

Gibco sera— produced with a commitment to quality and innovation since 1962

Offering performance
and consistency essential
to successful cell culture



Cell culture

Delivering reliable cell culture products for over 60 years

A history of innovation

In 1962, the important discovery was made that there is a finite capacity for normal human cells to replicate in culture. This finding overturned a long-held belief about the potential immortality of cultured cells and has had far-reaching implications in bioproduction. That same year, two biologists working from their garage in Grand Island, New York, recognized the business potential of supplying animal sera for bioproduction. From this humble beginning, Gibco™ sera rose to the forefront of products supporting global life science research. Gibco™ cell culture products are now an important part of Thermo Fisher Scientific.

Performance based on science, not geography

Specifications, not origin, help drive consistent performance

We transformed the Gibco™ fetal bovine serum (FBS) portfolio into categories focused on quality indicators rather than origin. Now you can easily select the best serum for your needs based on how it performs, not where it came from. This also enables us to minimize supply disruption since there is less reliance on origin.

Old			New		
Premium Plus FBS source		Category	Premium Plus FBS source		Category
Australia	Processing and testing	Premium Plus FBS Australia	Australia	Processing and testing	Premium Plus FBS
New Zealand		Premium Plus FBS New Zealand	New Zealand		Premium Plus FBS
United States		Premium Plus FBS US	United States		Premium Plus FBS

Note: Serum lots will never contain sera from multiple sources; each lot will be from a single source (e.g., Australia, New Zealand, US).

FAQs about our performance-based categories

Why switch to performance-based categories?

- **Supply consistency**—more supply through origin flexibility assists in minimizing supply disruption
- **Performance consistency**—supply security means more customer choice and more lots with the specifications they desire
- **Product continuity**—remove the hassle of updating protocols, which can be based on specifications, the true performance driver, and not part numbers

Will origin go away?

No, it will remain visible on the label and CoA.

FBS origin remains essential as it helps define the health status of the animals from the country of collection. The health status controls serum applications and if it is permitted for import. Individual countries have different regulations for importation and these regulations are based on the health of the cattle populations within the exporting country. The health status of a country is determined by the World Organisation for Animal Health (WOAH), whose mission is to ensure transparency regarding global animal diseases.

Will the traditional catalog products categorized by origin continue to be available?

Yes, where needed, according to regulatory and quality requirements. The historical serum catalog products will remain available with extended forecasting requirements.

Does the absence of origin-based categories mean you blend your serum?

No, we never blend our FBS; each lot has a distinct origin.

Choose the right performance-focused FBS for your bioproduction

We provide a simplified three-tiered offering—Gibco™ Value FBS, Premium FBS, and Premium Plus FBS—in which each category is clearly delineated by relevant performance markers and testing levels to help ensure you can confidently select the right serum for your bioprocess manufacturing.

Value FBS

For standard applications with up to 30 quality specification tests

Premium FBS

Our most popular FBS product; high quality and exceptional value with up to 60 quality specification tests

Premium Plus FBS

Our highest-quality FBS for use with the most sensitive cells; up to 70 quality specification tests, including our lowest levels of endotoxin and hemoglobin release specifications

Value FBS

Description	Unit size	Cat. No.	Reference*
FBS, Value	500 mL	A5256701	FBS, USDA-approved regions, 500 mL (Cat. No. 10437028)
FBS, Value, Heat Inactivated	500 mL	A5256801	FBS, qualified, Brazil origin, 500 mL (Cat. No. 10270106) FBS, qualified, Canada origin, 500 mL (Cat. No. 12483020)

Premium FBS

Description	Unit size	Cat. No.	Reference*
FBS, Premium	500 mL	A5670701	FBS, qualified, US origin, 500 mL (Cat. No. 26140079)
FBS, Premium, Heat Inactivated	500 mL	A5670801	

Premium Plus FBS

Description	Unit size	Cat. No.	Reference*
FBS, Premium Plus	500 mL	A5669701	FBS, certified, US origin, 500 mL (Cat. No. 16000044)
FBS, Premium Plus, Heat Inactivated	500 mL	A5669801	FBS, qualified, New Zealand origin, 500 mL (Cat. No. 10091148) FBS, qualified, Australia origin, 500 mL (Cat. No. 10099141)

* Our previously offered catalog numbers.

