

Foetal Bovine Serum (FBS)

Foetal Bovine Serum, FBS (also referred to as Foetal Calf Serum, FCS) is the most widely used serum-supplement for *in vitro* cell culture. FBS naturally contains very low level of antibodies combined with a higher concentration of growth factors (compared with other serum products). The addition of FBS to culture media serves three key functions in cellular growth by providing hormonal factors, attachments and spreading factors as well as transport proteins. No other known substance contains the same broad spectrum cell growth promoting properties.

Serum is the liquid fraction of clotted blood. It is depleted of cells, fibrin and clotting factors. Serum differs from plasma in that anticoagulant has not been used in the collection process. Serum is prepared by centrifugation and filtration. Foetal Bovine Serum is supplied triple filtered to 0.1 micron.

Availability

Global and local geographic and economical conditions, climatic environment and government legislation all contribute to the availability of FBS. The selling price of FBS is very dynamic being dictated by the country of origin which is influenced by supply and demand. Concerns about BSE and other adventitious agents potentially found in animal-origin materials, strongly influences the demand for specific origins with New Zealand, Australian and US origin material commanding the highest prices.

Choose from various origins depending on budget and research needs. South American origin serum provides the most cost-effective option. Australian and New Zealand FBS assure product of the highest integrity due to the disease-free status of these island countries.

Batch Testing

Samples are available, free of charge, to test for cell line suitability. A batch reservation can be held for four weeks, pending completion of testing.

Quality Assurance

Every batch is triple filtered to 0.1 micron. Quality Assurance testing precedes the release of a batch for sale. Full batch documentation can be provided including Filtration Records, Certificates of Origin and Certificates of Analysis.

Endotoxins

Serum is collected aseptically by specially trained operators to ensure freedom from bacterial contamination and low levels of endotoxin – typically <10EU/ml. Product codes GEM-100-500, GEM-100-106 and EU-000-FS/HS are pre-selected to have very low levels of endotoxin, typically below the standard level of 1ng/ml or 10 EU/ml. Actual values are provided in the Certificate of Analysis for each batch.

Product Codes & Availability

	Applications	Country of Origin	Endotoxin EU/ml	Pack Size	Product Code	
Standard Grade	Suitable for general applications, especially those that do not require defined biochemical and hormonal profiles or bacteriophage testing	South America	<10.0	500ml	EU-000-F	
				100ml	EU-000-H	
		USA	<10.0	500ml	GEM-100-500-F	
				100ml	GEM-100-500-H	
		USDA Grade	<10.0	500ml	GEM-100-106-F	
					100ml	GEM-100-106-H
				<50.0	500ml	GEM-900-108-F
					100ml	GEM-900-108-H
		Australia/ New Zealand	<10.0	500ml	GEM-100-700-F	
				100ml	GEM-100-700-H	
		New Zealand	<10.0	500ml	GEM-100-730-F	
				100ml	GEM-100-730-H	
Heat Inactivated	Sterile filtered serum is heated to 56°C for 30 minutes with continuous mixing, to inactivate various components of the serum including complement factors. Often required to preserve the integrity of immunoassays.	South America	<10.0	500ml	EU-000-FI	
				100ml	EU-000-HI	
		USA	<10.0	500ml	GEM-100-500-FI	
				100ml	GEM-100-500-HI	
		USDA Grade	<10.0	500ml	GEM-100-106-FI	
				100ml	GEM-100-106-HI	
			<50.0	500ml	GEM-900-108-FI	
				100ml	GEM-900-108-HI	
Gamma Irradiated	Serum is gamma irradiated in the final containers to guarantee freedom from all micro-organisms.	US Origin / USDA Grade	<10.0	500ml	GEM-100-201-F	
				100ml	GEM-100-201-H	
Dialysed	Chilled serum is dialysed from 10kDa up to 30,000kDa, to remove small molecules such as glucose, salts and some non-protein bound serum molecules such as polypeptides. Particularly suitable for receptor studies (and radiolabelling assays).	USDA Grade	<10.0	500ml	GEM-100-108-F	
			<10.0	100ml	GEM-100-108-H	
Charcoal Dextran Stripped Serum	Serum is processed through an activated charcoal filter to remove lipophilic material such as oestradiol, progesterone, cortisol, testosterone, T3, T4 and insulin. Ideal for applications requiring low levels of hormones such as steroid and steroid receptor research, immunoassay systems and insulin assay methods.	US Origin / USDA Grade	<10.0	500ml	GEM-100-119-F	
			<10.0	100ml	GEM-100-119-H	
Tetracycline Negative	Designed for studying tet-inducible gene expression systems. Serum is selected to be free of tetracycline or tetracycline derivatives.	South America	<10.0	500ml	EU-000-FT	
			<10.0	100ml	EU-000-HT	
Low IgG	FBS batches selected with naturally occurring low levels of IgG. Seralab does not process serum to artificially reduce IgG levels as this can affect culture performance.	South America	<10.0	500ml	EU-000-FigG	
				100ml	EU-000-HlgG	
		USDA Grade	<10.0	500ml	GEM-100-120-F	
				100ml	GEM-100-120-H	
Embryonic Stem Cell pre-tested	Batches of serum are pre-tested for ability to sustain undifferentiated cellular morphology in Murine ES Cell V 6.5. Crucial for the successful maintenance of embryonic stem cells.	South America	<10.0	500ml	EU-000-FE	
				100ml	EU-000-HE	
		USDA Grade	<10.0	500ml	GEM-100-125-F	
				100ml	GEM-100-125-H	
		USA	<10.0	500ml	GEM-100-525-F	
				100ml	GEM-100-525-H	
Insect Qualified	Batches of serum are pre-tested and qualified for insect cell culture applications in both Grace's and TNM-FH insect media on a broad range of insect cells, including Sf9, Tni and D2 cells.	USA	<10.0	500ml	GEM-100-135-F	
				100ml	GEM-100-135-H	
Delipidated	Developed for cultivation of hepatocytes and other cells used in numerous biological assays including research involving fatty acids, cholesterol, steroids, growth hormone and drug delivery.	USA	<10.0	100ml	GEM-900-123-H	
SeraLab Select	Pre-selected material that has been shown to have extremely low levels of endotoxin and are of particular interest in the culturing of primary or hybridoma cells.	South America	<10.0	500ml	EU-000-FS	
				100ml	EU-000-HS	

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