Bioprocess

Better Development Upstream to Ensure Quality Downstream

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Process Optimization for Biologics Production: Enabling Enhanced Production, Efficient Purification, and Preservation of Product Integrity

In the field of biopharmaceutical production, we understand that achieving optimal results is paramount. That's why we prioritize process optimization to unlock its full potential. Our approach revolves around three crucial aspects: enhanced production, efficient purification, and the preservation of product integrity. Optimizing bioprocess development is critical for overcoming potential challenges stemming from cell stress, cell death, protein aggregation, contamination, and other factors that might impede the reliable manufacturing of the drug. We aim to streamline and enhance your bioprocessing workflow by providing cutting-edge solutions and technologies, leading to more efficient and successful biotherapeutic development.

Drug Discovery

Upstream Bioprocess

- Cell Culture
- Process Optimization
- Recovery/ Purification
- Formulation/ Delivery

ADME/Predictive Toxicology

Downstream Bioprocess

- Scale-Up
- Process Optimization
- Manufacturing/ Process Monitoring
- Quality Control/ Analytical

Maximize Yield	Maintain Product Integrity	Monitor Contamination
MEGACD40L® Protein	PROTEOSTAT® Protein Aggregation Assay	Protein A ELISA Kit
Small Molecules & Peptides	PROTEOSTAT® Thermal Shift Stability Assay	HCP ELISA Kits
		BSA and HSA ELISA Kits
		Antibiotic ELISA Kits
Cell Culture Process Optimization	Recovery/Purification Formulation/Delivery	Manufacturing/Process Monitoring Quality Control/Analytical

Maximize Yield

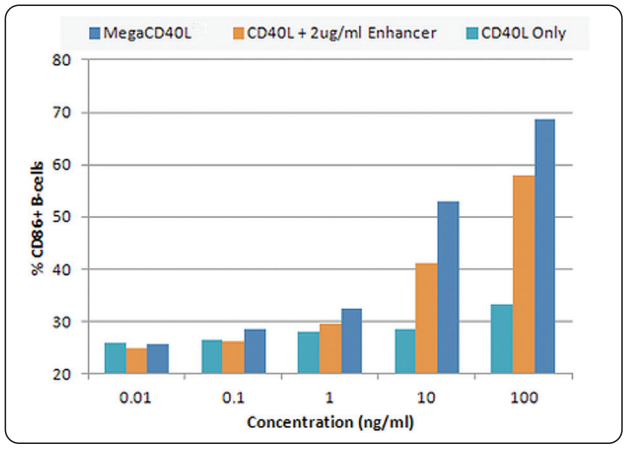
Maximizing yield in biopharmaceutical production is crucial for optimizing productivity and cost-effectiveness. It involves strategic process optimization, such as enhancing cell culture conditions, optimizing fermentation parameters, and improving downstream purification techniques.

MEGACD40L® Protein (soluble)(human) (recombinant)

High-activity, high-purity CD40L construct for co-stimulatory activation of an immune response without enhancers.

- Superior purity eliminates experimental artifacts
- 100-fold lower endotoxin levels than comparable products
- Reliable results through consistent lot-to-lot performance

Enhance Immune Activation with MEGACD40L® Protein



B cell lymphocyte activation by various CD40L constructs. PBMCs were treated for 48 hrs in media containing serially diluted CD40L, CD40L + 2 µg/mL Enhancer, or MEGACD40L® Protein.

ORDERING INFORMATION

Product Name	Product #
MEGACD40L® Protein (soluble) (human) (recombinant)	ALX-522-110
MEGACD40L® (soluble) (mouse) (recombinant)	ALX-522-120
CD40L (soluble) (human) (recombinant)	ALX-522-015
CD40L (soluble) (mouse) (recombinant)	ALX-522-070
Enhancer for Ligands	ALX-804-034

Achieve rapid expansion of primary B cells with MEGACD40L® recombinant protein. Using MEGACD40L® in association with other stimulants can improve expansion of primary B cells by 36 fold, based on the work by Hung KL, et al.

Maximize Yield

Small Molecules and Peptides

Incorporating small molecules into bioprocessing workflows can enhance productivity at various stages of the production cycle. These molecules act as potent enhancers, catalysts, or modulators, driving improvements in yield, quality, and overall process performance.

Our chemistry and compound range includes over 3,000 stand-alone small molecules with known activity, including natural products, enzyme inhibitors, receptor ligands, drugs, lipids, and fatty acids. From metabolic engineering to downstream processing, these compounds offer unprecedented opportunities to enhance productivity, streamline workflows, and achieve greater efficiency in producing valuable biologics.

