
Fetal Bovine Serum

Mesenchymal Stem Cells Tested
USDA Approved, Sterile filtered

Product Code: RM10845

Product Description:

Fetal bovine serum (FBS) is a ubiquitously used essential supplement in cell culture media. FBS is a cocktail of proteins, vitamins, carbohydrates, lipids, hormones, growth factors, minerals and trace elements and is used as an universal growth supplement effective for most types of human and animal (including insect) cells. The major functions of serum in culture media are to provide:

- i. Hormonal factors stimulating cell growth and proliferation and promoting differentiated functions.
- ii. Transport proteins carrying hormones (e.g. transcortin), minerals and trace elements and lipids (e.g. lipoproteins)
- iii. Attachment and spreading factors, acting as germination points for cell attachment.
- iv. Stabilizing and detoxifying factors needed to maintain pH or to inhibit proteases either directly, such as α -antitrypsin or α 2-macroglobulin, or indirectly, by acting as an unspecific sink for proteases and other (toxic) molecules.

MSC qualified sera are suitable for culturing mesenchymal stem cells (MSC) which are undifferentiated cells that have the ability to differentiate into multiple lineages. A major challenge in culturing MSC is the difficulty to maintain them in undifferentiated state while avoiding their differentiation into unwanted lineage. Serum contains many unknown factors, nutrient and molecules in variable concentration that may lead to unwanted differentiation of stem cells.

MSC qualified sera are prescreened for clonal efficiency, expansion and differentiation potential of mesenchymal stem cells into adipogenic, osteogenic and chondrogenic lineages.

RM10845 is sourced in countries approved for import into the United States by the USDA. Currently this includes Central America, Canada, Australia, New Zealand and Chile. These countries are documented by USDA as being free from exotic diseases, such as Foot and Mouth disease (FMD), Rinderpest and BSE.

This serum is collected and processed in facilities registered and inspected by the competent veterinary authority in the country of origin.

Directions for Thawing of Serum:

Thawing of the sera should be done as quickly as possible in order to minimize the period of time during which elevated salt concentration prevail in the thawed liquid.

1. Remove the bottles from the freezer and allow them to acclimatize at room temperature for about 10 minutes and keep in 2-8°C overnight in refrigerator.

Note: Do not place the serum in the water bath or incubator. Avoid exposing serum to elevated temperatures as this can lead to degradation of heat labile nutrients.

2. Swirl the bottle of serum frequently during thawing to disperse released salts and proteins uniformly in the liquid.

Note on Cryoprecipitate:

We advise our users to follow the recommended thawing procedure. Proper thawing with periodic agitation is crucial to a serum's optimum performance. If bottle of serum is not frequently swirled during thawing, the released proteins and salts tend to form crystalline or flocculent precipitates. These cryoprecipitates are not detrimental to the performance of serum but might affect serum's appearance and consistency. Slight turbidity or small amount of flocculent material is normal in most serum products and will not affect its performance in any manner. Filtering serum to remove cryoprecipitate is not recommended and could result in loss of nutrients.

Quality Control:

Physical and Chemical analysis:

Appearance	: Amber liquid
pH	: 6.8 - 8.2
Osmolality	: 280 – 340 mOsm/KgH ₂ O
Endotoxin	: Value EU/ml
Hemoglobin	: < 20mg/dl
Identity	: Typical

Protein:

Total protein	: 3.0 - 4.5 g/dl
Albumin	: value g/dl
α-Globulin	: value g/dl
β-Globulin	: value g/dl
γ-Globulin	: value g/dl
IgG	: < 250µg/ml

Sterility Testing:

Aerobic bacteria	: Not detected
Anaerobic bacteria	: Not detected
Fungi	: Not detected
Mycoplasma	: Not detected

Virus testing:

Bovine Virus Diarrhea Virus (BVD-V)	: Not detected
Bovine Herpes Virus 1 (BHV-1)	: Not detected
Parainfluenza Type 3 (PI-3)	: Not detected

Antibody testing:

BVD-1 Antibody titer	: Value
BVD-2 Antibody titer	: Value

Growth promotion and cytotoxicity:

Each lot of serum is tested for growth promotion and cytotoxicity. Growth promotion shows the ability of the serum to support the growth of mesenchymal stem cells using a standardized low inoculum in media with 10% serum over a period of 10 to 14 days.

Colony forming efficiency:

Passes

Differentiation Potential:

Adipogenic differentiation
Osteogenic differentiation
Chondrogenic differentiation

Storage and Shelf Life:

Store at -10°C to -40°C away from bright light. Shelf life of the product is 48 months. Thawed serum can be stored at 2- 8°C up to four weeks.

Multiple freeze thaw cycles should be avoided. Serum should never be stored in frost free freezers. Frost free appliance undergoes intermittent warming cycles to prevent ice deposits and this might lead to multiple thawing of serum.

To avoid multiple freeze thaw cycles or long periods of refrigeration, we recommend freezing small aliquots which can be thawed and used as required.

Use before expiry date given on the label.

Revision No.: 0 / 2014

Disclaimer

User must ensure suitability of the product(s) in their application prior to use. Products conform solely to the information contained in this and other related HiMedia™ publications. The information contained in this publication is based on our research and development work and is to the best of our knowledge true and accurate. HiMedia™ Laboratories Pvt. Ltd reserves the right to make changes to specifications and information related to the products at any time. Products are not intended for human or animal diagnostic or therapeutic use but for laboratory, research or further manufacturing use only, unless otherwise specified. Statements contained herein should not be considered as a warranty of any kind, expressed or implied, and no liability is accepted for infringement of any patents.