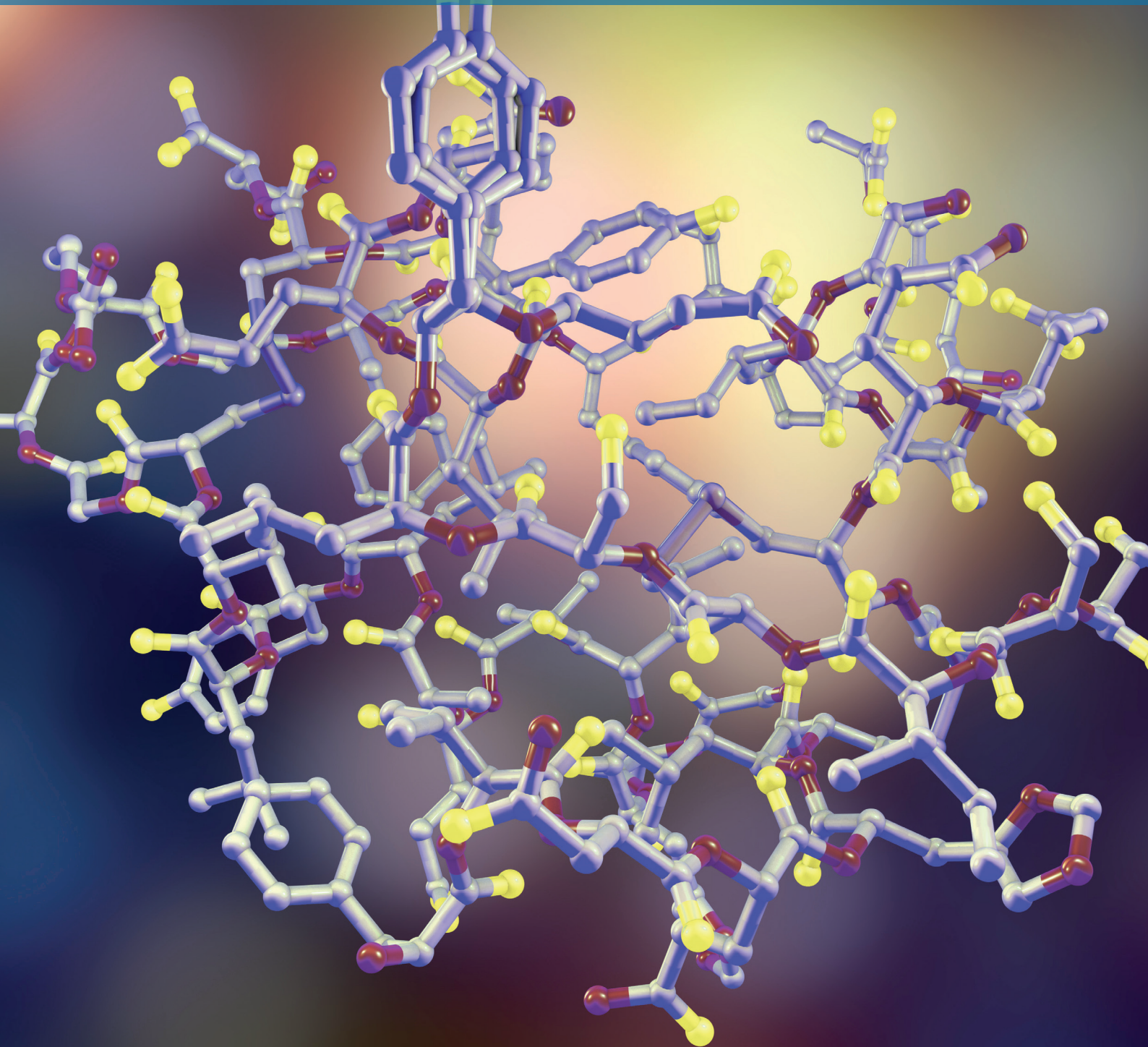


BIOZOL

FIT FOR SCIENCE

BRINGING QUALITY & EFFICIENCY TO RESEARCH



PROTEINS & PEPTIDES





Your Partner for Proteins & Peptides

Biozol Diagnostica Vertrieb GmbH are proud to have been providing products and services within the life science arena since 1989. We always aspire to give our customers the fastest response times and high standards of customer service.

BIOZOL's extensive range of proteins and peptides from the world's top life science suppliers are essential research reagents. Our broad range of recombinant and native proteins from multiple species include:

Enzymes – proteins with specific catalytic activity for use in functional assays.

Labelled proteins – proteins with fluorescent, enzyme or epitope tags for detection of protein in multiple applications.

Protein standards – proteins used to generate standard curves in techniques such as ELISA, or loaded alongside cell lysates on protein gels to identify specific bands in western blot.

Blocking peptides – peptides used to block/neutralise specific antibody activity, for use as a negative control or in competition experiments.



BACHEM

PIONEERING PARTNER FOR PEPTIDES



Since its foundation in 1971, Bachem's concepts and technologies pioneered industrial peptide manufacturing. Its history of firsts drives Bachem to continue developing pioneering innovations and offer a full range of integrated services to bring customers' breakthroughs to market.

Bachem's catalog stood at the beginning of the Bachem success story: being the first to offer building blocks to customers has irrevocably positioned Bachem as the leading manufacturer of peptides. Ever since, we continuously expand the range of products offered in our catalog, providing customers with a palette of peptides like no other supplier.

We offer a large selection of research peptides from stock. Our distribution centers in the US and in Europe allow fast delivery worldwide. With a track record in custom synthesis projects, we are a partner to our clients as a trusted supplier of high quality research peptides and amino acids.

Our catalog consists of over 6500 products and more than half of them are peptides and biochemicals. We offer different pack sizes from stock as well as bulk quantities on request.

We are dedicated to support researchers all over the world in important fields of research, such as:

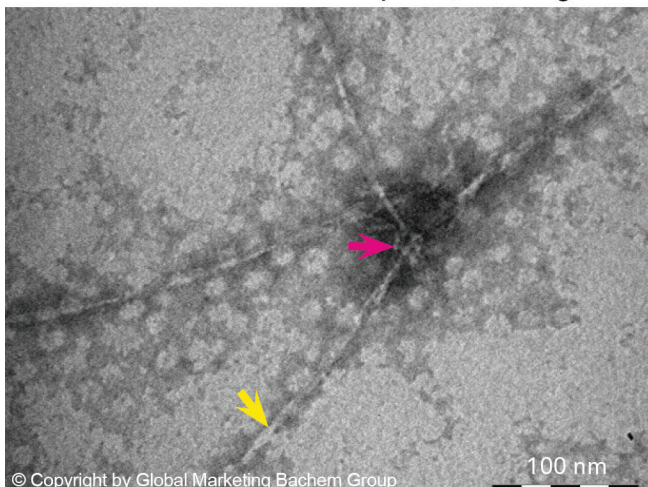
- **Alzheimer's Disease (more than 250 products)**
- **Cancer (more than 250 products)**
- **Cardiovascular Disease (more than 300 products)**
- **Diabetes (more than 100 products)**
- **Obesity (more 120 products)**
- **Opioid Research (more than 80 products)**
- **Regenerative Medicine (more than 150 products)**

The quality of our products is evidenced in the detailed analytical datasheets, which come with each of our products. Our service does also not stop with the delivery of your product. Should any issues arise, our customer support is always happy to assist you.

