

## ioOligodendrocyte-like cells™

Human iPSC-derived  
oligodendrocyte-like cells

Learn more about  
ioOligodendrocyte-like  
cells

ioCells™



## About the cells

ioOligodendrocyte-like cells resemble a premyelinating oligodendrocyte state. These highly characterised cells enable the screening of compounds that modulate myelination, supporting drug development for neurodegenerative and demyelinating diseases, such as multiple sclerosis.

ioOligodendrocyte-like cells are precision reprogrammed from human iPSCs using opti-ox™ technology, meaning scalability and consistency are built-in.

## Benchtop benefits



### DEFINED

Human O4+ cells initially display a typical OPC-like morphology. They mature into oligodendrocyte-like cells that have multiple branched processes.



### QUICK

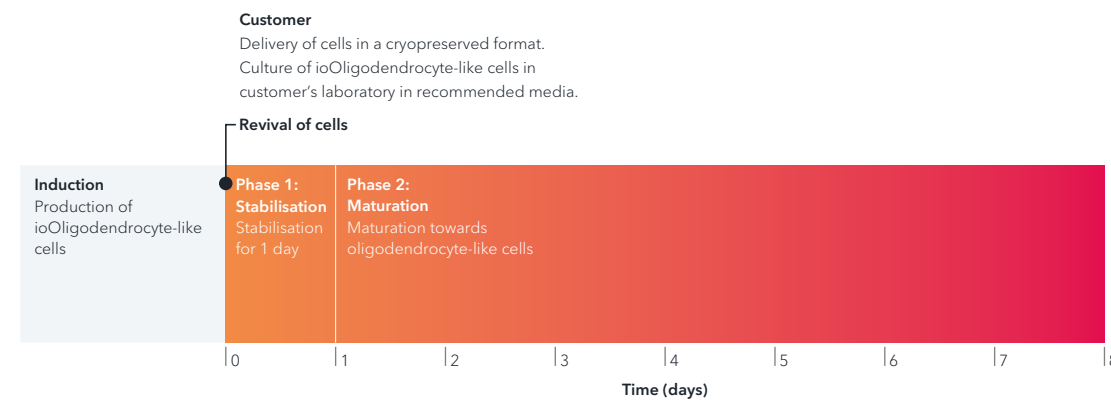
O4+ cells are ready from day 1 post-revival and rapidly mature into O4+ MBP+ oligodendrocyte-like cells with an 8 day protocol.



### EASY TO USE

Cryopreserved cells arrive ready to be used upon revival. Simple monolayer culture protocol. No lentiviral transduction required.

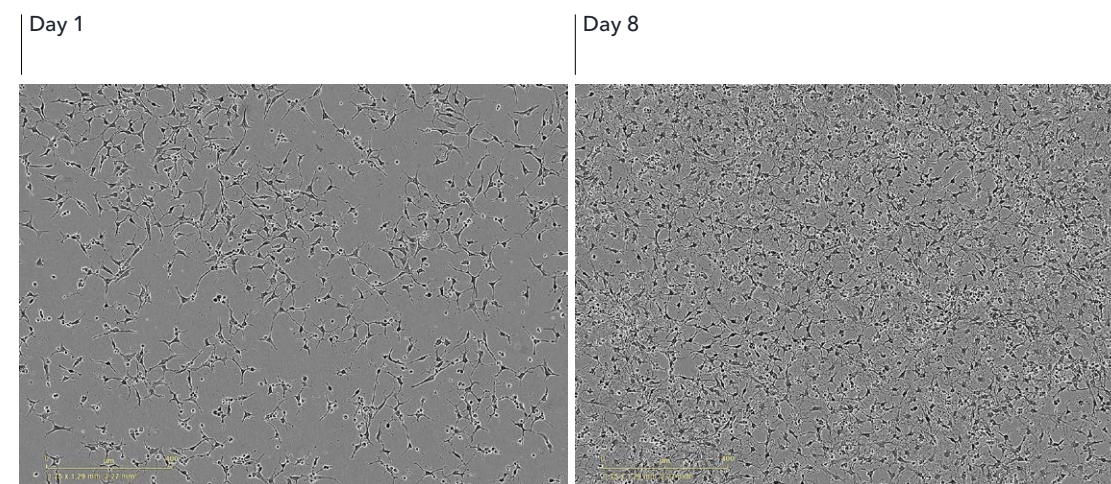
## Cells arrive ready to plate



## Cells show an oligodendrocyte-like morphology by day 8

Upon reprogramming, cells show rapid morphological changes, acquiring an OPC-like morphology by day 1 post-revival.

