

Life Science Reagents for Protein Expression and Purification from Sigma-Aldrich®

Nucleic Acid
Blotting
DNA & RNA
(Southern) (Northern)

Nucleic Acid
Preparation
DNA & RNA

Nuclear Magnetic
Resonance (NMR)

Cloning

Nucleic Acid
Electrophoresis
DNA & RNA

Recombinant
Protein Expression
& Purification

**Protein
Detection**
Western Blots
& ELISAs

Proteomics

Transfection

Cell
Culture

Nucleic Acid
Amplification
PCR, QPCR, RT-PCR

Stem Cell
Culture

Cell
Signaling

Cell-Based
Assays

Protein
Electrophoresis
PAGE & 2D PAGE

Genotyping

We Ripple Through Everything You Do!

- Extensive reagent offering to support your Protein Expression and Purification based research needs.
- Full selection of HIS-Select® and FLAG® products
- Quality and availability assured
- Market leading Technical Service
- Leading Web support tools:

Protein Purification and Detection — sigma-aldrich.com/rpe

HIS-Select® — sigma-aldrich.com/hisselect

FLAG® System — sigma-aldrich.com/flag_expression

Life Science Reagents for Protein Expression and Purification from Sigma-Aldrich®

Sigma® HIS-Select® and FLAG® products for Protein Expression and Purification

• HIS-Select Protein Purification

- High selectivity for higher purity
- Non-charged, hydrophilic linkage reduces non-specific binding
- Pure tetradentate chelate for minimal metal leaching
- One-step purification

• FLAG Expression System

- Small hydrophilic tags significantly improve detection and purification of recombinant proteins
- FLAG and 3xFLAG may be used with a variety of applications including Western blotting, immunocytochemistry, immunoprecipitation, flow cytometry and more.

To view our full Protein Expression and Purification offering, please visit us at sigma-aldrich.com/rpe.

Cat. No.	Description
Acids & Bases	
F0507	Formic acid reagent grade, ≥95%
A9967	Glacial acetic acid meets USP testing specifications
H1758	Hydrochloric acid Molecular Biology Grade, 36.5-38.0 %
438081	Phosphoric acid ACS reagent, ≥85 wt. % in H ₂ O
P5958	Potassium hydroxide SigmaUltra, ≥85% as KOH
S8045	Sodium hydroxide SigmaUltra, ≥98%, pellets (anhydrous)
T9159	Trichloroacetic acid SigmaUltra, ≥99.0%
Acrylamides	
A3553	Acrylamide for electrophoresis, ≥99%, powder
A9099	Acrylamide for molecular biology, ≥99%
M7279	N,N'-Methylenebisacrylamide for electrophoresis, ≥98%, powder
Buffers	
A1542	Ammonium acetate for molecular biology, ~98%
A2706	Ammonium acetate solution for molecular biology, 7.5 M
B6768	Boric acid for molecular biology, ~99%
H4034	HEPES Biotechnology Performance Certified, ≥99.5% (titration), cell culture tested
H3537	HEPES solution 1 M, cell culture tested, Biotechnology Performance Certified
H3784	HEPES sodium salt Biotechnology Performance Certified, cell culture tested, ≥99.5%
M5661	Magnesium acetate tetrahydrate for molecular biology, ≥99%
M3183	MOPS Biotechnology Performance Certified, cell culture tested, ≥99.5%
M9024	MOPS sodium salt Biotechnology Performance Certified, cell culture tested, ≥99.5%
M1442	MOPS solution Biotechnology Performance Certified, cell culture tested, 1 M
P5493	Phosphate buffered saline 10× Concentrate, Biotechnology Performance Certified, cell culture tested
P3813	Phosphate buffered saline powder, pH 7.4
P9791	Potassium phosphate monobasic for molecular biology, ≥98%
S3272	Sodium acetate for electrophoresis, ≥99%
S3817	Sodium bicarbonate Biotechnology Performance Certified, cell culture tested
S3014	Sodium chloride for molecular biology, ≥98%
S6316	Sodium chloride solution 5 M, Biotechnology Performance Certified, cell culture tested
S3264	Sodium phosphate dibasic for molecular biology, ≥98.5%
T9534	Triethanolamine hydrochloride SigmaUltra, ≥99.5%
T6664	Tris Buffered Saline pH 8.0, powder
T6066	Trizma® base Biotechnology Performance Certified, meets EP, USP testing specifications, cell culture tested, ≥99.9%
T5941	Trizma hydrochloride for molecular biology, Biotechnology Performance Certified, cell culture tested, ≥99.0%
Carbohydrates	
G7528	D-(+)-Glucose SigmaUltra, 99.5%
S6021	D-Sorbitol for molecular biology, ≥98%
S0389	Sucrose for molecular biology, ≥99.5%