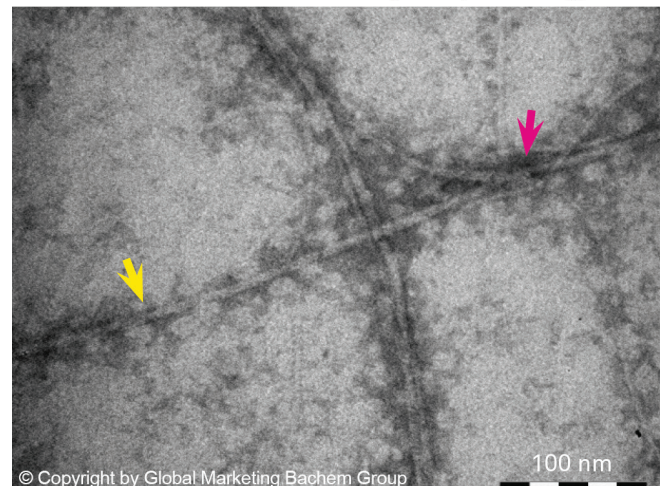
Highlights from our catalog portfolio include:

- HFIP-treated Amyloid β (1-42) peptide for more consistent monomerization and results
- Fluorescently labelled peptides, such as cyclo(RGDyK(Tide Fluor™ 7WS))
- HIV related peptides, such as HIV-1 gag Protein
- Peptides for radiolabeling, such as DOTA-TOC

Fibril formation of HFIP-treated A β 1-42, TEM image.



Fibril formation of HFIP-treated A β 1-40, TEM image.



The magenta arrow points to the nucleation centers where aggregation starts. The yellow arrow indicates the fibrils which are formed as long thin helical structures with regular twists.



CUSABIO's Protein Expression Platform has established five recombinant expression systems, ranging from prokaryotic to eukaryotic. They have also built a unique in vitro E. coli expression system, which enables expression of transmembrane proteins. CUSABIO protein QC department is equipped with advanced experimental apparatus to ensure each protein has a complete COA report and is of high quality. CUSABIO's purified proteins surpass 90% purity as detected by SDS-PAGE analysis.

All of their products are of high-quality with the purity of most active proteins exceeding 97%. The proteins have been validated and have a low endotoxin level.

The CUSABIO product range currently includes:

- 70 native proteins
- 320 active proteins
- 1000+ recombinant proteins
- 5700+ developed recombinant proteins
- 10,000+ cDNA clones
- 36,000+ transmembrane proteins
- 500,000+ semi-customized recombinant proteins



✓ Tag-free

✓ Purity >95%

✓ Lyophilized

✓ Fast delivery

✓ Standard COA

✓ Low endotoxin level

✓ Competitive price

✓ Activity Verification

✓ Complete data sheet

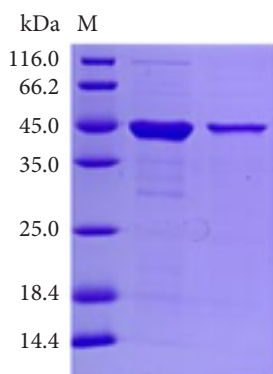
✓ Different sizes available

Recombinant Protein

The recombinant proteins CUSABIO provide include: cytokines, hormones, enzymes, viral antigens, allergens, human disease-related proteins, animal, plant and microbial proteins. CUSABIO's own protein expression technology is based on protein expression and purification technology, including that shown by baculovirus outer membrane proteins (OMP), and membrane protein expression technology.

Key Product Features:

- High Purity: >97%
- Low Endotoxin Level: Less than 1.0 EU/μg as determined by LAL method.
- Active Verification: Biological activity up to $> 1.0 \times 10^9$ IU/mg.
- Uniform Delivery Form: Lyophilized Powder.
- Tag Type: Tag free.



The SDS-PAGE of Serine protease inhibitor A3N

- Carrier Free: dissolved in PBS before lyophilization, without BSA.
- Animal free.
- Delivery Time: In stock. Fast delivery within 5-10 business days.
- Price & Size: Different sizes available and competitive prices.
- Standard COA for each item.
- Complete datasheet for each item.

CUSABIO have set up an independent protein quality control department ensuring all CUSABIO proteins meet with the quality standards set by the international protein market. Their professional R&D team develop and produce more than 2700 proteins each year.



Cytoskeleton, Inc.

Helping advance science
one protein at a time.

Offering High-Quality
Kits and Reagents for:

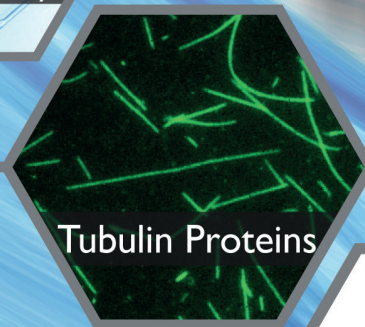
Cell Biology



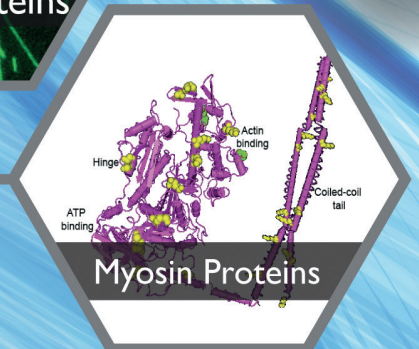
Neuroscience



Cancer Research



Heart Disease



NEW Signal-Seeker™ Kits!

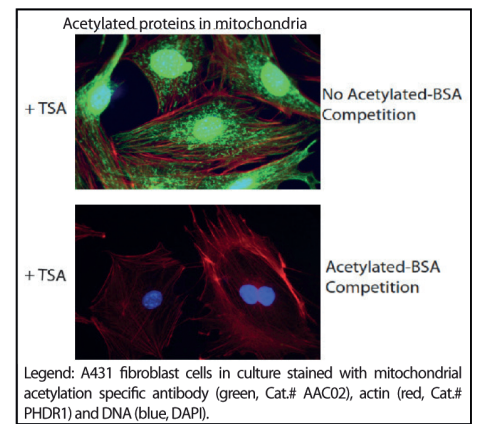
Detect and Measure Proteoforms from cultured cells & tissues

- Highly qualified (QC'd) bead conjugates for high reproducibility
- 17 molecules per cell detection sensitivity
- One lysis buffer compatible with all protein modifications
- Ubiquitin, SUMOylation, Acetylation and Phosphorylation detection by Western blot

Cited in current peer-reviewed articles

1. Phos-tyrosine antibody; Cat. # APY03. Kline A. et al. 2018. Dev. Biol. DOI: 10.1016/j.ydbio.2018.05.006.
2. Acetylation detection; Horita H. et al. 2017. Biosci. Rep. DOI: 10.1042/BSR20170919.
3. Phos-tyrosine beads; Cat. # APY03-beads. Kaukonen R. et al. 2016.
4. Nat. Commun. DOI: 10.1038/ncomms12237.

See more online at www.cytoskeleton.com/signal-seeker.



Highly Cited Small G-protein Tools!

