



### Product Profile

Product Name:	Donor Horse Serum(DHS)
Catalog Number	04-004-1
Unit Size Availability:	(a)500ml; (B)100ml
Formulation:	Frozen
Defined Storage Conditions:	-20°C
Stability: (Under Defined Handling & Storage Conditions)	Please Refer To Product Label

**Important Note!** Please read the MSDS and Product Profile carefully in their entirety before using this material for possible safety precautions and potential hazards.

#### Product Description:

For many applications, *Donor Horse Serum (DHS)* is utilized as a supplement for growth medium. It functions or provides a vast array of:

- ◆ Macromolecular Proteins
- ◆ Low-Molecular Weight Nutrients as an additional Source of Amino Acids, Carbohydrates, Vitamins
- ◆ Carrier Proteins for Water-Insoluble Components
- ◆ Raises the Buffering Capacity of the Medium
- ◆ Binds and/or Neutralizes Toxic Components
- ◆ Reduces Cell Oxidative Stress Decreasing Apoptosis like Insulin and other Growth Factors
- ◆ Provides Growth-Promoting Factors Easing Cell Adaptation

This variegated spectrum of often undefined components stimulate and enhance the *in vitro* growth of cells with its inclusion of hormones, essential growth and attachment factors and other indispensable niche requirements for optimal cell performance. Different kinds of serum vary in their ability to assist in the attachment and promoting cell proliferation. The most appropriate serum supplement will depend upon the stage of the culture cycle. Sera active in promoting attachment and growth of cells under conditions of low cell density may be utilized during the initial stages of culture. Once the culture enters the exponential growth phase, the growth promoting function of serum is then critically important and sera promoting this function can be utilized at the lowest effective concentration. For example, maximum yields of mouse mammary epithelial cells may be obtained by plating medium containing 20% DHS, Bovine or (Ovine)Lamb Serum, and then changing to medium containing 5% Rabbit Serum after 48-72 hours. One of the most important factors controlling the success and reproducibility of cell cultures is the variation between batches of a given type of serum. Batches of a particular type of serum may show large variations with respect to a number of components and such variation may result in widely different plating efficiencies and yields, even if other culture conditions are optimum. The batch of serum may also determine which components from the medium will become limiting. Therefore, selection of the best batches of serum should be on the basis of plating tests in micro-carrier culture.

Donor Horse Serum (DHS) contains higher concentrations of protein when compared to Fetal Bovine Serum (FBS), but lower trace metals concentration making it an ideal supplement for complex media formulations where higher protein concentration is not a factor. Horse Serum - Supplemented Cell-Culture Media has demonstrated its suitability not only for the culture of haematopoietic stem cells and neuronal cells but is also utilized in diagnostic assays as well as growth and detection media for *Mycoplasma spp.* DHS may be preferred to FBS, under certain circumstances, as it can be obtained from a closed herd which makes it more consistent from batch to batch.

The wide spectrum of macromolecular proteins that constitute Serum are part and parcel of a final complex mixture that segues and culminates into those necessary and indispensable unique niche requirements that stimulates the *in vitro* growth and development of specific cells in culture. Animal Serum provides not only an additional source of amino acids, carbohydrates and vitamins but also decreases concerns over whether a particular basal medium of choice provides all the aforementioned essential nutrients. Furthermore, Serum not only acts by binding or neutralizing toxic elements in the growth milieu but also increases the buffering capacity of the medium itself. Most often, Serum-supplemented applications contain just the right quantity and quality of growth-promoting factors to help cells easily adapt from one formulation to another. Choosing the appropriate Serum may prove to be more important than the choice of basal media itself.

*Biological Industries'* Pre-Screened and Pre-tested Serum and Serum Products undergo the most stringent and rigorous Quality Control/Assurance Standards and Protocols testing all raw materials and finished products in order to meet the demands of international markets and ensure high quality and consistency. All our serum products meet approved compliance validation and specifications prior to use and/or release of the final product to the end-user. All our Serum and Serum Products (Human and Animal) undergo a methodical and comprehensive battery of Physicochemical, Microbiological and Biological Performance Testing Procedures. Each batch is traceable, well-documented from source of origin through the thorough and systematic Quality Control process. All documentation and certification are available upon request.

