

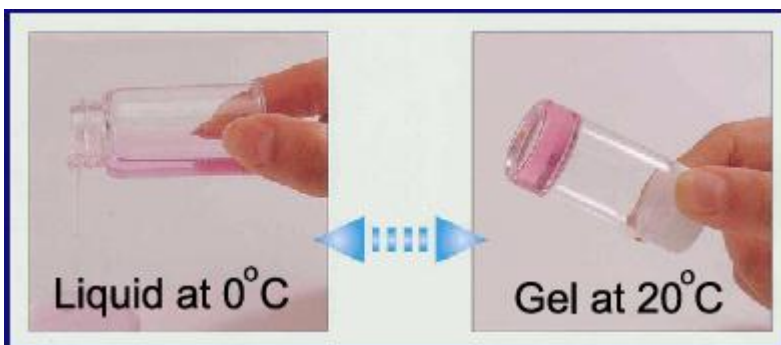
Mebiol® Gel 3D cell culture matrix

Product Description

A unique thermoreversible gel for 3D cell culture

Mebiol® 3D Cell Culture Matrix	IV2230, 10ml	IV2232, 50ml
Provided lyophilized (EO Sterilized), for 10ml once reconstituted with cel culture medium		

- Cast cells or tissues in Mebiol and jellify at +37°C
- Reversibly liquefy gel just by cooling, to recover cells
- Amphiphilic, for sustained release of drugs or agents
- Longer viability and growth potentials for cells

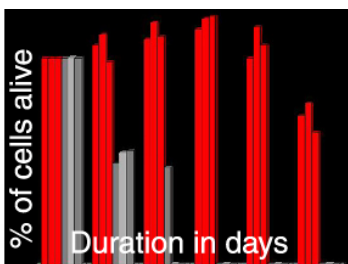


3-D Culture of Cancer-cells of Biliary duct.

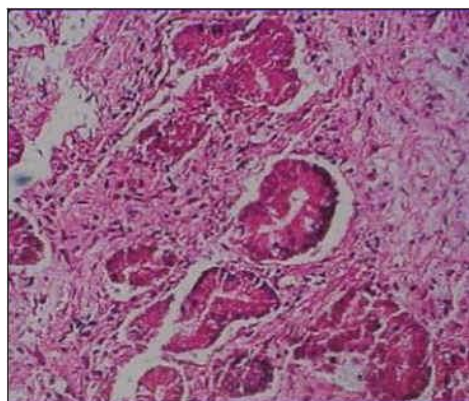
Unlike other gels, Mebiol is liquid at low temperature, but turns to gel immediately upon heating, and return to a liquid state again when cooled. The sol-gel transition occurs at ~20°C. Cells or tissues sections can be included in liquid gel, and recovered easily from Mebiol without chemical treatment.

Unlike other gels, Mebiol core structure, amphiphilic, enables the sustained release of a variety of drugs from low-molecular weight drugs (in most cases lipophilic) to genomic-based drugs.

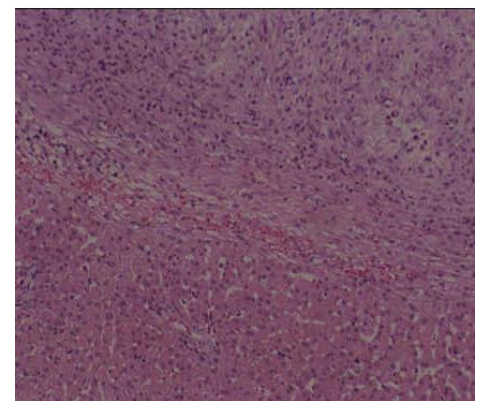
Unlike other gels, Mebiol synthetic nature avoids contamination risks by pathogenic agents.



Longer life-span of cells when preserved in Mebiol Gel
Red bar: Mebiol Gel
Gray bar: Conventional medium



Human Primary colon cancer tissue (X100) preserved using Mebiol Gel - 14 days specimen.



Regeneration of Hepatocytes into an area filled with Mebiol gel (Experiment in dogs)

[Directions for use](#)

[Technical information](#)

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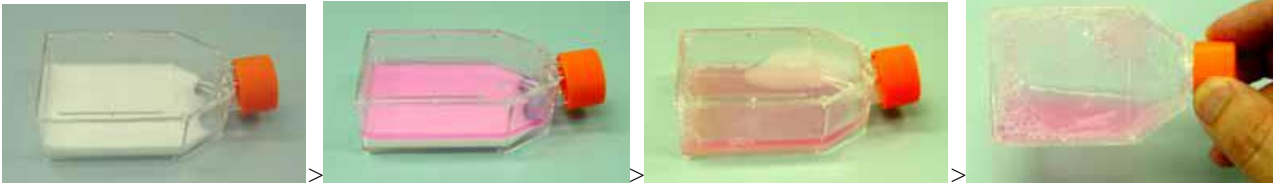
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Directions for use

How To Dissolve and use Mebiol Gel

- Open package in a clean bench and add 10mL culture medium to lyophilized Mebiol Gel in a flask.
- Close the flask cap tightly and lay it in a refrigerator (2-10°C) for about three hours.
Lyophilized Mebiol Gel absorbs culture medium slowly.
- Dissolve Mebiol Gel in culture medium by shaking occasionally the flask gently with keeping it at low temperature.

