# Characterized Fetal Bovine Serum, Australian Origin

HYCLONE SERA

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HyClone™ Characterized Fetal Bovine Serum (FBS), Australian Origin is sourced from Australian abattoirs approved by the U.S. Department of Agriculture (USDA) or Australian Quarantine and Inspection Service (AQIS) (Fig 1). The Australian methods of animal husbandry exhibit excellent animal nutrition and healthcare. Australia is an island continent, thus making animal disease and control management easier than in most areas of the world.

Key features of Characterized FBS, Australian 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
- USDA safety tested

## Specifications

Characterized FBS, Australian 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.




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

### *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) | ≤ 25 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 |
| USDA safety | |
| Antibodies against: | |
| Akabane virus | Not detected |
| Bluetongue virus | 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, Australian 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*

Our 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*

In addition to Characterized FBS of Australian origin, we offer a range of bovine sera of New Zealand origin. All New Zealand bovine serum products are carefully collected, processed, and filtered in New Zealand and offer high safety against bovine diseases.

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, Australian Origin | 100 mL | SH30084.02 |
| | 500 mL | SH30084.03 |
| | 1000 mL | SH30084.04 |
| Characterized Fetal Bovine Serum, Australian Origin Heat inactivated | 100 mL | SH30084.02HI |
| | 500 mL | SH30084.03HI |
| | 1000 mL | SH30084.04HI |
| Characterized Fetal Bovine Serum, Australian Origin Irradiated | 100 mL | SH30084.02IR |
| | 500 mL | SH30084.03IR |
| | 1000 mL | SH30084.04IR |

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