Product Name	Product #	Upstream		Downstream	
		Cell Culture/Processing	Process Optimization	Scale-up	Process Optimization
Autophagy Inhibitors					
3-Methyladenine	BML-AP502		●		●
LY 294002	BML-ST420		●		●
Rapamycin	BML-A275		●		●
Wortmannin	BML-ST415		●		●
25-Hydroxyvitamin D3	BML-DM100		●		●
KRN7000	BML-SL232		●		●
MALP-2	ALX-162-027		●		●
Caspase Inhibitors					
Ac-DEVD-CHO	ALX-260-030		●		●
Z-VAD-FMK	ALX-260-020		●		●
Z-VAD-FMK (ready-to-use)	ALX-260-138		●		●
Cell Culture Supplements					
Biotin	ALX-460-002	●	●	●	●
Deoxymannojirimycin HCl	BML-S109	●	●	●	●
Folic acid	ALX-460-006	●	●	●	●
Neu5Ac	ALX-305-010	●	●	●	●
Retinoic acid	BML-GR100	●	●	●	●
HDAC Inhibitors					
Sodium butyrate	ALX-270-301		●		●
Valproic acid	ALX-550-304		●		●
Immune Response Modulators					
Loxoribine	ALX-480-097	●	●	●	●
R-848	ALX-420-038	●	●	●	●
Protease Inhibitors					
AEBSF (pefabloc®)	ALX-270-022		●		●
Alk5 Inhibitor II	ALX-270-445		●		●
E-64	ALX-260-007		●		●
Leupeptin (synthetic)	ALX-260-009		●		●
Pepstatin A	ALX-260-085		●		●
TPCK	BML-PI122		●		●

Maintain Product Integrity

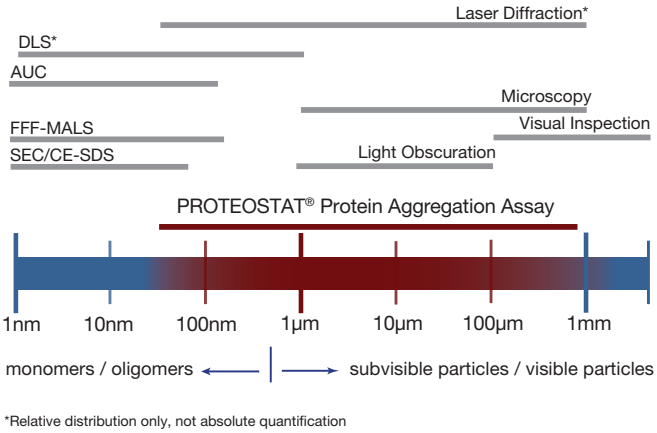
By monitoring aggregation, product stability can be assessed, allowing for the optimization of formulation and manufacturing processes to meet stringent regulatory requirements. This proactive approach ensures the final biopharmaceutical product maintains its integrity, efficacy, and safety.

PROTEOSTAT® Protein Aggregation Assay

Based on an innovative molecular rotor dye, the PROTEOSTAT® Protein Aggregation Assay is a simple, sensitive, and homogeneous fluorescent microplate assay allowing the detection in solution of a broad range of protein aggregates, from visible to subvisible particles.

- Delivers superior results when compared to conventional protein detection dyes
- High-throughput method for monitoring protein stability when used with flow cytometry or microplate reader
- Provides a convenient, complementary orthogonal method for cross-validation of instrumentation-intensive techniques
- Useful assay to troubleshoot protein damage, from protein development through manufacturing stages

Broadest Detection Range from Visible to Subvisible Particles



*Relative distribution only, not absolute quantification

Methods to analyze protein aggregation

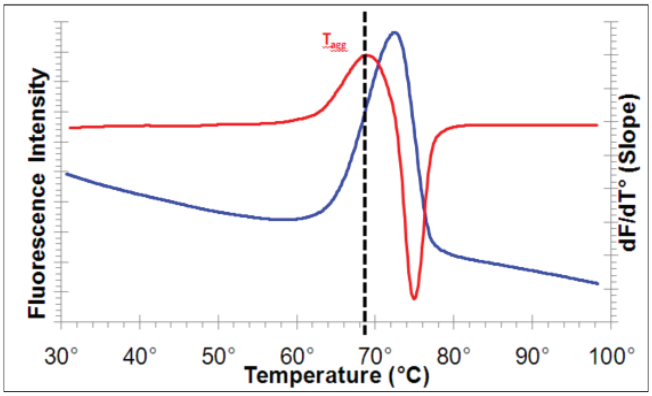
ORDERING INFORMATION	
Product Name	**Product #**
PROTEOSTAT® Protein Aggregation Assay	ENZ-51023
PROTEOSTAT® Protein Aggregation Standards	ENZ-51039

