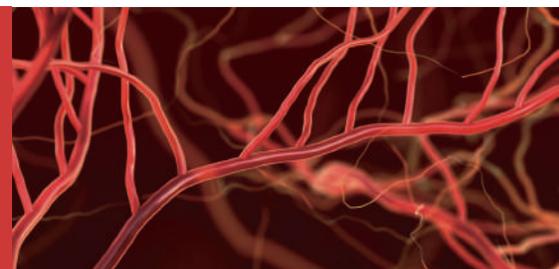


Fetal Bovine Serum



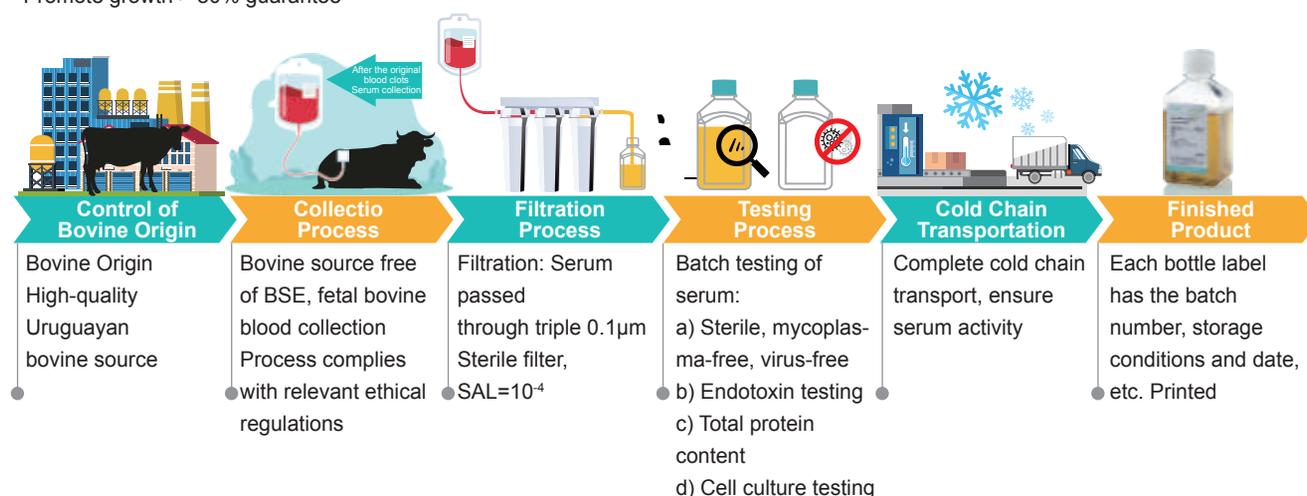
Fetal bovine serum (FBS) is the most widely used supplement in in vitro mammalian cell culture. It covers almost all the components needed for research in the life sciences industry, providing almost all the necessary ingredients for adherent and suspension cell culture, most of which have not yet been chemically defined, such as growth factors, attachment factors, transport proteins, lipids, and hormones. FBS is commonly used for cell line proliferation and primary culture, and is widely used in basic research, target/drug discovery, drug development, and clinical research.

FBS is extracted from the coagulated whole blood collected by puncturing the heart of the fetus. The serum is immediately centrifuged after collection, frozen, and transported to the processing plant. Upon arrival at the processing plant, the serum is thawed and passed through three 100nm (0.1µm) sterilizing filters, and then bottled through a sterile bottling process.

All batches of NEST® FBS undergo strict sterility, mycoplasma, and virus testing. Each batch of serum will also undergo cell growth, plate efficiency, and clone efficiency tests on the following cell lines: HeLa, L929, SP2/O-AG14, MRC-5. Certified serum also need to undergo a series of additional tests, including endotoxins, chemical components, protein electrophoresis, and radioimmunoassay tests.

