

# Product Information

## Bovine Calf Serum Sourced in USA heat inactivated

CATALOG NO. 12136C

### Description

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

Bovine Calf Serum (BCS) is collected from calves that are less than 12 months old. The serum contains approximately double the protein of Fetal Bovine Serum (FBS). BCS will promote growth in a variety of mammalian cell lines and is often used as a cost-effective substitute for FBS.

Heat inactivation is commonly used to destroy complement. Heat inactivation is the method of choice of many investigators to insure that cells will not be lysed to antibody binding and complement activation. SAFC Biosciences' validated process consists of raising the temperature of the serum to 56 C for 30 minutes under controlled conditions.

### Raw Serum Process

Animal blood is collected at United States Department of Agriculture (USDA) approved abattoirs located within the USA. Whole blood is aseptically collected and allowed to clot under controlled conditions. After centrifugation, the serum is decanted from the clot. The raw serum is then pooled and immediately frozen. Raw serum is pre-tested by SAFC Biosciences according to established criteria, providing a complete awareness of all serum characteristics prior to filtration and further processing.

### Filtration & Packaging

Frozen raw serum is thawed under controlled conditions and then processed through a series of membrane filters in descending pore size. Pooled serum is filtered through 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<sup>-3</sup> as verified by aseptic media fill validation. Serum is dispensed under HEPA filtered, Class 100 conditions.

Serum is packaged in sterilized, graduated plastic bottles and sealed with a tamper indicator. Bottles are identified with sequentially numbered labels and frozen at -10 to -40 C.

### Traceability

The material used in this product is collected in the United States. Animals used for collection of serum are USDA inspected and acceptable for slaughter. 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.

Serum may contain undetectable levels of adventitious agents. The risk of transmission of viruses can be minimized by the use of a validated virus inactivation process. Upon request, SAFC Biosciences will provide serum 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 will hasten the degradation of serum nutrients and can result in the formation of insoluble precipitates.

#### United States

SAFC Biosciences, Inc.  
13804 W. 107th Street  
Lenexa, Kansas 66215  
USA  
Phone +1 913-469-5580  
Toll free-USA 1 800-255-6032  
Fax +1 913-469-5584  
E-mail info-na@sial.com

#### Europe

SAFC Biosciences Ltd.  
Smeaton Road, West Portway  
Andover, Hampshire SP10 3LF  
UNITED KINGDOM  
Phone +44 (0)1264-333311  
Fax +44 (0)1264-332412  
E-mail info-eu@sial.com

#### Asia Pacific

SAFC Biosciences Pty. Ltd.  
18-20 Export Drive  
Brooklyn, Victoria 3025  
AUSTRALIA  
Phone +61 (0)3-9362-4500  
Toll free-AUS 1 800-200-404  
Fax +61 (0)3-9315-1656  
E-mail info-ap@sial.com

## 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 (AVA) (9CFR 113.53)

None detected

### Electrophoretic Profile

Normal pattern

### Endotoxin

≤ 10.0 EU/mL

### Hemoglobin

≤ 35 mg/dL

### Mycoplasma (9CFR 113.28)

None detected

### Osmolality

260 - 330 mOsm/kg H<sub>2</sub>O

### pH (at 25 C)

7.0 - 8.1

### Sterility (Current USP)

No microbial growth detected

Test results are recorded For Information Only on the following: Chemical Profile, Growth Promotion, Plating Efficiency, Total Protein and Virus Antibody.

#### Warranty, Limitation of Remedies

SAFC Biosciences warrants to the purchaser for a period of one year from date of delivery that this product conforms to its specifications. Other terms and conditions of this warranty are contained in SAFC Biosciences' written warranty, a copy of which is available upon request. ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE EXCLUDED. In no case will SAFC Biosciences be liable for any special, incidental, or consequential damages arising out of this product or the use of this product by the customer or any third party based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory. SAFC Biosciences expressly disclaims any warranty against claims by any third party by way of infringement or the like. THIS PRODUCT IS INTENDED FOR PURPOSES DESCRIBED ONLY AND IS NOT INTENDED FOR ANY HUMAN OR THERAPEUTIC USE.

Additional Terms and Conditions are contained in the product Catalog, a copy of which is available upon request.

SER-TAIN™ is a trademark of SAFC Biosciences, Inc.

© 2006 SAFC Biosciences, Inc.

Issued December 2006 P12136  
0805 0905 0406 0906

#### United States

SAFC Biosciences, Inc.  
13804 W. 107th Street  
Lenexa, Kansas 66215  
USA  
Phone +1 913-469-5580  
Toll free-USA 1 800-255-6032  
Fax +1 913-469-5584  
E-mail info-na@sial.com

#### Europe

SAFC Biosciences Ltd.  
Smeaton Road, West Portway  
Andover, Hampshire SP10 3LF  
UNITED KINGDOM  
Phone +44 (0)1264-333311  
Fax +44 (0)1264-332412  
E-mail info-eu@sial.com

#### Asia Pacific

SAFC Biosciences Pty. Ltd.  
18-20 Export Drive  
Brooklyn, Victoria 3025  
AUSTRALIA  
Phone +61 (0)3-9362-4500  
Toll free-AUS 1 800-200-404  
Fax +61 (0)3-9315-1656  
E-mail info-ap@sial.com