

iPSC-Derived Retina Organoids & Companion RPE

TECHNICAL SHEET

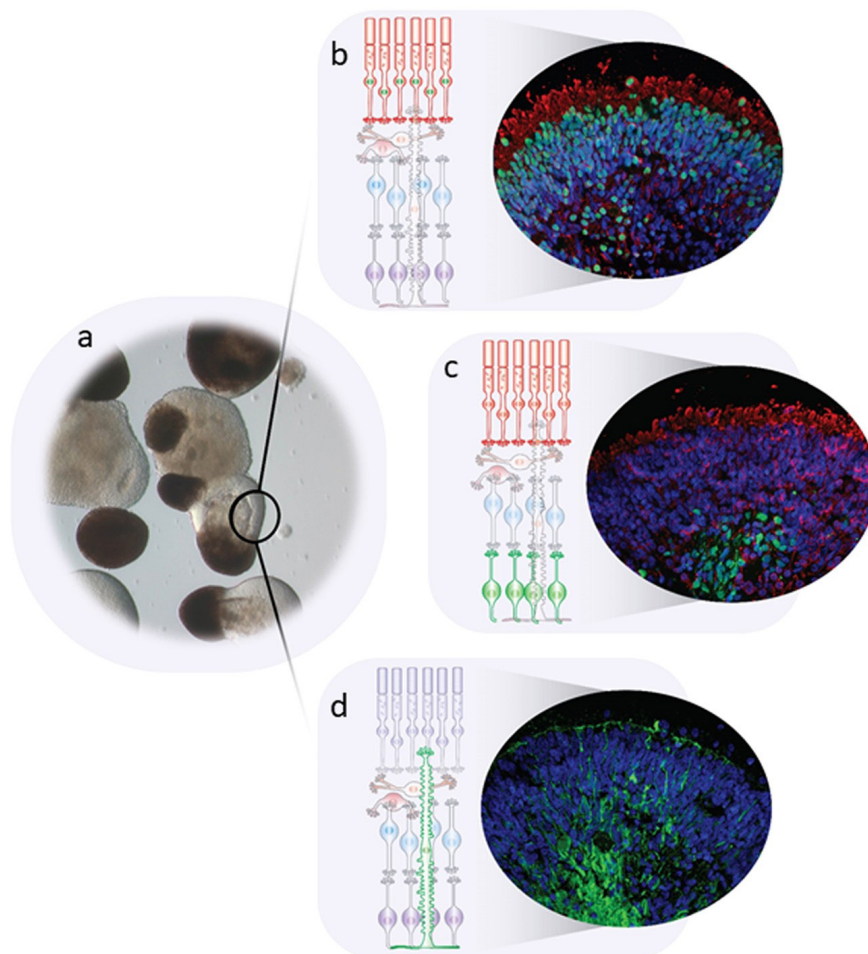
PRODUCT INFORMATION

Newcells Biotech's induced pluripotent stem cell (iPSC)-derived retina organoids are fully stratified and present all of the major retinal cell types of the human retina.

Our iPSC-derived retina organoids and companion retina pigment epithelium (RPE), developed from ethically sourced healthy donors and patients, are a unique in vitro platform for disease modelling and

investigating drug safety and efficacy. Importantly, our retina organoids and companion RPE:

- are responsive to light
- contain functionally active cells
- respond to known toxins similarly to that seen in vivo
- are available from human, rat and non-human primates (NHP).



Retinal organoids with adjacent RPE 3D differentiation from human pluripotent stem cells. Optic vesicles with lamination (**a**). **b–d** show a diagrammatic representation of the laminated area with schematic antibody labelling, adjacent to actual antibody-stained sections. **b** photoreceptors labelled with CRX (green) and Recoverin (red), **c** photoreceptors, Recoverin (red), and retinal ganglion cells, HuC/D (green), **d** Muller glia (green)¹

APPLICATIONS

- Retinopathy modelling
- Drug safety and efficacy testing
- Gene therapy
- Developmental studies
- Human retinogenesis studies

READOUTS

Newcells Biotech's retina organoid platform allows for:

- Identification of retinal cell type biomarkers by immunohistochemistry, qPCR and single cell RNA sequencing
- Identification of biomarkers of safety and efficacy by RNA sequencing and proteomics
- Light response by electrophysiology

SERVICE INFORMATION

Newcells Biotech offer a high quality and reliable service for compound screening. Our retina expert scientists design custom study protocols and carry out the projects in our UK-based laboratories, working closely with our customers.

Our retina organoids are available as 96-well plate assays and can be shipped live at room temperature.² Room temperature shipment facilitates a quick recovery period, thereby avoiding lost time, structural damage and toxicity effects often associated with transport.

PRICING

Contact us for a quote.

SPECIFICATIONS

Format	Screening 96-well plate Light responses Microelectrode array (MEA) chips
Cell Types	Retina organoid <ul style="list-style-type: none">• Rod photoreceptors• Cone photoreceptors• Retinal ganglion cells (RGCs)• Bipolar cells• Horizontal cells• Amacrine cells• Müller glial cells Companion RPE <ul style="list-style-type: none">• Retinal pigment epithelial cells
Species	<ul style="list-style-type: none">• Human• Rat• Non-human primate
Assay Window	30 days

GET IN TOUCH WITH THE TEAM FOR FURTHER INFORMATION

Call us on

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Or use our contact form

newcellsbiotech.co.uk/contact-us/

References

1. Chichagova, V. Hallam, D. Collin, J. Zerti, D. Dorgau, B. Felemban, M. Lako, M. Steel, D.H. Cellular regeneration strategies for macular degeneration: past, present and future. Eye (Lond). 2018;32(5):946-971

2. Georgiou, M. Chichagova, V. Hilgen, G. Dorgau, B. Sernagor, E. Armstrong, L. Lako, M. Room temperature shipment does not affect the biological activity of pluripotent stem cell derived retinal organoids. PLoS ONE. 2020; 15(6): e0233860

WHAT WILL YOU DISCOVER?

Right target | Right drug | Right dose | Right patient