Integrated Solutions for Recombinant Protein Extraction and Stabilization

Reference and Selection Guide

BACTERIAL

MAMMALIAN

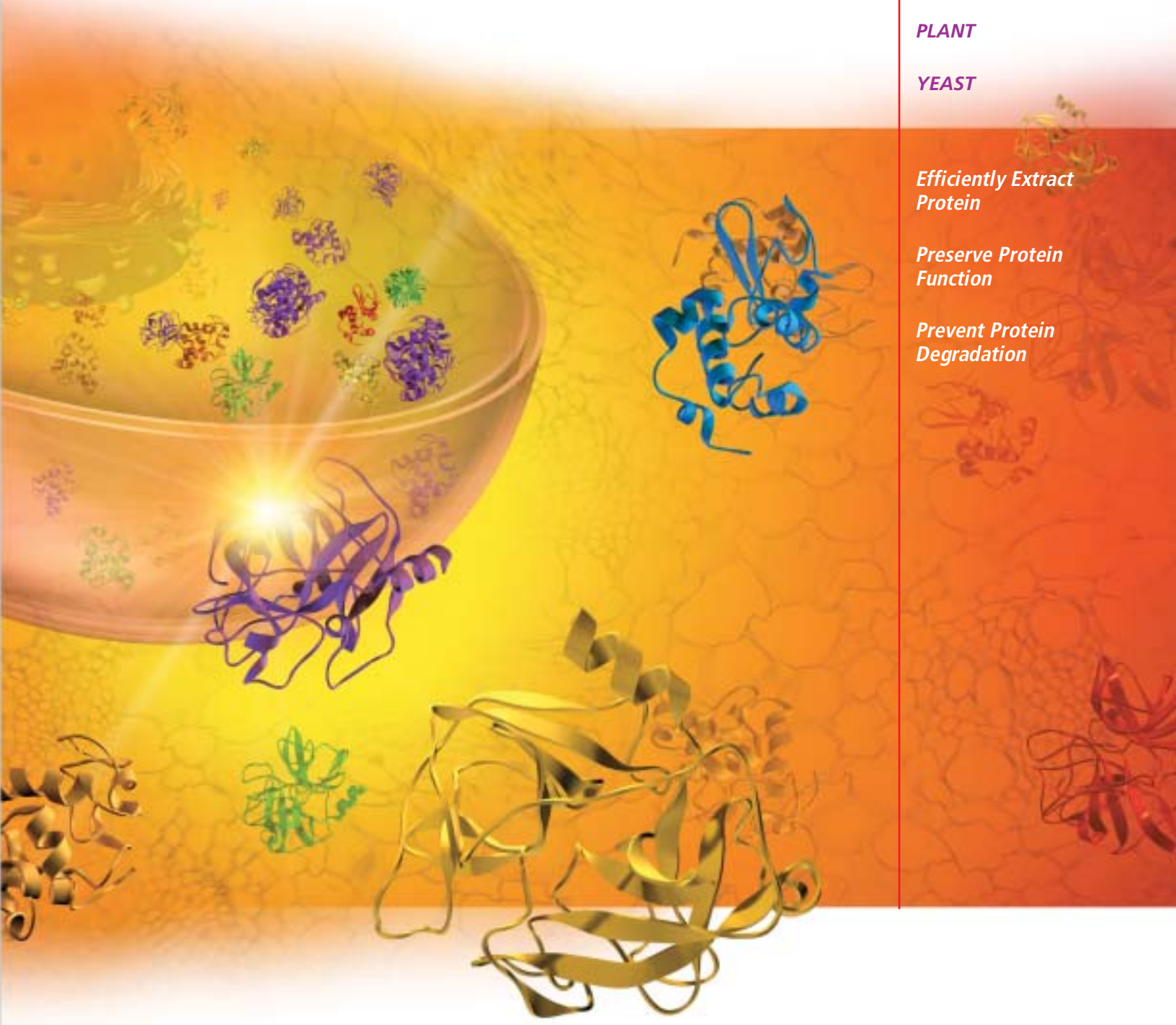
PLANT

YEAST

Efficiently Extract Protein

Preserve Protein Function

Prevent Protein Degradation



sigma-aldrich.com/lysis

SIGMA®

Protease and Phosphatase Inhibitor Cocktails

sigma-aldrich.com/protinhib

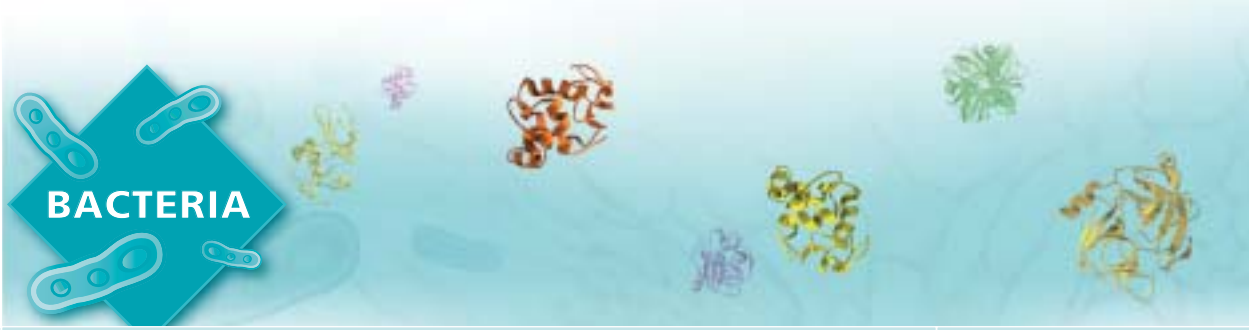
Sample Type	General Use		Bacterial	Mammalian	Plant	Yeast	Histidine-tagged Proteins	Tissue Culture Media	Phosphatase Inhibitors	
									Tyrosine/Alkaline	Serine/Threonine
Catalog Number	P2714	NEW S8820	P8465	P8340	P9599	P8215	P8849	P1860	P5726	P2850
Specificity of Inhibition	Serine, Cysteine, Aspartic & Metalloproteases	Serine, Cysteine, Aspartic, & Metalloproteases	Serine, Cysteine, Aspartic, & Metalloproteases Aminopeptidases	Serine, Cysteine, Aspartic Proteases & Amidopeptidases	Serine, Cysteine, Aspartic and Metalloproteases, Aminopeptidases	Serine, Cysteine, Aspartic and Metalloproteases	Serine, Cysteine, Aspartic and Thermolysin-like Proteases & Aminopeptidases	Serine, Cysteine, Aspartic proteases & Aminopeptidases	Acid and Alkaline Phosphatases, as well as Tyrosine Protein Phosphatases	Serine, Threonine Phosphatases and various isozymes of Alkaline Phosphatase
Cocktail Format	Water soluble lyophilized powder	Water or buffer soluble tablet	Lyophilized powder with a vial of DMSO	Solution in DMSO	Solution in DMSO	Solution in DMSO	Solution in DMSO	Solution in DMSO	Solution in water	Solution in DMSO
Usage (amount of sample that 1 ml of cocktail will inhibit) Typically enough for 100 ml of cell lysate, depending on cell type	1 mg of USP pancreatin; typically enough for 100 ml of cell lysate	1 mg of USP pancreatin (1x solution), One tablet generates 100 ml of protease inhibitor solution	20 ml of cell lysate from 4 g (wet weight) of *E. coli* cells	100 ml of cell lysate from 20 g (wet weight) of bovine liver or 10 ml of cell lysate from CHO cells at 10^8 cells