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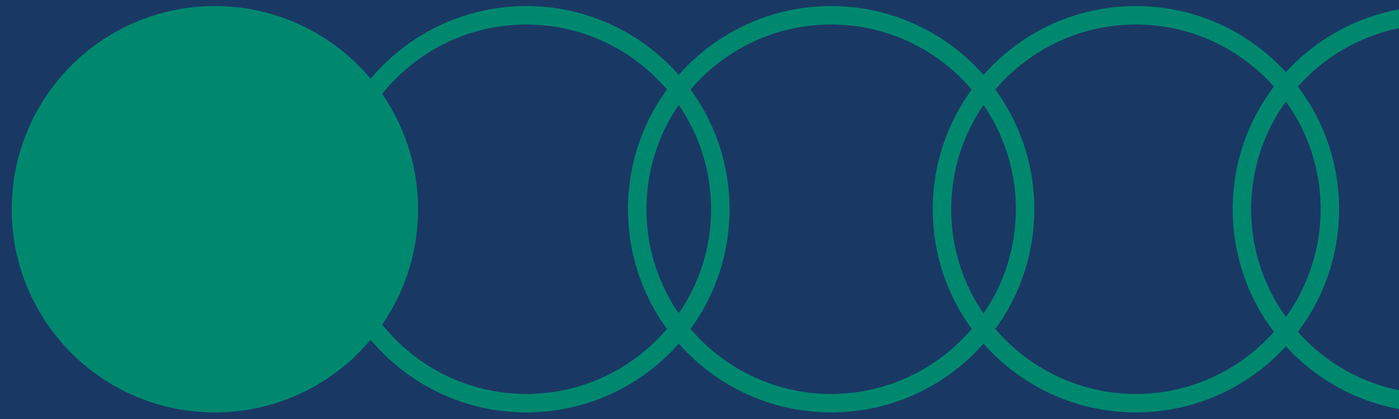
Quality. Consistency. Reliability.

HyClone™ Cell Culture Serum products



HyClone™ cell culture

Consistent secure supply

Our global manufacturing and distribution footprint as well as our diversified serum supply network offer the high level of security of supply customers expect.

For decades, our serum products have met industry standards for quality, purity, and regulatory compliance. Our pioneering filtration techniques reduce contaminants without impact on cell performance. The collection and processing procedures employed ensure the serum product offers reproducible and dependable results.

With an active role in emerging markets, including new human vaccines, we are positioned to provide consistent, high-performance cell culture products to enable advances in life science research. Whether you require fetal bovine serum (FBS), calf serum, or other animal-origin serum products, we are positioned to provide excellent cell culture solutions.

We provide high-quality FBS

Serum collection

From collection to final packaging, every step is documented for a consistent high-quality product with minimal risk of contamination. Our serum products have full traceability back to the original source and are compliant with current good manufacturing practices (cGMP).

Quick and reliable processing

Finished products undergo extensive quality, performance, and analytical testing. Goods are aseptically packaged into gamma irradiated plastic bottles in a Class 100 cleanroom environment.

Quality control testing and standards

Each serum lot is tested to ensure quality and sterility. Low endotoxin and hemoglobin levels reflect the care with which the serum is collected and processed.

Industry leading traceability program gives peace of mind

Origin of sera is important. As proof that we ensure proper origin, traceability, and truth in labeling, we are traceability certified by the International Serum Industry Association (ISIA).

In addition, we go beyond industry standards of document traceability by performing independent testing by Oritain™ on each batch of characterized and defined FBS from the United States, Australia and New Zealand. Look out for the Oritain logo on your FBS bottle.

Animal serum origins

Serum origin refers to the country in which the raw blood was collected, and is not to be confused with the country in which the finished product was processed. With HyClone™ serum products, the country or countries of origin are stated in the certificate of analysis that you receive with your product.

The supply of FBS, a byproduct of the beef industry, is impacted by complex market conditions. For these reasons, we ensure adequate supply for our customers by not only sourcing FBS from several regions, but also working with a broad base of serum and raw blood suppliers. To ensure traceability and security of supply, raw serum is obtained in New Zealand, Australia, the United States, Canada, Central America, and South America. Moreover, we are traceability certified by the International Serum Industry Association (ISIA) and send samples of characterized and defined FBS to Oritain™ for independent testing.

