Characterized Fetal Bovine Serum, New Zealand Origin

HYCLONE SERA

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HyClone™ Characterized Fetal Bovine Serum (FBS), New Zealand Origin is carefully collected, processed, and filtered in our own New Zealand facility (Fig 1). The great expanse of the Pacific ocean has protected New Zealand's islands from many outside influences, both geographically and biologically. One of the benefits of this isolation is that New Zealand has the fewest reported bovine diseases in the world, making Characterized FBS, New Zealand Origin an excellent source of bovine serum as it offers greater security.

Key features of Characterized FBS, New Zealand Origin include:

- Complete traceability back to original source
- Low in antibodies and high in growth factors
- Produced using true pool technology, which minimizes bottle-to-bottle variability



Fig 1. Characterized FBS, New Zealand Origin provides important proteins and nutrients to your cell culture.

Specifications

Characterized FBS, New Zealand Origin is filtered through three sequential 100 nm (0.1 µm) pore size-rated filters. Before dispensing, each lot of serum is pooled to ensure uniformity and consistency between bottles (true pool technology).

Product handling

Storage and handling

Sera should be stored at -10°C or lower. Once thawed, sera should be stored at 2°C to 8°C. To maintain quality, a conservative storage recommendation for sera at this temperature is no longer than six weeks. If the serum needs to be stored longer than six weeks after opening, it is recommended to aliquot the serum into convenient volumes and refreeze.

Thawing

Remove serum from -10°C (or lower) storage and place in a refrigerator overnight at 2°C to 8°C. Transfer the serum to a 37°C water bath, agitate periodically to mix the solutes concentrated at the bottom of the container. Do not hold the serum at 37°C any longer than necessary after thawing. Thawing serum in a bath above 40°C without mixing can denature the concentrated proteins in the bottom of the container and precipitates might form in the bottle. Thawing serum at higher temperatures is not recommended.

Alternatively, bottles can be placed directly from -10°C (or lower) storage into a 37°C water bath. Bottles should be agitated to enhance mixing and thawing. Turbidity and flocculent material might be present after thawing or after prolonged storage.

Experience indicates that regardless of the method used to thaw serum, it is critical that it is mixed during the thawing process to prevent the formation of gradients and subsequent precipitation. Because of differences in thawing rates of different components, serum will form a gradient if it is not mixed as it thaws. If serum is allowed to remain in such a gradient state, precipitation is likely to occur. Handle bottles that have been stored in freezer carefully. Avoid large temperature shifts and protect the serum from exposure to light. Wear protective clothes and equipment. Storage requirements are listed on the product label.

General culture recommendations

Supplementation of classical media such as Dulbecco's Modified Eagle's Medium (DMEM) is recommended at a range between 5% and 10% FBS to support culture of a wide variety of cell lines and applications.

Quality control testing

Quality control test specifications are listed in Table 1.

Table 1. Test specifications

Endotoxin (Limulus amebocyte lysate gel clot assay)	≤ 20 EU/mL
Hemoglobin (spectrophotometric)	≤ 25 mg/dL
Sterility testing (current USP and EP)	
Bacteria and fungi	No growth
Virus testing (9 CFR 113.53)	
Fluorescent Antibody	
Bluetongue	Not detected
Bovine adenovirus	Not detected
Bovine parvovirus	Not detected
Bovine respiratory syncytial virus	Not detected
Bovine viral diarrhea virus	Not detected
Rabies	Not detected
Reovirus	Not detected
Cytopathogenic agents (e.g., IBR)	Not detected
Hemadsorbing agents (e.g., PI3)	Not detected
Mycoplasma	
Large volume, direct culture	Not detected
Hoechst DNA stain	Not detected
Certificate of suitability	Included

Related products

HyClone classical media

HyClone classical media are manufactured using ISO 9001:2008- and ISO 13485:2003-certified processes. All raw material components have passed strict quality control testing to ensure the appropriate level of quality. The classical media are hydrated using injection-grade water and have undergone 0.1 µm sterile filtration. Classical media that have been system tested with Characterized FBS, New Zealand Origin to confirm product efficacy and homogeneity are

- Dulbecco's modified Eagle's medium (DMEM)
- Minimal essential medium (MEM)
- Eagle's minimal essential medium (EMEM)
- RPMI 1640 medium

HyClone phosphate buffered saline (PBS)

HyClone PBS products are manufactured according to cGMP guidelines using ISO 9001:2000-certified processes. The products have full traceability and documented origin of all formula ingredients.

HyClone trypsin protease

HyClone trypsin protease is derived from porcine pancreas and is gamma irradiated prior to hydration and filling. The product is formulated without calcium and magnesium.

Bovine sera of New Zealand and Australian origin

All New Zealand bovine serum products are carefully collected, processed, and filtered in New Zealand and offer high safety against bovine diseases. Characterized FBS, Australian Origin is sourced from Australian abattoirs approved by the U.S. Department of Agriculture (USDA) or Australian Quarantine and Inspection Service (AQIS).

A wide range of quality testing is performed to ensure consistency and performance of HyClone serum products. Table 2 includes some of the testing that is performed on each batch, depending on the use of the serum.

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Table 2. Serum quality testing

	Characterized FBS, New Zealand	Bovine Calf Serum, New Zealand	Cosmic Calf Serum, New Zealand	Bovine Growth Serum, New Zealand	Donor Bovine Calf Serum, New Zealand	Characterized FBS, Australia	Characterized FBS, United States
Product code	SH30406	SH30403	SH30413	SH30591	SH30417	SH30084	SH30071
Filtration	Triple 100 nm	Triple 100 nm	Triple 100 nm	Triple 100 nm	Triple 100 nm	Triple 100 nm	Triple 100 nm
Endotoxin (EU/mL)	≤ 20	≤ 50	≤ 25	≤ 10	≤ 10	≤ 25	≤ 25
Hemoglobin (mg/dL)	≤ 25	≤ 30	≤ 25	≤ 10	≤ 10	≤ 25	≤ 25
Osmolality (mOsm/kg)	●	●	●	●	●	●	●
Total protein (mg/dL)	●	●	●	●	●	●	●
Sterility (bacteria and fungi)	●	●	●	●	●	●	●
Fluorescent antibody	●	●	●	●	●	●	●
Cytopathic agents	●	●	●	●	●	●	●
Hemadsorbing agents	●	●	●	●	●	●	●
Mycoplasma	●	●	●	●	●	●	●
Protein testing	●	●	●	●	●	●	●
Trace metals/iron	●	●	●	●	●	●	●
Vitamins, hormones	●		●	●			
Electrophoretic profile	●	●	●	●	●	●	●
IgG (mg/mL)	●	●	●	●	●	●	●

Ordering information

Product	Size	Product code
Characterized Fetal Bovine Serum, New Zealand Origin	100 mL	SH30406.01
	500 mL	SH30406.02
	1000 mL	SH30406.03
Characterized Fetal Bovine Serum, New Zealand Origin Heat inactivated	100 mL	SH30406.01HI
	500 mL	SH30406.02HI
	1000 mL	SH30406.03HI
Characterized Fetal Bovine Serum, New Zealand Origin Irradiated and heat inactivated	500 mL	SH30406.03IH
Characterized Fetal Bovine Serum, New Zealand Origin Irradiated	100 mL	SH30406.01IR
	500 mL	SH30406.02IR
	1000 mL	SH30406.03IR

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CY12711-09Jul20-DF