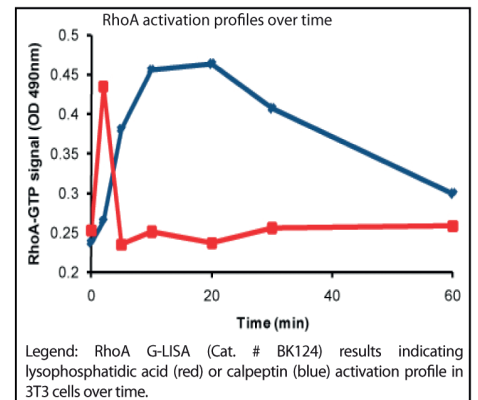
Measure active GTPases in 3-D matrix, primary cells, & tissues.

- Highly reproducible and accurate
- Picogram detection sensitivity
- Varied isoforms, e.g., H, N, or K-Ras, RhoA, Rac1, Cdc42, & Arf1/6
- Two formats: ELISA-type GLISA or bead pulldown western blot

Cited in hundreds of peer-reviewed articles

1. 3-D cell culture; Ponik S.M. et al. 2013. Mol. Biol. Cell. 24,1688-1699.
2. Primary cells; Valdez C.M. et al. 2016. Mol. Cell. Neurosci. 75, 14-26.
3. GTPase isoforms; Tabibian J.H. et al. 2014. Hepatology. 59, 2263-2275.

See more online at www.cytoskeleton.com/activation-assays/glisa-assays.



Time-Tested Tubulin and Actin Reagents!

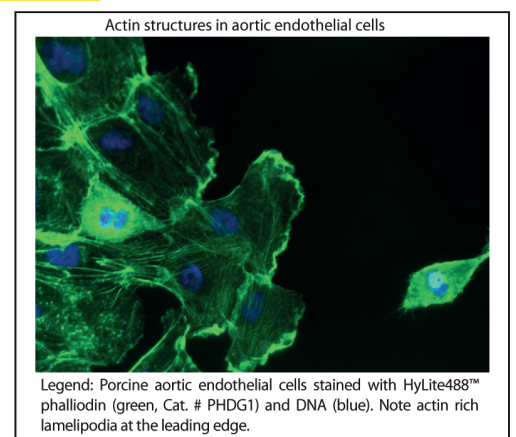
Measure actin or tubulin in cells or in vitro

- G-/F-actin ratio in cells (Cat. # BK037)
- Polymerization assays in vitro (Cat. # BK003 actin or BK011P tubulin).
- Binding assays to polymer or monomer (Cat. # BK001 or BK029)
- Fluorescent phalloidins to stain F-actin in cells (e.g., Cat. # PHDG1).

Cited in hundreds of peer-reviewed articles

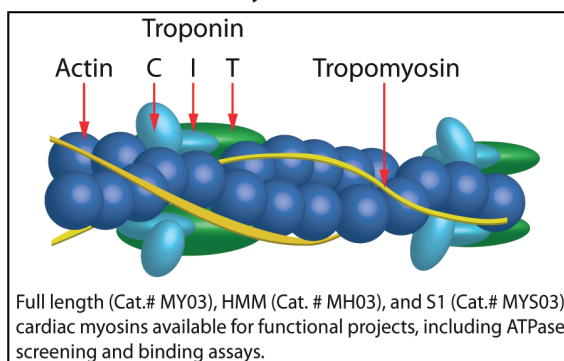
1. Tubulin polymerization; Dilworth D. et al. 2018. Nucleic Acids Res. DOI: 10.1093/nar/gky008.
2. G-/F-Actin in cells; Sen B. et al. 2017. Stem Cells. DOI: 10.1002/stem.2617.
3. Fluorescent F-actin detection; Cho C. et al. 2017. J. Neurochem. DOI: 10.1111/jnc.14031.

See more online at www.cytoskeleton.com/activation-assays/actin or www.cytoskeleton.com/activation-assays/tubulin

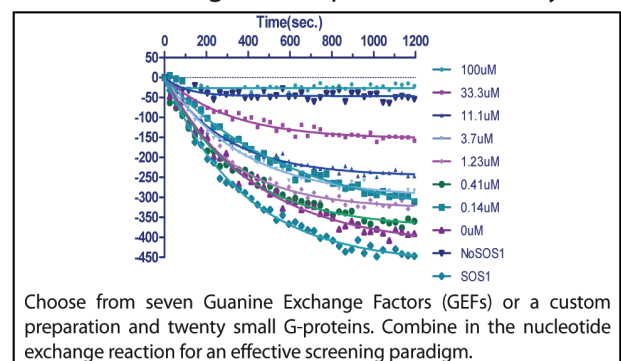


More Kits and Reagents

Cardiac myosins and actin



GTP Exchange Factor proteins and assays



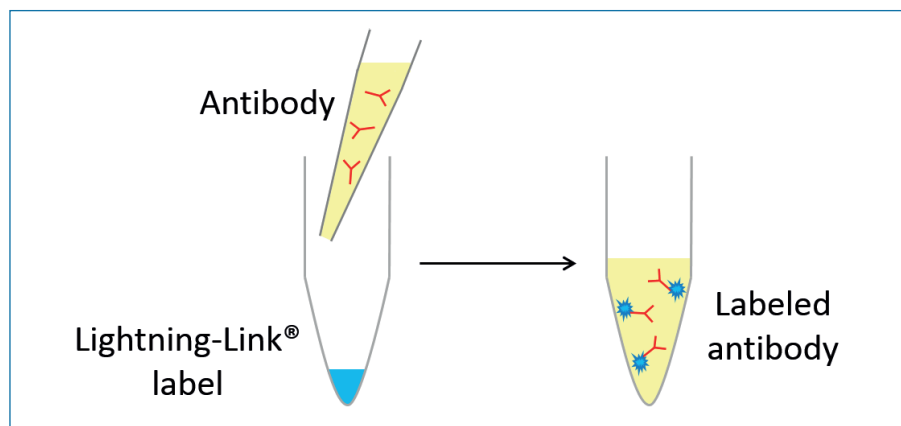
Expedeon is a UK-based company specializing in the development of next-generation tools for biological research, diagnostics, and drug discovery. With an extensive portfolio of innovative, ISO-accredited products, expertly designed to speed up research while delivering consistent high-quality data, the company has a strong focus on the study of proteins.

Offering the widely literature-cited Lightning-Link® antibody labelling kits, in addition to antibody purification kits, RunBlue™ precast gels, InstantBlue™ Coomassie stain and LumiBlue™ chemiluminescence solutions, Expedeon's products support an extensive range of protein-based applications. These include western blotting, flow cytometry, IHC, ELISA, lateral flow assays and immuno-PCR, to name just a few.

Lightning-Link® antibody labelling kits

Lightning-Link® technology enables direct labelling of antibodies, proteins, or any other biomolecule with an available amine group. Kits are supplied in a freeze-dried format, requiring only 30 seconds hands-on time to produce ready-to-use conjugates in under 20 minutes. With no separation steps, 100% of materials are retained during the labelling process.