USDA-Tested

USDA-Tested Fetal Bovine Serum is intended for low risk applications. It is sourced from countries and regions where serum can be imported into the United States. These include North America, Central America, Australia, and New Zealand. The serum is safety tested by the United States Department of Agriculture (USDA) when required, and considered to be foot-and-mouth disease (FMD) free. HyClone™ USDA-Tested FBS is processed and packaged in the United States. As with all HyClone™ products, the Certificate of Analysis (CoA) includes the specific countries of origin used in each lot.

South America

HyClone™ FBS, South American Origin is typically sourced from Brazil and Uruguay. South American FBS complies with EU regulations and meets the requirements of most Asian countries. South American FBS is available only to European and Asian customers.

United States

In-country processing of our US origin serum products is optimized for supply integrity, minimizing cross-contamination risks with other serum origins and types. Our US origin serum products include fetal bovine and bovine calf sera, as well as a variety of engineered or alternative species sera. Non-US origin products are manufactured in a separate facility, utilizing single-use technology to minimize risk of cross-contamination with other serum products.

Canada

As with all HyClone™ sera products, characterized fetal bovine serum sourced in Canada provides important proteins, hormones, growth factors, metabolites, and nutrients essential for cell culture. Canadian-sourced FBS is processed in the US.

New Zealand

The great expanse of the Pacific Ocean has protected New Zealand 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 it an excellent source of bovine serum. HyClone™ Characterized FBS, New Zealand Origin is carefully collected, processed, and filtered at our in-country facility.

Australia

HyClone™ Characterized FBS, Australian Origin is sourced from Australian abattoirs approved by USDA for export and inspected by the Australian Department of Agriculture (DA). We have found that Australian methods of animal husbandry exhibit excellent animal nutrition and healthcare. As with New Zealand, Australia is isolated, thus making animal disease control and management easier than in most areas of the world.

Innovative techniques to meet your demands

There are specific requirements for serum used in a variety of cell culture applications involved in modern biopharmaceutical research. Therefore, a number of processing methods are employed to yield a product suitable for specific applications.

Variability in serum components is natural and results from a variety of factors, such as age and geographical origin. To reduce this variability, each lot of serum is pooled after filtration and before dispensing to ensure uniformity and consistency between bottles (true pool processing). This increases the consistency and quality of our serum products.

Some treatments are used to remove adventitious agents, whereas other processes filter various natural serum constituents that can disrupt certain analytical techniques or assays. Based on our serum processing and application understanding, we have the ability to perform a number of tests to identify serum lots with characteristics that make them well-suited for specific cell lines and protocols.

Post-filtration treatments and additional testing

Gamma irradiation

Gamma irradiation is a powerful treatment to further reduce the risk of adventitious viruses present in serum. The irradiation process is validated to deliver a minimum dose of 25 kGy. If manufacturing products for use in humans or in animals, irradiation should be a routine requirement.

Heat inactivation

Exposing serum to a temperature of 56°C for 30 min is a common post-filtration process. Heat inactivation can be effective in reducing some adventitious agents and may be used in addition to, but never substituted for, gamma irradiation. Both services are available upon request.

EMEA conforming tests

To support biopharmaceutical manufacturers selling product into Europe and utilizing bovine serum in their processes, the European Agency for the Evaluation of Medicinal Products (EMEA) conforming tests can be requested on HyClonef™ serum products for an additional fee.

HyClonef™ EMEA conforming products are tested according to European Pharmacopoeia protocols and per request, irradiated at the required minimum dose. This testing provides our sera customers with the assurance of receiving a consistent, high-quality product that conforms to the EMEA requirements.

