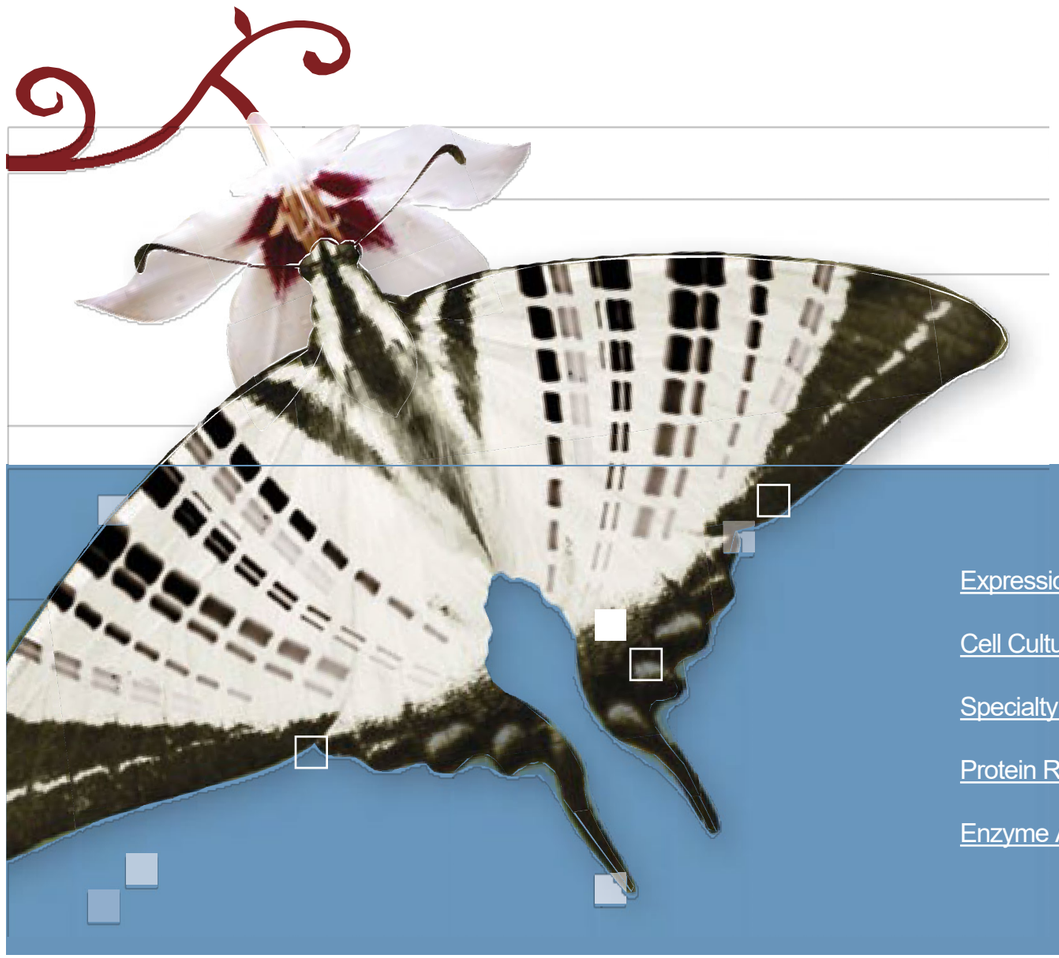
2025 - 2026 Product Catalog

the Nature of Proteins



Expression Products

Cell Culture Media

Specialty Proteins

Protein Refolding Reagents

Enzyme Assays

Athena Enzyme Systems™
www.athenaes.com

Simple Solutions for Complex Proteins

the Nature of Proteins

AthenaES™ 2025 - 2026 Product Catalog

Expression Products

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AthenaES®
a division of Athena Environmental Sciences, Inc.

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Simple Solutions for Complex Proteins

The Nature of Proteins

Proteins are ubiquitous in nature, a basic element of all life.

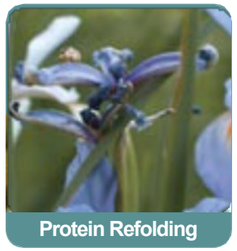
Athena Enzyme Systems™, a subsidiary of Athena Environmental Sciences, Inc., designs and manufactures reagents and cell culture media for laboratory research. Our core mission is to empower researchers to discover and innovate by providing the highest quality reagents.

The Expression Media and Protein Refolding portfolios are designed to boost the production and recovery of proteins. The Serum Free Media line provides top notch solutions for tissue culture, especially for human prostate and breast tissue. We are constantly striving to enable researchers to improve their methods by developing new world class formulations.

Athena specializes in custom media, contract manufacturing and private labeling solutions. Located Baltimore, MD USA, Athena has been a long-time partner to local scientists by providing protocol preparations, bulk buffers and reagents at wholesale cost. Our location also serves as a strategic site for international customers for contract manufacturing, inventory control and shipping services within the USA. Ask us about contract & custom manufacturing!

Athena's products have been trusted internationally by scientists for over 25 years for everything from basic science to drug development. Thank you for utilizing Athena Enzyme Systems™ reagents!

Athena Enzyme Systems™
AthenaES®
a division of Athena Environmental Sciences, Inc.



Product Category Index

Expression Products

Athena's proprietary Expression Media are world renowned for their reliability and superior performance in the production of recombinant proteins. Athena also offers the *Prime*™ and *Prime-olate*™ Broths, unique Animal- Product-Free media.

Animal-Product-Free Broths and Kits Available

Product Index

Athena's Animal-Product-Free Media:

AthenaES™ is commited to providing the highest-quality research reagents. For our line of animal-product-free media, this includes insuring comparable (if not superior) performance to standard media, in addition to complying with stringent animal-free manufacturing requirements. Each of our animal-product-free media receive a seal of APF Certification™ after going through rigid quality control testing. To make it easier for laboratories looking for animal-free products in our catalog, we have placed an indicator next to all products in this catalog that are either animal-product-free, or that have an APF alternative available.

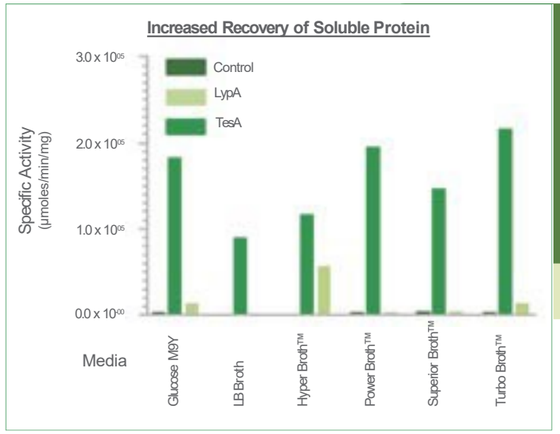
In addition, below is an index of all APF Certified™ products. For questions about AthenaES™ Animal-Product-Free media or quotes on bulk packaging, contact us at support@athenaes.com

Expression Media Selection Kit™

The Expression Media Selection Kit™, enables researchers to determine the best media formulation that yields the highest amount of target protein. Since the production of a given recombinant protein can vary significantly depending on the type of medium employed, the EMSK™ provides sterile liquid aliquots of fifteen expression broths, including eleven proprietary formulations, as well as Animal Product Free(APF) versions of Miller and Lennox. The ready-to-use liquid kit contain 15 mL of each medium.

0187 EMSK™

Kit Components				
LB Broth (Miller)	APF LB (Miller)	Turbo Broth™	Superior Broth™	Power Broth™
LB Broth (Lennox)	APF LB (Lennox)	Turbo *Prime* Broth™	Superior *Prime* Broth™	Power *Prime* Broth™
Hyper Broth™	Glucose M9Y	Turbo *Prime-olate* Broth™	Superior *Prime-olate* Broth™	Power *Prime-olate* Broth™



The graph to the left shows the results of a typical experiment using components of the Expression Media Optimization Kit™. The experiment tests the specific activity of LypA and TesA in the soluble fraction of cell-free extracts after 3 hours induction with IPTG. LypA accumulates as inclusion bodies in most media but can be recovered in the soluble fraction by selecting the right formulation. The graph shows the highest expression of TesA to be in Turbo Broth™ and Power Broth™ and the highest expression of LypA to be in Hyper Broth™.

Read the complete Animal-Product-Free Technical Brief here.

On the web:
athenaes.com/optimization-kits

LB Broth & *Animal-Product-Free* LB Broth

Athena offers three variations of the basic nutrient-rich LB Broth media (Miller, Lennox, and Luria) as well as their *APF Certified*™ equivalents made using Athena's proprietary blended plant protein hydrolysate: Atholate™. The formulations each provide an abundance of peptides and peptones, vitamins and trace elements, and differ only in sodium chloride content and whether they were made with casein hydrolysate or Atholate™. The differences allow the researcher to select which formula will provide the ideal osmotic conditions for their particular bacterial strain and desired culture conditions. Each LB Broth and *APF* LB Broth can be custom ordered in bulk.

Available in liquid or dry-powder.

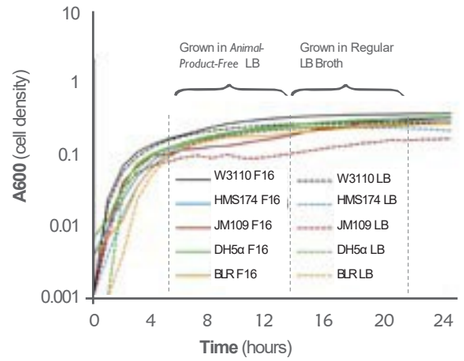
	Formulas (g/L)		
Ingredient	**Luria**	**Lennox**	**Miller**
Casein Hydrolysate / Atholate™	15	15	15
Yeast Extract	5	5	5
NaCl	0.5	5	10

Animal-Product-Free

★ APF LB Broth Formulations made with Atholate™ *(See page 17)*

Product	Formulation	Quantity	Cat. No.
LB Broth (Luria)	Powder	500g	0101
LB Broth (Lennox)	Powder	500g	0102
LB Broth (Miller)	Powder	500g	0103
LB Broth (Lennox)	Liquid (ready-to-use)	5 x 500mL	0113
LB Broth (Miller)	Liquid (ready-to-use)	5 x 500mL	0114
LB Broth (Miller)	Powder	1L Single-use-Packets (Box of 10)	0130
APF LB Broth (Luria)	Powder	500g	0131
APF LB Broth (Luria)	Powder	1L Single-use-Packets (Box of 10)	0131-S
APF LB Broth (Luria)	Liquid (ready-to-use)	5 x 500mL	0174
APF LB Broth (Lennox)	Powder	500g	0132
APF LB Broth (Lennox)	Powder	1L Single-use-Packets (Box of 10)	0132-S
APF LB Broth (Lennox)	Liquid (ready-to-use)	5 x 500mL	0175
APF LB Broth (Miller)	Powder	500g	0133
APF LB Broth (Miller)	Powder	1L Single-use-Packets (Box of 10)	0133-S
APF LB Broth (Miller)	Liquid (ready-to-use)	5 x 500mL	0173

Growth of *E. coli* in Standard and *APF* LB Broths



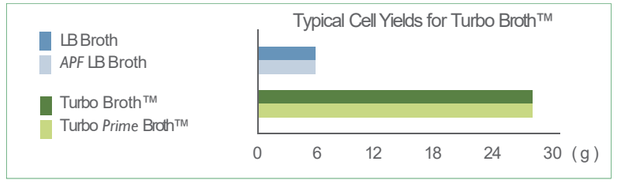
The growth curves to the left show the growth of wild type and four commonly used strains of *E. coli* in standard LB Broth (dotted lines) and Athena's *Animal-Product-Free* LB Broth (solid lines). The cultures for each strain were inoculated from an overnight culture grown in standard LB (Miller). The strains cultured in the *Animal-Product-Free* LB Broth had comparable growth to cultures of standard LB Broth.