The Lightning-Link® antibody labelling process



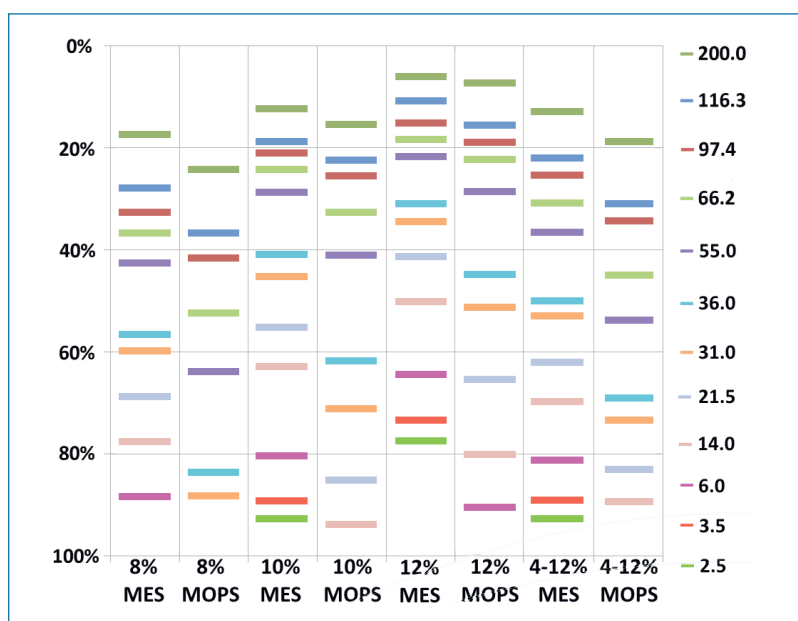
Lightning-Link® is fully scalable (10 µg to 1 g or more), affording easy transfer from R&D to manufacturing. Available conjugates include:

- Enzymes (Horseradish Peroxidase, Alkaline Phosphatase, Glucose Oxidase)
- Fluorescent proteins (Allophycocyanin, Phycoerythrin, PerCP)
- A wide range of fluorescent dyes (including Alexa Fluor®, DyLight® and Atto dyes)
- Biotin
- Streptavidin

RunBlue™ Bis-Tris Protein Gels

Developed to provide an alternative to NuPAGE® Bis-Tris gels, Expedeon's RunBlue™ Bis-Tris gels benefit from the usability enhancements present in all RunBlue™ gels. Designed to improve the speed and efficiency of loading and running, these include:

- Comb-free - reduced risk of broken or damaged teeth
- Strip-free - no potentially ruined Western Blots
- Resilient gel matrix - tear-proof composition and risk-free handling
- Unique homogeneous polymerisation - improved consistency and no residual free acrylamide
- Extra wells - run up to 12 or 17 samples simultaneously
- Deep and wide wells - load up to 35 µl (12 well) or 20 µl (17 well)
- Protruding teeth - no well contamination in case of overloading



RunBlue™ Bis-Tris gels for high resolution protein separation

InstantBlue™ Coomassie Protein Stain

An ultra-fast, easy-to-use protein stain, Expedeon's InstantBlue™ produces well-defined blue bands on a highly transparent background to afford a superior signal/noise ratio. Providing researchers with the capacity to detect as little as 5ng protein/band, InstantBlue™ also benefits from compatibility with mass spectrometry (MS) analysis and silver staining.

- Ultra-fast - results in 15 minutes or less
- Single-step procedure - no washing, fixing microwaving or de-staining
- High sensitivity - 5 ng bands detectable
- Clear background - high signal/noise ratio
- Methanol-free - no gel shrinkage or protein methylation
- Acetic acid free - no protein acetylation
- MS compatible - de-stainable, no residual methylation or acetylation
- Safe composition - non-toxic, no fume hood or solvent disposal required
- Flexible - no over staining
- Quantitative - excellent batch-to-batch consistency

As a leading protein and antibody solutions provider, GenWay has a proprietary technology platform and an international network to provide our clients with solutions and applications for proteins, antibodies, assays, and cell lines. We specialize in recombinant proteins and domain-specific IgY (chicken) antibodies and their applications, such as Seppro® products and difficult-to-express proteins. GenWay's technology and expertise make high-quality protein antigens that enable production of high-quality antibodies and related applications.

Recombinant and native proteins can be used to investigate anything from disease pathways to the identification of protein targets for research applications.

Native Proteins

Native proteins are naturally occurring, purified from either animal tissues or serum. They are sourced from their host rather than expressed in an external system.

Recombinant Proteins

Recombinant proteins are created by expressing mammalian or plant genes in bacteria, mammalian, or yeast cells and have a variety of applications. Unlike native proteins, their amino acid sequence is more defined and they can be cultured in large quantities.





Protein Expression

GenWay provides customized solutions to each protein expression project. Our expert scientific staff has experience with difficult proteins and have produced more than 2,500 recombinant proteins.

Platforms

E.coli

Inexpensive, fast, high expression levels. Simple production scale-up. Good for antigens, assays standards, affinity ligands, enzymes single chain and single domain recombinant antibodies.

Lacking native post-translational modification. May require refolding and endotoxin removal. Inefficient for complex proteins.

Insect

Sf9, Sf21, High Five, S2.

Relatively fast with moderate yields including complex secreted, intracellular and transmembrane proteins. Good for antigens, assays standards, affinity ligands, enzymes.

Post-translational modifications different from mammalian system. Higher cost. Difficult production scale-up.

Yeast

S. cerevisiae and *P. pastoris*.

Relatively fast and inexpensive with moderate or high yields of properly folded proteins. Simple production scale-up. Efficient for complex intracellular and secreted proteins. Good for antigens, assays standards, affinity ligands, Fab and full-length antibodies, enzymes.

Post-translational modifications different from mammalian system.

Mammalian

293, CHO, Hybridoma.

High transient and stable expression levels of secreted proteins with native post-translational modification. Good for antigens, assays standards, affinity ligands, full-length antibodies and Fc-fusion proteins.

Higher cost. Low yields for intracellular proteins. Difficult production scale-up for transient expression.

Protein Ark

With over 15 years applied project experience across a spectrum of drug discovery programmes, Protein Ark is recognised as the protein company for protein scientists. Based in the UK, Protein Ark delivers a comprehensive range of custom services to support research from gene to antibody:

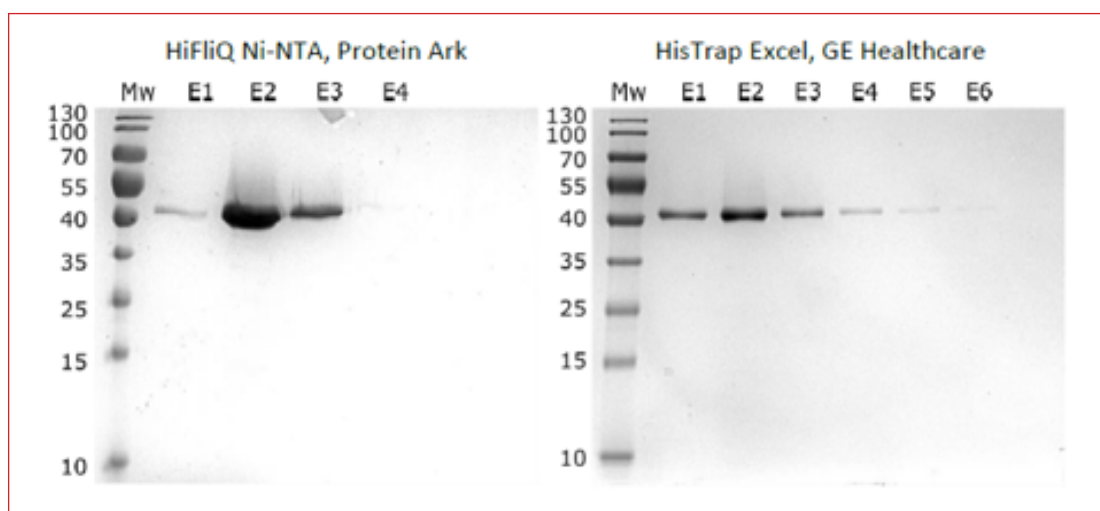
- Cloning
- Protein expression
- Peptide synthesis
- Antibody production
- Custom column packing

Underpinning these services are specialised products designed to meet the exacting needs of protein scientists. These include high performance resins, products for filtration/ultrafiltration, and an extensive range of chromatography columns suitable for all protein purification requirements. Protein Ark also manufactures Elite hybridoma cell lines and their validated antibodies, which are widely-cited within a diverse array of research areas.

