

# Ultroser™ G

**Product number: 15950-017**

Ultroser™ G serum substitute can successfully replace FCS (fetal calf serum) in cell culture medium. It is designed for the in vitro culture of anchorage-dependent cells.

### Features and Benefits

- Semi-defined composition ensuring batch-to-batch reproducibility
- Low protein content
- Easy use and storage

Ultroser™ G serum substitute has a concentration five times higher than fetal calf serum (2 % of reconstituted Ultroser™ G serum substitute is equivalent to 10% fetal calf serum in the basal medium).

Ultroser™ G is for research use only and not for use in diagnostic procedures.

## 1. What is Ultroser™ G?

Ultroser™ G is a semi-defined serum substitute that can be used as a replacement for FCS (Fetal Calf Serum)/FBS (Fetal Bovine serum) in animal cell cultures.

## 2. What does semi-defined mean?

As Ultroser™ G is made of biological origin materials and also chemical raw materials, it is considered a semi-defined media.



### 3. How can it be used?

It is designed for in vitro culture of anchorage-dependent cells and is for in vitro research cell culture use only. It is not sold for manufacturing and is not for human or animal use.

### 4. What is the biological activity compared to FBS?

The biological activity is 5 times that of FBS.

### 5. In what form is Ultrosert™ G supplied?

Ultrosert™ G product is packaged and shipped in closed individual bottles of lyophilized powder which is reconstituted to 20 mL before use.

### 6. What ingredients are in Ultrosert™ G?

Ultrosert™ G has some animal origin components which are from bovine and human sourced materials. The bovine origin material is derived from the blood of bovine species that originated in the United States and/or New Zealand and are free of evidence of disease. The components from bovine origin are not derived from the following parts of the cow: distal ileum of the small intestine or the tonsils from Canadian bovines of any age, or from the brain, skull, eyes, trigeminal ganglia, spinal cord, dorsal root ganglia, or vertebral column (including vertebrae of the tail, the transverse processes of the thoracic and lumbar vertebrae and the wings of the sacrum). These components were not exposed to or commingled with any other animal derived material. The rest of the components are from synthetic origin. The formulation is proprietary and cannot be provided.

### 7. Can a TSE/BSE statement be provided?

A TSE/BSE statement is not provided for *in vitro* research use products.

### 8. How should it be stored?

Ultrosert™ G serum substitute is available as a lyophilized powder. The product is shipped at ambient temperature and must then be stored between 2° and 8° C. Once reconstituted, the solution must be used up quickly or alternatively it can be aliquoted and stored frozen at -20° C for up to 6 months. Frequent freezing and thawing must be avoided.

### 9. What is the shelf life of Ultrosert™ G?

Ultrosert™ G may be used for up to 4 years from the lyophilized date. All customers will receive a minimum of 6 months shelf life on the product.

### 10. How do you prepare the correct concentration of Ultrosert™ G?

After reconstitution, Ultrosert™ G serum substitute has a biological activity 5 times greater than that of FBS. It should be used at concentrations between 0.5% and 4% (2.5% to 20% of FBS). A concentration of 2% (10% of FBS) is generally used. To obtain a standard concentration of 2%, mix 2% Ultrosert™ G serum substitute with 98% base culture medium. For each cell type, various concentrations from 0.5% to 4% will have to be evaluated to determine the optimal growth conditions. The effects on cell growth are not always proportional to the concentration of Ultrosert™ G serum substitute, nor in correlation with the results obtained with FBS in the same conditions of use.

## 11. How do you prepare and solubilize Ultrosert™ G?

The lyophilized powder is solubilized in 20 mL sterile distilled pyrogen-free water (water for injection) as follows:

1. Open the vial by breaking the tip of the capsule.
2. Introduce the appropriate volume of water using a sterile pyrogen-free pipette after first having removed the stopper or a sterile pyrogen-free syringe by injection through the stopper. These two operations must be performed under sterile conditions.
3. Allow the lyophilizate to swell for 10 to 15 minutes. Solubilization is rapidly obtained by gently shaking the flask or by successive aspirations using a pipette or syringe. The reconstituted solution should be clear and pink coloured. For greater safety, the solution may be filtered through a sterilizing membrane of 0.2 µm pore diameter. This will not result in any loss of activity.

## 12. Which cell culture medium should you use?

The culture medium may be the one generally used for culture with FBS (MEM, etc.). However, the use of an enriched medium such as HAM's F12, DMEM, IMDM, or RPMI is recommended.

## 13. Do you need cell culture support?

The culture support is the same as that used with FBS. Ultrosert™ G serum substitute contains adhesion factors. Therefore, it can be used for pre-incubation of the plastic dishes in the medium prior to adding the cells. However, for particular cell types which are difficult to grow, it may be necessary, to improve adhesion and differentiation, to coat the plastic dishes with one of the following products: poly-D-lysine, collagen, an extracellular matrix or adhesion factors such as fibronectin.

## 14. Can you still use trypsin?

The trypsinization techniques for tissues and mono layered cells are the same as those used with FBS. However, the trypsinization period should be as short as possible, to minimize cell damage. To remove any residual trypsin, it may be necessary to add a trypsin inhibitor such as soya bean extract or aprotinin, at a concentration of 0.5 to 1 mg/mL, before dispersing the cells. If the cells still remain aggregated to each other, the cell suspension may be passed through a 40 µm cell sieve.

## 15. How should you carry out cell transfer?

Two techniques may be employed for sub-culture from a medium containing FBS: Direct transfer of the cells in the medium supplemented with Ultrosert™ G serum substitute or after an adaptation period by progressively reducing the quantity of serum, in several passages:

- 1st passage: 50% medium supplemented with serum (MSS) + 50% medium supplemented with Ultrosert™ G serum substitute (MSU) in the optimum concentration
- 2nd passage: 25% MSS + 75% MSU
- 3rd passage: 10% MSS + 90% MSU
- 4th passage: 100% MSU

This second technique allows better adaptation of the cells to the new culture medium. Before seeding the cells, check the pH of the final medium and, if necessary, adjust to  $7.2 \pm 0.1$ . Sodium bicarbonate or a synthetic buffer (HEPES) may be added to improve the buffering power of the medium.

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