

Fetal Bovine Serum, Embryonic Stem Cells tested



Product number S 13100, S13500, S13000 *

*Origin EUA = EU approved SA = South America USDA = Mexico

Stem cells have the unique ability to self-renew or to differentiate into various cell types in response to appropriate signals. These properties provide stem cells with unique capabilities for tissue repair, replacement and some regeneration. Human stem cells are of special interest in medical research. Embryonic stem cells have the ability to differentiate into more cell types than adult stem cells. Differentiation is triggered by various factors in vivo, some of which can be replicated in in vitro stem cell cultures. The nature of stem cells necessitates the use of special stem cell culture media and reagents. Since suboptimal Sera may change the differentiation potential of stem cells, it is vital to choose the correct stem cell validated Sera and reagents at the start of your research process. Use the selection guide provided below during the planning phase of your research project.

Collected from the source :

When researchers choose their serum an important factor to be considered is the source of origin which also relates to the traceability of the serum.

Our system of vertical integration allows us to be certain of the origins and traceability of our FBS. Each manufactured batch is rigorously controlled, from the collection of serum and throughout all stages of its treatment and production through to final packaging.

Seraglob Fetal Bovine Serum is derived from clotted whole blood aseptically collected from fetus via cardiac puncture at the highest ethical behavior and respect for the animals.

The serum is collected or imported and treated in agreement with the European regulations.

Filtration : Final Filter Size 0.1µm

Sterility : All sera are tested for the absence of aerobic and anaerobic bacteria, fungi, yeast and Mycoplasma. The sterility test is based on the European Pharmacopoeia requirements.

Tests:

Mycoplasma: The sera are tested for the absence of Mycoplasma by culture.

Virus Tests :

All of our sera are tested for:

- Bovine Viral Diarrhoea (BVD)
- Cytopathogenic agents e.g. Infectious Bovine Rhinotracheitis (IBR) / BHV-1
- Hemadsorbing agents e.g. Parainfluenza Type 3 (PI3)

Seraglob "Sesera" ES fetal Bovine serum are tested for the absence of the indicated viruses by inoculation to permissive cells. The revelation is made by immunofluorescence for pestiviruses. Cytopathogenic agents and hemadsorbing agents are detected by microscopic observations.

Endotoxin :

All sera are tested to determine the levels of endotoxins.

The endotoxin reagent is standardized against the US reference endotoxin.

Haemoglobin :

The haemoglobin level is measured by spectrophotometer.

Osmolality :

Is determined by a lowered freezing temperature. The osmometer is calibrated against standard solutions.

Cell Culture :

Biological performance is assessed using a cell culture medium supplemented with the serum being tested .

During the test period, cultures are examined microscopically for any morphological abnormalities that may indicate toxic components in the serum.

Cell Culture Tests :

Cell Growth, Plating Efficiency, Cloning Efficiency.

Cell Lines Tested :

The following cell lines are tested with the serum: HELA -Cancer Cell/Human.

L929 -Fibroblast-Mouse/ As Macrophage SP2/O-AG14 -Mouse/Lymphoma

MRC- 5 -Human/Lung.

Total Protein : Determined by Biuret Colorimetry.

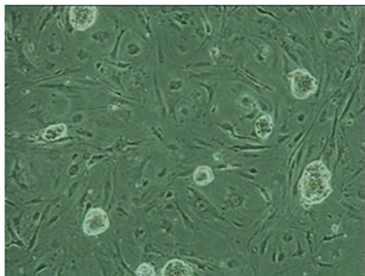
Embryonic Stem Cells tests

Seraglob delegates this test to an external laboratory.

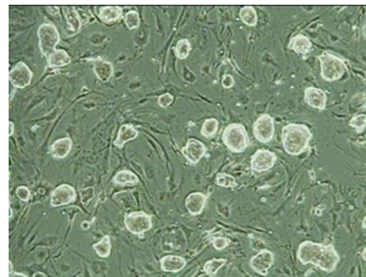
The cell growth is studied during two passages with mouse embryonic stem cell E14 cell line.

The validation criteria are the cell growth and the morphology of the cells (see below photos of embryonic stem cells grown up on a Seraglob "Sesera" ES fetal Bovine serum).

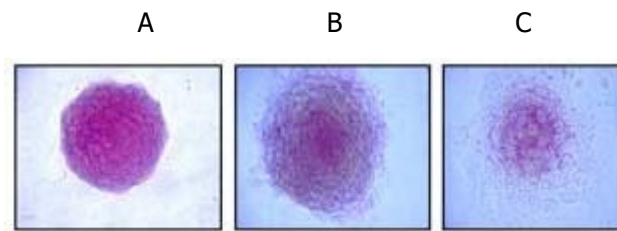
Serum at 10%, Passage 1, 72h



Serum at 10%, Passage 2, 72h



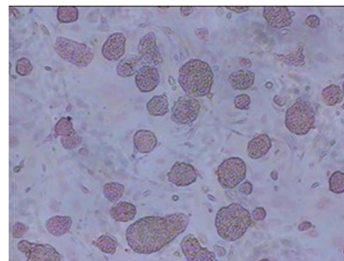
A validation of the cell growth test is made with the use of an Alkaline Phosphatase Detection kit. The Kit is a specific and sensitive tool for the phenotypic assessment of ES cell differentiation by the determination of the AP activity.



Alkaline Phosphatase staining of ES cells. High magnification revealed :

- (A) Undifferentiated ES cells (mouse MBL.5 cell line)
- (B) Differentiated ES cells
- (C) Differentiated ES cells

See below a photo of embryonic stem cells grown up on a Seraglob "Sesera" ES fetal Bovine serum and revealed by the Alkaline Phosphatase Detection Kit.



A toxicity test is also performed with the serum at 30%.

Storage conditions : - 20°C Shelf life : 5 years (can be extended to 6 years)

Recommended use for all kind of Sera :

- Respect storage conditions of the serum minimum – 20°C
- Do not use the serum after its expiry date
- Store serum in an area protected from light
- aliquots must be stored in appropriate 50ml vessels (sterile, RNA/DNA free, non cytotoxic...)
- In order to preserve all serum qualities, it is recommended to thaw out the flask, to aliquot, then to re-freeze the produced flasks rather than to thaw out and re-freeze the flask at each use.
- Manipulate serum in aseptic conditions (Class II cabinets - under laminar air flow)
- Wear clothes adapted to the manipulation of serum to avoid contamination (e.g. : gloves, mask, hygiene cap, overall...)
- It is recommended to use the serum immediately after its thaw out. However, if it is not useful, it is possible to store thaw out serum, at +2°C / +8°C, until 20 weeks without significant decrease of its performances in cell culture.

The product is intended to be used in vitro. Do not use it in therapy, human or veterinary applications.

The raw serum may be gamma irradiated before filtration indicated on label and COA

Technical Data sheet V 2 / 202050