Note: Usually it takes for one day to dissolve completely. Warming to 37°C on and off for short period (ca. 1 min) can accelerate dissolution.



- After dissolving, settle the solution in a refrigerator (2 - 10 °C) to eliminate bubbles.
Complete elimination of bubbles may take a couple of days.
- Add cells/tissues into sol state Mebiol Gel at low temperature (2 - 10 °C) and then warm it up to 37°C in CO₂ incubator so that cells/tissues can be cultured three-dimensionally in Mebiol Gel at hydrogel state.
- To recover cells/tissues after cultivation, cool Mebiol Gel containing cultured cells/tissues to liquefy it and dilute it with 30 - 40 µL of cold saline or medium. This dilution lowers viscosity of Mebiol Gel and prevents gelation even above the sol-gel transition temperature.
- Suspended cells/tissues can be easily recovered by centrifugation.

How to Use Mebiol™ Gel with Multi-well Plate

Preparation of Mebiol Gel cell suspension

- For cooling, place on crashed ice in a beaker of 1L.:
 - 10mL of Mebiol Gel solution dissolved in culture medium within 70mL flask
 - 14mL sterilized centrifuge tube

- Transfer the required volume (3-4mL) of Mebiol Gel from the flask to the tube in a clean bench.

Note: Remained Mebiol Gel solution can be preserved in a refrigerator or a freezer.

- Add 30 - 40 µL of cell suspension (10⁵ cell/mL) into Mebiol Gel solution (3-4 mL) in the centrifuge tube and rotate the tube on ice to mix them.



FT-IV2230

Pour into Multi well Plate

- Warm up 24-well plate and overlaying culture medium to 37°C beforehand.
- Pipette 200-250µL of the cold Mebiol Gel cell suspension (10^3 cell/µL) at the center of the bottom of wells .

Note: the plate should be well warmed up to 37°C and not allowed to cool.

For this process, using a large caliber pipette tip such as Rainin Certified™ tips is recommended because Mebiol Gel shows high viscosity.

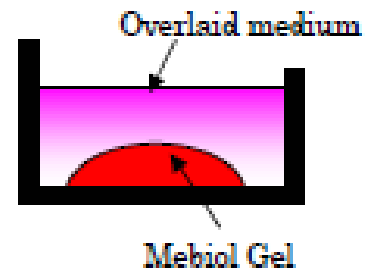
Mebiol Gel cell suspension in the well gels, like island on the plate by warmed up.

Note: It is recommended to not cover well bottom surface with Mebiol Gel completely, because exposed well surface makes it easier to exchange overlaid medium.



- Overlay 400 - 500 µL of culture medium containing phenol red on the island-like Mebiol Gel cell suspension at 37°C. Mebiol Gel

- Cells can be cultured three-dimensionally in hydrogel state Mebiol Gel at 37°C in CO₂ incubator.

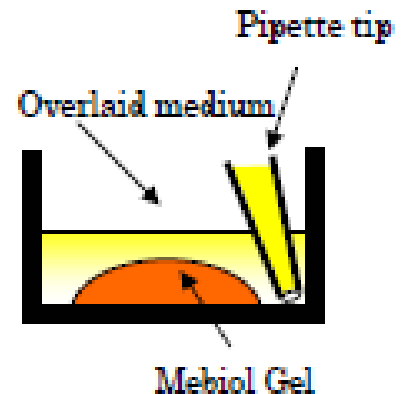


Culture Observation and Medium Exchange

- During cultivation, cells can be observed by optical microscope, however, quick observation and keeping warm the plate are required to prevent Mebiol Gel from dissolving in culture medium by lowering temperature.

- Exchange overlaid medium when the medium color turned to yellow (low pH). Suck up the yellow medium by pipette contacting the tip end onto the exposed well surface.

Overlay 400-500µL of culture medium containing phenol red on the island like Mebiol Gel cell suspension at 37°C. This medium exchange procedure should be performed quickly and temperature should be kept at 37°C as much as possible.



Cell Recovery and Passage

- To recover cells after cultivation, cool the multi well plate in a refrigerator or on ice and shake gently.

Note: By cooled down, the Mebiol Gel is dissolved and diluted in the overlaid culture medium. At this diluted concentration, Mebiol Gel does not gel even above the sol-gel transition temperature.

Note: Adding ca.400µL of saline or medium to each well reduces viscosity more and makes cell recovery easier.