Read the complete Animal-Product-Free Technical Brief here.

On the web:
athenaes.com/lb-and-apf-lb-broth

Turbo Broth™ & Turbo *Prime* Broth™

Turbo Broth™, Turbo *Prime* Broth™ and Turbo *Prime-olate*™ are proprietary media formulations used for the cultivation of recombinant strains of *E. coli*. Both Turbo *Prime*™ and Turbo *Prime-olate*™ are *APF Certified*™. Turbo *Prime-olate*™ is made with Atholate™, Athena's proprietary blended plant protein hydrolysate. The media improve the yield of recombinant proteins and typically produce cell yields 4 to 5 times higher than that of LB Broth in shake flask cultures depending on the strain. They have higher plasmid copy numbers than LB, which can enhance expression. Each medium uses glycerol for a carbon source and has a rich nutrient base of amino acids, vitamins, inorganic minerals and trace minerals. The media are buffered at pH 7.2 ± 0.2 with potassium phosphate to prevent a change in pH and provide a source of phosphate. These media are ideal as the base for fermentation cultures.



Available in liquid or dry-powder.

- Cell yields up to 5 times higher than that of LB Broth
- High plasmid copy numbers
- Rich nutrient base
- Ideal as fermentation culture base

Animal-Product-Free

★ *APF Prime-olate*™ Formulations made with Atholate™ *(See page 17)*

Product	Formulation	Quantity	Cat. No.
Turbo Broth™	Powder	500g	0104
Turbo Broth™	Powder	1L Single-use-Packet (box of 10)	0104-S
Turbo *Prime* Broth™	Powder	500g	0110
Turbo *Prime* Broth™	Powder	1L Single-use-Packet (box of 10)	0110-S
Turbo Broth™	Liquid (ready-to-use)	5 x 500mL	0115
Turbo *Prime* Broth™	Liquid (ready-to-use)	5 x 500mL	0120
Turbo *Prime-olate*™	Powder	500g	0160
Turbo *Prime-olate*™	Powder	1L Single-use-Packets (Box of 10)	0160-S
Turbo *Prime-olate*™	Liquid (ready-to-use)	5 x 500mL	0170

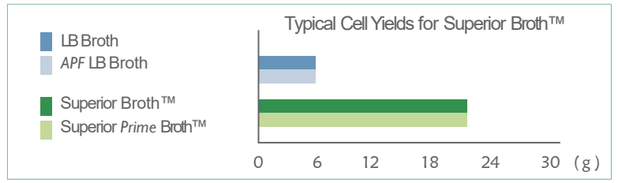
On the web:
athenaes.com/turbo-and-turbo-prime-broth

Superior Broth™ & Superior *Prime* Broth™

Superior Broth™, Superior *Prime* Broth™ and Superior *Prime-olate*™, are proprietary media formulations developed by AthenaES™ for improved expression of recombinant proteins in *E. coli*. The formulations are complex, supplying a nitrogen source, vitamins, and moderate glucose levels. The media are buffered at pH 7.2 ± 0.2 to prevent acidification of the medium during metabolism of the glucose. Expression of recombinant proteins should be induced at cell densities twice that of LB Broth. Cell yields are typically about 3 to 4 times that of LB Broth. Superior Broth™ shows the highest plasmid copy numbers among the AthenaES™ family of media. This medium is an excellent choice for large-scale plasmid preparations. Biomass yields will depend on the process and the strain employed.

Available in liquid or dry-powder.

- Cell yields up to 4 times higher than that of LB Broth
- High plasmid copy number
- Ideal for large-scale plasmid preparation



Animal-Product-Free

★ *APF Prime-olate*™ Formulations made with Atholate™ *(See page 17)*

Product	Formulation	Quantity	Cat. No.
Superior Broth™	Powder	500g	0105
Superior Broth™	Powder	1L Single-use-Packet (box of 10)	0105-S
Superior *Prime* Broth™	Powder	500g	0111
Superior *Prime* Broth™	Powder	1L Single-use-Packet (box of 10)	0111-S
Superior Broth™	Liquid (ready-to-use)	5 x 500mL	0116
Superior *Prime* Broth™	Liquid (ready-to-use)	5 x 500mL	0121
Superior *Prime-olate*™	Powder	500g	0161
Superior *Prime-olate*™	Powder	1L Single-use-Packet (box of 10)	0161-S
Superior *Prime-olate*™	Liquid (ready-to-use)	5 x 500mL	0171

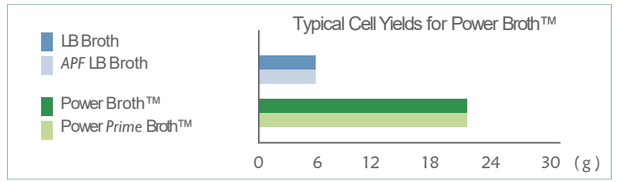
On the web:
athenaes.com/superior-and-superior-prime-broth

Power Broth™ & Power *Prime* Broth™

Power Broth™, Power *Prime* Broth™, and Power *Prime-olate*™ are proprietary media formulations developed by AthenaES™ for improved expression of recombinant proteins in *E. coli*. These media are composed of a complex, rich mixture of amino acids, vitamins, and a carbon source at higher levels than Terrific Broth. The media are buffered at pH 6.8 ± 0.2. Power *Prime*™ and Power *Prime-olate*™ are *APF Certified*™. For expression of recombinant proteins, induction should be done at cell densities three times that of LB Broth. Cell yields are typically 3 to 4 times that of LB Broth in shake flask cultures depending on the characteristics of the strain. Several reports suggest that Power Broth™ and Power *Prime* Broth™ can increase the amount of soluble protein accumulated for otherwise insoluble proteins. This medium is a favorable base for fermentation cultures. Biomass yields will depend on the process and the strain employed.

Available in liquid or dry-powder.

- Cell yields up to 4 times higher than that of LB Broth
- Rich nutrient base
- Favorable base for Fermentation Cultures



Animal-Product-Free

★ *APF Prime-olate*™ Formulations made with Atholate™ *(See page 17)*

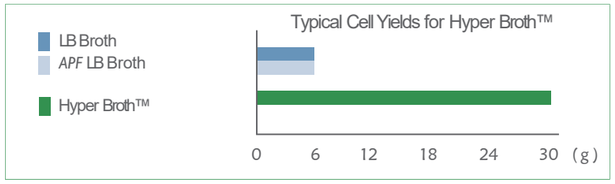
Product	Formulation	Quantity	Cat. No.
Power Broth™	Powder	500g	0106
Power Broth™	Powder	1L Single-use-Packet (box of 10)	0106-S
Power *Prime* Broth™	Powder	500g	0112
Power *Prime* Broth™	Powder	1L Single-use-Packet (box of 10)	0112-S
Power Broth™	Liquid (ready-to-use)	5 x 500mL	0117
Power *Prime* Broth™	Liquid (ready-to-use)	5 x 500mL	0122
Power *Prime-olate*™	Powder	500g	0162
Power *Prime-olate*™	Powder	1L Single-use-Packet (box of 10)	0162-S
Power *Prime-olate*™	Liquid (ready-to-use)	5 x 500mL	0172

On the web:
athenaes.com/power-and-power-prime-broth

Expression Media

Hyper Broth™

Hyper Broth™ is an *APF Certified*™ proprietary media formulation developed by AthenaES™ for improved expression of recombinant proteins in *E. coli*. The medium is a complex, rich formulation which supplies amino acids, vitamins, and glucose at high levels. This medium yields the highest level of biomass of all AthenaES™ media. The medium is buffered at pH 7.3 ± 0.2 and has the highest buffering capacity of Athena's Expression Media, which permits high glucose levels. For expression of recombinant proteins, induction should be done at cell densities three times that of LB Broth. Cell yields are typically 5 times that of LB Broth depending on the strain. Plasmid copy numbers are significantly higher than they are for LB Broth. This medium is suitable as the base for fermentation cultures and is excellent for feed-batch applications. Biomass yields will depend on the process and the strain employed. Hyper Broth™ powder is supplied with a separate Glucose Nutrient Mix.



Available in liquid or dry-powder.

- **Cell yields up to 5 times higher than that of LB Broth**
- **Supplied with Glucose Nutrient Mix**
- **Ideal as fermentation culture base**

Animal-Product-Free

On the web:
athenaes.com/hyper-broth

Product	Formulation	Quantity	Cat. No.
Hyper Broth™	Powder	500 g	0107
Hyper Broth™	Powder	1L Single-use-packet (box of 10)	0107-S
Hyper Broth™	Liquid (ready-to-use)	500 mL	0118

Glucose M9Y

Glucose M9Y is an *APF Certified*™ minimal media formulation supplemented with yeast extract for the cultivation of *E. coli*. It is based on M9 salts with a pH of 6.9 ± 0.2 and employs glucose as the carbon source[1]. Buffering is provided by a sodium-potassium phosphate system. Ammonium chloride provides a nitrogen source. Yeast extract is added to improve the protein production capacity of the medium and to permit cultivation of auxotrophic strains by supplying a source of amino acids, vitamins and minerals. Our formulation differs from the traditional formulation of Glucose M9, which employs casamino acids. Our experience has shown that yeast extract typically gives higher yields of recombinant proteins than casamino acids. Glucose M9Y powder is supplied with a separate Glucose Nutrient Mix.

Available in liquid or dry-powder.

Animal-Product-Free

Product	Formulation	Quantity	Cat. No.
Glucose M9Y	Powder	500 g	0108
Glucose M9Y	Powder	1L Single-use-packet (box of 10)	0108-S
Glucose M9Y	Liquid (ready-to-use)	500 mL	0119

[1] Anderson, E.H. 1946. Growth requirement of virus-resistant mutants of *Escherichia coli* strain B. Proc. Natl. Acad. Sci. USA 32:120-128.

On the web:
athenaes.com/glucose-m9y

Available in dry-powder packets.

Animal-Product-Free

Glucose Nutrient Mix

Glucose Nutrient Mix is an *APF Certified*™ medium supplement used for enhancing the expression of proteins when using Athena's Hyper Broth™ or Glucose M9Y. The powder blend consists of glucose as a carbon source and is supplemented with calcium chloride and magnesium sulfate. Glucose Nutrient Mix is supplied with both media but can also be purchased separately in individual packets.

