Arvand Cell

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Products Information

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About Us

Founded in 2019, Arvand is committed to transforming scientific research through the development of high-quality laboratory products under the Arvand Cell brand.

With a strong focus on cell culture and biotechnology, we bring together innovation, expertise, and rigorous quality standards to deliver reliable, state-of-the-art solutions for researchers and institutions. Our purpose is to connect science with innovation, working closely with academic, clinical, and industrial partners to support groundbreaking advancements in research and healthcare. Our dedication to quality assurance, product development, and customer satisfaction makes us a trusted partner in the advancement of science. At Arvand, we are not just creating products—we are enabling progress.

Fetal Bovine Serum

General Information

Commercially available cell culture media alone are insufficient for optimal cell survival and proliferation in vitro. Serum is the blood component that can be obtained after coagulation and by removing cellular components. Fetal bovine serum (FBS) serves as a crucial supplement, providing essential nutrients, growth factors, amino acids, and hormones required for maintaining and expanding cultured cells. Additionally, FBS plays a key role in neutralizing the enzymatic activity of trypsin during cell passaging and acts as a cryoprotective agent during cell freezing. Compared to other animal sera, FBS is particularly rich in growth factors and contains lower levels of undesirable antibodies, which could otherwise interfere with cell culture processes. The quality and concentration of FBS are critical factors influencing optimal cell growth, making the consistency and reliability of serum essential for obtaining accurate and reproducible experimental results.

Given the variability among suppliers and the presence of counterfeit products, it is strongly recommended to verify the authenticity of FBS before purchase to ensure its efficacy and reliability in cell culture applications.

Product Specification

Appearance	Clear amber liquid
Storage and shelf life	Store at ≤-20°C. Avoid repeated freeze-thaw cycles. Preperation of aliquots recommended. Once opened store at 4°C and use within 4-6 weeks.
Shipping conditions	Frozen (Dry ice)
Thawing	Overnight at +2°C to +8°C. Swirl gently to homogenize.

Fetal Bovine Serum

Additional Tests

Mycoplasma	✓
Sterility	✓
Endotoxin	<10.0 EU/ml
Brucella SPP	Negative
Hemoglobin	<20 mg/dL
Osmolality	260-340 mOsm/kg
pH	7.0-8.0
Total protein	3.0-4.5 g/dL
Heat Inactivated	✓

Heat inactivation:

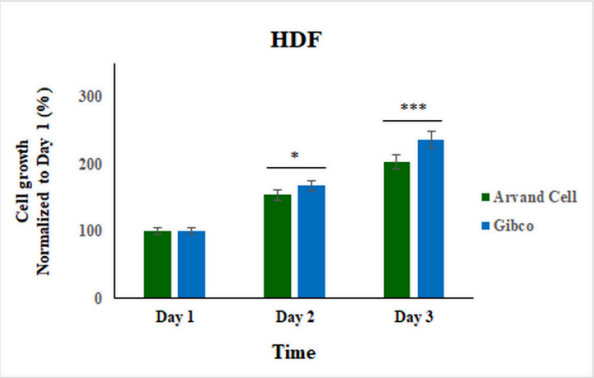
Heat inactivation will inactivate the complement system, antibodies and other active enzymes. It has to be done in a carefully controlled process in order to avoid damaging the cell growth promoting properties of the serum and reducing the formation of unwanted precipitates. The process involves heating the serum in a shaking water bath at exactly +56°C for 30 minutes. The shaking will help avoid the formation of protein and other forms of precipitates. After 30 minutes the serum is cooled back down to room temperature as quickly as possible to avoid excessive exposure to heat which can damage e.g. growth factors and vitamins.