FBS quality control release criteria

Analysis	Description	Value FBS	Premium FBS	Premium Plus FBS
Quality	Endotoxin Directly related to the quality of collection and processing of serum; the higher the level, the more introduction to gram-negative bacteria	≤20 EU/mL	≤10 EU/mL	≤5 EU/mL
	Haemoglobin/hemoglobin Indicator of proper and/or improper collection and processing of blood and/or serum	≤25 mg/dL	≤25 mg/dL	≤20 mg/dL
	Appearance	✓	✓	✓
	Sterility: bacterial and fungal testing	✓	✓	✓
	Osmolality	✓	✓	✓
	pH	✓	✓	✓
	Mycoplasma: supplemental testing (H-stain)	✓	✓	✓
	Mycoplasma	✓	✓	✓
	Country of origin confirmation	✓	✓	✓
Biochemical and hormonal profile	Biochemical Alkaline phosphatase, ALT, AST, bicarbonate, bilirubin (total), BUN, BUN/creatinine ratio, calcium, chloride, cholesterol, creatinine, GGPT, glucose, HDL, iron, iron saturation, LDH, LDL, phosphorous (inorganic), potassium, sodium, TIBC, triglycerides (TG), uric acid		✓	✓
	Hormonal Estradiol, insulin, progesterone, testosterone, thyroxine (T4)		✓	✓
Virus	Serology BVDV serum neutralization titer (Ab)		✓	✓
	Anti-BVDV antibody test (EMA lots only)			✓
	Virus (9 CFR) Bluetongue virus, bovine adenovirus, bovine parvovirus, bovine viral diarrhea virus, bovine respiratory syncytial virus (BRSV), rabies virus, reovirus Cytopathogenic agents, including bovine herpesvirus 1 (BHV-1/BR) Hemadsorbing agents, including bovine parainfluenza virus 3 (PI-3)	✓	✓	✓
	Virus (EMA) Bluetongue virus, bovine adenovirus, bovine parvovirus, bovine viral diarrhea virus, bovine respiratory syncytial virus (BRSV), rabies virus, reovirus Cytopathogenic agents, including bovine herpesvirus 1 (BHV-1/BR) Hemadsorbing agents, including bovine parainfluenza virus 3 (PI-3)			✓
	USDA safety testing Bluetongue virus (Mexican and Australian origin)	✓ (Mexican only)		✓ (AUS only)
	Akabane virus (Australian origin only)			✓ (AUS only)
	Protein electrophoresis and analysis Identification Electrophoretic profile Bovine gamma globulin (≤500 mg/L)	✓ ✓	✓ ✓	✓ ✓
	Protein Albumin, alpha globulin, beta globulin, total protein	✓	✓	✓
Performance	Relative growth promotion (RGP), relative cloning efficiency (RCE), relative plating efficiency (RPE)	✓	✓	✓
Documentation	Certificate of Suitability (TSE CEP)		✓	✓

Note: Our FBS is sourced from BSE-negligible countries.



Did you know?

9 CFR virus testing: virus panel testing according to the Code of Federal Regulations (CFR), Title 9, Part 113.53(c) [113.46, 113.47]; detected by fluorescent antibody

Biochemical and hormonal profiling: quantification of biochemical and hormonal (estradiol, insulin, progesterone, testosterone, and thyroxine) profiling that may have an impact on cell culture

European Medicines Agency (EMA) virus testing: virus panel testing according to EMA/CHMP/BWP/457920/2012 Part 7.3.1 and 7.3.2 and EMEA/CVMP/743/00 Part 4.3.3; detected by fluorescent antibody; conducted on selected lots

Fingerprinting technology (origin confirmation): a proprietary technology for Gibco sera to confirm FBS origin and eliminate the potential for counterfeit product

Heat-inactivated FBS: heated for 30 minutes at 56°C with mixing to inactivate complement proteins that are part of the immune response

Gamma-irradiated FBS: the most commonly used postmanufacturing approach for viral reduction in animal serum through exposure to gamma radiation

Specialty FBS

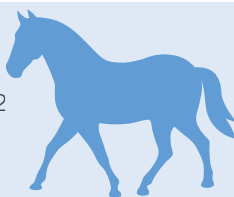
These specialty FBS offerings are made for bioproduction.