Product	Formulation	Quantity	Cat. No.
Glucose Nutrient Mix	Powder	150 g	0109

On the web:
athenaes.com/hyper-broth

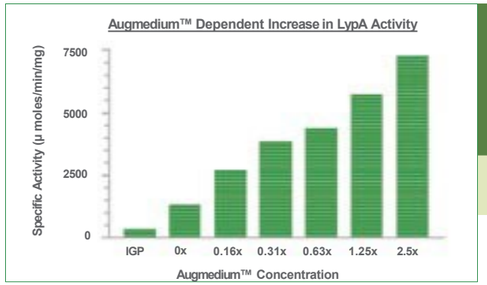
Augmedium™

Augmedium™ is a medium additive which conditions cells prior to induction during a recombinant protein expression protocol. This pre-induction conditioner increases the level of chaperone proteins which can improve the fraction of product that accumulates as soluble protein. Augmedium™ is specifically intended for use with strains in which the target protein accumulates as an inclusion body or as an insoluble aggregate. Augmedium™ is supplied as a powder for preparation of 50x concentrated stock solutions. It is available in 100 mL and 500 mL amounts.

Available in 100 mL and 500 mL stocks.

- Medium Additive
- Dramatically Increases Level of Expression
- Increases Fraction of Soluble Protein

Product	Formulation	Quantity	Cat. No.
Augmedium™	Powder	100 mL Stock	0123
Augmedium™	Powder	1500 mL Stock	0124



The graph on the left shows the level of expression of LypA with increasing levels of Augmedium™. The amount of activity of LypA directly correlates with the concentration of Augmedium™ and shows a significant increase of LypA accumulation. IGP is the isogenic parent strain.

To read the complete Augmedium™ Case Studies Technical Brief, visit https://athenaes.com/techbrief_augmedium

On the web:
athenaes.com/augmedium-and-lb-booster

LB Booster™

LB Booster™ is a medium additive that increases the level of production of recombinant proteins. Particularly suitable for improving the productivity of LB Broth, LB Booster™ can increase biomass levels by a factor of up to 5 in any medium formulation. In addition, the supplement provides essential nutrients selected for their ability to increase the relative level of recombinant protein accumulation. LB Booster™ is supplied as a powder and as a ready-to-use 20x concentrate. LB Booster™ is a proprietary blend of fructose and nutrient supplements.

Available in liquid or dry powder

- Increase Biomass Levels by 5 X
- Fructose and Nutrient Blend

Product	Formulation	Quantity	Cat. No.
LB Booster™	Powder for 100mL stock	1 packet	0125
LB Booster™	Powder for 100mL stock	1 packet	0126
LB Booster™	20x Liquid (ready-to-use)	500mL	0127

On the web:
athenaes.com/augmedium-and-lb-booster

Atholate™

Atholate™ is an *APF Certified*™ proprietary blend of plant protein hydrolysates for use in the preparation of microbiological media. Atholate™ was developed as an *Animal-Product-Free* alternative to casein hydrolysate in common expression media such as LB Broth. It is designed to outperform standard casein hydrolysate while maintaining the same nutritional characteristics. Athena's newest expression broths, the *Prime-olate*™ series, feature Atholate™ as a key component. Atholate™ is available in bulk quantities.

Available in bulk dry-powder.

Animal-Product-Free

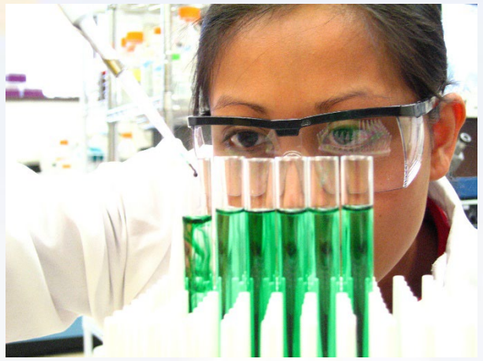
★ The *Prime-olate*™ expression media series	
Turbo Prime-olate™	p. 11
Superior Prime-olate™	p. 12
Power Prime-olate™	p. 13

Product	Formulation	Quantity	Cat. No.
Atholate™	Powder	500g	0134
Atholate™	Powder	1kg	0134-1
Atholate™	Powder	2.5kg	0134-2.5
Atholate™	Powder	10kg	0134-10

On the web:
athenaes.com/atholate

Enzyme Assays

Athena's PDQ™ Protease Assay is specially designed for the detection of general protease activity. Athena's PDQ™ is a colorimetric assay, providing researchers with a simple to use yet highly sensitive assay. Detection of protease activity to nanogram quantities is possible. The kit is supplied with a trypsin control for generating standard curves (BAEE equivalent units).



Accurate protease detection of as little as sub-nanogram quantities.

Product Index

PDQ™ Protease Assay

The PDQ™ Protease Assay is a unique colorimetric assay used to detect protease activity in aqueous samples. The proprietary substrate responds to a wide range of proteases including serine, metallo, aspartate and cysteine proteases such as collagenase, proteinase K, papain, pepsin, bromelin, ficin, trypsin and chymotrypsin. PDQ™ can be used with just a few simple steps to measure protease activity and requires no centrifugation. The substrate is a cross-linked matrix containing protein substrate and a dye-protein conjugate. Protease activity is detected spectrophotometrically with increasing optical density proportional to increasing enzyme activity and can detect nanogram quantities. Each kit is supplied with a trypsin solution for generating standard curves (BAEE equivalent units). PDQ™ is supplied in 48 ready-to-use plastic vials.

Available as Ready-to-use.

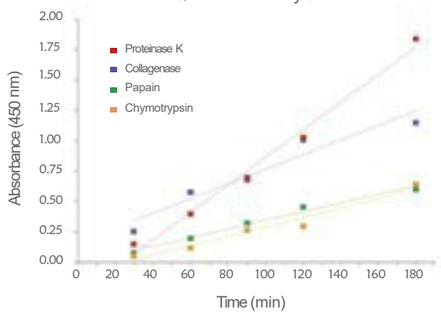
- **Few, Simple Steps**
- **No Centrifugation Necessary**
- **Detection of Nanogram Quantities**

Product Specifications

Unit Size:	48 vials of 200µL of pre-made matrix
Control:	Trypsin
Storage:	4˚C
Stability at 4˚C:	3 months

Product	Formulation	Quantity	Cat. No.
PDQ™ Protease Assay	Sol-gel (ready-to-use)	48 vials per kit	0201

Detection of Various Proteases in Colorimetric PDQ™ Protease Assay Over Time

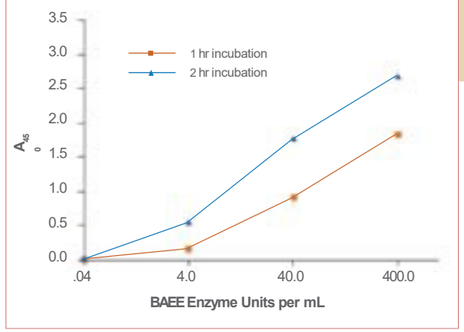


The graph on the left shows the time-course degradation of the PDQ™ Protease Assay substrate by papain, chymotrypsin, proteinase K, and collagenase. Duplicate reactions were incubated at 37°C and 0.2 N NaOH was added to the vials to stop the reaction at the indicated times. The absorbance at 450nm was measured by transferring the reaction mixture to spectrophotometric cuvettes. The results of this experiment show the increased ab- sorption over time due to proteolytic degradation of the substrate, and the ability of the assay to detect a wide range of proteases.

On the web:
athenaes.com/enzymeassays

PDQ™ Colorimetric Analysis Using Trypsin

Calibration Curve for Trypsin



The image on the left shows the results of a PDQ™ colorimetric analysis using incremental dilutions of trypsin after 1 hour and 2 hour incubation times. The increased absorption corresponds directly to the amount of protease activity. The final samples can be read spectrophotometrically in disposable cuvettes to create a standard curve. Samples of unknown protease activity are treated similarly and can be compared against the trypsin standard curve to determine activity.

The graph on the bottom-left shows the absorbance levels of PDQ™ Colorimetric Assay as a function of enzyme level. The diagram shows the incremental dilutions of trypsin in 10mM Tris-Cl using 400, 40, 4.0, and 0.4 BAEE Units/mL of protease activity, with a control "blank" which contains the Tris buffer alone.

To read the complete PDQ™: One-step Protease Assay Technical Brief, visit
athenaes.com/uploads/1/2/5/1/125141333/techbrief_onestepprotease_print.pdf

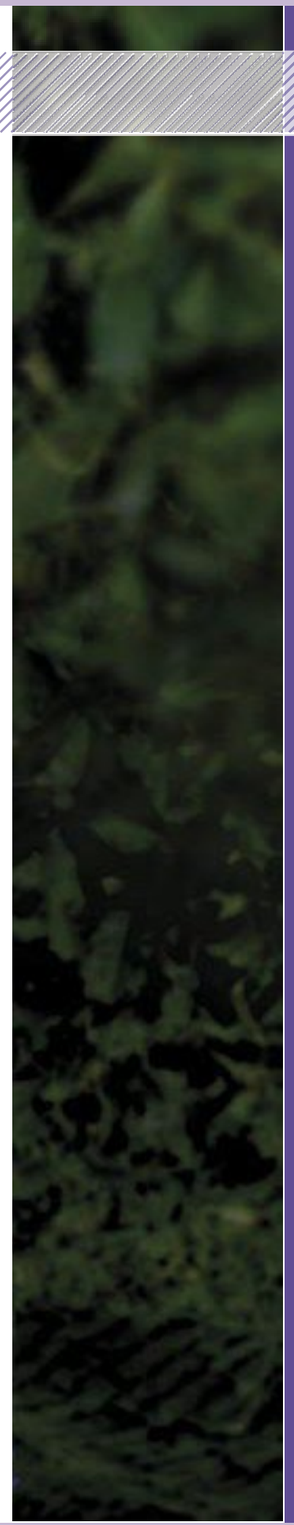
www.athenaes.com 888-892-8408 aesinfo@athenaes.com

Enzyme Assays

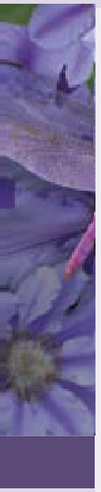
Specialty Proteins

Athena offers a variety of specialty proteins for uses ranging from protein labeling, protein expression, microscopy and immunoassays to atomic-force extention calibration. Our product line includes the trademarked I27O™ AFM Reference Protein.

Trademarked antibodies and reference proteins



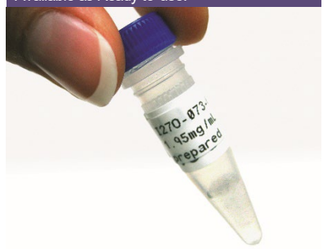
Product Index



I27O™ AFM Reference Protein

I27O™ is a unique recombinant polyprotein used for the calibration of and as a reference for force extension experiments using atomic force microscopes. It is supplied in a ready-to-use solution. The protein is composed of eight repeats of the Ig 27 domain of human titin. Single molecule measurements give up to eight saw-tooth force-extension curves with the specifications below. The protein has durable elasticity that allows for repeated unfolding and refolding.

Available as Ready-to-use.