HiFliQ Ni-NTA Columns

Protein Ark's HiFliQ Ni-NTA columns are designed for affinity purification of poly-histidine tagged recombinant proteins by immobilized metal ion affinity chromatography (IMAC). Packed with pre-charged nickel-nitrilotriacetic acid (Ni-NTA) agarose resin, they deliver high binding capacity and minimal Ni²⁺ ion leakage.

Available in 1mL and 5mL column sizes, HiFliQ Ni-NTA columns are compatible with all common chromatography HPLC and FPLC instruments (including ÄKTA™ FPLCs), and with a wide range of reducing agents, detergents and other buffer additives. They can also be used with low pressure pumps and syringes by incorporating an appropriate adaptor.

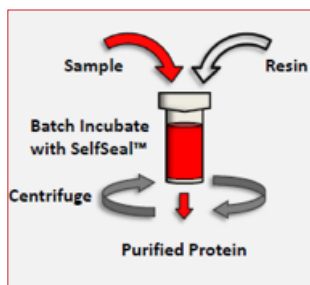


Protein Ark's Ni-NTA HiFliQ columns demonstrate superior elution with ÄKTA FPLC. After direct loading of supernatant from 100 mL yeast culture (total protein 0.3 mg/mL), HiFliQ columns eluted 20-30% more protein than GE HisTrap Excel columns, in half the number of fractions. Final concentration of protein eluted from HiFliQ was 0.73 mg/mL compared to 0.3 mg/mL from HisTrap. Final purity for both columns was comparable. (Data from Habrylo O., PhD - BIOPI Lab, Amiens, France).

Proteus 1-Step Batch Spin Columns

Protein Ark's 1-Step Batch Spin Columns are manufactured in several different formats to meet protein scientists' varying requirements. Designed for volumes ranging from 0.6 – 20 mL, the filtered or unclarified sample is simply mixed with a suitable affinity resin before elution of the purified and concentrated protein using a centrifuge.

- **1-Step Batch Mini Spin Columns** - for small-scale protein purifications such as those required for expression trials, solubility determination tests, screening, titering and scouting studies; will accommodate up to 0.6 mL sample volume
- **1-Step Batch Midi Spin Columns** – for batch mixing filtered or unclarified sample with the resin of choice before elution of the purified and concentrated protein in a small volume; a contained device, ideal for handling bio-hazardous samples and samples from infectious sources; will accommodate up to 20 mL sample volume
- **1-Step Batch Midi Plus Spin Columns** – for batch incubating the protein sample with the resin of choice; will accommodate up to 20 mL sample volume



The Proteus 1-Step Batch Mini process

The 1-Step Batch Mini and 1-Step Batch Midi Plus Spin Columns incorporate an innovative SelfSeal™ membrane technology to retain the resin and the sample in the batch incubation chamber until the column is spun. Upon centrifugation, the pores of the membrane dilate, and the filtered eluate is collected in the bottom of the centrifuge tube.

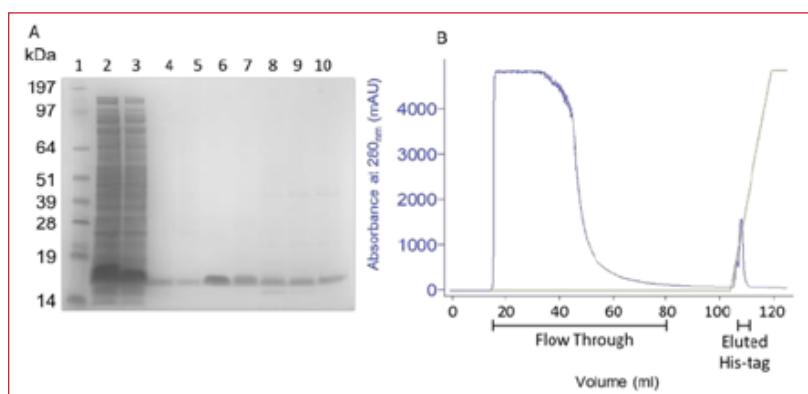
Empty Proteus FliQ FPLC columns

Included within Protein Ark's extensive range of chromatography columns for protein purification, empty FliQ FPLC columns enable researchers to perform column loading with a resin of choice. Available in a variety of sizes (1, 5, 10 and 20 mL), Proteus FliQ FPLC columns are compatible with all common chromatography instruments and any chromatography resin. Using these products, researchers can significantly reduce chromatography column costs.

Super and Fastback Chromatography Resins

Designed to meet diverse protein purification requirements, Protein Ark's Super Resins and Fastback Resins are supplied in a range of chemistries. High performance Super Resins include Ni-NTA, Co-NTA, Glu and Heparin chemistries, while Fastback Resin chemistries include Ni IMAC, Co IMAC, Protein A and Protein G.

- Fastback Protein A and Protein G resins for antibody purification
- Fastback Q-type and S-type resins for purification of positively and negatively charged proteins
- Super Ni-NTA, Co-NTA, Glu and Heparin supplied as high-performance resins with a mean bead size of 35 μm for selective binding capacity



Fastback performance data. Recombinant His-tagged protein purified from E. coli lysate using Fastback Co IMAC Resin packed in 1 ml HiFliQ and analyzed via Nu-PAGE >95% (A) 1. Markers, 2. Starting material, 3. Flow-through, 4. Wash, 5. Elution I, 6. Elution II, 7. Elution III, 8. Elution IV, 9: Elution V, 10: Elution VI. (B) Chromatogram of gradient purification.



SignalChem's Active Kinases

| Enzyme | Catalog No. | Species | Tag | Expression | Sequence |
|---------------|-------------|---------|-----|------------|-------------|
| GLK, Active | M25-11G | Human | GST | Sf9 insect | 1-380 |
| EGFR, Active | E10-112G | Human | GST | Sf9 insect | 668-end |
| ALK2, Active | A06-11G | Human | GST | Sf9 insect | 147-end |
| RIPK2, Active | R08-11G | Human | GST | Sf9 insect | 1-299 |
| HUNK, Active | H08-10G | Human | GST | Sf9 insect | Full Length |

SignalChem offers a broad range of recombinant kinases of superior purity and activity to assist the global academic research and drug discovery efforts. Its active kinase product line is one of the most comprehensive in the world in terms of the coverage and has been utilized by many pharmaceutical companies in their drug discovery programs. An in-house product development team with over 100 years of combined experience in kinase biochemistry is behind the production and quality control of all the kinase-related products as well as the method development for activity assays.