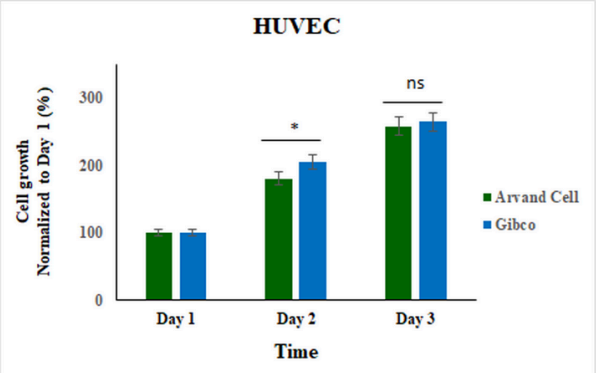
Fetal Bovine Serum

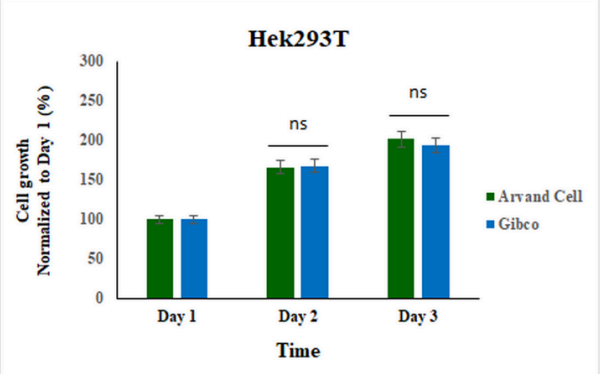
Quality Control

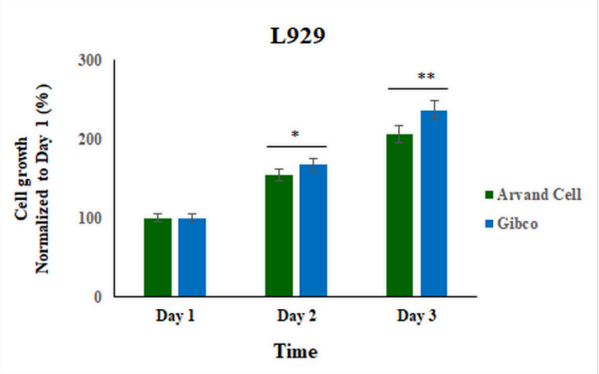
Only sera batches which pass our quality control are released for sale. Standard parameters which are determined include pH, osmolality, content of protein, hemoglobin, endotoxin level, sterility, mycoplasma detection and virus testing.

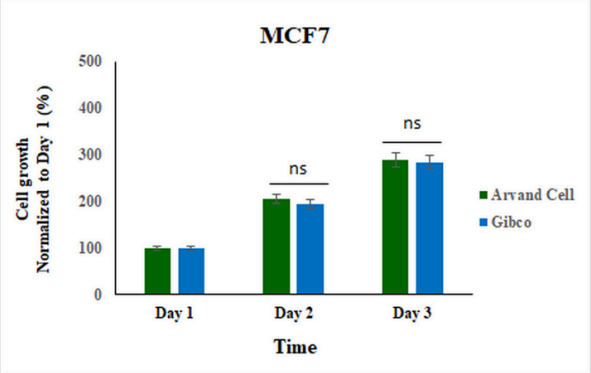
Comparison of Arvand Cell Serum and Gibco Serum Performance in Different Cell Lines

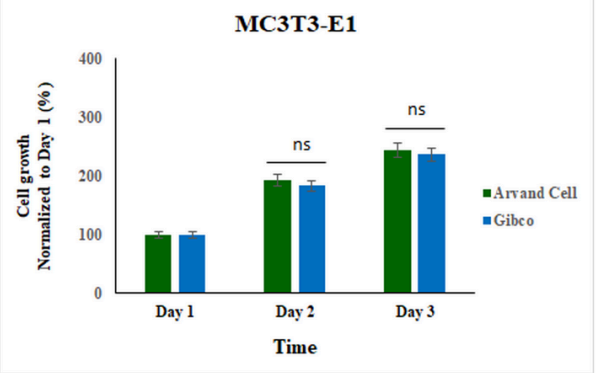








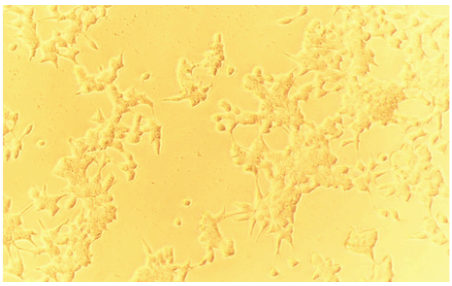




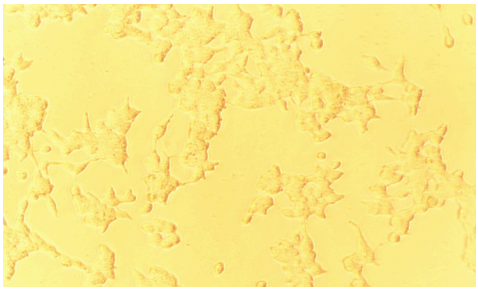
Fetal Bovine Serum

Qualitative comparison of growth of Hek293T cell line cultured with Arvandcell and Gibco