Specialty sera	Description	Application area
Ultra-low IgG FBS	<ul style="list-style-type: none">• IgG levels are less than 5 µg/mL• Bovine viral diarrhea virus (BVDV) antibody titer is low and not detectable	<ul style="list-style-type: none">• Antibodies• Viruses and viral response• Cell-surface epitopes
Dialyzed FBS	<ul style="list-style-type: none">• Dialyzed by tangential flow filtration utilizing 10,000 molecular weight (MW) cutoff filters• Performance tested for cloning and plating efficiency	<ul style="list-style-type: none">• Proteomics• Isotope labeling• Cellular signaling and reporter assays

Other animal sera

Although FBS is the most commonly used serum product, many other products provide lower-cost alternatives. These include bovine serum, horse serum, newborn calf serum, goat serum, rabbit serum, lamb serum, porcine serum, and chicken serum.

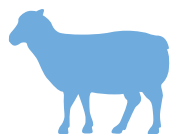
Horse serum: 500 mL, Cat. No. 16050122



Goat serum: 500 mL, Cat. No. 16210072



Sheep serum: 500 mL, Cat. No. 16070096



Rabbit serum: 500 mL, Cat. No. 16120107



Pig serum: 500 mL, Cat. No. 26250084

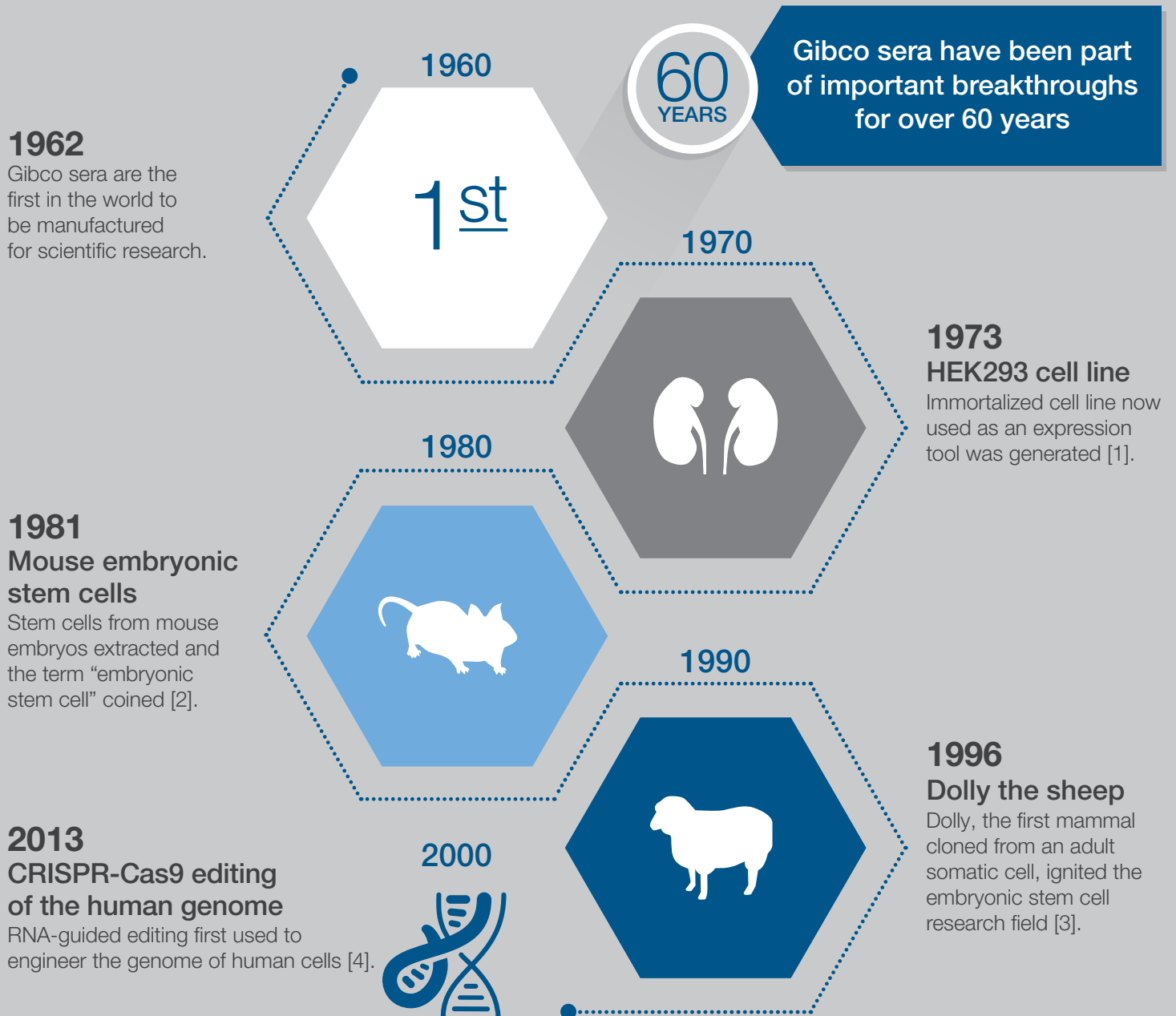


Chicken serum: 500 mL, Cat. No. 16110082



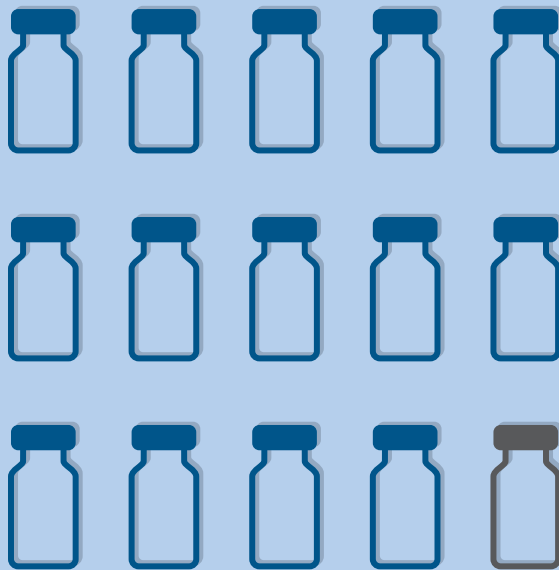
Scientists worldwide recommend Gibco sera more than any other sera

Delivering the performance and consistency you demand



It's the most-trusted serum

Used by 14 of the top 15 pharmaceutical companies



The right design



Ergonomic bottle
makes pipetting easier

Vertically integrated finish-at-source manufacturing process

Blood collection

Unlike most FBS suppliers, we invest in our own collectors, who obtain the majority of our supply (a by-product of the beef industry) straight from government-approved facilities with clinically examined healthy animals under veterinary supervision, using only the strictest aseptic collection techniques.

Sterile filtration and processing

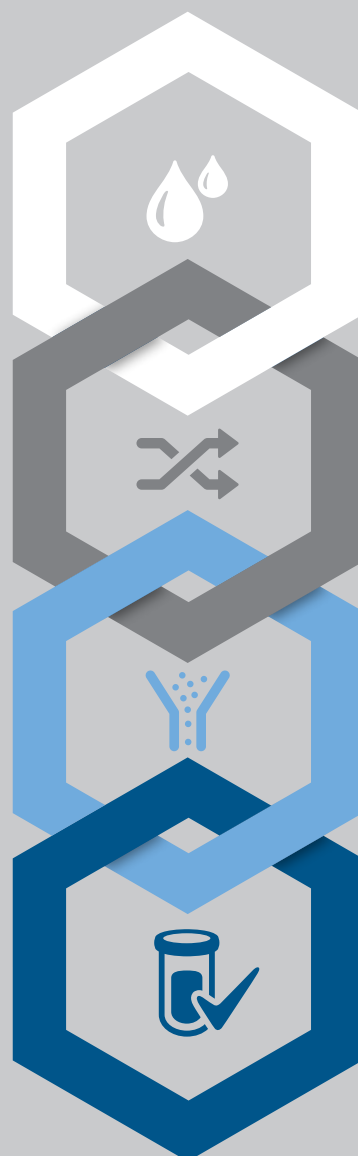
FBS is transferred to a cleanroom in specially designed stainless steel pipes, where it undergoes 0.1 µm triple filtration to minimize biological contaminants.

