SAFC®
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Product Information

Newborn Bovine Serum
Sourced in New Zealand

CATALOG NO. 12023C

Description
Animal serum is commonly used to supplement basal media for the optimal growth of many cell types *in vitro*.

Newborn Bovine Serum (NBS) is collected from calves that are less than 10 days old. Although NBS is not as nutritionally rich as Fetal Bovine Serum (FBS), it can serve as a cost-effective substitute for FBS in many applications.

Raw Serum Processing
Animal blood is collected at Ministry of Agriculture and Forestry approved abattoirs located within New Zealand. Whole blood is aseptically collected and allowed to clot under controlled conditions. After centrifugation, the serum is decanted from the clot and immediately frozen.

Filtration and Packaging
Frozen raw serum is thawed under controlled conditions, pooled, then processed through a series of membrane filters in descending pore size, culminating in 0.2 μm filters. Integrity tests are conducted on the sterilizing filter pre- and post-filtration by bubble point and diffusive flow methods. The serum filtration process meets the sterility assurance level of 10^{-3} as verified by aseptic media fill validation. Serum is dispensed under HEPA filtered, Class 100 conditions into sterile, graduated plastic bottles and sealed with a tamper indicator. Bottles are identified with sequentially numbered labels and frozen at -10 to -40 °C.

Filtered serum batches are Quality Control tested and released against detailed finished product specifications. Additional testing may be undertaken as directed by a customer's individual product specification.

Traceability
The material used in this product is collected in New Zealand. The serum is not collected from cattle born, raised, shipped through or slaughtered in countries where Bovine Spongiform Encephalopathy (BSE) is known to exist. A Certificate of Analysis indicating the country of origin is available for each lot of serum.

Precautions
This product is for further manufacturing use. THIS PRODUCT IS NOT INTENDED FOR HUMAN OR THERAPEUTIC USE. For stability and optimal performance, serum should be stored at -10 to -40 °C and used prior to the labeled expiration date.

Use aseptic technique when handling serum. Refiltering sterile serum before or after being added to sterile medium is not recommended because the growth promoting capability may be reduced.

Upon request, SAFC will provide serum gamma irradiated according to our validated SER-TAIN® Gamma Irradiation process.

Storage
To effectively preserve the integrity of animal serum, it should be stored frozen and protected from light. For stability and optimal performance, serum should be stored at -10 to -40 °C and used prior to the labeled expiration date. Multiple thaw/freeze cycles should be avoided as they may hasten the degradation of serum nutrients and can result in the formation of insoluble precipitates.

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Preparation Instructions

Thawing

1. Remove the serum bottles from the freezer and allow them to acclimate to room temperature for approximately 10 minutes.
2. Place each container in a 30 to 37 °C water bath or incubator. Excessive temperatures will degrade heat labile nutrients. If using a water bath, prevent the bottle caps from being completely submerged.
3. Gently swirl or shake the bottles every 10 - 15 minutes until the serum is completely thawed.
4. After thawing, use the serum promptly. Liquid serum may be stored refrigerated (2 to 8 °C) up to four weeks. To avoid thaw/freeze cycles or long periods of refrigeration, it is recommended that any unused serum be immediately dispensed into small, useful aliquots and refrozen for future use.

Periodic agitation is crucial to its optimum performance. If a bottle of serum is not periodically shaken or swirled as it thaws, gradients containing high concentrations of salts, proteins and lipids will form throughout the liquid portion and lead to the formation of crystalline or flocculent precipitates. These cryoprecipitates are not toxic to cell cultures, but they affect the appearance and consistency of each bottle of serum. Small amounts of cryoprecipitates are not uncommon, and will not affect product performance. Gently warming and mixing the serum will generally allow the material to go back into solution.

Characteristics

Adventitious Viral Agents (9CFR 113.53)
None detected

Electrophoretic Profile
Normal pattern

Endotoxin
≤ 35.0 EU/mL

Mycoplasma (9CFR 113.28)
None detected

Osmolality
260 - 330 mOsm/kg H_2O

pH (at 25 °C)
7.0 - 8.1

Sterility (Current USP)
No microbial growth detected

Total Protein
5.5 - 8.0 g/dL

Test results are recorded on the following: Chemical Profile, Cloning Efficiency, Growth Promotion, Hemoglobin, Plating Efficiency and Virus Antibody.

Issued April 2011 P12023
0206 0906 1206

11229-512185
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