



Bovine Iris Pigment Epithelial Cells (BIPEpiC)

Catalog #B6560

Cell Specification

The iris is a pigmented disk that controls the size of pupil and the amount of light reaching the retina. The iris is composed of 2 main layers including the stroma, which contracts or dilates the pupil, and the posterior pigmented epithelial cells. The iris pigment epithelial cells are a layer of epithelial cells that line the posterior portion of the iris and are responsible for limiting the light that reaches the retina. The iris pigment epithelial cells (IPEpiC) share the same embryonic origin as retinal pigment epithelial cells (RPE), and therefore exhibit similar functional properties as RPE, including turnover of photoreceptors and synthesis of trophic factors [1]. IPEpiC can suppress T-cell activation and help to reduce inflammation in the eye [2]. IPEpiC have also been shown to promote ocular inflammation through a functional lipopolysaccharide receptor complex [3]. Bovine IPEpiC can be used to further study IPEpiC *in vitro* and better understand the role of these cells in the development of ocular disease such as glaucoma, acute anterior uveitis, and iritis.

BIPEpiC from ScienCell Research Laboratories are isolated from bovine iris. BIPEpiC are cryopreserved at P0 and delivered frozen. Each vial contains $>5 \times 10^5$ cells in 1 ml volume. BIPEpiC are characterized by immunofluorescence with antibodies specific to cytokeratin-18. BIPEpiC are negative for mycoplasma, bacteria, yeast, and fungi. BIPEpiC are guaranteed to further culture under the conditions provided by ScienCell Research Laboratories; however, BIPEpiC are not recommended for subculturing due to limited expansion capacity.

Recommended Medium

It is recommended to use Epithelial Cell Medium (EpiCM, Cat. #4101) for culturing BIPEpiC *in vitro*.

Product Use

BIPEpiC are for research use only. They are not approved for human or animal use, or for application in *in vitro* diagnostic procedures.

Storage

Upon receiving, directly and immediately transfer the cells from dry ice to liquid nitrogen and keep the cells in liquid nitrogen until they are needed for experiments.

Shipping

Dry ice.

References

- [1] Schraermeyer U, Enzmann V, Kohen L, Addicks K, Wiedemann P, Heimann K. (1997) "Porcine iris pigment epithelial cells can take up retinal outer segments." *Exp Eye Res.* 65: 277-87.
- [2] Sugita S. (2009) "Role of ocular pigment epithelial cells in immune privilege." *Arch Immunol Ther Exp.* 57(4): 263-268.
- [3] Chui J, Li M, Girolamo N, Chang J, McCluskey P, Wakefield D. (2010) "Iris pigment epithelial cells express a functional lipopolysaccharide receptor complex." *Invest Ophthalmol Vis Sci.* 51(5): 2558-67.

Instructions for culturing primary cells

Caution: Cryopreserved primary cells are very delicate. Thaw the vial in a 37°C water bath and return the cells to culture as quickly as possible with minimal handling! Do not centrifuge the cells after thawing as this can damage the cells.

Initiating the culture:

Note: ScienCell primary cells must be cultured in a 37°C, 5% CO₂ incubator. Cells are only warranted if ScienCell media and reagents are used and the recommended protocols are followed.

1. Prepare a poly-L-lysine-coated culture vessel (2 µg/cm², T-75 flask is recommended). To obtain a 2 µg/cm² poly-L-lysine-coated culture vessel, add 10 ml of sterile water to a T-75 flask and then add 15 µl of poly-L-lysine stock solution (10 mg/ml, Cat. #0413). Leave the vessel in a 37°C incubator overnight (or for a minimum of one hour).
2. Prepare complete medium. Decontaminate the external surfaces of medium bottle and medium supplement tubes with 70% ethanol and transfer them to a sterile field. Aseptically transfer supplement to the basal medium with a pipette. Rinse the supplement tube with medium to recover the entire volume.
3. Rinse the poly-L-lysine-coated vessel twice with sterile water and then add 20 ml of complete medium. Leave the vessel in the sterile field and proceed to thaw the cryopreserved cells.
4. Place the frozen vial in a 37°C water bath. Hold and rotate the vial gently until the contents completely thaw. Promptly remove the vial from the water bath, wipe it down with 70% ethanol, and transfer it to the sterile field.
5. Carefully remove the cap without touching the interior threads. Gently resuspend and dispense the contents of the vial into the equilibrated, poly-L-lysine-coated culture vessel. A seeding density of 5,000-7,000 cells is recommended.

Note: Dilution and centrifugation of cells after thawing are not recommended since these actions are more harmful to the cells than the effect of residual DMSO in the culture. It is also important that cells are plated in poly-L-lysine-coated culture vessels to promote cell attachment.

6. Replace the cap or lid of the culture vessel and gently rock the vessel to distribute the cells evenly. Loosen cap, if necessary, to allow gas exchange.
7. Return the culture vessel to the incubator.
8. Do not disturb the culture for at least 16 hours after initiation. Refresh culture medium the next day to remove residual DMSO and unattached cells.

Maintaining the culture:

1. Refresh supplemented culture medium the next morning after establishing a culture from cryopreserved cells.
2. Change the medium every three days thereafter, until the culture is approximately 70% confluent.

3. Once the culture reaches 70% confluency, change medium every other day until the culture is approximately 90% confluent.
4. Use cells promptly for experiments.

Note: We do not recommend cryopreservation of primary cells by the end user. Refreezing cells may damage them and affect cell performance. ScienCell does not guarantee primary cells cryopreserved by the end user.

Caution: Handling human derived products is potentially biohazardous. Although each cell strain tests negative for HIV, HBV and HCV DNA, diagnostic tests are not necessarily 100% accurate, therefore, proper precautions must be taken to avoid inadvertent exposure. Always wear gloves and safety glasses when working with these materials. Never mouth pipette. We recommend following the universal procedures for handling products of human origin as the minimum precaution against contamination [1].

[1] Grizzle WE, Polt S. (1988) "Guidelines to avoid personal contamination by infective agents in research laboratories that use human tissues." *J Tissue Cult Methods*. 11: 191-9.