The EMEA has issued two directives that apply to the use of bovine serum in the production of medicinal products. Our EMEA conforming products meet both directives

- EMEA/CVMP/743/00-rev 2 from the Committee for Veterinary Medicinal Products (CVMP) Guideline on requirements and controls applied to bovine serum used in the production of immunological veterinary medicinal products
- EMA/CHMP/BWP/457920/2012 rev.1 from the Committee for Proprietary Medicinal Products (CPMP) guideline on the use of bovine serum in the manufacture of human biological medicinal products

Complete versions of both directives can be found at ema.europa.eu/ema/.

Serum testing results

Description and origin	Part number	Filtration	Endotoxin (EU/mL)	Hemoglobin (mg/dL)	Osmolality (mOsm/Kg)	Total protein (gm/dL)	Sterility bacteria and fungi testing	Fluorescent antibody testing	Cytopathogenic agents	Hemadsorbing agents	Mycoplasma	Protein testing	Trace metals / iron	Vitamins / hormones	Electrophoretic profile	IgG (µg/mL)
Fetal bovine serum																
Defined FBS, US	SH30070	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•
Characterized FBS, US	SH30071	Triple 100 nm	≤ 25	≤ 25	•	•	•	•	•	•	•	•	•		•	•
Standard FBS, US	SH30088	Triple 100 nm	FIO	FIO	•	•	•	•	•	•	•	•	•		•	•
Characterized FBS, New Zealand	SH30406	Triple 100 nm	≤ 20	≤ 25	•	•	•	•	•	•	•	•	•	•	•	•
Characterized FBS, Australian	SH30084	Triple 100 nm	≤ 25	≤ 25	•	•	•	•	•	•	•	•	•		•	•
Characterized FBS, Canadian	SH30396	Triple 100 nm	≤ 25	≤ 25	•	•	•	•	•	•	•	•	•		•	•
Research Grade FBS, South American	SV30160	Triple 100 nm	≤ 10	≤ 25	•	•	•	•	•	•	•	•	•			•

FIO = for information only
• = Tested. For typical results, request a certificate of analysis or go to www.cytiva.com/HyClone
EMEA conforming testing is available on all serum products for an additional charge

Serum testing results

Description and origin	Part number	Filtration	Endotoxin (EU/mL)	Hemoglobin (mg/dL)	Osmolality (mOsm/Kg)	Total protein (gm/dL)	Sterility bacteria and fungi testing	Fluorescent antibody testing	Cytopathogenic agents	Hemadsorbing agents	Mycoplasma	Protein testing	Trace metals / iron	Vitamins / hormones	Electrophoretic profile	IgG (µg/mL)
Specialty fetal bovine serum																
Super Low IgG FBS, US	SH30898	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	≤ 5
Charcoal/Dextran Treated FBS, US	SH30068	Triple 100 nm	≤ 10	≤ 20	•	•	•	•	•	•	•	•	•	•	•	•
Dialyzed FBS, US	SH30079	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•
ES Cell Screened FBS, US	SH30070E	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•
Tetracycline Screened FBS, US	SH30070T	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•
Insect Cell Screened FBS, US	SH30070I	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•
Human Mesenchymal SC Screened FBS	SH30070M	40 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•	•	•	•

• = Tested. For typical results, request a certificate of analysis or go to www.cytiva.com/HyClone
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Serum testing results

Description and origin	Part number	Filtration	Endotoxin (EU/mL)	Hemoglobin (mg/dL)	Osmolality (mOsm/Kg)	Total protein (gm/dL)	Sterility bacteria and fungi testing	Fluorescent antibody testing	Cytopathogenic agents	Hemadsorbing agents	Mycoplasma	Protein testing	Trace metals / iron	Vitamins / hormones	Electrophoretic profile	IgG (µg/mL)
Bovine calf serum																
Bovine Calf Serum, US	SH30073	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•		•	•
Iron Supplemented Bovine Calf Serum, US	SH30072	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•		•	•
Cosmic Calf™ Serum, US	SH30087	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•		•	•
Bovine Growth Serum, US	SH30541	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•		•	•
Newborn Bovine Calf Serum, US	SH30118	Triple 100 nm	≤ 50	≤ 25	•	•	•	•	•	•	•	•	•		•	•
Cosmic Calf™ Serum, New Zealand	SH30413	Triple 100 nm	≤ 25	≤ 25	•	•	•	•	•	•	•	•	•	•	•	•