By day 8, cells have matured and display an oligodendrocyte-like morphology. Brightfield images show day 1 and day 8 post-thawing; scale bar: 400 µm.



0 µm 400  
1.75 x 1.29 mm, 2.27 mm<sup>2</sup>

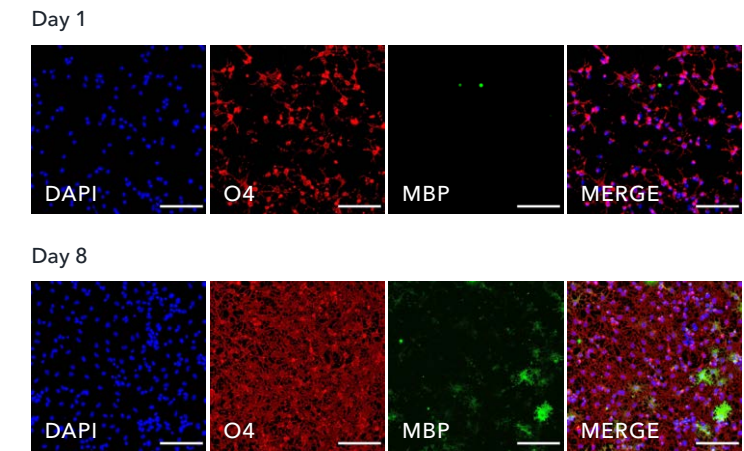
## ioOligodendrocyte-like cells rapidly express oligodendroglial-specific markers

## Key oligodendroglial genes are expressed by the cells

## Whole transcriptome analysis demonstrates high lot-to-lot consistency

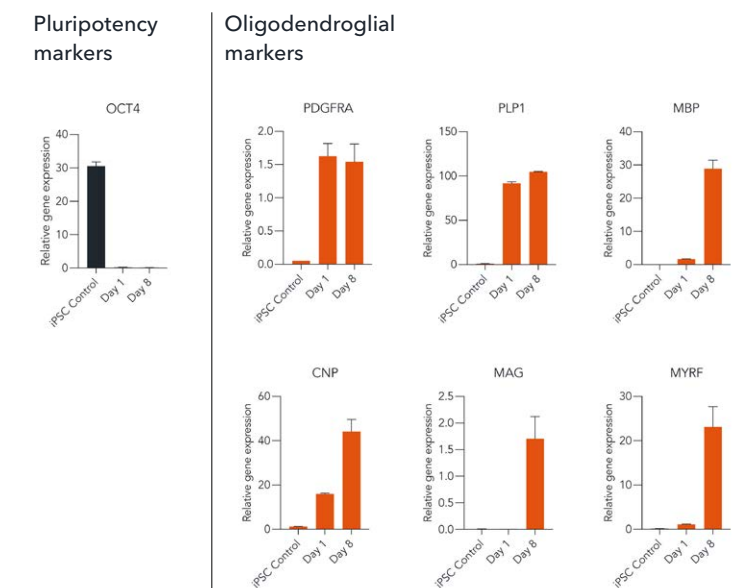
### Protein expression

Immunofluorescent staining of the cells at day 1 (upper panel) and day 8 (lower panel) post-revival. At day 1, the cells are positive for the oligodendrocyte-specific marker O4 (red), and the DAPI counterstain (blue). At day 8, ioOligodendrocyte-like cells show an increased complexity and are positive for O4 (red), the myelin basic protein (MBP) (green), and the DAPI counterstain (blue). 100X magnification; scale bar: 100 µm.