Day1

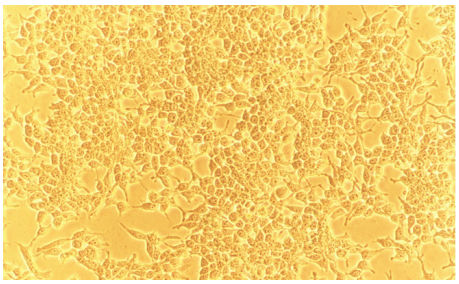


Arvand cell

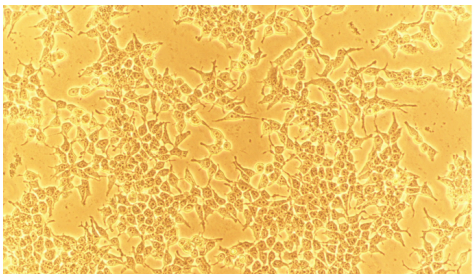


Gibco

Day3



Arvand cell



Gibco

Tips for Using Fetal Bovine Serum (FBS):

- In most cases, 10% of the culture medium consists of serum; however, the concentration may vary depending on the cell line requirements.
- After thawing the cell stock, 20% serum in the culture medium is recommended to help cells stabilize more quickly.
- The serum should be clear. Do not use serum if it appears cloudy.
- Repeated freezing and thawing can degrade the quality of the serum.
- Complement inactivation is not required for this product.
- Due to its high nutrient content, FBS is highly susceptible to contamination and must be handled under sterile conditions.

Precautions

This product is for research use only.

Help Needed?

If you have any further questions regarding this product, please do not hesitate to contact our cell culture experts by email (**info@arvandcell.com**) or phone (**09135733383**).

Penicillin/Streptomycin (100x)

General Information

Penicillin-Streptomycin (Pen/Strep) is a common supplement in eukaryotic cell culture media, effectively preventing bacterial contamination due to its broad-spectrum activity against both gram-positive and gram-negative bacteria. Penicillin inhibits bacterial cell wall synthesis, while streptomycin binds to the 30S subunit of the bacterial ribosome, disrupting protein synthesis and leading to bacterial cell death.

Pen/Strep is widely used in cell culture; however, its application should be tailored to the specific needs and sensitivity of different cell lines to prevent the development of antibiotic-resistant strains and minimize unwanted effects on cells. Since high concentrations of this solution may be toxic to certain cell lines, it is recommended to assess different doses on the target cell line to determine potential cytotoxic effects. Pen/Strep is typically provided as a ready-to-use 100x concentrate for convenient use in cell culture applications.

Applications:

- Prevention of cell culture contamination
- Most common antibiotic solution for the culture of mammalian cells

Product Specification

Appearance	Clear amber liquid
Storage and shelf life	Store at ≤-20°C. Avoid repeated freeze-thaw cycles. Preperation of aliquots recommended. Once opened store at 4°C and use within 4-6 weeks.
Shipping conditions	Frozen (Dry ice)
Thawing	Overnight at +2°C to +8°C. Swirl gently to homogenize.
Working concentration	Recommended final concentration: 10 ml/L

Penicillin/Streptomycin (100x)

Formulation

Components	Concentration
Penicillin G Sodium	10^7 Units/L
Streptomycin Sulfate	10000 mg/L

Tips for Using Penicillin/Streptomycin (100x):

- Optimal Concentration: Pen/Strep is commonly used at a final concentration of 100 U/mL penicillin and 100 µg/mL streptomycin. However, the appropriate concentration should be determined based on the specific cell line to avoid cytotoxic effects.
- Avoiding Antibiotic Resistance: Continuous use of antibiotics can lead to the emergence of resistant bacterial strains. It is recommended to maintain good aseptic techniques and use antibiotics as a preventive measure rather than a substitute for proper sterile practices.
- Impact on Eukaryotic Cells: While Pen/Strep effectively prevents bacterial contamination, prolonged exposure or high concentrations may adversely affect cell growth, metabolism, and viability. Therefore, performing a preliminary cytotoxicity assay on the target cell line is advised.
- Potential Effects on Cellular Functions: Some studies suggest that antibiotics can alter gene expression, mitochondrial activity, and protein synthesis in eukaryotic cells. Researchers should consider these potential confounding factors when designing experiments.
- Selective Use in Sensitive Cell Lines: Certain primary cells, stem cells, and sensitive cell lines may exhibit reduced proliferation or differentiation in the presence of Pen/Strep.
- Storage and Stability: Pen/Strep should be stored at -20°C for long-term use and at 2–8°C for short-term storage. Repeated freeze-thaw cycles should be avoided, as they may degrade antibiotic efficacy.
- Compatibility with Other Supplements: Some supplements, such as serum and growth factors, may interact with antibiotics, affecting their stability or activity. It is essential to verify compatibility before adding Pen/Strep to culture media.