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Serum testing results

Description and origin	Part number	Filtration	Endotoxin (EU/mL)	Hemoglobin (mg/dL)	Osmolality (mOsm/Kg)	Total protein (gm/dL)	Sterility bacteria and fungi testing	Fluorescent antibody testing	Cytopathogenic agents	Hemadsorbing agents	Mycoplasma	Protein testing	Trace metals / iron	Vitamins / hormones	Electrophoretic profile	IgG (µg/mL)
Engineered serum																
FetalClone™ I Serum, US	SH30080	Triple 100 nm	≤ 10	≤ 20	•	•	•	•	•	•	•	•	•		•	•
FetalClone™ II Serum, US	SH30066	Triple 100 nm	≤ 10	≤ 20	•	•	•	•	•	•	•	•	•		•	•
FetalClone™ III Serum, US	SH30109	Triple 100 nm	≤ 10	≤ 20	•	•	•	•	•	•	•	•	•		•	•
Alpha Calf Serum without Iron, US	SH30212	Triple 100 nm	≤ 10	≤ 20	265 – 310	3.20 – 4.70	•	•	•	•	•	•	•		•	≤ 200
Other serum																
Donor Equine Serum, US	SH30074	Triple 100 nm	≤ 10	≤ 10	•	•	•	•	•	•	•	•	•		•	•
Donor Adult Bovine Serum, US	SH30075	Triple 100 nm	≤ 50	≤ 25	•	•	•	•	•	•	•	•	•		•	•
Porcine Serum, NZ, IR	SH30908	200 nm	≤ 100	≤ 50	•	•	•	•	•	•	•	•	•		•	•

• = Tested. For typical results, request a certificate of analysis or go to www.cytiva.com/HyClone
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FBS products

Our FBS products are sterile-filtered and quality-tested to ensure dependable and reproducible cell growth.

Defined FBS

Defined FBS is aimed for users who have a concern for viral contaminants and require an extensive biochemical profile. Defined FBS is filtered through serial 40 nm pore size-rated filters.

- Highest quality FBS
- Subjected to extensive biochemical analyses
- Low endotoxin and hemoglobin specifications

Characterized FBS

Characterized FBS meets the requirements of most users. Characterized FBS is filtered through triple 100 nm pore size-rated filters.

- Standard endotoxin and hemoglobin specifications
- Subjected to moderate biochemical analyses

Standard FBS

Standard FBS is an economic alternative to Defined and Characterized FBS.

- Excellent choice for research applications
- Endotoxin and hemoglobin are tested and reported

HyClone™ FBS: process-tested and proven cell culture performance

Customer need	Serum sourced from BSE-negligible regions for low-risk applications	Serum low in endotoxin and features extensive biochemical analyses	Serum for general cell culture with common cell types	Serum for general cell culture using robust cell lines	Serum qualified for specialty research
Typical use					
Suggested products	Characterized FBS, AUS Characterized FBS, NZ	Defined FBS, US Characterized FBS, US	Standard FBS, US	FBS, South American USDA-Tested FBS FBS, Canadian	Charcoal/Dextran Treated FBS, US ES Screened FBS, US
Product codes	SH30084 SH30406	SH30070 SH30071	SH30088	SV30160 SH30910 SH30396	SH30068 SH30070.02E SH30070.03E

 = Production = Research

Defined FBS

Product	Volume	Product code
Defined FBS, US Origin CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤10 mg/dL	50 mL	16750-030
	100 mL	16777-002
	500 mL	16777-006

Characterized FBS

Product	Volume	Product code
Characterized FBS, US Origin CofS no. R1-CEP 2000-076 3 x 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL	50 mL	16750-030
	100 mL	16777-002
	500 mL	16777-006
USDA Tested FBS CofS not available 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL BVD-tested; sourced from Central America, North America, Australia, and New Zealand	100 mL	89133-098
	500 mL	89133-098
Characterized FBS, Canadian Origin CofS not available 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL	100 mL	95059-634
	500 mL	95059-636