Raw serum conversion

At our processing facilities we conduct numerous quality checks, such as testing for hemoglobin levels, to verify that the integrity of the product is maintained.

Dispensing

Sterile-filtered serum is immediately and aseptically bottled and undergoes virus and quality testing before clearing QC.




Gibco FBS



Offers a high level of **traceability and quality**

Reduced risk of contamination of final product

Gibco products are backed by **superior quality**

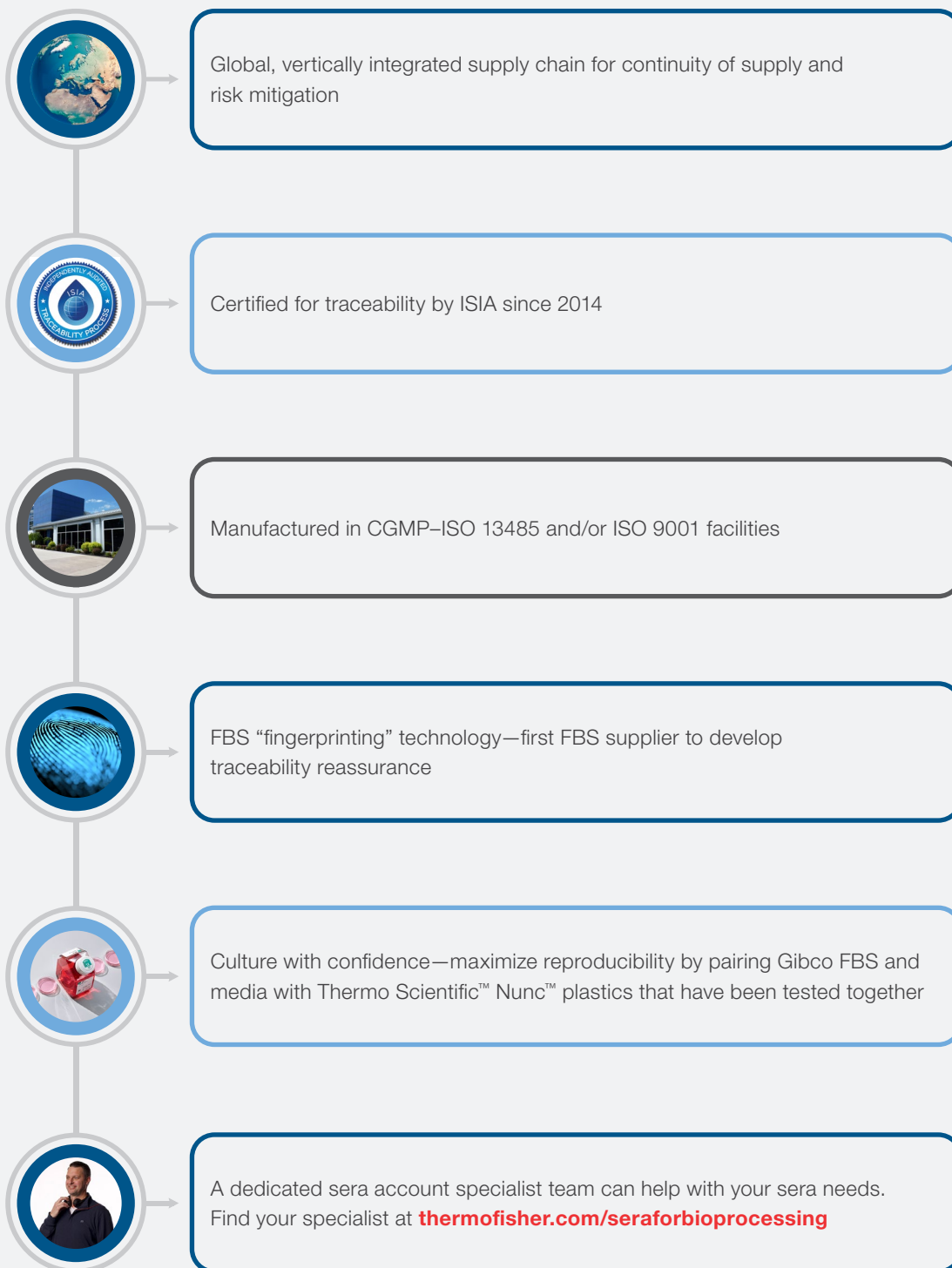
Up to **70** 
quality tests per batch

>200 
customer audits yearly

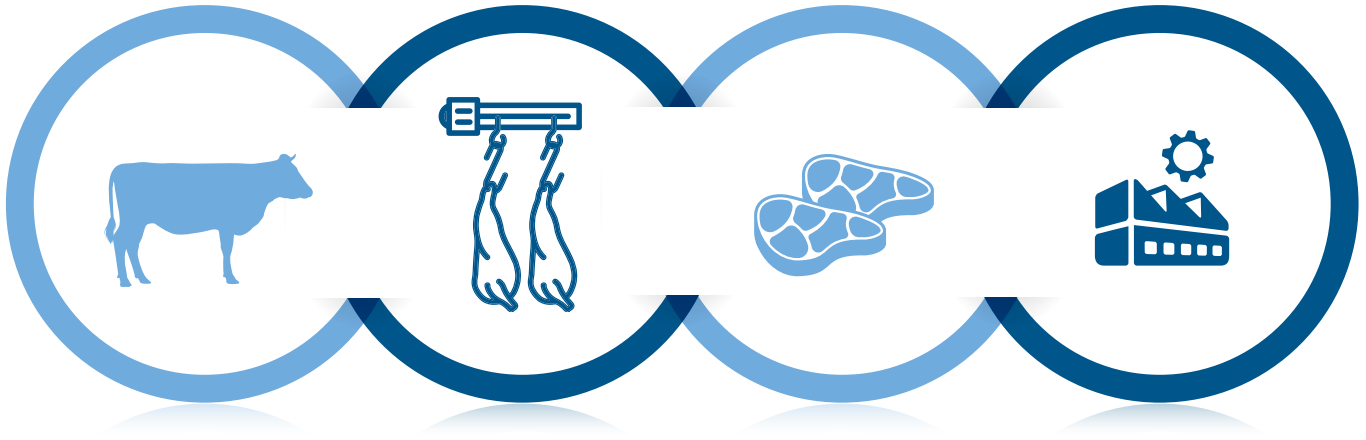


Awarded the International Serum Industry Association (ISIA) traceability certification in February 2014

How Gibco FBS stands out from other sera suppliers



FBS market dynamics



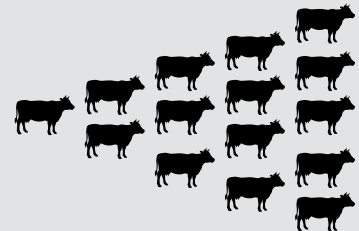
Demand for FBS products has no direct impact on the supply of upstream raw materials, but it does influence cost. Supply is finite because FBS is a by-product of harvesting cattle for the meatpacking industry.

Key drivers of supply and demand

Drought, high feed cost, high beef demand, and geopolitical issues (i.e., climate change, war, etc.) **can reduce supply.**



Herd rebuilding, which normally occurs after a severe drought, **can take 2–4 years.**



Why do FBS prices fluctuate constantly?