- Transfer the cell suspension in the well to a centrifuge tube and precipitate cells by centrifugation (500 - 1 000rpm) for 2-3min at room temperature.
- Passage can be performed by repeating the procedure.

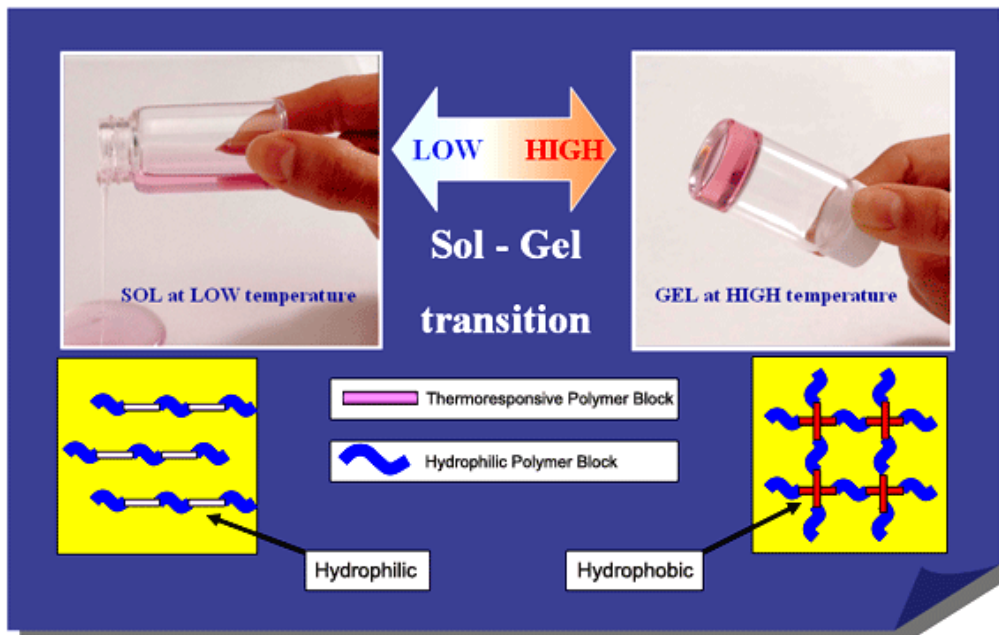
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Technical Information

Features of Mebiol Gel

- An aqueous solution of Mebiol Gel is fluid liquid (sol state) at low temperatures (0-15°C), however, it turns into an elastic hydrogel (gel state) at temperatures higher than room temperature (25°C). Sol-gel transition temperature is ca.20°C.
- The sol-gel transformation of Mebiol Gel occurs fully thermoreversible. Elasticity of the hydrogel increases with temperature increase and is appropriate for three-dimensional culture of cells/tissues at around 37°C.
- It is possible to mix it with various drugs or culture medium at the sol state.
- Do not resterilize Mebiol Gel to avoid deterioration.
- Mebiol Gel is packaged with oxygen scavenger in a gas barrier film. After opening the package, dissolve Mebiol Gel in culture medium promptly and keep a solution in a refrigerator. To use the solution within one month is strongly recommended.
- Cells/tissues in the gel is clearly observed through optical microscope during cultivation at 37°C owing to great transparency of Mebiol Gel.
- Cultured cells/tissues can be recovered easily from Mebiol Gel by lowering temperature without any damage on cells/tissues.



Applications of Mebiol Gel

- Fractionation of the cells by chemo taxis, motility, membrane potential, etc
- Simplification of cell manipulation such as transduction
- Assessment system for therapeutic effects and toxicity using the liver cells/tissue
- Storage and transport of cornea for transplantation, artificial skins, immune cells, etc
- Storage and transport of the cells/tissues for analyses of genomes and proteomes
- Bioreactor for manufacture of vaccines, etc

Melbiol Gel has been used for ES cells, chondrocytes and cancer cells, but also to make implants for occlusion of cancerous vascular system and brain aneurism. Fibroblast is alive but does not grow in Mebiol Gel therefore other aiming cells can be grown selectively.

Experimental studies have proven that the Mebiol gel could be used as a matrix for regeneration of cartilage tissues, Hepatocytes etc. This medium has also found a place in making a barrier film which could act as an effective adhesion prevention material in the thorax.

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FT-IV2230

Mebiol gel doesn't have any scaffolds and therefore doesn't support anchorage dependent cells like Fibroblasts. (Please inquire for another version of Mebiol Gel, designed with scaffolds, which supports different cells of anchorage dependent nature like hepatocytes etc.)

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Legals

For in vitro R&D use only - Do not use Mebiol Gel for patients or medical diagnosis.
Mebio in a registered trademark

Other Information

For any question, please ask Interchim at interbiotech@interchim.com or by phone +33 4 70 03 73 06.

Rev.L10E

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