Characterized FBS

Product	Volume	Product code
Characterized FBS, New Zealand Origin CofS no. R1-CEP 2001-211 3 × 100 nm filtered Endotoxin: ≤ 20 EU/mL; hemoglobin: ≤ 25 mg/dL	500 mL	95059-628
Characterized FBS, Australian Origin CofS no. R1-CEP 2000-384 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL	500 mL	76236-302
	1000 mL	76236-302

Standard FBS

Product	Volume	Product code
Standard FBS, US Origin CofS no. R1-CEP 2000-076 3 × 100 nm filtered Endotoxin and hemoglobin tested and reported BVD-tested	100 mL	16777-532
	500 mL	16777-534

CofS = certificate of suitability, available at www.cytiva.com/HyClone
* Due to export restrictions, only available in Europe and select South American, African, and Asian countries

Specialty FBS products

Our specialty FBS products augment cell culture growth and support several applications that might require lower IgG levels, reduced levels of various hormones, or reduced concentrations of nucleotides and amino acids. Our specialty FBS products are designed for specific cell culture-based applications.

Super Low IgG FBS

This product is designed for applications where extremely low levels of inherent bovine IgG are required. Super Low IgG FBS has been chromatographically treated to reduce IgG levels to less than 5 µg/mL, while still retaining excellent cell growth properties.

- For use in monoclonal antibody production, virus propagation, and immunoassay procedures

Dialyzed FBS

Dialysis reduces concentrations of low molecular weight (M_r) components, such as nucleotides and amino acids, that impact alternative biochemical survival pathways. The process is reproducible and reduces hypoxanthine and thymidine concentrations below detectable limits, making Dialyzed FBS well-suited for incorporation or receptor studies.

- Processed using proprietary diafiltration method
- Depleted from small molecules (less than M_r 10 000)

Charcoal/Dextran Treated FBS

The exclusive and proprietary charcoal/dextran treatment reduces steroid levels. Charcoal/Dextran Treated FBS can be utilized in receptor studies or estrogen-related investigations. The extensive biochemical serum profile, provided before and after the treatment, ensures efficacy of the treatment and provides end-users with critical information regarding which components are specifically affected.

- Proprietary processing to reduce levels of various hormones and growth factors

Specialty FBS

Product	Volume	Product code
Charcoal/Dextran Treated FBS CofS no. R1-CEP 2000-076 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 20 mg/dL US Origin	50 mL 100 mL 500 mL	16777-224 16777-226 16777-228
Dialyzed FBS CofS no. R1-CEP 2000-076 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL ≤ M_r 10 000 US Origin	50 mL 100 mL 500 mL	16777-208 16777-210 16777-212
Super Low IgG FBS CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL IgG: ≤ 5 µg/mL US Origin	100 mL 500 mL	95042-942 95042-944

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Screened FBS products

Prescreened from 40 nm filtered Defined FBS, our specialty serum products meet the needs of many specific cell culture applications. Our screened FBS products are a part of our specialty FBS portfolio.

ES Cell Screened FBS

ES Screened FBS supports the growth of undifferentiated murine embryonic stem cells. The screening includes plating efficiency, colony morphology, and toxicity tests.

- Optimized for the culture of murine embryonic stem cells

Human Mesenchymal Stem Cell Screened FBS

Human Mesenchymal Stem Cell Screened FBS supports the growth of undifferentiated human mesenchymal stem cells (hMSC). During screening, hMSC are observed for evidence of nutritional deficiency, cytotoxicity, or morphological aberrations.

- Designed for human mesenchymal stem cells

Tetracycline Screened FBS

Designed for researchers using tetracycline-regulated gene expression systems in cultured cells, Tetracycline Screened FBS is suitable for expression studies in Tet-on/Tet-off systems.

- FBS with undetectable levels of tetracycline

Insect Cell Screened FBS

With the increasing popularity of the Baculovirus Expression Vector Systems (BEVS), more researchers are culturing insect cells. Our Insect Cell Screened FBS supports robust growth of insect cells.