Watch the video at thermofisher.com/fbsbasics

Although the quality and integrity of FBS can be monitored and regulated, FBS is still a by-product of the meat industry. Therefore, FBS cost and supply is difficult to manage. Within recent years, the price of FBS has increased significantly in response to growing demand and restricted availability.

Cross-reference table to help you find a direct replacement from our previous offerings

Description				Description		
Previously offered		Volume	Cat. No.	Premium Plus FBS	Volume	Cat. No.
US-certified	FBS, certified, USA origin	50 mL	A3160401	FBS, Premium Plus	50 mL	A5669401
	FBS, certified, USA origin	10 x 50 mL	A3160402	FBS, Premium Plus	10 x 50 mL	A5669402
	FBS, certified, USA origin	500 mL	16000044	FBS, Premium Plus	500 mL	A5669701
	FBS, certified, heat inactivated, USA origin	50 mL	A3840001	FBS, Premium Plus, Heat Inactivated	50 mL	A5669501
	FBS, certified, heat inactivated, USA origin	10 x 50 mL	A3840002	FBS, Premium Plus, Heat Inactivated	10 x 50 mL	A5669502
	FBS, certified, heat inactivated, USA origin	500 mL	10082147	FBS, Premium Plus, Heat Inactivated	500 mL	A5669801
If you ordered Australia or New Zealand FBS previously, we recommend our Premium Plus products. If you require a specific origin, please contact your Thermo Fisher sera specialist.						
Previously offered		Volume	Cat. No.	Premium FBS	Volume	Cat. No.
US-qualified	FBS qualified, USA origin	50 mL	A3160501	FBS, Premium	50 mL	A5670401
	FBS qualified, USA origin	10 x 50 mL	A3160502	FBS, Premium	10 x 50 mL	A5670402
	FBS qualified, USA origin	500 mL	26140079	FBS, Premium	500 mL	A5670701
	FBS qualified, heat inactivated, USA origin	50 mL	A3840101	FBS, Premium, Heat Inactivated	50 mL	A5670501
	FBS qualified, heat inactivated, USA origin	10 x 50 mL	A3840102	FBS, Premium, Heat Inactivated	10 x 50 mL	A5670502
	FBS qualified, heat inactivated, USA origin	500 mL	16140071	FBS, Premium, Heat Inactivated	500 mL	A5670801
Previously offered		Volume	Cat. No.	Value FBS	Volume	Cat. No.
USDA-approved (Mexico)	FBS, USDA-approved origin	500 mL	10437028	FBS, Value	500 mL	A5256701
	FBS, USDA-approved origin	1,000 mL	10437036	FBS, Value	500 mL	A5256701
	FBS, USDA-approved origin, heat inactivated	500 mL	10438026	FBS, Value, Heat Inactivated	500 mL	A5256801
	FBS, USDA-approved origin, heat inactivated	1,000 mL	10438034	FBS, Value, Heat Inactivated	500 mL	A5256801
Brazil	FBS, qualified	500 mL	10270106	FBS, Value	500 mL	A5256701
	FBS, qualified, heat inactivated	500 mL	10500064	FBS, Value, Heat Inactivated	500 mL	A5256801
Canada	FBS qualified, Canada origin	500 mL	12483020	FBS, Value	500 mL	A5256701
	FBS, heat inactivated, qualified, Canada origin	500 mL	12484028	FBS, Value, Heat Inactivated	500 mL	A5256801

References

1. Graham FL et al. (1977) Characteristics of a human cell line transformed by DNA from human adenovirus type 5. *J Gen Virol* 36(1):59–74.
2. Martin G (1981) Isolation of a pluripotent cell line from early mouse embryos cultured in medium conditioned by teratocarcinoma stem cells. *Proc Natl Acad Sci USA* 78(12):7634–7638.
3. Wilmut I et al. (1997) Viable offspring derived from fetal and adult mammalian cells. *Nature* 385(6619):810–813.
4. Mali P et al. (2013) RNA-guided human genome engineering via Cas9. *Science* 339(6121):823–826.

All products may not be available in all regions due to importation regulations.
 Contact your sales representative regarding product availability in your country.

Learn more at thermofisher.com/seraforbioprocessing

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