PROTEOSTAT® Thermal Shift Stability Assay

Based on an innovative molecular rotor dye, the PROTEOSTAT® Thermal Shift Stability Assay is a rapid, simple, and sensitive screening method allowing the end user to investigate proteins' aggregation propensity by determining the aggregation temperature.

- Perform accelerated screening for protein stability as a function of pH, ionic strength, and concentration
- Screen for ligand binding to proteins of unknown function
- Identify protein-protein interaction inhibitors

Thermal Shift Stability Assay Kit RT-PCR



Typical results of the PROTEOSTAT® Thermal Shift Stability Assay are shown for goat anti-mouse IgG (11.2 mg/mL at pH 7.4)

ORDERING INFORMATION	
Product Name	**Product #**
PROTEOSTAT® Protein Refolding & Aggregation Sensing kit	ENZ-51040
PROTEOSTAT® Thermal Shift Stability Assay	ENZ-51027

Monitor Contamination

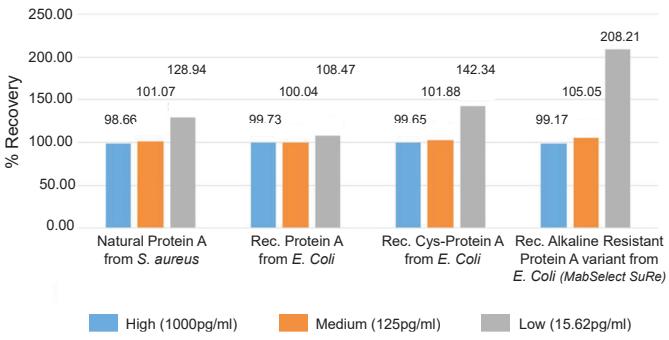
Contamination in biopharmaceuticals can occur at different stages of production and includes sources such as microorganisms, adventitious agents, and chemical impurities. Effective monitoring and control play a critical role in ensuring the safety and integrity of biopharmaceutical products while meeting rigorous regulatory standards.

Protein A ELISA Kit

Protein A ELISA kit is a sensitive and reproducible sandwich immunoassay to quantify Protein A residuals in monoclonal antibody preparations.

- Highly sensitive measurement, detecting as little as 9.01 pg/ml (<1 ppm) of Protein A residuals in purified humanized mAb preparations
- Universally used as it recognizes 4 commonly used constructs of Protein A
- High-throughput format with results in under 3 hours for up to 37 samples in duplicate

Recognition of all Commonly Used Protein A Constructs Ensures Accurate Results



Protein A construct cross-reactivity assessment

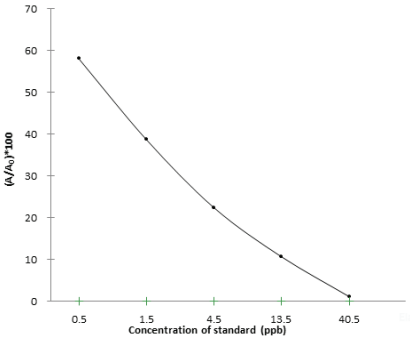
ORDERING INFORMATION	
Product Name	**Product #**
Protein A ELISA kit	ADI-900-057

ELISA Kits for Cell Culture-derived Impurities

Process-related impurities can raise concerns about immunogenicity and diminish product potency, efficacy, and longevity.