- To optimize performance of insect cells

Screened FBS

Product	Volume	Product code
ES Cell Screened FBS CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL US Origin	100 mL 500 mL	76462-512 76462-514
Human Mesenchymal Stem Cell Screened FBS CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL US Origin	500 mL	76462-518
Tetracycline Screened FBS CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL US Origin	500 mL	76462-520
Insect Cell Screened FBS CofS no. R1-CEP 2000-076 40 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL US Origin	500 mL	76462-516

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Bovine calf serum products

Bovine calf serum products are excellent and cost-effective alternatives to FBS. Bovine calf serum products contain exceptionally high levels of transferrin, which, when supplemented, can provide three to four times as much available iron as FBS. In many applications, the performance of calf serum will equal or even surpass that of FBS. Our bovine calf serum products are sterile filtered, quality tested, and provided with a clear statement of serum origin.

Iron-Supplemented Bovine Calf Serum

This iron-supplemented bovine calf serum contains three to four times as much available iron and transferrin as FBS or equine serum.

Newborn Bovine Calf Serum

Newborn bovine calf serum undergoes the same careful collection and processing procedures (including venipuncture) used for our bovine serum products.

New Zealand Newborn Calf Serum

All New Zealand calf serum products are carefully collected, processed, and filtered in New Zealand to ensure safety against bovine diseases. We follow the same standards in processing of our calf serum as with our FBS to enable offering the highest quality and traceability.

Bovine calf sera

Product	Volume	Product code
Bovine Calf Serum CofS no. R1-CEP 2000-080 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL Age at time of collection: 16–22 weeks US Origin	100 mL 500 mL 1000 mL	16777-204 16777-206 82007-424
Iron-Supplemented Bovine Calf Serum CofS no. RO-CEP 2000-080 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL Age at time of collection: 16–22 weeks US Origin	100 mL 500 mL 1000 mL	16777-018 16777-022 82011-500
Newborn Calf Serum CofS not available 3 × 100 nm filtered Endotoxin: ≤ 50 EU/mL; hemoglobin: ≤ 25 mg/dL Age at time of collection: < 10 days US Origin	100 mL 500 mL 1000 mL	16777-220 16777-222 82007-448
New Zealand Newborn Bovine Calf Serum CofS no. R1-CEP 2000-190 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL Age at time of collection: <10 days	500 mL 1000 mL	76236-342 76236-348
New Zealand Iron Supplemented Newborn Serum CofS no. R1-CEP 2001-190 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL Age at time of collection: < 10 days	500 mL 1000 mL	76236-378 76237-072

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Engineered serum products

Engineered serum products are designed to be a cost-efficient, high-performing replacement for FBS.

Alpha Calf Fraction

Alpha Calf Fraction is produced from our bovine calf serum using a proprietary non-ethanol process to reduce immunoglobulins and proteins to levels similar to those of FBS. This product typically contains less than 200 µg IgG/mL.

- Optimized for the growth of hybridoma cells
- Cost-effective medium supplement

FetalClone™ products

FetalClone™ products are a blend of specially processed bovine calf serum, FBS, supplements, and nutrients demonstrating equivalent or improved performance compared to FBS with comparable IgG levels. These products have demonstrated performance with a variety of cell lines, including hybridomas, Chinese hamster ovary (CHO), BHK-21, NS0, MRC-5, and Vero cells.

FetalClone™ I

- Optimized for the growth of hybridomas cells
- IgG levels comparable to those found in FBS
- Demonstrated cell growth performance equivalent to FBS

FetalClone™ II

- Optimized for the growth of CHO cells and derivatives
- Offering the same basic formulation as our FetalClone™ I, with additional growth factors and supplements
- Improved cell growth performance relative to FBS

FetalClone™ III

- The most widely applicable of our FetalClone™ family of products
- Demonstrated performance with a variety of cell lines including fibroblast, epithelial, hybridoma and myeloma cells
- Improved cell growth performance relative to FBS
- Offering the same basic formulation as found in FetalClone™ II, with additional growth factors and supplements