SignalChem's Active Ubiquitin Enzymes

| Enzyme | Catalog No. | Species | Tag | Expression | Sequence |
|---------------------|-------------|---------|-----|------------|-------------|
| UBA1 (UBE1), Active | U201-380G | Human | GST | Sf9 insect | Full Length |
| UBE2O, Active | U232-380G | Human | GST | Sf9 insect | Full Length |
| UBE2C, Active | U212-380H | Human | HIS | E.coli | 147-end |
| HERC4, Active | H265-381G | Human | GST | Sf9 insect | 642-end |
| TRIM37, Active | T292-380G | Human | GST | Sf9 insect | Full Length |

SignalChem has developed an extensive array of products encompassing ubiquitin enzymes, Ub/UBL modifiers and substrates in the ubiquitination, SUMOylation, ISGylation and NEDDylation processes. Using Pro-mega's AMP-Glo™ technology and an optimized assay protocol, we have identified and validated a variety of functional combinations of the enzyme components. With the established protocol, each enzyme in the catalytic cascade has been assessed for their activity towards generation of free AMP. In addition, inhibition profiles of the ubiquitinating enzymes have been obtained using the assay system, further demonstrating their potential to be used in high-throughput screening to identify lead compounds for drug discovery and development programs.

SignalChem's Tau Proteins

| Protein | Catalog No. | Species | Tag | Expression | Sequence |
|--------------------------------|-------------|---------|----------|------------|-------------|
| Tau-441, DYRK1A-phosphorylated | T08-50RN | Human | Tag free | E.coli | Full Length |
| Tau-441, BRSK2-phosphorylated | T08-50BN | Human | Tag free | E.coli | 1-441 |
| Tau-441, Biotinylated | T08-54BN | Human | Tag free | E.coli | Full Length |
| Tau-381 Protein | T04-54N | Human | Tag free | E.coli | Full Length |
| HTau-410 Protein | T06-54N | Human | Tag free | E.coli | Full Length |

SignalChem manufactures one of the most comprehensive selections of recombinant Tau proteins in the world. These include: various tau protein isoforms, phospho-Taus, and mutant variants. Their selection of a wide range of Tau proteins demonstrates SignalChem's drive to provide quality proteins to facilitate research in neurobiology and these proteins have so far been utilized in a variety of fields including neurodegeneration, oncology, epigenetics, cell stress, and more.

SignalChem's Active Proteases

| Enzyme | Catalog No. | Species | Tag | Expression | Sequence |
|------------------|-------------|----------|----------|------------|--------------|
| Trypsin, Active | T575-31N | Swine | Tag free | Yeast | 10-end |
| Lys-c, Active | L585-31N | Bacteria | Tag free | E.coli | 206-473 aa |
| Thrombin, Active | T565-31N | Human | Tag free | E.coli | 364-end |
| KEX2, Active | K525-31N | Yeast | Tag free | Yeast | 110-660 aa |
| TEV, Active | T525-31H | TE Virus | HIS tag | E.coli | 2038-2279 aa |

SignalChem offers a variety of highly specific and tag-free recombinant proteases such as carboxypeptidase B, Tobacco Etch Virus Protease, Thrombin and Trypsin with critical relevance in life science research and industrial processes. Their protease products, including agarose and/or silica cross-linked proteases, are available in microgram to bulk quantities.



A Global Leader in Recombinant Protein R&D

Capacity & Capability

- Milligram level protein production
- 2L—2000L bioreactor to ensure high throughput manufacture
- 1000 new proteins made in house per year
- Only 4 weeks from gene sequence to protein production

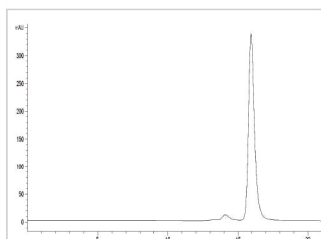
World Largest Recombinant Protein Bank

- 6000+ proteins in stock
- Multiple species & various tags

Protein Advantages

- >85% expressed by eukaryotic cells
- High purity & low endotoxin
- Bioactivity validated
- Animal Component Free & carrier free

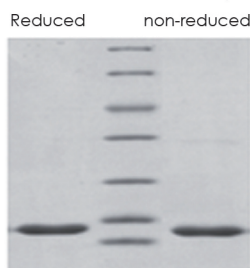
HPLC Purity



>97%

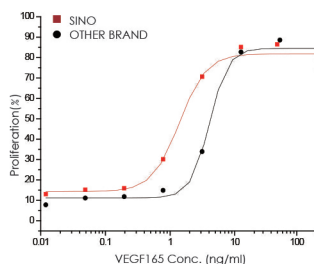
TNF-alpha (Cat: GMP-10602-HNAE)

SDS-PAGE Purity



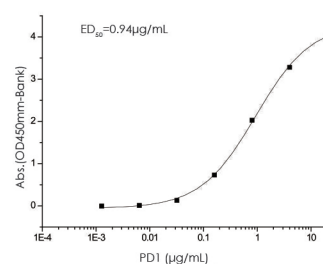
>96%

VEGF165 Bioactivity



Cell (HUVEC) proliferation

PD1 Bioactivity



PD-1 (10377-H03H) bind to PD-L2

Custom Protein Production Services

One-stop: gene cloning -> cell culture -> protein purification -> protein characterization

High quality: Proprietary technology and optimized process

Fast turnaround: From gene sequence to purified protein within 4 weeks in HEK293 cells

Low risk: Milestone payments

Rich experience: Over 6000 recombinant proteins, from milligram to gram, have been successfully produced.

HEK293/CHO
transient
expression

CHO stable
cell line
development

Bacterial
expression

Baculovirus-
insect cell
expression

Yeast
expression

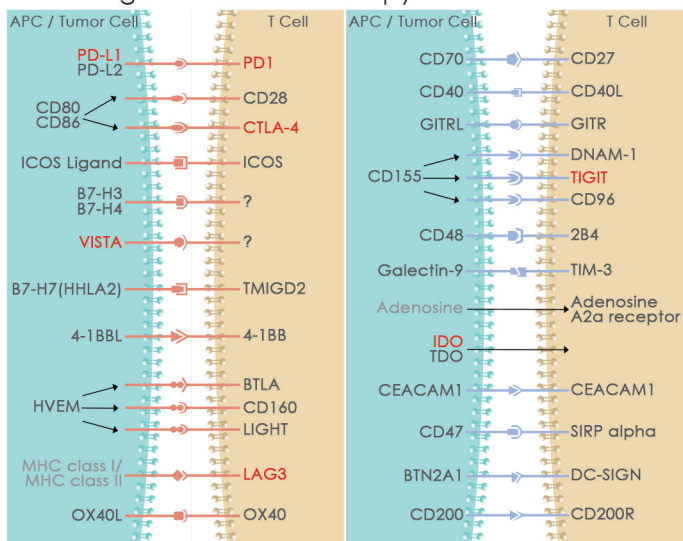
Bulk Order, Savings More!

- In stock & ready to ship
- Bulk order with amazing discount

Featured Recombinant Protein Products

1 Immune checkpoint proteins

Hot targets for cancer therapy



Note: Products for the molecules in grey colour can not be provided.

