

### Product Profile

Product Name:	Lactalbumin Hydrolysate Solution Concentrate(50X)
Product Catalog Number	01-356-1
Unit Size Availability:	100ml
Concentration:	50X
Formulation:	Dark-Colored Liquid Solution
Specified Storage Conditions:	2-8°C
Stability: (Under Ideal Handling Storage)	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:

**Lactalbumin Hydrolysate (LAH) Solution Concentrate (50X)** is a peptone frequently utilized as a nutritional supplement for preparing bacterial, insect and mammalian cell culture, especially as a rich source of amino acids. Lactalbumin (LA) is a milk-protein fraction containing  $\beta$ -lactoglobulin and  $\alpha$ -lactalbumin among other major and minor protein fractions.  $\alpha$ -lactalbumin is the regulatory subunit of lactose synthetase which is thought to be related to lysozyme C. Lactalbumin is removed from the whey when milk coagulates which is left after the removal of casein from milk. Whey protein is a mixture of globular proteins and is typically a mixture of  $\beta$ -lactoglobulin,  $\alpha$ -lactalbumin, bovine serum albumin and immunoglobulins that are considered the major protein fractions. The Hydrolysates are one of the three major forms of whey protein; the other two being a concentrate and an isolate form. The Hydrolysates are predigested and partially hydrolyzed (i.e. by enzymatic degradation) and are more easily absorbed. Whey is a source of branch chain amino acids (BCAA's) known for stimulating protein synthesis. Protein utilization generally involves three main important characteristics:

- ✚ The inherent amino acid content of the protein itself
- ✚ The degree to which its components may be absorbed and,
- ✚ The retention and utilization after absorption

**Lactalbumin Hydrolysate (LAH)** is a supplement not only utilized with Grace's Insect Cell Culture Medium for Baculovirus protein expression systems to assist in increasing biomass production but also as an overlay for the protein expression. Grace's Insect Medium supports the growth of insect cells including *Spodoptera frugiperda* and when supplemented with **Lactalbumin Hydrolysate (LAH)** and other components, it can be used for the general growth and maintenance of insect cells. **LAH** may also be utilized, aside from other cell or tissue culture or microbiological applications/formulations, for the production of vaccines of viral origin. Other uses include not only the growth of *Lactobacilli spp.* where it is used specifically, as a nutritional source, but also for Clostridial spores and certain fermentation procedures. Due to its high tryptophan content, it is also useful for indole testing.

**Grace's Insect Cell Medium with L-Glutamine** is a medium designed and may be optimized for the culture of *Lepidopteran spp.* insect cells with the addition of serum. (Class, *Insecta*; Order, *Lepidoptera*; Family *Noctuidae*). The medium supports the growth and maintenance of both anchorage-dependent and suspension cultures of Sf-9 cells derived from the pupal ovarian tissue of the Fall Armyworm, *Spodoptera frugiperda* (J.E. Smith). **Grace's Insect Cell Medium with L-Glutamine** is primarily used as a basal medium for the growth and maintenance of cell lines derived from Lepidopteran species and that when supplemented with either Fetal Bovine Serum (FBS), and/or a combination of Lactalbumin Hydrolysate, Yeastolate or Yeast Extract (Cat. No. 01-357-1), Bovine Serum Albumin (BSA) or other protein sources, provide excellent results.

#### Predominant Characteristics of Lactalbumin Hydrolysate (LAH) Solution Concentrate (50X) includes:

- § Liquid 50X Concentrate
- § Growth Supplement
- § Commonly Used In Cell, Insect and Mammalian Culture System Applications and Formulations
- § Optimized for Serum-Free or Serum-Reduced Culture Systems or Media Platforms
- § Relatively Long-Storage When Handled and Stored Properly Under Defined Conditions

#### Storage & Stability:

This product should be stored under specified conditions @ 2-8°C and used within the expiration date indicated on the product label. **Do not use** after the expiration date as specified on the label. Deterioration of liquid media may be recognized by any of the following characteristics, among others including: (a). color change, (b). granulation/ clumping, (c). insolubility,(d). And/or decrease in expected performance parameters. Any material described above should not be used and therefore discarded.

**Lactalbumin Hydrolysate (LAH)** is relatively stable when handled and stored under specified conditions as stipulated on the label. Do not expose to light for prolonged periods as it is light-sensitive. For prolonged storage, store in the dark.

## Instructions/Procedure:

- 1) Take a bottle of *Lactalbumin Hydrolysate (LAH) Solution Concentrate (50X)* from specified storage conditions at 2-8°C and read the label.
- 2) Ensure that the cap of the bottle is tight.
- 3) Gently swirl the solution in the bottle to ensure homogeneity.
- 4) Wipe the outside of the bottle with a disinfectant solution such as 70% ethanol.
- 5) Using aseptic/sterile technique under a laminar-flow culture hood and work according to established protocols.

Test	Specifications:
Sterility:	Sterile

*Auxiliary Products*

Product Name	Catalog Number	Storage Temperature
Grace's Insect Cell Medium	01-155-1	2-8°C
Yeastolate Solution(50X),166.66g/ml	01-357-1	2-8°C
SDS Solution	01-890-1	Room Temperature(15-30°)
Dulbecco's Phosphate Buffered Saline(DPBS) without Calcium and Magnesium	02-023-1	Room Temperature(15-30°)
L-Glutamine Solution 29.2mg/ml in Saline	03-020-1	-20°C
L-Alanyl-L-Glutamine Solution(A Dipeptide Substitute)	03-022-1	-20°C
Penicillin-Streptomycin Solution,10,000 units/ml Penicillin G Sodium Salt,10mg/ml Streptomycin	03-031-1	-20°C
Sterile Culture-Grade Water	03-055-1	Room Temperature(15-30°)
Cell Dissociation Solution, Non-Enzymatic	03-071-1	2-8°C
Fetal Bovine Serum	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
Serum-Free Cell Freezing Medium	05-065-1	2-8°C
Colchicine Solution, 10µg/ml in DPBS	12-003-1	-20°C
Colcemid Solution, 10µg/ml in DPBS	12-004-1	-20°C
Potassium Chloride(KCl) Solution(0.075M)	12-005-1	2-8°C
Phytohemagglutinin-M(PHA-M), Lyophilized	12-006-1	2-8°C
<b>Note:</b> For a list of other Antibiotics, Serum, Reagents and Supplements, please refer to our Product Catalog, Product Profiles, Product Guides and Internet Site.		

*References:*

- 1) Sullivan Jr. John B. Krieger, Gary R. Hazardous Materials Toxicology: Clinical Principles of Environmental Health. Williams & Wilkins: Baltimore, Maryland, pps.157, 940-945.
- 2) Barile, Frank A. Clinical Toxicology: Principles and Mechanisms. CRC Press: Boca Raton, Florida, 2004.
- 3) Lackie, J. M. The Dictionary of Cell & Molecular Biology, Academic Press: London, 2007
- 4) O'Neil, Maryadele *et. al.*, The Merck Index, 14<sup>th</sup> Edition, Whitehouse Station, New Jersey,2006
- 5) Biological Industries (BI) Specifications
- 6) Current Edition USP/E Ph
- 7) Martindale The Extra Pharmacopeia, 28th Edition, Royal Pharmaceutical Society: London, England
- 8) Freshney, R.I. Animal Cell Culture: A Practical Approach, IRL Press, Oxford, p.25.