Precautions

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Trypsin-EDTA (0.05 %) in DPBS (1x)

General Information

Trypsin-EDTA is an enzymatic solution used to detach adherent cells from culture surfaces by breaking down cell-cell and cell-matrix interactions. Trypsin, derived from porcine pancreas, cleaves peptide bonds at the carboxyl side of lysine and arginine residues, disrupting protein structures that anchor cells to the substrate. EDTA, a chelating agent, enhances this process by sequestering calcium and magnesium ions, which are essential for cell adhesion.

The duration of trypsinization is a critical factor, as prolonged incubation can lead to cellular stress, apoptosis, or undesirable morphological changes. Certain cell lines exhibit increased sensitivity to trypsin, necessitating optimization of incubation time to minimize potential adverse effects. The optimal trypsin concentration and incubation time should be empirically determined for each specific cell type to ensure effective detachment while preserving cell viability and function.

Product Specification

Appearance	Clear amber liquid
Storage and shelf life	Store at ≤-20°C. Avoid repeated freeze-thaw cycles. Preperation of aliquots recommended. Once opened store at 4°C and use within 2-4 weeks.
Shipping conditions	Frozen (Dry ice)
Thawing	Overnight at +2°C to +8°C. Swirl gently to homogenize.

Formulation

Components	Concentration (mg/L)
EDTA 2Na	220.00
KCl	200.00
KH_2PO4	200.00
NaCl	8000.00
Na_2HPO_4	1150.00
Trypsin	500.00

Trypsin-EDTA (0.05 %) in DPBS (1x)

Tips for Using Trypsin-EDTA:

Trypsin-EDTA (0.05 %) in DPBS (1x) solution is supplied as a sterile, ready-to-use, frozen liquid. This entire procedure should be done in a laminar flow hood using proper aseptic technique.

- Optimal Incubation Time: Trypsinization should be closely monitored under a microscope to prevent excessive exposure, which may lead to cell membrane damage, loss of surface receptors, or apoptosis. Incubation time varies depending on cell type, confluency, and culture conditions.
- Prewarming Enhances Efficiency: Trypsin-EDTA should be prewarmed to 37°C before use to ensure optimal enzymatic activity. However, for more sensitive cell lines, room temperature or 2°C–8°C incubation may be preferable to reduce cellular stress.
- Calcium and Magnesium Removal: Since divalent cations facilitate cell adhesion, pre-rinsing cells with a Ca^{2+} and Mg^{2+}-free buffer enhances trypsin efficiency by weakening cell-cell and cell-matrix interactions.
- Trypsin Inhibition: To prevent prolonged enzymatic activity and minimize cell damage, trypsin must be neutralized promptly using a serum-containing medium or a specific trypsin inhibitor such as soybean trypsin inhibitor.
- Avoid Repeated Freeze-Thaw Cycles: Trypsin-EDTA solutions should be aliquoted and stored at -20°C or 4°C, avoiding repeated freeze-thaw cycles to maintain enzymatic stability.
- Impact on Surface Proteins: Trypsin can cleave cell surface proteins, including receptors. If preserving these proteins is essential (e.g., for flow cytometry or immunostaining), consider using alternative detachment methods such as cell dissociation buffers or Accutase.
- Gently Resuspend Cells: Following detachment, cells should be handled carefully to avoid mechanical stress, which may affect viability. Pipetting gently prevents clumping and maintains cell integrity.
- Sterile Handling: Trypsin solutions are prone to bacterial contamination, so strict aseptic techniques should be used when handling and dispensing the reagent.
- Cell-Specific Sensitivity: Some cell types, such as primary cells or stem cells, are particularly sensitive to trypsin and may require lower concentrations or shorter incubation times to prevent damage.

Precautions

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Help Needed?

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