Mebiol®
Thermoreversible Hydrogel

Catalog #5180-10ML

Full Product Description

Mebiol® Thermoreversible Hydrogel is a copolymer of poly(N-isopropylacrylamide) and poly(ethylene glycol) (PNIPAAm-PEG). The defining feature of Mebiol® is its temperature reversible sol-gel transition. Chill Mebiol® to turn it into a sol (meaning it handles like a liquid). Heat Mebiol® to turn it into a solid hydrogel. The unique thermoreversible feature allows for extremely easy cell handling. Cultures are seeded into cooled Mebiol® and recovered conveniently by cooling the culture vessel and centrifugation. In the gel state, the highly lipophilic and network structure of the Mebiol® presents an efficient niche for cell proliferation, cell communication, gas and mass exchange, and protection of cells and tissue from shear forces.

Mebiol® is easy to use, non-toxic, 100% synthetic and has high transparency. Published applications include stem cell and pluripotent stem cell culture, expansion, differentiation, spheroid culture, cell implantation, organ and tissue regeneration, drug delivery and more. Mebiol® has been commercialized as a cell/tissue culture reagent for ES cells, chondrocytes and cancer cells.

Parameter, Testing, and Method	**Mebiol® Thermoreversible Hydrogel** Catalog #5180-10ML
Package Size	10 mL
Form	Lyophilized
Storage Temperature	Room Temperature (25°C)
Fluid Temperature	0°-15°C
Gel Temperature	>25°C
Opacity	High Transparency
Sterilization method	Ethylene Oxide

Preparation and Usage

Cell culture in Mebiol® flask:

1. Open package in sterile environment and add 10mL of culture media directly to Mebiol® flask.
2. Close flask and lay in refrigerator (2-10 °C) for 3 hours to allow Mebiol® to absorb media.
3. Periodically shake flask gently to help dissolve the Mebiol® into the media. Make take up to a day for complete dissolution (maintain at cold temperature).
4. After dissolving, allow to sit in refrigerator until bubbles are eliminated.
5. Add cells/tissues into Mebiol® at low temperature (2-10°C) and warm to 37°C to culture cells/tissues in a 3D hydrogel environment.

6. To recover the cells/tissues, cool the Mebiol® back down and dilute with 30-40 mL of cold saline or medium. This will take it out of gel phase. Suspended cells can be easily recovered via centrifugation.

Cell culture in 24-well plate:

1. Follow steps 1-4 above.
2. Before adding cells/tissues, remove desired amount of Mebiol® and put into chilled centrifuge tube. Put remaining Mebiol® into refrigerator (still in original flask).
3. Add approximately 10^5 cell/mL to chilled centrifuge tube and mix gently on ice.
4. Warm up 24-well plate and separate overlaying culture media to 37°C.
5. Add 200 µL of cold Mebiol® suspension to the center of each well. Make sure Mebiol® does not cover entire bottom of the well to make it easier to change overlaid medium in later step.
6. Overlay 400 µL of warmed culture media containing phenol red on Mebiol® suspension. Culture at 37°C.
7. To recover cells, refrigerate at 2-8°C and dilute with 400 µL of cold saline or medium. This will take Mebiol® out of gel phase. Suspended cells can be easily recovered via centrifugation.

Do not re-sterilize to avoid deterioration. Add media promptly after opening, store in refrigeration and use within 1 month.

Application Examples

Cell Proliferation – Cancer tissue grown in 2D or collagen can be overrun by fibroblasts. In Mebiol®, fibroblast growth is suppressed allowing proliferation of cancer cells.

Formulation of Spheroid – MEC (Muco-Epidermoid Carcinoma) was cultured in Mebiol® for 3 weeks and a spheroid formed.

Cell Preservation – Allows you to cultivate human cells long-term while maintaining their structure and integrity.

Disclaimer

This product is for R&D use only and is not intended for human or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.