*Predominant Characteristics of Donor Horse Serum (DHS) include:*

- § Animal-Derived Source
- § Meets Biological Industries' USP and EPTesting Specifications
- § Cell-Culture & Endotoxin-Tested
- § Suitable for Cell-Culture Applications
- § Long-Storage When Handled Properly Under Defined Conditions

**General Handling Precautions, Storage & Stability:**

This material, like all other materials utilized in the laboratory setting should be handled only by trained personnel familiar with Laboratory Procedures regarding the Handling, Use, Storage and Disposal of chemical products especially hazardous or potentially hazardous products. Donor Horse Serum (DHS) is very stable and under normal use by trained individuals is not expected to be toxic, hazardous or dangerous to one's health and safety according to OSHA regulations. Nevertheless, all procedures involving this product must be completed in ways that minimize spattering, splashing, spraying and/or generation of droplets. Do not expose to light for prolonged periods as it is light-sensitive. For prolonged storage, place in the dark under the specified storage conditions stipulated on the label.

Although all raw materials of Human and Animal products undergo an extensive and rigorous battery of tests to ensure compliance and validation of international protocols regarding safety and health, no test methods offer complete assurance that products derived from all human or animal sources are noninfectious for diseases not tested. Handle all human and animal source material as if it were capable of transmitting infection by using appropriate universal and/or international personal protection equipment as stipulated on the MSDS..

**Caution!** All components containing biological materials must be treated as potentially biohazardous. The product should be handled aseptically and stored in sterile conditions to avoid bacterial contamination. All materials and mixtures may present unknown hazards and should be used with caution.

**Instructions/Procedure:**

- 1) Take a bottle out of the proper storage conditions at -20°C and read the label.
- 2) Thaw to room temperature.
- 3) Ensure that the cap of the bottle is tight.
- 4) Gently swirl the solution in the bottle.
- 5) Wipe the outside of the bottle with a disinfectant solution such as 70% ethanol.
- 6) Using aseptic/sterile technique under a laminar-flow culture hood, work according to established protocols.

As the selection of a nutrient medium or supplementation thereof is strongly influenced, among others, by many factors, of note are three major considerations:

- ◇ Cell Type
- ◇ Type of Culture (e.g., Clonal, Monolayer, Suspension)
- ◇ Degree of Chemical Definition

It is recommended to review the extensive literature concerning cell-culture media and its supplementation and the physiological parameters required for each specific cell-line as per their essential requirements.

**Quality Control (Each Batch/Lot\* will differ as to Final Specifications\*)**

Physical Analysis	Specifications
<b>Appearance</b>	
Color:	Clear Amber
Fibrin:	Absence of Precipitation
Foam:	No Foam
Lipid Presence:	No Fatty Ring After Filtration
Osmolality:	265-305 mOsm/kg
pH:	7.5-8.6

Chemical Analysis	Specification
Albumin Content:::	2.0-3.0 g/100ml
Hemoglobin Content:::	NMT 30mg/100ml
Total Globulins:	NMT 5.6g/100ml
Total Protein Content:::	5.0-7.6 g/100ml

Microorganisms	Specification	Viruses	Specification
Aerobic:	Negative	BVD	Negative
Anaerobic:	Negative	PI-3	Negative
Fungi:	Negative	IBR	Negative
Mycoplasma:	Negative		

Growth Promotion	
Vero	%T/C=>80

Endotoxins: Test & Record

*Auxiliary Products*

Product Name	Catalog Number	Storage Temperature
Penicillin-Streptomycin 1X Solution	03-031-1	-20°C
Fetal Bovine Serum(FBS)	04-001-1	-20°C
Fetal Bovine Serum(Qualified for Human Embryonic Stem Cells)	04-002-1	-20°C
Adult Bovine Serum	04-003-1	-20°C
Porcine Serum	04-006-1	-20°C
Rabbit Serum	04-008-1	-20°C
Donor Goat Serum	04-009-1	-20°C
Fetal Bovine Serum(Dialyzed)	04-011-1	-20°C
Special Newborn Calf Serum(Less than 10 days of age)	04-102-1	-20°C
Fetal Bovine Serum(Heat-Inactivated)	04-121-1	-20°C
Special Newborn Calf Serum(Heat-Inactivated)	04-122-1	-20°C
Donor Horse Serum(Heat-Inactivated)	04-124-1	-20°C
Fetal Bovine Serum(Charcoal-Stripped)	04-201-1	-20°C
Nystatin Cell Culture-Tested Biochemicals( $\gamma$ -Irradiated)	41-506-1/5	2-4°C
<b>Note:</b> For a list of other Antibiotics, or Biological Industries' Products, please refer to our Product Catalog/Product Profiles/Product Guides and Internet Site.		

*References:*

- 1) Current Edition Merck Index
- 2) Biological Industries (BI) Specifications
- 3) Current Edition USP/E Ph
- 4) Martindale The Extra Pharmacopeia, 28<sup>th</sup> Edition, Royal Pharmaceutical Society: London, England