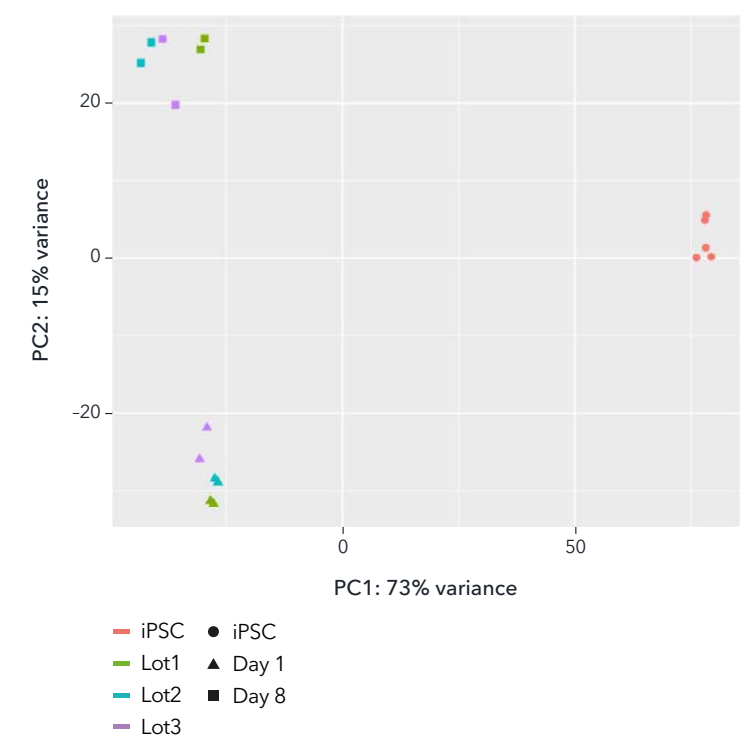
### Gene expression

Following reprogramming, the cells downregulate expression of the pluripotency gene OCT4, whilst demonstrating robust expression of relevant oligodendroglial markers, including PDGFRA, PLP1, MBP, CNP, MAG, and MYRF. Gene expression levels assessed by RT-qPCR, data expressed relative to the reference (housekeeping) gene, HMBS. Data represents day 1 and day 8 post-revival samples; n=2 technical replicates.



## Bulk RNA-sequencing analysis was performed on three manufactured lots of ioOligodendrocyte-like cells at day 1 and day 8 post-revival

Principal component analysis (PCA) represents the variance in gene expression between the three different lots of ioOligodendrocyte-like cells. This analysis shows lots clustering very closely which demonstrates high consistency at each given timepoint. This lot-to-lot consistency in every vial gives scientists confidence in their experimental reproducibility. Colours represent the parental non-induced hiPSC cell line and the three lots of ioOligodendrocyte-like cells; shapes represent different timepoints.



## Product information

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### Cat code

ioC028

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### Starting material

Human iPSC line

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### Karyotype

46, XY\*

\*High-resolution Optical Genome Mapping (OGM) has identified a ~16mb gain of the short arm of chromosome 12

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### Seeding compatibility

6, 12, 24 well plates

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### Shipping info

Dry ice

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### Donor

Caucasian adult male  
(skin fibroblast)

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### Vial size

Small: >1 x 10<sup>6</sup> viable cells

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### Quality control

Sterility, protein expression (ICC)  
and gene expression (RT-qPCR)

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### Differentiation method

opti-ox™ cell reprogramming

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### Recommended seeding density

27,000 cells/cm<sup>2</sup>

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### User storage

LN2

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### Format

Cryopreserved cells

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### Product use

ioCells™ are for  
research use only

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### Applications

Screening of compounds  
that modulate myelination,  
phenotypic assays,  
target validation

## Who we are

bit.bio combines the concepts of cell programming and biology to provide human cells for research, drug discovery and cell therapy, enabling a new generation of medicines.

This is possible with our precision human cellular reprogramming technology opti-ox™ – a gene engineering approach that enables unlimited batches of any human cell to be manufactured consistently at scale

For general information,  
email [info@bit.bio](mailto:info@bit.bio)

To learn more,  
visit [www.bit.bio](http://www.bit.bio)