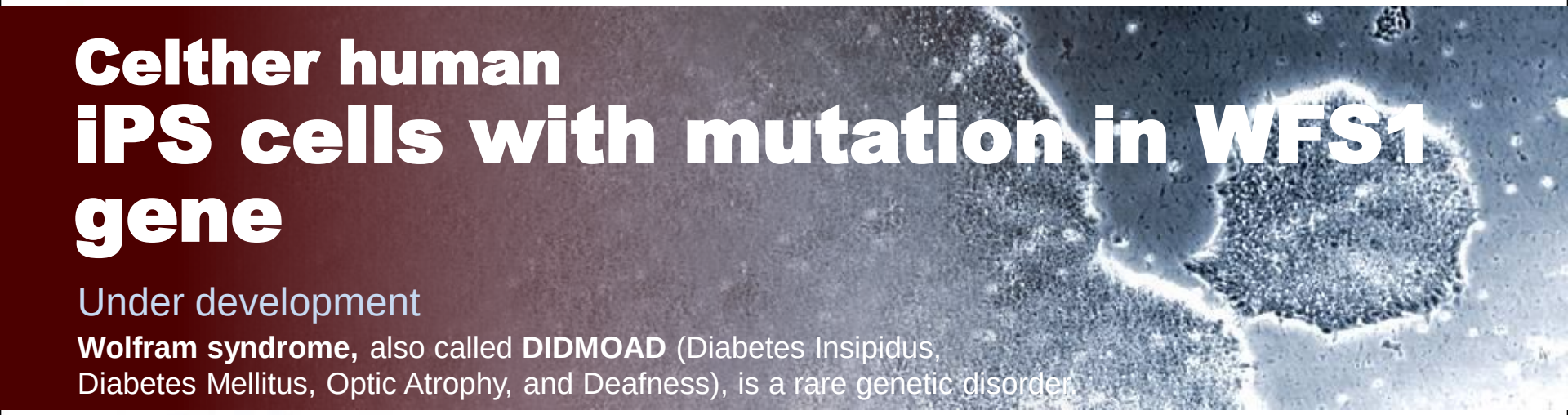
Molecular markers:

TRA1-60 and TRA1-80

APPLICATIONS:

- Study human 18 trisomy

Celther human iPS cells with mutation in WFS1 gene



Under development

Wolfram syndrome, also called **DIDMOAD** (Diabetes Insipidus, Diabetes Mellitus, Optic Atrophy, and Deafness), is a rare genetic disorder.

Description	Celther Cat. No.:
CLTH/DIDMOAD - iPSc	CL 05013-CLTH

The hallmark features of Wolfram syndrome are:

- Mutation in WFS1 gene
- High blood sugar levels resulting from a shortage of the hormone insulin (diabetes mellitus)
- Progressive vision loss due to degeneration of the nerves that carry information from the eyes to the brain (optic atrophy)
- Pituitary gland dysfunction that results in the excretion of excessive amounts of urine (diabetes insipidus)
- Hearing loss caused by changes in the inner ear (sensorineural deafness)
- Urinary tract problems
- Reduced amounts of the sex hormone testosterone in males (hypogonadism)
- Neurological or psychiatric disorders

Key hallmarks of iPSc with Mutation in WFS1 gene:

- Generated from cells derived from patients with Wolfram Syndrome
- Express pluripotent genes
- Exhibit normal proliferation

Molecular markers:

TRA1-60 and TRA1-80

APPLICATIONS:

- Study Wolfram Syndrome

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