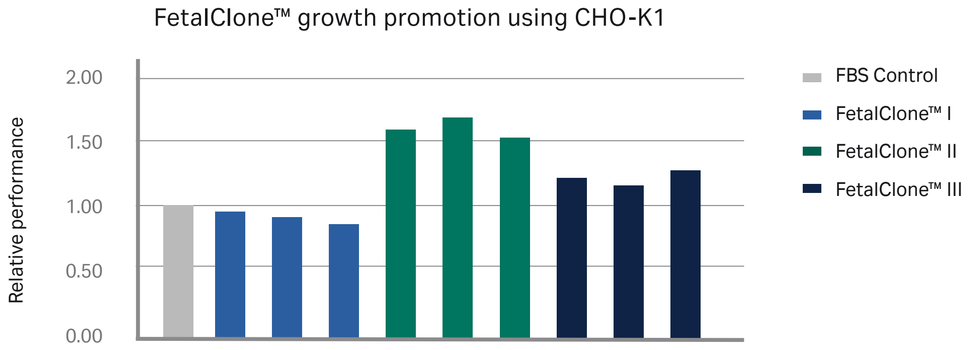

Fig 1. FetalClone™ growth promotion study using CHO-K1. Growth comparison study on three lots each of FetalClone™ I, II and III.

Engineered sera

Product	Volume	Product code
Alpha Calf Fraction CofS no. R1-CEP 2000-080 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 20 mg/dL Age at time of collection: 16–22 weeks US Origin	500 mL	82007-452
FetalClone™ I CofS no. R1-CEP 2000-185 3 × 100 nm filtered, Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 20 mg/dL Growth of hybridoma cells US Origin	100 mL 500 mL	16777-230 16777-232
FetalClone™ II CofS no. R1-CEP 2000-185 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 20 mg/dL Growth of CHO-K1 and CHO derivatives US Origin	100 mL 500 mL	16777-234 16777-236
FetalClone™ III CofS no. R1-CEP 2000-185 3 × 100 nm filtered Endotoxin: ≤10 EU/mL; hemoglobin: ≤ 20 mg/dL Most widely applicable, including fibroblasts US Origin	100 mL 500 mL	16777-238 16777-240

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Quality. Consistency. Reliability.

Alternatives and species-specific sera

Non-fetal serum products are used to enhance cell culture performance and are cost-efficient alternatives. These products contain several naturally occurring growth-promoting factors including hormones, proteins, amino acids, glucose, and vitamins.

Bovine Growth Serum

Bovine calf serum supplemented with chemically defined components, such as vitamins, amino acids, trace metals, and other small molecules.

- Suitable for stimulating cell growth and proliferation

Cosmic Calf™ Serum

This high-quality bovine calf serum is fortified with iron and naturally derived components, and augmented with additional growth-promoting components to yield an exceptional bovine calf serum.

- Excellent performance with a variety of cell types

Donor Adult Bovine Serum

Donor Adult Bovine serum is sourced from a closed herd maintained on USDA-licensed premises. Cattle from these closed herds are used exclusively for the production of donor bovine blood products.

Donor Equine Serum

Equine serum is carefully collected from animals fed an enriched diet to ensure proper nutrition. To reduce lipid concentration, the equine herd is fasted and then the blood is collected in a special facility using aseptic techniques. Coggins tests for equine infectious anemia are performed on each horse.

New Zealand Porcine Serum

Our porcine serum is sourced from New Zealand, filtered in the US through multiple 200 nm pore size-rated filters, and is gamma irradiated at 25 to 40 kGy after filtration.

Alternatives

Product	Volume	Product code
Bovine Growth Serum CofS no. R1-CEP 2000-080 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: 10 mg/dL Age at time of collection: 16–22 weeks US Origin	100 mL 500 mL	82006-906 82006-908
Cosmic Calf™ Serum CofS no. R1-CEP 2000-080 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL Age at time of collection: 16–22 weeks US Origin	100 mL 500 mL 1000 mL	16777-242 16777-244 82007-442
New Zealand Cosmic Calf™ Serum CofS no. R1-CEP 2001-190 3 × 100 nm filtered Endotoxin: ≤ 25 EU/mL; hemoglobin: ≤ 25 mg/dL Age at time of collection: <10 days	1000 mL	82024-638