Quality Assurance

- Total protein content: 40±5 g /L
- Endotoxin level < 5EU/mL
- Hemoglobin level < 30 mg /100 mL
- Promote growth > 80% guarantee



Source:

An important factor to consider in serum quality is the source of the serum, therefore, the traceability of the serum is crucial. Each production batch of NEST® FBS is strictly controlled, starting from serum collection, through all processing and production stages, to final packaging. NEST® guarantees the accuracy of the geographic source of the serum and all other data declared on the Certificate of Analysis (COA).

Filtering and Packaging:

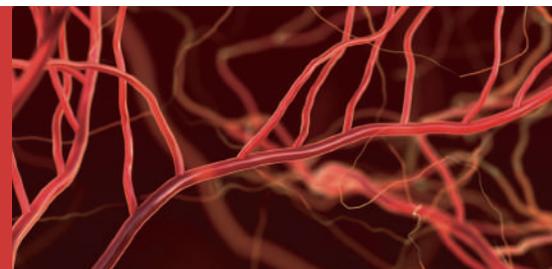
The raw serum is filtered through three 0.1µm sterile filters. The filtered serum is thoroughly mixed to ensure uniformity. NEST® products are packaged through a sterile filling process, each step of which is executed to ensure that the product complies with industry sterility assurance level standards SAL=10⁻⁴ (i.e., during the manufacturing process, the bacterial and fungal contamination level of the product does not exceed 1 in 10,000 units). The filtering and bottling are carried out in a positive-pressure HEPA-filtered controlled environment room.

Product Name	Specification	Cat.No.
Fetal Bovine Serum (FBS)	500 mL/bottle, 4 bottles/case	209111

Storage and Transportation Conditions

The storage conditions, batch number, and expiration date of NEST® FBS are indicated on the label. The storage condition is -20°C, and the shelf life is 60 months. When the product is stored correctly, the best product performance can be guaranteed. It needs to be transported at -20 C or on dry ice.

Fetal Bovine Serum



Batch Stability Test Items

1. Sterility

The products are all sterility tested based on the EP or USP to ensure no bacteria, yeast, E. coli phages, etc. Sterile filtration, aseptic packaging and each batch will be sampled for sterility testing.

2. Mycoplasma

Each product batch must be tested for the presence of mycoplasma. Mycoplasma in the serum is detected through culture methods.

3. Hemoglobin

Quantitative and colorimetric methods are used to determine the residual hemoglobin concentration in each product batch.

4. Cell Culture Test

Each batch of FBS is tested for in vitro culture effects of specific cell lines, mainly evaluated based on the following three aspects:

- Growth promotion
- Cloning efficiency
- Plating efficiency

The following cell lines are used to determine the growth promotion and function of FBS:

Cell Line	Cell Type	
HELA Species	Cancer Cells	Human
L929	Fibroblasts, Macrophages	Mouse
SP2/0-AG14	Lymphoma	Mouse
MRC-5	Lung	Human

Add cell culture media with a concentration of 10% serum to the test to evaluate the biological performance, and record the growth! morphology of the cells.

5. Endotoxin test (LAL)

All serum have been quantitatively tested by color dynamics to determine and quantify endotoxin levels.

6. Protein concentration test

Protein Test Type	Method
Total Protein	Biuret Colorimetry
Albumin	Immunoturbidimetry
Globulin	Immunoturbidimetry

7. Osmotic Pressure

Osmotic pressure is determined by lowering the freezing temperature. Osmometers are calibrated with traceable standards.

8. No BSE Testing

For materials derived from bovine, bovine spongiform encephalopathy (BSE) testing is conducted before the corresponding blood can be processed. NEST fetal bovine serum is BSE-free serum.

9. Bovine Serum Specific Virus Testing

Each batch of serum undergoes additional virus testing using cell culture techniques. The serum is inoculated on GBK cells to detect the absence of the indicated virus. Virus detection is performed through indirect immunofluorescence, including BVD, IBR, and PI3 viruses, and the test is negative.

Purpose Statement

NEST fetal bovine serum is for research applications only. It is the end user's responsibility to verify the suitability of these products for their specific applications. These products are not for diagnostic use. The safety and effectiveness of these products in diagnostic or other clinical uses have not yet been determined.