Dissection of retinas

Contents

1. Description

1.1 Background information

This special protocol describes the dissection of rat retinal ganglion cells.[1-5] For dissociation of neural tissues, such as retinal ganglion cells, the Neural Tissue Dissociation Kit – Postnatal Neurons (# 130-094-802) can be used. This kit has been optimized with regard to the special needs of sensitive postnatal neurons during dissociation. An optimized enzyme concentration ensures gentle enzymatic dissociation.

1.2 Reagent and instrument requirements

- Dulbecco's phosphate-buffered saline (D-PBS) with calcium and magnesium (e.g. Lonza 04-479Q).
- Tweezers
- Scissors
- 1 mL, blue pipette tips with 3–4 mm of tip cut off
- 35 mm diameter sterile petri dish
- Hypodermic needle

2. Protocol for the dissection of retinas

1. For dissection of retinas, carefully remove the eyeballs from P5–P7 animals killed by decapitation.
2. Collect the eyes in a dish filled with D-PBS. Use a binocular, dissecting microscope for the following steps.
3. For dissection of a retina, first cut off the anterior part of the eye, i.e. the lens and cornea (fig. 1). In order to faciliate the insertion of the scissors, fix the eyeball with tweezers and use a hypodermic needle to make a small hole where you will start cutting.
4. The short rest of the optic nerve on the postior side of the eye is fixed by tweezers.
5. Squeeze the eyeball in the opposite direction with another pair of tweezers to make the retina float out of the sclera. You will observe a white veil-like round piece of tissue with a small hole for the optic nerve in the center.
6. Remove the thin layer containing blood vessels and transfer the retinas into a 15 mL tube using a shortened blue pipette tip.

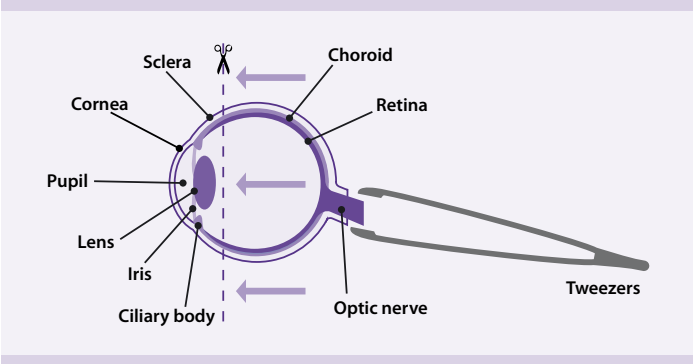

Figure 1: Overview of an eye.

3. References

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3. Goritz, C. *et al.* (2007) Glia-induced neuronal differentiation by transcriptional regulation. Glia 55: 1108–1122.
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5. Kyungsuk Park, K. *et al.* (2008) Promoting Axon Regeneration in the Adult CNS by Modulation of the PTEN/mTOR Pathway. Science 322: 963–966.

All protocols are available at **www.miltenyibiotec.com**.

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Miltenyi Biotec GmbH
Friedrich-Ebert-Straße 68, 51429 Bergisch Gladbach, Germany
Phone +49 2204 8306-0, Fax +49 2204 85197
macs@miltenyibiotec.de
www.miltenyibiotec.com

Miltenyi Biotec Inc.
12740 Earhart Avenue, Auburn, CA 95602, USA
Phone 800 FOR MACS, +1 530 888 8871, Fax +1 530 888 8925
macs@miltenyibiotec.com