- **Reference for force extension experiments**
- **8 saw-tooth extension curves**
- **Unique durable elasticity**

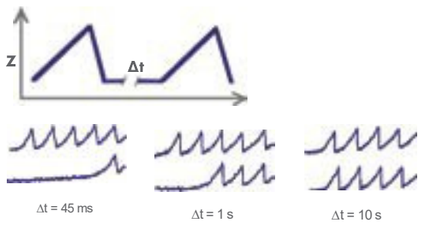
Product Specifications

Parameter	Value
Distance between peaks	24.1 ± 0.34nm
Force Peaks	204 ± 26pN
Persistence Length	0.30 ± 0.07nm
Contour Length (per domain)	28.4 ± 0.3nm

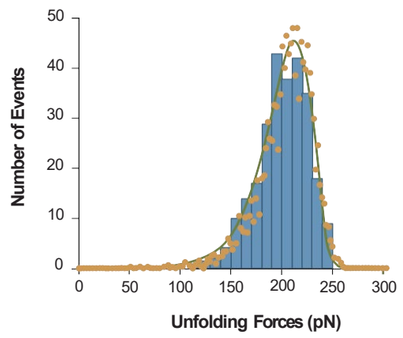
Product	Formulation	Quantity	Cat. No.
I27O™ AFM Reference Protein	Liquid (ready-to-use)	100µg	0304

I27O™ as a Reference Protein in Force Extension Measurements

Unfolding and Refolding Cycles of I27O™

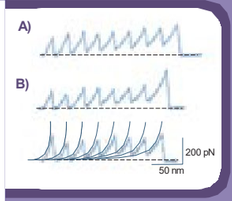


Force-extension relationships with AFM techniques



The graphs to the left demonstrate the unfolding and refolding cycles of an $I27^{K8}8$ protein probed with a double-pulse protocol. The protein is first stretched to count the number of domains that unfold, N-total, (a-c, top traces), and then it is relaxed to its initial length. A second extension after a delay, Δt, measures the number of refolded domains, N-refolded (a-c, bottom traces).

The lower graph to the left is an unfolding force frequency histogram for $I27^{K8}8$. The filled circles correspond to a Monte Carlo simulation of the mean unfolding forces (n=1,000) of eight domains placed in series using an unfolding rate constant, ku°, of 3.3 x 10-4s-1, an unfolding distance, Δxu, of 0.25nm and a V = 0.6nm/ms.



The top pattern to the left (A) shows the sawtooth pattern of unfolding observed with the $I27^{11}$ polyprotein. The lower patterns (B) show the stretching of single $I27^{K8}8$ polyproteins force-extension curves with a sawtooth pattern with equally spaced force peaks. The sawtooth pattern is well described by the WLC equation (B, bottom trace, continuous lines).

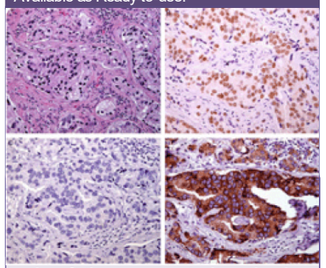
See product data sheet at athenaes.com/DataSheet_I27O

On the web:
athenaes.com/specialty-proteins

Anti-NKX3.1 Antibody

Anti-human NKX3.1 is the IgG fraction from rabbit anti-sera generated by immunizing the animals with purified recombinant human NKX3.1 protein. The immunogen corresponds to the amino-terminal 153 amino acids of the human protein (1). The IgG fraction was prepared by Protein A affinity chromatography. NKX3.1 is located on human chromosome 8p21.21. It is an - androgen-regulated homeodomain gene with the expression of the NKX3.1 protein predominantly localized to prostate epithelial cells (2,3). Mouse nkx3.1 is an androgen-regulated homeodomain gene with the expression of Nkx3.1 protein predominantly localized to the prostate epithelial cells(5). Anti-mouse Nkx3.1 antibody is the IgG fraction from rabbit anti-sera generated by immunizing the animals with purified recombinant mouse Nkx3.1 protein. To improve the specificity of the antibody, only the N-terminal domain of mouse Nkx3.1 was produced as immunogen. The IgG fraction was prepared by protein A affinity chromatography. IgG specific to mouse Nkx3.1 was further purified using an affinity matrix produced by cross-linking the immunogen to agarose.

Available as Ready-to-use.



A soft tissue metastasis stained with, from left to right and top to bottom, H&E (A), NKX3.1 (B), BSA (C) and PSAP (D). Note the lack of staining with PSA, while NKX3.1 and PSAP still stain strongly. (Fig. 4 from Gurel et. al., 2010.)

References:

1. Bethel, C. R. et al. 2006. Decreased NKX3.1 protein expression in focal prostatic atrophy, prostatic intraepithelial neoplasia and adenocarcinoma: association with Gleason score and chromosome 8p deletion. Cancer Res. 66:10683-10690.

2. Abate-Shen, C., Shen, M. M. and Gelmann, E. 2008. Integrating differentiation and cancer: the Nkx3.1 homeobox gene in prostate organogenesis and carcinogenesis. Differentation; research in biological diversity. 76:717-727.

3. Gurel, B. et al. 2010. NKX3.1 as a marker of prostatic origin in metastatic tumores. Am. J. Surg. Pathol. 34(8):1097-1105.

4. Guan, B., Pungaltya, P. et al. 2008. Ubiquitination by TOPORS regulates the prostate tumor suppressor NKX3.1. J. Biol. Chem. 283(8):4834-4840

5. Bieberich, C. J., Fujita, K., He, W. W., and Jay, G. (1996). Prostate-specific and androgen-dependent expression of a novel homeobox gene. J Biol Chem 271, 31779-31782.

Product	Quantity	Cat. No.
Anti-human NKX3.1	100µg	0317
Anti-murine NKX3.1	30µg Affinity Pure	0315
Anti-human NKX3.1	100g	0314

On the web:
athenaes.com/specialty-proteins

Anti-YebF Antisera

Anti-YebF antisera is used for detecting the YebF protein in immunoassays. The antisera was prepared by injecting rabbits with purified YebF protein isolated from E. coli strain HMS174 harboring pAES40.

Product	Quantity	Cat. No.
Anti-YebF Antisera	0.5ml	0313

On the web:
athenaes.com/specialty-proteins

Specialty Proteins

Cell Culture Products

Athena's line of cell culture products includes a series of proprietary serum-free tissue culture media in addition to several supplementary products for enhancing cell growth, rinsing cells, and cell storage. All of Athena's serum-free media have simplified and defined compositions and can be used to propagate a wide variety of mammalian cell lines.

Easy and ready-to-use liquid media for superior tissue cell culture results.

Product Index

Athena's Serum-Free Media

Many of Athena's Cell Culture Products are Serum-Free Media developed for use in mammalian tissue culture research. Athena provides an array of serum-free media in addition to several supplementary products to aid in the growth and preservation of mammalian cell lines.

The above symbol indicates our serum-free products. Viral, bacterial, and fungal contamination of serum is common and presents serious safety hazards for manufacturers of biopharmaceuticals. The use of serum-free media significantly reduces the possibility of this potential contamination.

- **Broad-spectrum Utility**
- **Simplified and Defined Composition**
- **Reduced Range and Level of Contaminants**
- **Elimination of Potential Sources of Infectious Agents**
- **Cost Efficient**
- **High Availability**

Serum Free Media	Catalog No.	Page No.
BRFF-BMZERO	0401	9
BRFF-EPM2™	0402	10
BRFF-HPC1™	0403	10
BRFF-P4-8F™	0404	10
DMEM / F12 SFM	0410	11
IMDM SFM	0411	11
SFM Screening Kit	0415	11
FNC Coating Mix®	0407	11
HBS with Phenol Red	0408	12
HBS without Phenol Red	0409	12
Freezing Media Pair™	0406	12
Bovine Pituitary Extract	0413/0414	12

Custom Culture Media

Athena offers custom cell culture media, such as DMEM, RPMI, and EMEM for all research needs including SILAC (stable isotope labeling with amino acids in cell culture) experiments and animal-product-free applications. We can tailor the culture media formulation to your specifications, such as without specific amino acids like L-arginine and L-lysine. Media can be ordered to any requirements necessary for a particular research experiment. Small batch requests are welcome. Athena fills custom order volumes as small as 5L.

► athenaes.com/custom-medium-mfg1

BRFF-BMZERO™

BRFF-BMZERO™ is a complete serum-free medium comprised of essential amino acids, vitamins, inorganic salts, trace elements and growth factors designed for culturing human breast cell lines. BMZERO™ was developed and has been extensively used for establishing new epithelial cell lines from explants of human breast tissue and to grow immortalized normal breast cell lines. Optimal a□ached monolayer cell growth can be achieved when used in conjunction with FNC Coating Mix®. *See page 42.*

Serum-Free

Available as Ready-to-use.

- Designed to grow human breast cells
- Complete serum-free medium
- Antibiotic-free

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4°C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
BRFF-BMZERO™	Liquid (ready-to-use)	500mL	0401

On the web: athenaes.com/brff-bmzero

BRFF-EPM2™

BRFF-EPM2™ is a complete serum-free medium comprised of essential amino acids, vitamins, inorganic salts, trace elements and growth factors optimized for culturing human esophageal epithelial cell lines. EPM2™ has been used for culturing epithelial cells from explant cultures of human skin as well as for culturing a number of human cancer cell lines. Optimal a□ached monolayer cell growth can be achieved when used in conjunction with FNC Coating Mix®. *See page 42.*

Serum-Free

Available as Ready-to-use.

- Optimized for human esophageal epithelial cells
- Complete serum-free medium
- Antibiotic-free

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4°C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
BRFF-EPM2™	Liquid (ready-to-use)	500mL	0402

On the web: athenaes.com/brff-epm2

Cell Culture Media

BRFF-HPC1™

BRFF-HPC1™ is a complete serum-free medium comprised of essential amino acids, vitamins, inorganic salts, trace elements, growth factors and dihydrotestosterone, designed for establishing new cell lines from human prostate tissue. HPC1™ was developed and has been extensively used for establishing and maintaining epithelial cell lines from both benign prostatic hyperplasia and prostatic carcinoma. Optimal a□ched monolayer cell growth can be achieved when used in conjunction with FNC Coating Mix®. *See page 42.*

Serum-Free

Available as Ready-to-use.

- Designed to grow human prostate cells
- Complete serum-free medium
- Antibiotic-free

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
BRFF-HPC1™	Liquid (ready-to-use)	500mL	0403

On the web:
athenaes.com/brff-hpc1

BRFF-P4-8F™

BRFF-P4-8F™ is a complete serum-free medium comprised of essential amino acids, vitamins, inorganic salts, trace elements and growth factors designed for culturing immortalized normal prostatic cell lines such as 267-B1.1 P4-8F™ supports the growth of certain established human prostatic cancer cell lines such as PC-3. Optimal a□ched monolayer cell growth can be achieved when used in conjunction with FNC Coating Mix®. *See page 42.*

Serum-Free

Available as Ready-to-use.

- Designed to grow human prostatic cancer cell lines
- Complete serum-free medium

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
BRFF-P48F™	Liquid (ready-to-use)	500mL	0404

On the web:
athenaes.com/brff-p4-8f

PET™: Cell Dissociation Formula

PET™ is a superior cell dissociation reagent specially formulated for use under "Cold Trypsin" conditions. The unique blend of polyvinylpyrrolidone, EGTA, and trypsin in a HBS base allows the trypsin to retain enzymatic activity under cool temperatures, unlike standard trypsin which requires a temperature of 37°C. When used to detach monolayer cultures of epithelial cells from the growth substratum, this reagent yields more viable cells from monolayers grown in serum-free medium than traditional trypsin formulas.

