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# Fetal Bovine Serum

**Origin: US**

**Heat inactivated**

**Product Code: RM10409**

## 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) Stabilising and detoxifying factors needed to maintain pH or to inhibit proteases either directly, such as  $\alpha$ -antitrypsin or  $\alpha$ 2-macroglobulin, or indirectly, by acting as an unspecific sink for proteases and other (toxic) molecules.

RM10409 is heat inactivated Fetal bovine serum. Heat inactivation is done to destroy heat labile components such as complement that can lead to complement mediated cell lysis. Complement proteins, antibodies and enzymes present in the serum are inactivated by heat inactivation.

Applications of Heat inactivated Serum:

- Suitable for immunoassays, enzyme assays and cytotoxicity assays
- For culture of insect cells

*Note: Heat inactivation process can be detrimental to the growth promoting capacity of serum. When heat inactivation of serum is done, along with the complement certain amino acids, vitamins and growth factors are subjected to temperatures that could cause degradation. Hence it is recommended that researcher should experimentally determine and document the reasons for using heat inactivated serum.*

RM10409 is Fetal bovine serum collected from approved abattoirs in USA. US Origin FBS is considered the world's standard for quality and is one of the most widely used serum in the world.

## 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 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 the 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.

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## Quality Control:

### Physical and Chemical analysis:

pH	: 6.8 - 8.2
Osmolality	: 280 – 340 mOsm/KgH <sub>2</sub> 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
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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 a cell line using a standardized low inoculum in media with 10% serum over a period of 10 to 14 days.

### 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.

### 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.