Species-specific sera

Product	Volume	Product code
Donor Adult Bovine Serum CofS no. R1-CEP 2001-259 3 × 100 nm filtered Endotoxin: ≤ 50 EU/mL; hemoglobin: ≤ 25 mg/dL Age at time of collection: < 36 months US Origin	500 mL	82007-428
Donor Equine Serum 3 × 100 nm filtered Endotoxin: ≤ 10 EU/mL; hemoglobin: ≤ 10 mg/dL Age at time of collection: > 6 months US Origin	100 mL 500 mL 1000 mL	16777-026 16777-030 76236-290

CofS = certificate of suitability, available at cytiva.com/HyClone

Related HyClone™ medium products

Classical liquid media

Our extensive line of classical media is system-tested with HyClone™ serum to ensure product efficacy and homogeneity. These products are available in convenient packaging for research applications. Commonly used products are shown in the list to the right.

Reagents and cell dissociation products

HyQTase™ cell dissociation solution

This product is ultrafiltered and has a non-mammalian formulation that provides a gentle alternative to trypsin/EDTA. Treatment results in rapid cell detachment, single-cell suspension, and high cell viability with high passage-to-passage consistency.

Trypsin

Our product offering includes two commonly used concentrations of gamma-irradiated porcine trypsin (1:250 and 1:50).

Antibiotics and selection agents

We offer a variety of premium antibiotics and selection agents to control bacterial, yeast, fungi, and mycoplasma contaminations.

Cell Culture Grade Water

HyClone™ Cell Culture Grade Water is free of endotoxins, ensuring excellent reagent properties. In addition, we offer water for injection (WFI) quality water, molecular biology grade water, and a variety of other process liquids.

Related products	Product code
RPMI 1640 Medium with 25 mM HEPES and L-glutamine	16777-369
RPMI 1640 Medium with L-glutamine, dry powder	16777-097
DMEM with high glucose, 4.0 mM L-glutamine, and sodium pyruvate	16777-198
DMEM with high glucose and 4.0 mM L-glutamine • without sodium pyruvate	16777-131
DMEM with high glucose • without L-glutamine and sodium pyruvate	16777-176
DMEM with high glucose and L-glutamine • without sodium pyruvate	16777-048
IMDM with L-glutamine and HEPES • without alpha-thioglycerol	16750-088
MEM with Earle's balanced salt solution (EBSS) and 2.0 mM L-glutamine	16750-080
Trypsin 0.25%	95053-258
Trypan Blue Solution 0.4% in phosphate buffered saline	82024-256
Antibiotic Antimycotic Solution (Pen/strep/fungizone), 100×	82026-730

Related products	Product code
Phosphate Buffered Saline (PBS)	16777-251
Dulbecco's Phosphate Buffered Saline (DPBS)	16777-257
HEPES 1 M solution	16777-032
Earle's Balanced Salt Solution (EBSS) 1×, with calcium, magnesium, phenol red	16777-308
Hank's Balanced Salt Solution (HBSS) 1×, with calcium, magnesium, phenol red	16777-153
L-Glutamine	16777-162
NEAA	16777-186
Cell Culture Grade Water Endotoxin-free (< 0.005 EU/mL), deionized, distilled, 100 nm sterile filtered	82007-330

For a complete list of products, please visit cytiva.com/HyClone

HyClone™ cell culture

Innovation and quality

Now part of Cytiva business, we continue our mission to be the leading supplier of quality solutions to challenges faced in the biopharmaceutical industry and cell culture-based research. Our commitment to provide the most innovative tools to facilitate and advance research is the foundation for all of our products and for everything we do.

For nearly 50 years, HyClone™ Laboratories has remained dedicated to the advancement of science, through the support of cell culture and a comprehensive commitment to academia, research, and bioprocessing. With a strong commitment to progress and growth, customer needs fuel our development of innovative cell culture products, solutions, and manufacturing procedures. As a global manufacturer of cell culture media, serum, and process liquids, our experts understand the products needed to facilitate cell culture-based research and the production of biopharmaceuticals.

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