Available as Ready-to-use.

- Specially-formulated "Cold Trypsin" Reagent
- Yields more viable cells than traditional trypsin

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
PET™	Liquid (ready-to-use)	100mL	0405

On the web:
athenaes.com/pet

Freezing Media Pair™

Athena's Freezing Media Pair™ are a dual-cryopreservation system used to safely store suspensions of viable cells detached from monolayer cultures using the "cold trypsin" method with Athena's cell dissociation media, PET™. The pair of solutions thoroughly preserve cells which provides superior cell viability upon reconstitution. This Freezing Media Pair™ has been used extensively to cryopreserve a variety of human cell lines grown in serum-free media, including breast and prostate cancer cell lines.

Available as Ready-to-use.

- Dual-cryopreservation system
- Allows for superior cell viability

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.8 ± 2 (for a 1:1 mixture of Solution A and Solution B)

Product	Formulation	Quantity	Cat. No.
Freezing Media Pair™	Liquid (ready-to-use)	50mL	0406

On the web:
athenaes.com/freezing-media-pair

FNC Coating Mix®

FNC Coating Mix® is a specially formulated serum-free tissue culture reagent containing fibronectin, collagen and albumin that is used to enhance the a□achment of adherent cells to plastic flasks or microplates. The unique formula creates an extracellular matrix that dramatically increases the rate of cell a□achment to any plastic substratum. The matrix accelerates monolayer formation, especially when fastidious cell types such as human prostrate and breast epithelial cells are being propagated. Mammalian cell cultures will a□ach and grow more effectively on FNC-coated plastic surfaces when cultured in the appropriate serum-free medium. AthenaES™ offers several different serum-free media that when used in conjunction with FNC Coating Mix®, increase the growth of cell cultures dramatically.

Available as Ready-to-use.

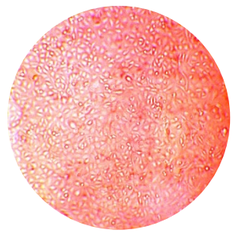
- Dramatically Increases Attachment of cells
- Creates Unique Extracellular Matrix

Product Specifications

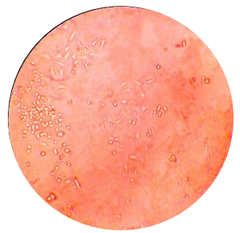
Storage:	Store at 4°C, shipped on blue ice
Stability at 4˚C:	6 - 12 months
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
FNC Coating Mix®	Liquid (ready-to-use)	100mL	0407
FNC Coating Mix®, Human Proteins	Liquid (ready-to-use)	100mL	0407H

Effect of FNC Coating Mix™ on Monolayer Cell Cultures



☐ Dense monolayer of prostate cancer cells (BRFF-55T) grown in HPC1™ after application of FNC Coating Mix™ to the culture flask.



☐ Sporadic cell growth of prostate cancer cells (BRFF-55T) grown in HPC1™ without FNC Coating Mix™ application.

The photographs to the left show the difference in monolayer development with and without FNC Coating Mix®. BRFF-55T prostate cancer cells were grown in HPC1™ medium at the same seed concentration for 3 days at 37˚C, 5% CO_2. The flask shown on the left was pre-coated with FNC Coating Mix™ whereas the flask on the right was not pre-treated. Through image analysis, there was approximately 85% greater monolayer development in the flask coated with FNC than in the non-treated flask.

To view the complete FNC Coating Mix™ Datasheet, visit https://athenaes.com/uploads/1/2/5/1/125141333/data sheet_-_0407-0407h_fnc_v2022.pdf

On the web:
athenaes.com/fnc-coating-mix

Hepes Buffered Saline

Hepes Buffered Saline is available with or without Phenol Red. It is an isotonic saline buffered with Hepes, for use in rinsing cell monolayers prior to cell dissociation using PET™ (*see page 41*) or washing harvested cells.

Available as Ready-to-use.

- Available with or without Phenol Red
- Ideal for rinsing cell monolayers prior to cell dissociation

Product Specifications

Storage:	Store at 4°C, supplied frozen
Stability at 4˚C:	12 - 24 months
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
HBS with Phenol Red	Liquid (ready-to-use)	500mL	0408
HBS without Phenol Red	Liquid (ready-to-use)	500mL	0409

On the web:
athenaes.com/hepes-buffered-saline

DMEM / F12 Serum-Free Medium

DMEM/F12 is a serum-free medium formulation for general use. This formulation is a 1:1 blend of DMEM and Ham's F12 media supplied complete and ready to use with L-glutamine, Hepes, BPE and EGF for culturing a wide range of cell types. DMEM/F12 does not contain phenol red or antibiotics.

Serum-Free

Available as Ready-to-use.

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
DMEM / F12 SFM	Liquid (ready-to-use)	500mL	0410

On the web:
athenaes.com/dmem–f12-serum-free-medium

IMDM Serum-Free Medium

Iscove's Modified Dulbecco's Medium (IMDM) is a standard serum-free medium. It is supplemented with bovine pituitary extract and epidermal growth factor and contains L-glutamine and Hepes but no phenol red or antibiotics.

Serum-Free

Available as Ready-to-use.

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	4 - 6 weeks
pH:	7.3 ± 2
Osmolality:	270 - 300mOsM

Product	Formulation	Quantity	Cat. No.
IMDM SFM	Liquid (ready-to-use)	500mL	0411

On the web:
athenaes.com/imdm-serum-free-medium

Bovine Pituitary Extract

Athena's Bovine Pituitary Extract is prepared from BSE-free animals. The extracts are prepared from pituitaries harvested from animals in the United States. The pituitaries were obtained only from USDA-inspected facilities where the animals receive pre- and post-mortem inspection and were found to be free of contagious diseases including foot-and-mouth disease, rinderpest, and contagious bovine pleuropneumonia. There are no known cases of bovine spongiform encephalopathy (BSE) in the herds from which the pituitaries were obtained.

Available as Ready-to-use.

- Produced from certified disease-free animals

Product Specifications

Storage:	Store at -80°C, supplied frozen
Stability at 4˚C:	Not Recommended
Protein Concentration:	9 - 20mg/mL by Bradford Assay

Product	Formulation	Quantity	Cat. No.
Bovine Pituitary Extract	Liquid (ready-to-use)	100mg	0413
Bovine Pituitary Extract	Liquid (ready-to-use)	250mg	0414

On the web:
athenaes.com/bovine-pituitary-extract

SFM Screening Kit™

The SFM Screening Kit™ is intended for researchers seeking to identify the most appropriate serum-free media formulation for a specific cell type. The kit contains a 100mL sample of each of five serum-free media including proprietary formulations BRFF-BMZERO™, BRFF-EPM2™, BRFF-P4-8F™ as well as standard media DMEM/F12, and IMDM. The kit also includes a 25mL sample of FNC Coating Mix® for optimum cell a[illegible]chment in adherent cell cultures. Each of the media is complete and ready-to-use.

Serum-Free

Available as Ready-to-use.

- Samples of 5 Cell Culture Media
- Includes FNC Coating Mix®

Kit Components

BRFF-BMZERO™	DMEM / F12 SFM
BRFF-EPM2™	IMDM SFM
BRFF-P4-8F™	FNC Coating Mix®
SFM Screening Kit™	Liquid (ready-to-use)

Product	Formulation	Quantity	Cat. No.
SFM Screening Kit™	Liquid (ready-to-use)	1 kit	0415

24 Hour Cell Growth Results from SFM Screening Kit™

The cell photographs to the left are of a SFM Screening Kit™ experiment to determine the optimum serum-free media for the production of the prostate cancer cell line 267-B1. The cultures were seeded with 2 x 10^5 cells/mL into each of 5 25cm² tissue culture flasks pre-coated with FNC Coating Mix® and containing the following media: BMZERO™, EPM2™, P4-8F™, DMEM / F12 and IMDM. The cells were grown for 24 hours at 37˚C at 5% CO_2. The photographs (20x magnification) show the difference in cell growth between the different media. The cells in the BMZERO™ media yielded more rapid monolayer development than the other media, with the least growth in IMDM. These results demonstrate that BMZERO™ is the optimum medium for the growth of 267-B1 cells.

To view the complete Case for Serum-Free Media Technical Brief, visit

https://athenaes.com/uploads/1/2/5/1/125141333/techbrief_serumfree_print.pdf

https://athenaes.com/uploads/1/2/5/1/125141333/techbrief_adopting_cells_to_sfm_print.pdf

On the web:
athenaes.com/sfm-screening-kit

Classical Media Formulations

Designed for the optimal growth and maintenance of cells, these media provide essential nutrients, growth factors, and salts necessary for cell metabolism and function.

Athena specializes in small batch custom productions, from standard formulations to highly complex specialty media for a wide variety of cell types. Ask us about tailoring formulations to suit specific nutritional needs!

► athenaes.com/new-classical-media

Classical Media	Catalog No.
DMEM High Glucose	0460
DMEM Low Glucose	0461
RPMI 1640	0462
DMEM / F12	0463
MEM	0464
Ham's F12	0465
McCoy's 5A	0466
Neural Basal Medium	0468
DMEM High Glucose	0469-50

Custom SILAC: *Stable Isotope Labeling by Amino Acids in Cell Culture*

SILAC media allows researchers to track and analyze the in vivo incorporation of "heavy" 13C- or 15N-labeled amino acids during protein translation. Quantitative proteomics is a robust approach to study protein expression, post-translational modification, and interactions in complex biological systems with exceptional sensitivity and precision. SILAC media is ideal for comparing protein abundance across different cell populations or experimental conditions.

SILAC media is prepared specifically for labeling experiments involving the use of stable amino acid isotopes. Athena offers commonly used media formulations excluding L-arginine, L-lysine, L-leucine, and L-methionine—the four amino acids most commonly substituted with "heavy" labeled alternatives.