2 Viral proteins

Influenza virus proteins

| | | | | |
|--------------------------|-----|----|----------------|------------|
| HA | HA0 | NP | NA | NA(Active) |
| NA (Inhibitor-resistant) | | | M1 & NS1 & NS2 | |

DENV proteins

| | | |
|--------|-----|------|
| Capsid | NS1 | NS5A |
|--------|-----|------|

EBOV Proteins

| | | | |
|----|----|------|------|
| GP | NP | VP40 | NP24 |
|----|----|------|------|

ZIKV Proteins

| | | | |
|-----|-----|-----------|-----|
| C | E | prM and E | NS3 |
| NS5 | NS1 | | |

RSV Proteins

| | |
|-------|-------|
| RSV-G | RSV-F |
|-------|-------|

3 Cytokine proteins

GMP-level proteins

| Cat. NO. | Protein name |
|----------------|---|
| GMP-10015-HNAH | Human GM-CSF / CSF2 Protein |
| GMP-10139-HNAE | Human IL-1 beta / IL1B Protein |
| GMP-10360-HNCE | Human IL-15 / IL15 / Interleukin 15 Protein |
| GMP-10395-HNAE | Human IL6 / Interleukin-6 Protein |
| GMP-10584-HNAE | Human Interleukin-21 / IL-21 Protein |
| GMP-10602-HNAE | Human TNF-alpha / TNFA Protein |
| GMP-10605-HNAE | Human EGF / Epidermal Growth Factor Protein |
| GMP-11725-HNAS | Human IFN-gamma / IFNG / γ -IFN Protein |
| GMP-11821-HNAE | Human IL7 / interleukin 7 Protein |
| GMP-11846-HNAE | Human IL4 / Interleukin-4 Protein |
| GMP-CT011-H08H | Human IL-12 (IL12A & IL12B Heterodimer) Protein |

4 Biotinylated proteins

Keep high activity under biotinylation

Cover hot drug targets

| Cat. No | Targets | Cat. No | Targets |
|--------------|---------|---------------|---------|
| 11066-H27H-B | VEGFA | 10694-H08H-B | EpCAM |
| 10481-H08H-B | OX40 | 10001-H08H-B | EGFR |
| 12635-HNAE-B | S100P | 11159-H08H-B | CTLA4 |
| 10514-H08H-B | PDGFRB | 50059-M08H-B | CSF1R |
| 10292-H08H-B | PD-L2 | 11031-HCCH-B | CD8B |
| 13128-H01H-B | MSLN | 10980-H08H-B | CD8A |
| 10012-H08H-B | KDR | 10239-H08E-B | CD40L |
| 50998-M08H-B | KDR | 12238-H08H-B | CD33 |
| 10359-H08H-B | IFNAR2 | 11188-H08H-B | B7-H3 |
| 10464-H07H-B | FAP | 50973-M08H-B | B7-H3 |
| 10201-H08H-B | ERBB3 | 10039-H08B1-B | CD27 |
| 10004-H08H-B | ERBB2 | 10084-H08H-B | PD-L1 |

5 Fc receptor proteins

High activity of binding to immunoglobulin

Multiple Species

| | CD16a | CD16b | CD32a | CD32b | CD64 | FCGR2 & B2M |
|------------|--------------|-------|-------|-------|------|-------------|
| Human | √ | √ | √ | √ | √ | √ |
| Mouse | CD16, CD16-2 | | CD32 | | √ | √ |
| Cynomolgus | CD16 | | √ | √ | | √ |
| Rat | √ | | √ | √ | √ | √ |

6 Targets of CAR-T cell therapy

Targets for solid tumors and blood cancers

| CEA | c-MET | EGFR | EGFRvIII | EPCAM | EPHA2 |
|--------|------------|------------|----------|-------|-------|
| HER2 | Glypican-3 | Mesothelin | Muc1 | PD-1 | PD-L1 |
| VEGFR2 | IL13RA2 | PSMA | FAP | CAIX | FOLR1 |
| L1CAM | ROR1 | BCMA | CD123 | CD138 | CD19 |
| CD20 | Siglec-2 | CD30 | Siglec-3 | CD38 | Leu-1 |
| CD56 | ULBP1 | ULBP2 | IL1R3 | | |

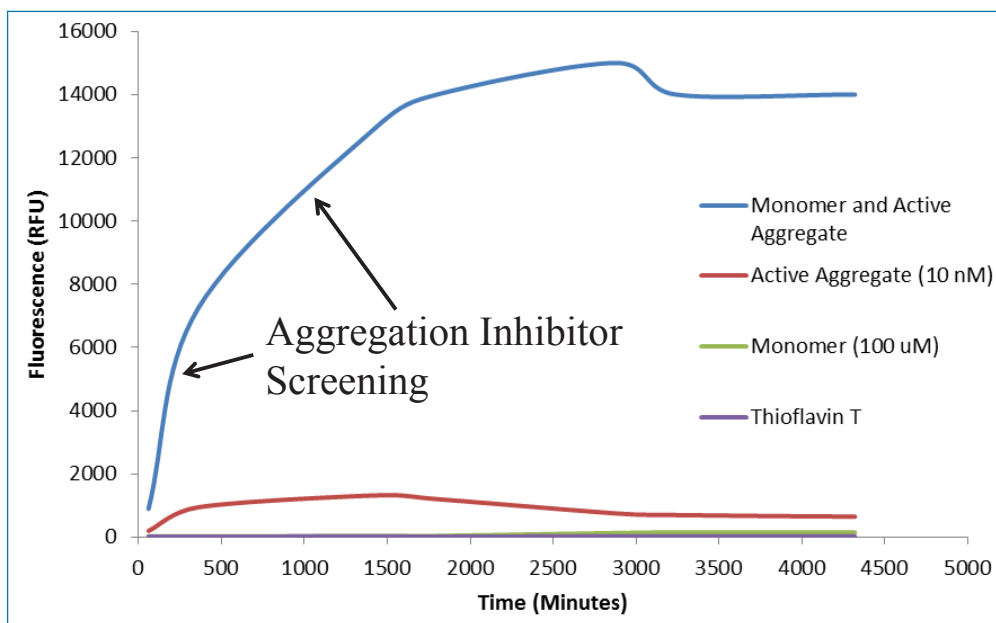
“Discovery through partnership, Excellence through quality”

Established in 2007, StressMarq Biosciences Inc. produces high quality proteins, antibodies, antibody conjugates, immunoassay kits and small molecules for life sciences research. Backing these products with rigorous quality control data and expert scientific support, the company strives to enhance its portfolio by partnering with academic or for-profit institutions through licensing agreements.