- Highly sensitive and specific bioprocess residual ELISA kits are ideal for the detection of chemical contaminants in the bioproduction processes
- Detect cell culture-derived impurities including BSA, HSA, insulin, transferrin, and antibiotics
- Consistent and dependable results

Highly Sensitive ELISA Kit for the Measurement of Neomycin



Typical standard curve for Neomycin ELISA kit (ENZ-KIT217)

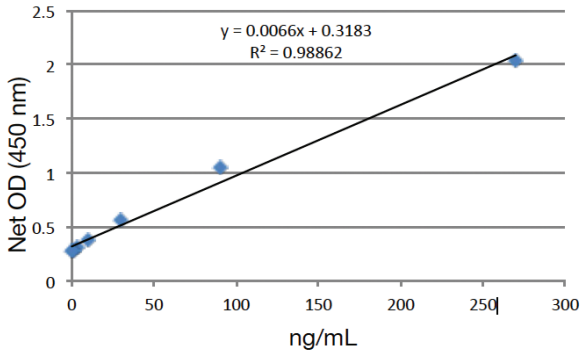
ORDERING INFORMATION	
Product Name	**Product #**
BSA ELISA kit	ENZ-KIT220
HSA ELISA kit	ENZ-KIT221
Insulin ELISA kit	ENZ-KIT141
Neomycin ELISA Kit	ENZ-KIT217
Gentamicin ELISA Kit	ENZ-KIT218
Streptomycin ELISA Kit	ENZ-KIT219

Host Cell Protein ELISA Kits

The Host Cell Protein ELISA kits and reagents are ideal for impurity analysis. Quantitatively measure host cell protein contamination in *E.coli*, CHO, and HEK293T derived products.

- Sensitive measurement of host cell protein, detecting as little as 10 ng/ml
- High protein coverage greater than 70% thereby, reducing the risk of missing potential contaminants
- High-throughput format with results in as little as 3 hours

Sensitive Measurement of HCPs



Typical standard curve for CHO HCP ELISA Kit (ENZ-KIT128)

ORDERING INFORMATION

Product Name	Product #	Time to Result	Sensitivity	Protein Coverage
CHO Host Cell Protein ELISA kit	ENZ-KIT128	3 Hours	30 ng/mL (3-810 ng/mL)	72%
E.coli Host Cell Protein ELISA kit	ENZ-KIT127	3 Hours	10 ng/mL (3-810 ng/mL)	80%
HEK293T Host Cell Protein ELISA kit	ENZ-KIT162	6 Hours	37 ng/mL (37-27,000 ng/mL)	70%

RELATED PRODUCTS

Product Name	Product #
CHO HCP Standards	ENZ-PRT122
CHO HCP polyclonal antibody	ENZ-ABS260
CHO HCP polyclonal antibody (biotin conj)	ENZ-ABS261
E.coli HCP Standards	ENZ-PRT121
E.coli HCP polyclonal antibody	ENZ-ABS262
E.coli HCP polyclonal antibody (biotin conj)	ENZ-ABS263
HEK293T Host Cell Protein Standards	ENZ-PRT311

A Plate Reader for Every Bench

The Absorbance 96 Plate Reader (ENZ-INSA96) is a personal 96-well format microplate reader that can be used for various applications including ELISAs, protein quantification assays, cell-based assays, and more. Bundle with 200+ trusted and validated ELISA kits for a one-step solution for your research needs.

- Space-saving design
- Fast readout speed and reliable results
- Affordable price

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Global Headquarters
ENZO LIFE SCIENCES, INC.
81 Executive Blvd., Suite 3
Farmingdale, NY 11735
Phone: 800.942.0430
Fax: 631.694.7501
info-usa@enzolifesciences.com

European Sales Office
ENZO LIFE SCIENCES (ELS) AG
Industriestrasse 17
CH-4415 Lausen, Switzerland
Phone: +41 61 926 8989
Fax: +41 61 926 8979
info-eu@enzolifesciences.com

LOCAL EUROPEAN OFFICES

Belgium, The Netherlands & Luxembourg
Enzo Life Sciences BVBA
Avenue Louise 65/Box 11
1050 Bruxelles
Belgium
Phone: +32 3 466 0420
Fax: +32 3 808 7033
info-be@enzolifesciences.com

France
Enzo Life Sciences (ELS) AG
Branch Office Lyon
13, avenue Albert Einstein,
F-69100 Villeurbanne, France
Phone: +33 472 440 655
Fax: +33 481 680 254
info-fr@enzolifesciences.com

Germany
Enzo Life Sciences GmbH
Basler Strasse 57a
DE-79540 Lörrach
Germany
Phone: +49 7621 5500 526
Fax: +49 7621 5500 527
info-de@enzolifesciences.com

UK & Ireland
Enzo Life Sciences (UK) Ltd.
1 Colleton Crescent
Exeter EX2 4DG
Phone (UK customers):
0845 601 1488
Phone: +44 1392 825900
Fax: +44 1392 825910
info-uk@enzolifesciences.com

For local distributors and detailed product information visit us online: enzolifesciences.com

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