Liquid formulations:

- *Convenient ready-to-use*
- *Eliminates prep time*
- *Add sterile amino acids and supplements*

Powdered formulations:

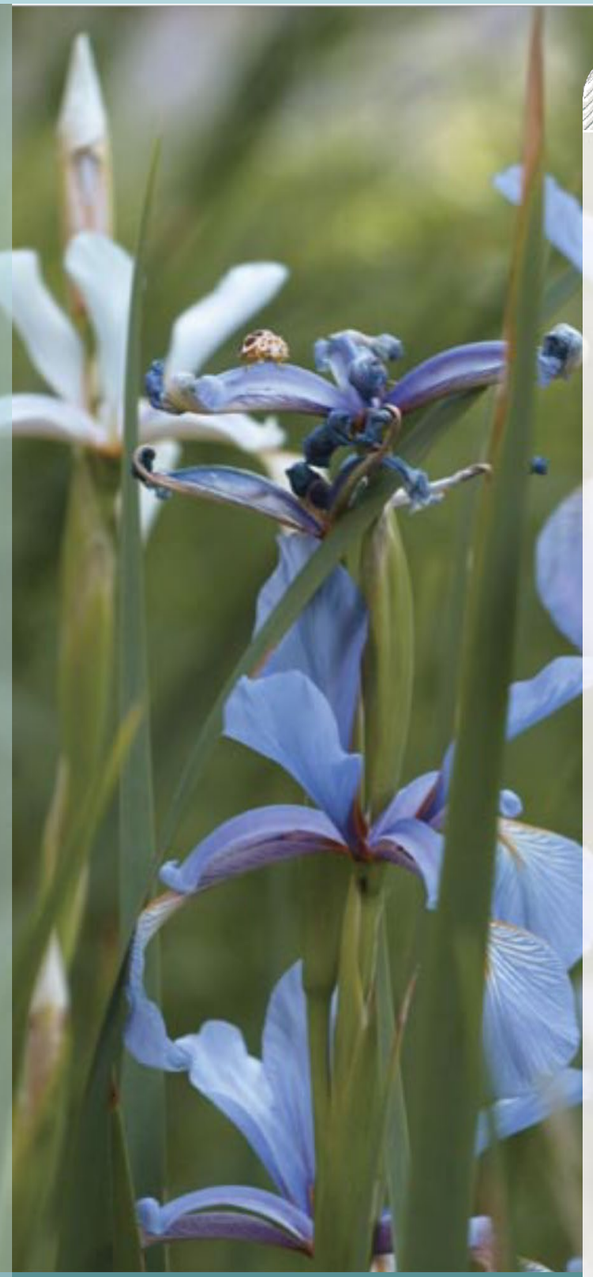
- *Cost effective*
- *Lower shipping costs*
- *3 year shelf life*

Amino acid stock solutions are available for media reconstitution.

► athenaes.com/silac-media1

SILAC Media	Catalog No.
SILAC - DMEM High Glucose	0420
SILAC - DMEM Low Glucose	0421
SILAC - RPMI 1640	0422
SILAC - DMEM / F12	0423
SILAC - MEM	0424
SILAC - Ham's F12	0425
SILAC - McCoy's 5A	0426
SILAC - Neural Basal Medium	0428
SILAC - SFM Insect Medium	0429
SILAC - IMDM	0434
SILAC - DMEM High Glucose, powder	0430
SILAC - DMEM High Glucose with Phenol Red, powder	0430-P
SILAC - DMEM Low Glucose, powder	0431
SILAC - DMEM Low Glucose with Phenol Red, powder	0431-P
SILAC - RPMI 1640, powder	0432
SILAC - RPMI 1640 with Phenol Red, powder	0432-P
SILAC - DMEM / F12, powder	0433
SILAC - DMEM / F12 with Phenol Red, powder	0433-P
1,149 mM L-Arginine	0416
800 mM L-Lysine	0417
160 mM L-Leucine	0418
201 mM L-Methionine	0419
L-arginine 13C6 hydrochloride	0440
L-arginine 13C6, 15N4 hydrochloride	0441
L-lysine 13C6 hydrochloride	0442
L-lysine 13C6, 15N2 hydrochloride	0443

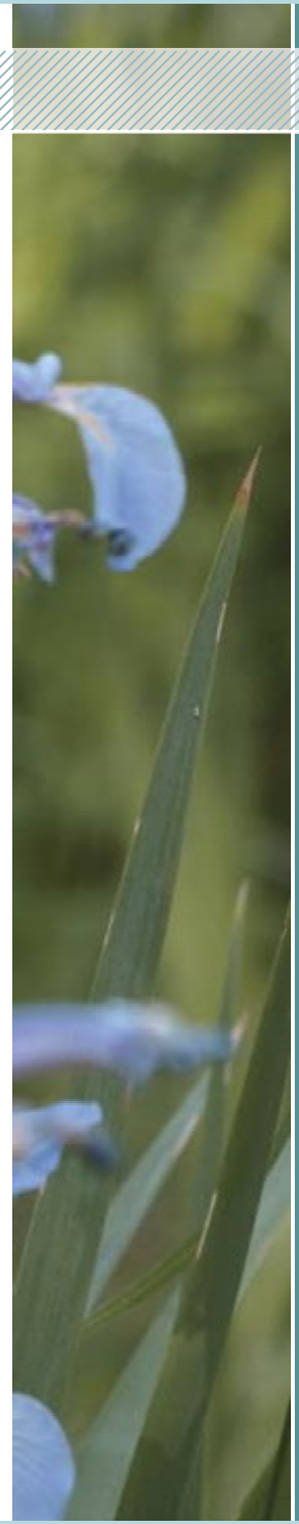
www.athenaes.com 888-892-8408 aesinfo@athenaes.com



Protein Refolding Reagents

AthenaES™ offers a variety of protein refolding reagents that include cyclodextrins, detergents, and specially formulated refolding buffers. Athena's QuickFold™ Protein Refolding Kit offers a simple and rapid means of identifying optimal refolding conditions. It employs a comprehensive matrix design, making it easy for researchers to screen a variety of possible refolding conditions quickly.

Protein Refolding Buffers, Cyclodextrins and Detergents.



Product Index

QuickFold™ Protein Refolding Kit & Buffers

The QuickFold™ Protein Refolding Kit is a screening kit that enables researchers to pinpoint the critical factors for refolding their protein in as little as 1 hour. Unlike many traditional kits, the QuickFold™ Kit employs a fractional factorial matrix design that allows the researcher to screen a specific protein in 15 different buffers quickly and easily. Researchers are able to examine a wider range of conditions all in a single experiment, simplifying the process of identifying the best buffer composition and method for the refolding of a given protein. The QuickFold™ Kit comes with enough buffer for 10 refolding experiments, as well as supplemental Dithiothreitol and a Glutathione Redox System. Each buffer is available for individual purchase and is supplemented with the necessary Glutathione Redox System and/or DTT. Individual Buffers come in 500mL and 1L amounts.

Available as Ready-to-use.

- Protein Refolding in as Little as an Hour
- Fractional Factorial Matrix Design
- Simple, Single-step Screening Technique

Kit Components	
Buffers 1 - 15	
DTT	
Glutathione, reduced	
Glutathione, oxidized	

Product	Formulation	Quantity	Cat. No.
QuickFold™ Protein Refolding Kit	Liquid (ready-to-use)	1 kit	0600

Individual Refolding Buffers		500 mL	1 L
QuickFold™ Protein Refolding Buffer 1	Liquid (ready-to-use)	0612-1	0613-1
QuickFold™ Protein Refolding Buffer 2	Liquid (ready-to-use)	0612-2	0613-2
QuickFold™ Protein Refolding Buffer 3	Liquid (ready-to-use)	0612-3	0613-3
QuickFold™ Protein Refolding Buffer 4	Liquid (ready-to-use)	0612-4	0613-4
QuickFold™ Protein Refolding Buffer 5	Liquid (ready-to-use)	0612-5	0613-5
QuickFold™ Protein Refolding Buffer 6	Liquid (ready-to-use)	0612-6	0613-6
QuickFold™ Protein Refolding Buffer 7	Liquid (ready-to-use)	0612-7	0613-7
QuickFold™ Protein Refolding Buffer 8	Liquid (ready-to-use)	0612-8	0613-8
QuickFold™ Protein Refolding Buffer 9	Liquid (ready-to-use)	0612-9	0613-9
QuickFold™ Protein Refolding Buffer 10	Liquid (ready-to-use)	0612-10	0613-10
QuickFold™ Protein Refolding Buffer 11	Liquid (ready-to-use)	0612-11	0613-11
QuickFold™ Protein Refolding Buffer 12	Liquid (ready-to-use)	0612-12	0613-12
QuickFold™ Protein Refolding Buffer 13	Liquid (ready-to-use)	0612-13	0613-13
QuickFold™ Protein Refolding Buffer 14	Liquid (ready-to-use)	0612-14	0613-14
QuickFold™ Protein Refolding Buffer 15	Liquid (ready-to-use)	0612-15	0613-15

On the web:
athenaes.com/protein-refolding

Detergent Screening Kit & Individual Detergents

Detergents have been shown to aid in the protein refolding process both of native and recombinant proteins. Detergents are usually used as a step in the protein refolding process, often in conjunction with cyclodextrins. The detergent binds to the protein in the dilution stage to form a detergent-protein complex which prevents aggregation of the protein. A binding agent, such as cyclodextrin, can then be used to strip away the detergent from the protein, allowing it to properly refold. Athena's Detergent Screening Kit provides researchers with 6 common detergents (10mL each) for determining the optimum detergent for a given protein refolding scenario. Individual detergents can also be purchased in 100mL quantities.

Available as Ready-to-use.

- Includes 6 Detergents for Comprehensive Testing

Kit Components	
100 mM Triton-X	100 mM POE(10)L
100 mM Tween 80	100 mM TTAB
100 mM CTAB	100 mM Zwittergent 3-14

On the web:
athenaes.com/protein-refolding

Product	Formulation	Quantity	Cat. No.
Detergent Screening Kit	Liquid (ready-to-use)	1 kit	0601
100 mM Triton-X	Liquid (ready-to-use)	100mL	0603
100mM Tween 80	Liquid (ready-to-use)	100mL	0604
100mM CTAB	Liquid (ready-to-use)	100mL	0605
100mM POE(10)L	Liquid (ready-to-use)	100mL	0606
100mM TTAB	Liquid (ready-to-use)	100mL	0607
100mM Zwittergent 3-14	Liquid (ready-to-use)	100mL	0608

Cyclodextrin Screening Kit & Individual Cyclodextrins

Cyclodextrins' unique molecular structure greatly promotes protein refolding. Cyclodextrins can suppress protein aggregation, protect against degradation and loss of protein function. They also bind well to detergents (aggregation suppressors), which allows for easy separation of the detergent from the protein, encouraging proper refolding. Different cyclodextrins act and respond differently to different protein structures. Because of this, AthenaES™ provides 3 of the most common cyclodextrins in a simple screening kit so that the ideal conditions for refolding a given protein can be found quickly and easily. The Cyclodextrin Screening Kit can be particularly useful when paired with the Detergent Screening Kit. Individual cyclodextrins are also available for purchase.

Available as Ready-to-use.

- Includes 3 Cyclodextrins for Comprehensive Testing

Kit Components	
100 mM β-cyclodextrin	50 mM α-cyclodextrin
100 mM methyl-β-cyclodextrin	

On the web:
athenaes.com/protein-refolding

Product	Formulation	Quantity	Cat. No.
Cyclodextrin Screening Kit	Liquid (ready-to-use)	1 kit	0602
100 mM β-cyclodextrin	Liquid (ready-to-use)	100mL	0609
100 mM methyl-β-cyclodextrin	Liquid (ready-to-use)	100mL	0610
50 mM α-cyclodextrin	Liquid (ready-to-use)	100mL	0611

Contract Services

AthenaES™ offers a variety of services that range from specialized projects in research and development, to the manufacture of customized media formulations. Whatever the project, we take great care to fulfill the client's specific needs. Our facilities are adaptable to accommodate small or large projects.

Protein expression and contract manufacturing

Service Index

Custom Manufacturing Services

Cell Culture Media

Athena offers an array of custom cell culture formulations including generic media such as RPMI, DMEM, and EMEM as well as our proprietary cell culture media with custom alterations. We can tailor formulations to include or exclude select amino acids like L-arginine, L-lysine, or L-leucine or contain a high or low level of glucose. Orders can be made to fit any research requirements, including SILAC (stable isotope labeling with amino acids in cell culture) experiments and animal-product-free applications. Bulk or small-batch orders are available with a minimum purchase of 5L.