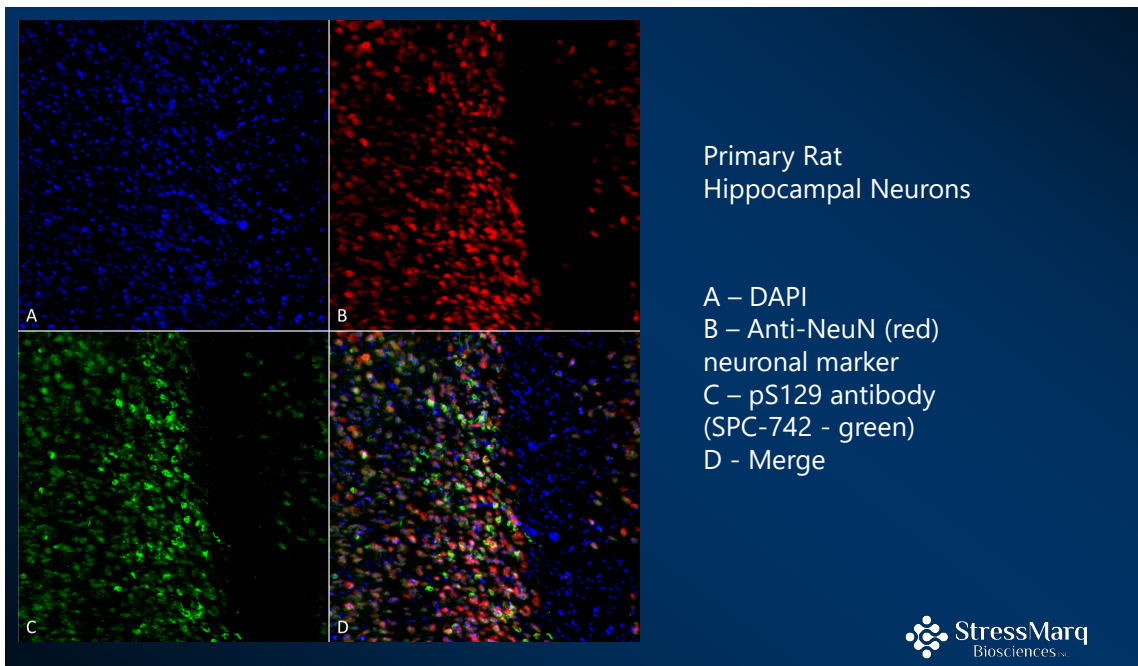
With a wealth of expertise in protein production, StressMarq offers an extensive selection of proteins suitable for researching neurological disorders such as Alzheimer’s Disease and Parkinson’s Disease. Covering many different components of the complex pathways underlying these debilitating conditions, StressMarq’s key protein products include alpha, beta and gamma synuclein, and Tau.

Alpha synuclein

A small protein known to generate Lewy Bodies and neurites present in Lewy-Body Dementia, alpha synuclein also gives rise to cytotoxic fibrils (aggregates) which occur in Parkinson’s Disease. To facilitate the study of these conditions, StressMarq manufactures validated alpha synuclein monomeric proteins capable of fibrilisation, in addition to validated active and inactive pre-formed fibrils (PFF). These are complemented by a range of high-quality alpha synuclein antibodies.



Alpha-synuclein active monomers seeded with active “seed” (PFF) are suitable to identify aggregation inhibitors by in vitro screening.



Primary rat hippocampal neurons stained with StressMarq's alpha-synuclein (pSer129) antibody.

Beta synuclein

Distributed throughout the central nervous system, beta synuclein does not readily aggregate, however several mutants have been linked to familial and sporadic dementia with Lewy bodies. Often studied for its potential protective role against alpha-synucleinopathies such as Alzheimer's Disease and Parkinson's Disease, this research is aided by StressMarq's high quality beta synuclein monomer and PFF proteins. Currently the only manufacturer of validated beta synuclein monomeric proteins capable of fibrilization, StressMarq are developing validated mutant beta synuclein PFFs to drive neurological research.

Gamma synuclein

Found throughout brain regions, spinal cord, peripheral nervous system and adipose tissue, gamma synuclein has demonstrated utility as a tumour marker through its over-expression in various cancers. Promoting metastasis and cancer cell survival under stress, and known to interact with HSPs, kinases and signaling pathways, gamma synuclein may also promote drug resistance. These features make it a key target for cancer research.

Helping drive this research are StressMarq's validated gamma synuclein monomeric proteins, which have the capacity to be "seeded" in vitro by alpha synuclein. The company also offers validated gamma synuclein PFFs, covering a previously unmet need within neurological and cancer research.

Tau

With 6-9 different human isoforms, Tau functions to stabilize and promote assembly of neuronal microtubules. However, hyper-phosphorylation of this essential protein drives its exit from the microtubule, causing disintegration of neuronal transport systems. Resulting in neuronal death, this process significantly increases the severity of various symptoms of Alzheimer's Disease, making Tau a primary target for Alzheimer's research.

Currently the only manufacturer of validated Tau monomeric proteins capable of fibrilization, StressMarq also provides validated full length and attenuated Tau PFFs to further researchers' understanding of Alzheimer's Disease.

Additional Protein Suppliers



Our mission is to provide the highest quality research products available for you to get reliable results quickly and easily. In addition to being a leading provider of high quality, affordable reagents for applications such as multicolor flow cytometry, BioLegend also offers an extensive selection of in-house manufactured, purified human, mouse, and rat recombinant proteins, including cytokines, chemokines, and growth factors.

Our expanding catalog of recombinant proteins includes cytokines, chemokines, growth factors, enzymes, adhesions molecules, and more. These proteins are tested in a variety of bioassays to ensure bioactivity. For studies that are particularly sensitive to contamination with mammalian pathogens, we also offer animal-free versions of many of our recombinant proteins. Like our carrier-free formats, these proteins do not contain any carrier proteins; however, the animal-free products are produced in animal-free media with equipment that is free of all animal components.



The demand for proteins for research purposes is significantly increasing. They are the central machinery in all cells and organisms and form one of the most sought after diagnostic targets. Proteins are available in native or recombinant versions for these purposes. These proteins act as important tools for scientists in studying biological mechanisms and discovering cell function. BioVision is proud to offer a fleet of native and recombinant proteins from numerous sources including plasma, bacterial cells, insect cells, mammalian cells, yeast, human cells and even animal free origin. We also house numerous animal free origin (AFO) recombinant proteins and enzymes. Each of these sources offers some advantages over the other.

Our native proteins are isolated from plasma and are tested for potential contaminants. However, due to limited availability of biological material, these proteins are available in small sizes. Our recombinant proteins portfolio encompasses a very wide ranging array of products including, cytokines, growth factors, enzymes, lipoproteins, compliment proteins, etc. Most of these proteins are $\geq 95\%$ pure, endotoxin tested and have been validated for activity.



Proteins can be used in a wide variety of applications such as the development of functional assays, screening small-molecules for target binding, receptor activation of signal-transduction pathways in situ, or simply for use as Western Blot controls. LSBio offers native protein extracts as well as engineered recombinant proteins in the form of cell lysates or highly-purified reagents. Recombinant proteins are generated in bacterial, mammalian, or insect expression systems and often contain common expression tags, such as His, Myc, or TAT. Many are also validated as being bioactive, making them ideal for use in functional assays. Each bioactive protein is tested to assure functionality and evaluated to certify that they contain low levels of endotoxin.



Fitzgerald is a manufacturer and supplier of primary antibodies, secondary antibodies, recombinant and native proteins, ELISA kits, serum and plasma, and many other biological reagents. Our motto 'Bringing Life to Science' illustrates our personal approach to addressing the individual needs, interests and expertise of our customers. We believe that our outstanding customer service and excellent quality products at competitive prices are key to our success.

The majority of our range is available in purified form either native or recombinant conjugated with tags and labels such as fluorescein isothiocyanate (FITC), biotin, horseradish peroxidase (HRP), alkaline phosphatase and others. As well our wide variety of proteins, we also offer a comprehensive range of blocking peptides for use as negative controls to eliminate non-specific binding to proteins other than the antigen of interest in an immunoassay, greatly enhancing the accuracy of the procedure. A range of hapten conjugates, also extremely beneficial in the development of sensitive quantitative and qualitative immunoassays are also available. Our catalog of native and recombinant proteins is available in bulk quantities or individual sizes and is continuously updated with new antigens from the full range of expression systems and source animals and cells, so please do not hesitate to contact us with your requirements.



We are your "One-Stop Protein Shop!"

At Shenandoah Biotechnology, we specialize in the manufacturing of recombinant proteins from E.coli. Our current product line is predominately focused on recombinant cytokines, chemokines, and growth factors typically used in a wide variety of research applications.

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