Cat. No.	Description
Detergents	
P1254	Brij® 35 suitable for Stein-Moore chromatography
L3771	Sodium dodecyl sulfate for electrophoresis, ≥98.5%
T8787	Triton® X-100 for molecular biology
P9416	TWEEN® 20 for molecular biology, viscous liquid
General Reagents	
M3148	2-Mercaptoethanol for molecular biology, ≥98%
A7699	Adenosine 5'-triphosphate disodium salt SigmaUltra, ≥99%
A7906	Albumin from bovine serum pH ~7 (1% in 0.15 M NaCl), ≥98% (agarose gel electrophoresis), lyophilized powder
A3156	Albumin, essentially globulin-free from bovine serum γ-irradiated, cell culture tested
A6141	Ammonium bicarbonate ReagentPlus®, ≥99.0%
A3428	Aprotinin from bovine lung, lyophilized powder, 3-7 TIU/mg solid, cell culture tested
BCA1	Bicinchoninic Acid Kit for Protein Determination for 200-1000 µg/ml protein
B5525	Bromophenol Blue sodium salt for electrophoresis
C3306	Calcium chloride dihydrate for molecular biology, ~99%
D2438	Dimethyl sulfoxide Biotechnology Performance Certified, sterile-filtered, hybridoma tested, meets EP, USP testing specifications
D9779	DL-Dithiothreitol for molecular biology, ≥98% (TLC), ≥99% (titration)
AMPD1	DNase I Amplification Grade
E5134	EDTA disodium salt dihydrate for molecular biology, ≥99%
E7889	EDTA disodium salt solution for molecular biology, 0.5 M
E3889	EGTA for molecular biology, ≥97.0%
F2442	Fetal Bovine Serum USA origin, sterile-filtered, cell culture tested, hybridoma tested
G5516	Glycerol for molecular biology, ≥99%
G7403	Glycine SigmaUltra, > 99 % titration
G3272	Guanidine hydrochloride for molecular biology, ≥99%
I1149	Iodoacetamide SigmaUltra
L9783	Leupeptin hydrochloride microbial, ≥90%
L8912	L-Leucine meets EP, JP, USP testing specifications, cell culture tested, ≥98.5%, from non-animal source
L7651	Lysozyme from chicken egg white lyophilized powder, Protein ~95 %, ~50,000 units/mg protein
M5661	Magnesium acetate tetrahydrate for molecular biology, ≥99%
M1028	Magnesium chloride solution for molecular biology, 1.00 M±0.01 M
M3409	Magnesium sulfate solution for molecular biology
M3942	MegaCell™ Dulbeccos Modified Eagles Medium, liquid, sterile-filtered, cell culture tested
A8199	N-Acetyl-L-cysteine SigmaUltra, >99%
P7626	Phenylmethanesulfonyl fluoride ≥98.5%
P7170	Ponceau S solution 0.1 % (w/v) in 5% acetic acid (v/v)
P1190	Potassium acetate for molecular biology, ≥99%
P9541	Potassium chloride for molecular biology, ≥99%
P8131	Potassium hexacyanoferrate(III) ReagentPlus, ~99%