Dry Powder Manufacturing

Athena provides GMP compliant specialty manufacturing services for dry powder media including generic formulations and custom blends. Bulk capacities are available for up to 750kg per lot or, for laboratories in need of small production runs, we can prepare batches as small as 0.5kg. Our dry powder process reduces raw materials to a uniform particle size and blend, providing for rapidly dissolving, homogeneous powder mixtures.

OEM and Private Labeling

OEM and private labeling services are available for generic or customer-defined media formulations. AthenaES™ provides custom media production and packaging to support high throughput screening activities. Athena's proprietary media as well as generic or in-house special formulations can be produced to the customer's specifications.

Media Classes Produced

- Complex and defined bacterial
- Fungal including yeast bases and dropouts
- Plant Culture
- Insect cell culture
- Mammalian tissue and cell culture

athenaes.com/manufacturing-services

- **Quality Control Test Design, Development, and Validation**
- **Pre-launch Pilot Production**
- **Commerical-scale Manufacturing**
- **Small-scale Batches**
- **SILAC Media Formulation**

Custom Contract Services

Protein Expression

Athena specializes in optimizing recombinant protein expression systems to maximize yield and purity. We concentrate on expressing difficult-to-produce proteins that have the potential to provide ground-breaking benefits. Our capabilities and support meet the needs of industry, academic, and government researchers from small-scale technical and commercial feasibility studies to final product manufacturing. With the advent of Athena's ACES™ (AthenaES™ Complete Expression System) and the use of the revolutionary YebF protein, we can tackle a wide range of proteins that may be unable to be expressed under normal conditions.

Biocatalyst Development

Athena's biocatalyst development employs an array of techniques to identify and optimize biocatalytic activity for industrial processes. AthenaES™ can screen a wide range of microbes for specific enzymatic activity, determine the source of an enzyme and optimize the enzyme activity for substrate specificity.

Recombinant Microbial Systems

- Proprietary ACES™ Expression Systems
- Standard *Escherichia coli* and *Bacillus subtilis* expression strains and vectors
- *Saccharomyces cerevisiae*, *Kluyveromyces lactis*, and *Pichia pastoris* yeast systems

Levels of Service

- Comprehensive Service - provides expert research for production and purification of recombinant and native proteins, from subcloning to producing finished product
- Expression Service - provides production and purification of proteins from 10 to 500 mg where protein expression has been demonstrated but the process is not yet optimized
- Production Service - for those who need gram quantities of a highly characterized protein
- Optimization Service - for clients with very low levels of expression or insoluble protein accumulation

Broad Scope Services:

- Technology transfer, feasibility, and product prototyping
- Design, development, and manufacture of products

athenaes.com/manufacturing-services

- **Gene Cloning and Expression Vector Construction**
- **Cell Line Engineering and Media Optimization**
- **Purification Process Development**
- **Quality Control Test Development and Validation**
- **Product Characterization for Identity, Purity, and Potency**
- **Finished Product Formulation and**
- **Stability Analysis**
- **Bench- and Pilot-scale Production**

Contract Services

How to Order

Athena Enzyme Systems™ products can be purchased by emailing a purchase order to orders@athenaes.com; or through phone or online credit card payment. For more information, call us at 1-888-892-8408. Customers also have the option to inquire through our online contact form or purchase through a local branch from our vast global distribution network.

Ordering Information

Ordering Information

Mode	
Telephone	1-888-892-8408
Fax	410-455-1155
Email	orders@athenaes.com
Website	www.athenaes.com
Distributors	*see page 65*

We accept several online payment options

VISA · mastercard · DISCOVER · Pay · PayPal · venmo

When Ordering By Phone or PO, Please Provide:

- Institution name and Customer Service Account
- Purchase Order Number and/or Credit Card Number
- Catalog Numbers or Names of Products and Quantity
- Billing Address, Phone number, Email
- Shipping Contact Name, Phone Number, Email

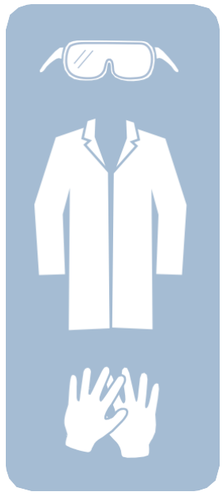
Purchase Order Submission

- Submit Purchase Orders to orders@athenaes.com
- Catalog Numbers or Names of Products and Quantity
- Net 30 Payment Terms or Online Credit Card Payment

Safe Guidelines for Use of Products

The products in the AthenaES™ product inventory are for Research Use Only unless purchased under a GMP compliant supply contract, and are not to be used for any other purposes including, but not limited to, unauthorized commercial purposes, therapeutic purposes, investigational use, in foods, drugs, devices or cosmetics of any kind, or for consumption by or use in connection with or administration or application to humans or animals. They are intended for research and laboratory purposes and are to be handled by qualified persons.

The products are generally recognized as safe. Nevertheless, some of the ingredients can be irritants if inhaled or if they come in contact with the skin, eyes, nose or throat. The small particle size of the material makes dry powder media prone to producing airborne dust. It is recommended that the user take precautions when handling the products. Wearing a laboratory coat, goggles or other eye protection, dust mask and gloves is advised.



Terms and Conditions

Payment Information

Invoices are due net 30 days from the date of shipment, unless other arrangements are made in advance of the purchase. Payment is due in US dollars. A late charge will be applied to all invoices which are more than 30 days past due. The late fee will be calculated at the rate of 2% per month of the invoice price.

AthenaES™ (Athena Environmental Sciences, Inc.) accepts payment by credit card or purchase order number online or by phone. Orders placed with credit cards will be charged when the order is processed.

Orders with credit cards that are denied will not be processed further. Order processing will resume upon receipt of a valid credit card number provided by the customer.

Shipping Conditions

Shipping charges are prepaid and added to the invoice. Shipping is via FedEx unless otherwise requested. Shipping charges include but are not limited to the estimated shipping cost charged by the carrier, handling fees, and ice fees should the product purchased require special shipping conditions.

Taxes and Other Charges

Any use tax, sales tax, excise tax, duty, inspection or testing fee, or any other tax, fee or charge imposed by any governmental authority, on or measured by the transaction between us shall be paid by the purchaser in addition to the prices quoted or invoiced. If AthenaES™ is required to pay any such tax, fee or charge, the purchaser shall reimburse AthenaES™ or provide an exemption certificate or other document acceptable to the authority imposing the tax, fee or charge.

Exclusive Terms of Sale

AthenaES™ does not agree to and is not bound by any other terms or conditions unless those terms and conditions have been expressly agreed to in writing by a duly authorized officer of AthenaES™. Prices are subject to change without notice.

Warranty

AthenaES™ warrants that the products will meet the specifications stated on the product label. AthenaES™ agrees to replace the product free of charge if the product does not conform to the specifications. Notice for replacement must be given within 60 days of opening the product. Unused product must be returned at purchaser's expense to receive a replacement or credit. In consideration of the above promises by AthenaES™, the buyer agrees to and accepts the following conditions: That this warranty is in lieu of all other warranties, expressed or implied; That all warranties of merchantability or of fitness for a particular purpose are hereby excluded or waived; That the buyer's sole remedy shall be to obtain replacement of the product free of charge from AthenaES™; and That this remedy is in lieu of all other remedies or claims for damages, consequential or otherwise, which the buyer may have against AthenaES™.

Product Usage

Except as otherwise agreed in writing by our authorized representative, the purchase of goods only conveys to you the non-transferable right for only you to use the quantity of goods and components of goods purchased in compliance with the applicable license restrictions or the below listed regulations. Unless otherwise authorized, no right to resell the goods, or any portion of them, is conveyed hereunder.

The products in our catalog are intended for research use only unless purchased under a GMP compliant supply contract and are not to be used for any other purposes including, but not limited to, unauthorized commercial purposes, therapeutic purposes, investigational use, in foods, drugs, devices or cosmetics of any kind, or for consumption by or use in connection with or administration or application to humans or animals. They are intended for research and laboratory purposes and are to be handled by qualified persons.

You acknowledge that products received from us are subject to U.S. export control laws and regulations. You represent and warrant to us that you will not, directly or indirectly, (1) sell, export, reexport, transfer, divert, or otherwise dispose of any products or technology (including products derived from or based on such technology) received from us to any destination, entity, or person prohibited by the laws or regulations of the United States, or (2) use the product for any use prohibited by the laws or regulations of the United States and/or your local jurisdiction, without obtaining prior authorization from the competent government authorities as required by those laws and regulations.

Ordering Information

Distribution Network

North American Locations

Fisher Scientific
VWR
U.S. Biological
Axxora (an Enzo Biochem Company)
Molecular Dimensions USA
AssayCell Technologies, LLC
Gentaur USA
Canada - MJS Biolynx
Canada - Cedarlane Labs

European Locations

Continental Europe and Asia - Enzo Biochem
U.K. - Molecular Dimensions UK
France - Euromedex
Germany - Hölzel Diagnostika Handels GmbH
Italy - DBA Italia s.r.l.
Poland - Biolim
Japan - Funakoshi Co., Ltd.
South Korea - Kim and Friends
Taiwan - Protech Technology Enterprise Co.
Gentaur - Belgium, Netherlands, Germany, Spain, France, Italy, Poland, Bulgaria, UK

For complete listing of our distribution network and all of their outposts, please visit athenaes.com/distributors

Product Index

NEW	Cat. No.	Expression Products	Amount	Page No.	Cases Available
■	0187	Expression Media Selection Kit, 15 sterile liquid media	Kit	9	
	0101	LB (Luria)	500 g	10	
	0102	LB (Lennox)	500 g	10	
	0103	LB (Miller)	500 g	10	
	0104	Turbo Broth™	500 g	11	
	0104-S	Turbo Broth™, Single Packs - box of 10	1L each	11	
	0105	Superior Broth™	500 g	12	
	0105-S	Superior Broth™, Single Packs - box of 10	1L each	12	
	0106	Power Broth™	500 g	13	
	0106-S	Power Broth™, Single Packs - box of 10	1L each	13	
	0107	Hyper Broth™	500 g	14	
	0107-S	Hyper Broth™, Single Packs - box of 10	1L each	14	
	0108	Glucose M9Y	500 g	14	
	0108-S	Glucose M9Y, Single Packs - box of 10	1L each	15	
	0109	Glucose Nutrient Mix	150 g	15	
	0110	Turbo Prime Broth™	500 g	11	
	0110-S	Turbo Prime Broth™, Single Packs - box of 10	1L each	11	
	0111	Superior Prime Broth™	500 g	12	
	0111-S	Superior Prime Broth™, Single Packs - box of 10	1L each	12	
	0112	Power Prime Broth™	500 g	13	
	0112-S	Power Prime Broth™, Single Packs - box of 10	1L each	13	
	0113	LB (Lennox)	500 ml	10	■
	0114	LB (Miller)	500 ml	10	■
	0115	Turbo Broth™	500 ml	11	■
	0116	Superior Broth™	500 ml	12	■
	0117	Power Broth™	500 ml	13	■
	0118	Hyper Broth™	500 ml	14	■
	0119	Glucose M9Y	500 ml	15	■
	0120	Turbo Prime Broth™	500 ml	11	■
	0121	Superior Prime Broth™	500 ml	12	■
	0122	Power Prime Broth™	500 ml	13	■
	0123	Augmedium™, Powder 100	100 ml	16	
	0124	Augmedium™, Powder 500	500 ml	16	
	0125	LB*Booster™, Powder 100	100 ml	16	
	0126	LB*Booster™, Powder 500	500 ml	16	
	0127	LB*Booster™, 20x	500 ml	16	
	0130	LB Miller Single Packs - box of 10	1L each	16	
	0131	APF LB Luria, 500g	500 g	10	
	0132	APF LB Lennox, 500 g	500 g	10	
	0133	APF LB Miller, 500 g	500 g	10	
	0131-S	APF LB Luria, Singles, 10 x 1L	1L each	10	
	0132-S	APF LB Lennox, Singles, 10 x 1L	1L each	10	
	0133-S	APF LB Miller, 10 x 1L	1L each	10	
	0134	Atholate™, protein hydrolysate, 500 g	500 g	17	

www.athenaes.com 888-892-8408 aesinfo@athenaes.com

Ordering Information

NEW	Cat. No.	Expression Products	Amount	Page No.	Cases Available
	0134-1	Atholate™, protein hydrolysate, 1 kg	1 kg	17	
	0134-2.5	Atholate™, protein hydrolysate, 2.5 kg	2.5 kg	17	
	0134-10	Atholate™, protein hydrolysate, 10 kg	10 kg	17	
	0146	Yeast Extract	500 g		
	0147	Soy Protein Hydrolysate	500 g		
	0160	Turbo Prime-olate™	500 g	11	
	0160-S	Turbo Prime-olate™, Single Packs - box of 10	1 L each	11	
	0161	Superior Prime-olate™	500 g	12	
	0161-S	Superior Prime-olate™, Single Packs - box of 10	1 L each	12	
	0162	Power Prime-olate™	500 g	13	
	0162-S	Power Prime-olate™, Single Packs - box of 10	1 L each	13	
	0170	Turbo Prime-olate™	500 ml	11	■
	0171	Superior Prime-olate™	500 ml	12	■
	0172	Power Prime-olate™	500 ml	13	■
	0173	APF LB Broth Miller	500 ml	10	■
	0174	APF LB Broth Luria	500 ml	10	■
	0175	APF LB Broth Lennox	500 ml	10	■
	0180	Dream Media Nutrient Mix, 5 packets	Pack 5		
	0181	Dream Media Nutrient Mix, 100 ml	100 ml		
	0184	Dream Media Optimization Kit	Kit		
	0185	Complete Media Optimization Kit, powders to make 1 L each media	Kit		
■	0187	Expression Media Selection Kit, 15 sterile liquid media	Kit	9	

NEW	Cat. No.	Enzyme Assays	Amount	Page No.	Cases Available
	0201	PDQ Protease Assay™	Kit		

NEW	Cat. No.	Specialty Proteins	Amount	Page No.	Cases Available
	0304	I27O™ AFM Reference Protein	100 µg	24	
	0313	Anti-YebF Antisera, 0.5 ml	0.5 ml	25	
	0314	Human Anti-NKX3.1 IgG, 1 mg	1 mg	25	
	0315	Murine Anti-NKX3.1 IgG, 30 ug affinity pure	30 µg	25	
	0317	Human Anti-NKX3.1 IgG, 0.1 mg	0.1 mg	25	

NEW	Cat. No.	Cell Culture Products	Amount	Page No.	Cases Available
	0401	BMZERO™, 500 ml	500 ml	29	■
	0402	EPM2™, 500 ml	500 ml	29	■
	0403	HPC1™, 500 ml	500 ml	30	■
	0404	P4-8F™, 500 ml	500 ml	30	■
	0405	PET™, 100 ml	100 ml	31	
	0406	Freezing Media Pair™, 50 ml	50 ml	31	
	0407	FNC Coating Mix®, 100 ml	100 mL	32	
	0407H	FNC Coating Mix® - Human Proteins, 100ml	100 mL	32	
	0408	HBS w/Phenol Red, 500 ml	500 ml	33	■
	0409	HBS w/out Phenol Red, 500 ml	500 ml	33	■
	0410	DMEM/F12 1:1, 500 ml	500 ml	33	■
	0411	IMDM, 500 ml	500 ml	34	■
	0413	BPE, 100 mg	100 mg		
	0414	BPE, 250 mg	250 mg		
	0415	SFM Screening Kit	Kit	35	
	0416	L-Arginine, 1,000x stock, 6 x 0.5 ml	Set	37	
	0417	L-Lysine, 1,000x stock, 6 x 0.5 ml	Set	37	
	0418	L-Leucine 200x stock, 12 x 1.25 ml	Set	37	
	0419	L-Methionine, 1,000x stock, 6 x 0.5 ml	Set	37	
	0420	SILAC - DMEM High Glucose	500 ml	37	■
	0421	SILAC - DMEM Low Glucose	500 ml	37	■
	0422	SILAC - RPMI 1640	500 ml	37	■
	0423	SILAC - DMEM/F12	500 ml	37	■
	0424	SILAC - MEM	500 ml	37	■
	0425	SILAC - Ham's F12	500 ml	37	■
	0426	SILAC - McCoy's 5A	500 ml	37	■
	0428	SILAC - Neural Basal Medium	500 ml	37	■
	0429	SILAC - SFM Insect Medium	5 x 500ml	37	■
	0430	SILAC- DMEM High Glucose, powder	1L	37	
	0430-P	SILAC- DMEM High Glucose with Phenol Red, powder	1L	37	
	0431	SILAC- DMEM Low Glucose, powder	1L	37	
	0431-P	SILAC- DMEM Low Glucose with Phenol Red, powder	1L	37	
	0432	SILAC- RPMI 1640, powder	1L	37	
	0432-P	SILAC- RPMI 1640 with Phenol Red, powder	1L	37	
	0433	SILAC- DMEM/F12, powder	1L	37	
	0433-P	SILAC- DMEM/F12 with Phenol Red, powder	1L	37	
	0434	SILAC-IMDM	500 ml	37	■
	0440-100	L-arginine 13C6 hydrochloride	100mg	37	
	0440-1000	L-arginine 13C6 hydrochloride	1g	37	
	0441-100	L-arginine 13C6, 15N4 hydrochloride	100mg	37	
	0441-1000	L-arginine 13C6, 15N4 hydrochloride	1g	37	
	0442-100	L-lysine 13C6 hydrochloride	100mg	37	
	0442-1000	L-lysine 13C6 hydrochloride	1g	37	
	0443-100	L-lysine 13C6, 15N2 hydrochloride	100mg	37	
	0443-1000	L-lysine 13C6, 15N2 hydrochloride	1g	37	
	0450	VALI Medium	500 ml		■
	0451	BEGM Medium	500 ml		■

NEW	Cat. No.	Cell Culture Products	Amount	Page No.	Cases Available
	0452	L-Alanyl-L-Glutamine, 0.2M in 0.85% NaCl	100 ml		
	0453-10	L-Alanyl-L-Glutamine, dehydrated	10 g		
	0453-25	L-Alanyl-L-Glutamine, dehydrated	25 g		
	0453-100	L-Alanyl-L-Glutamine, dehydrated	100 g		
	0455	eRDM Complete CHO Cell Medium	500 ml		■
	0456	AthenaCHO Complete CHO Cell Medium	500 ml		■
	0458	ALI (Air-Liquid Interface) Medium	500 ml		■
	0459	Waymouth Cryopreservation Medium	100 ml		■
■	0460	DMEM High Glucose	500 ml	36	■
■	0461	DMEM Low Glucose	500 ml	36	■
■	0462	RPMI 1640	500 ml	36	■
■	0463	DMEM/F12, basal media	500 ml	36	■
■	0464	MEM with L-Glutamine	500 ml	36	■
■	0465	Ham's F12	500 ml	36	■
■	0466	McCoy's 5A	500 ml	36	■
■	0468	Neural Basal Medium	500 ml	36	■
	0469-50	200mM L-Glutamine, 50mL	50 ml		
	0469-50	200mM L-Glutamine, 50mL	50 ml		
	0452	L-Alanyl-L-Glutamine, 0.2M in 0.85% NaCl	100 ml		

NEW	Cat. No.	Protein Refolding Reagents	Amount	Page No.	Cases Available
	0600	QuickFold™ Protein Refolding Kit	Kit	40	
	0601	Detergent Screening Kit	Kit	41	
	0602	Cyclodextrin Kit	Kit	41	
	0603	100 mM Triton X-100	100 ml	41	
	0604	100 mM Tween 80	100 ml	41	
	0605	100 mM CTAB	100 ml	41	
	0606	100 mM POE(10)L	100 ml	41	
	0607	100 mM TTAB	100 ml	41	
	0608	100 mM Z 3-14	100 ml	41	
	0609	100 mM b-cyclodextrin	100 ml	41	
	0610	100 mM methylcyclodextrin	100 ml	41	
	0611	50 mM a-cyclodextrin	100 ml	41	
	0612-01	Refolding Buffer 1	500 ml	40	
	0612-02	Refolding Buffer 2	500 ml	40	
	0612-03	Refolding Buffer 3	500 ml	40	
	0612-04	Refolding Buffer 4	500 ml	40	
	0612-05	Refolding Buffer 5	500 ml	40	
	0612-06	Refolding Buffer 6	500 ml	40	
	0612-07	Refolding Buffer 7	500 ml	40	
	0612-08	Refolding Buffer 8	500 ml	40	
	0612-09	Refolding Buffer 9	500 ml	40	
	0612-10	Refolding Buffer 10	500 ml	40	
	0612-11	Refolding Buffer 11	500 ml	40	
	0612-12	Refolding Buffer 12	500 ml	40	
	0612-13	Refolding Buffer 13	500 ml	40	
	0612-14	Refolding Buffer 14	500 ml	40	
	0612-15	Refolding Buffer 15	500 ml	40	

NEW	Cat. No.	Protein Refolding Reagents	Amount	Page No.	Cases Available
	0613-01	Refolding Buffer 1	1 liter	40	
	0613-02	Refolding Buffer 2	1 liter	40	
	0613-03	Refolding Buffer 3	1 liter	40	
	0613-04	Refolding Buffer 4	1 liter	40	
	0613-05	Refolding Buffer 5	1 liter	40	
	0613-06	Refolding Buffer 6	1 liter	40	
	0613-07	Refolding Buffer 7	1 liter	40	
	0613-08	Refolding Buffer 8	1 liter	40	
	0613-09	Refolding Buffer 9	1 liter	40	
	0613-10	Refolding Buffer 10	1 liter	40	
	0613-11	Refolding Buffer 11	1 liter	40	
	0613-12	Refolding Buffer 12	1 liter	40	
	0613-13	Refolding Buffer 13	1 liter	40	
	0613-14	Refolding Buffer 14	1 liter	40	
	0613-15	Refolding Buffer 15	1 liter	40	

Ordering Information

the Nature of Proteins

AthenaES™ 2025 - 2026 Product Catalog

Simple Solutions for Complex Proteins

AthenaES®

a division of Athena Environmental Sciences, Inc.

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