Cat. No.	Description
P8038	Proteinase, bacterial Type XXIV, 7-14 units/mg solid
S3401	Sample Buffer, Laemmli 2× Concentrate
S7795	Sodium carbonate SigmaUltra, ≥99.0%
S7920	Sodium fluoride SigmaUltra, ≥99%
S8170	Sodium nitrate SigmaUltra, ≥99.0%
S6422	Sodium pyrophosphate tetrabasic decahydrate SigmaUltra, ≥99.0%
S6672	Sodium thiosulfate pentahydrate SigmaUltra, ≥99.5%
T8658	Trypsin from bovine pancreas suitable for protein sequencing, lyophilized powder
U5378	Urea for molecular biology, ≥98%
W4502	Water Molecular Biology Reagent
Solvents	
I9516	2-Propanol for molecular biology, ≥99%
496189	Chloroform biotech. grade, ≥99.8%, contains 0.5-1.0% ethanol as stabilizer
E7023	Ethanol 200 proof (absolute), for molecular biology
494437	Methanol biotech. grade, 99.93%
D4551	N,N-Dimethylformamide for molecular biology, ≥99%
P1037	Phenol for molecular biology
Protease Inhibitors	
S8820	SIGMAFAST™ Protease Inhibitor Tablets
P1860	Protease Inhibitor Cocktail for use in tissue culture media, DMSO solution
P2714	Protease Inhibitor Cocktail for general use
P8215	Protease Inhibitor Cocktail for use with fungal and yeast extracts, DMSO solution
P8340	Protease Inhibitor Cocktail for use with mammalian cell and tissue extracts, DMSO solution
P8465	Protease Inhibitor Cocktail for use with bacterial cell extracts
P8849	Protease Inhibitor Cocktail for use in purification of Histidine-tagged proteins, DMSO solution
P9599	Protease Inhibitor Cocktail for plant cell and tissue extracts, DMSO solution
Cell Lysis	
B7310	CellLytic™ B Cell Lysis Reagent For bacterial cell lysis, 2× concentrate
B7435	CellLytic B Cell Lysis Reagent For bacterial cell lysis, standard strength
C1990	CellLytic Express
C2978	CellLytic M Cell Lysis Reagent, Suitable for Mammalian cell lysis and protein solubilization
C3228	CellLytic MT Cell Lysis Reagent For mammalian tissues
C3956	Anti-c-Myc antibody produced in rabbit ~0.5 mg/mL, buffered aqueous solution
C4482	CellLytic Y Cell Lysis Reagent For yeast cells
C5236	CellLytic IB Inclusion Body Solubilization Reagent
C7988	Monoclonal Anti-Cre antibody produced in mouse ~2 mg/mL, clone 7-23, purified immunoglobulin, buffered aqueous solution
C8740	CellLytic B Cell Lysis Reagent For bacterial cell lysis, 10× concentrate
CB0050	CellLytic B Plus Kit For bacterial lysis
R0278	RIPA Buffer

True one-step histidine-tagged protein purification with Sigma's HIS-Select® Technology

- Superior selectivity for higher purity of target proteins
- Non-charged, hydrophilic linkage reduces non-specific binding
- Pure tetradentate nickel chelate for higher binding capacity
- Single pass purification

HIS-Select® Nickel Affinity Gel, Cat. No. P6611

This is the tool of choice for small to medium scale purification of histidine-tagged proteins. HIS-Select Nickel Affinity Gel is selective for recombinant proteins with histidine tags and exhibits low non-specific binding of other proteins.

Features:

- Support: 6% agarose
- Maximum linear flow rate: 150 cm/hr
- Maximum pressure: 30 psi
- Bead size: 45–165 µm
- Capacity is greater than 15 mg/mL
- Minimal nickel leaching
- Supplied as 50% suspension in 30% ethanol

HIS-Select® High Flow (HF) Nickel Affinity Gel, Cat. No. H0537

For higher flow rates and mechanical stability under pressure, HIS-Select HF product is designed for production scale purification and FPLC applications. The non-charged, hydrophilic linkage of the NTA chelate group to the agarose yields highly enriched target protein from a single pass.

Features:

- Support: highly cross-linked 6% beaded agarose
- Maximum linear flow rate: 3,000 cm/hr
- Maximum pressure: 200 psi
- Bead size: 45–165 µm
- Capacity is greater than 15 mg/mL
- Minimal nickel leaching
- Supplied as 50% suspension in 30% ethanol

HIS-Select® Cobalt Affinity Gel, Cat. No. H8162

Researchers using cobalt as the affinity metal ion for HIS-tagged protein purification can also benefit from Sigma's HIS-Select chemistry for high purity, low non-specific binding, and high binding capacity for your protein. HIS-Select Cobalt Affinity Gel also works well for purification of HIS-tagged proteins in native, denaturing, or mild reducing conditions.

Features

- Support: 6% beaded agarose
- Maximum linear flow rate: 150 cm/hr
- Maximum pressure: 30 psi
- Bead size: 45–165 µm
- Capacity is greater than 15 mg/mL
- Minimal nickel leaching
- Supplied as 50% suspension in 30% ethanol

IMAC-Select Affinity Gel, Cat. No. I1408

Supplied as a metal-free gel, IMAC-Select Affinity Gel is an immobilized metal affinity chromatography (IMAC) product allowing researchers to add a chelating metal of choice. IMAC-Select is most commonly chelated with nickel or cobalt for the purification of histidine-tagged proteins. Other immobilized metal ions, such as iron or gallium, may be used to purify phosphoproteins.

Features

- Support: 6% beaded agarose
- Non-charged, hydrophilic linkage reduces non-specific binding
- Metal binding capacity of 10–30 µmole/mL of resin
- Maximum flow rate: 75 cm/hr
- Maximum pressure: 30 psi
- Bead size: 45–160
- Supplied as 50% suspension in 30% ethanol

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*Accelerating Customers'
Success through Leadership
in Life Science, High
Technology and Service*

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