per ml	100 ml of cell lysate from 30 g (wet weight) of plant tissue	100 ml of cell lysate from 20 g (wet weight) of *Saccharomyces cerevisiae* cells	100 ml of cell lysate from 20 g (wet weight) of *E. coli* cells or 10 g (wet weight) of baculovirus infected cells	Dilution of ≥1:200 in tissue culture media to prevent proteolytic degradation of secreted proteins	100,000 x *g* supernatant from human placenta, bovine liver, rabbit muscle, A431 or Jurkat cell extracts at a protein concentration of approximately 5 mg/ml	
Cocktail Components (and concentrations when available)	AEBSF, 2 mM Aprotinin, 0.3 µM Bestatin, 130 µM EDTA, 1 mM E-64, 14 µM Leupeptin, 1 µM	AEBSF, 2 mM Aprotinin, 0.3 µM Bestatin, 130 µM EDTA, 1 mM E-64, 14 µM Leupeptin, 1 µM	AEBSF, 23 mM Bestatin, 2 mM EDTA, 100 mM E-64, 0.3 mM Pepstatin A, 0.3 mM	AEBSF, 104 mM Aprotinin, 80 µM Bestatin, 4 mM E-64, 1.4 mM Leupeptin, 2 mM Pepstain A, 1.5 mM	AEBSF Bestatin E-64 Leupeptin Pepstatin A 1,10-Phenanthroline	AEBSF, 100 mM E-64, 1.4 mM Pepstatin A, 2.2 mM 1,10-Phenanthroline, 500 mM	AEBSF Bestatin E-64 Pepstatin A Phosphoramidon	Aprotinin Bestatin E-64 Leupeptin Pepstatin A	Imidazole Sodium Molybdate Sodium orthovanadate Sodium Tartrate	Bromotetramisole Canthardin Microcystin LR
Additional Special / Specific Applications (Tested on but not limited to)	Optimized and tested for general use	Optimized and tested for general use	Various *E. coli* strains	Use at 1:100 for undiluted blood samples, liver tissue extracts, CHO cell lysates	Tested on extracts from kidney bean, pea, wheat, tobacco, and *Arabidopsis*	*Saccharomyces cerevisiae* cells	*E. coli* cells; baculovirus-infected *Spodoptera frugiperda* pupal ovary cells	After 48 hours in medium, add fresh inhibitors in fresh medium	Tested on various animal tissues (bovine liver, human placenta, rabbit muscle) and A431 and Jurkat cell lines	Tested on various animal tissues (bovine liver, human placenta, rabbit muscle) and A431 and Jurkat cell lines
Storage and Stability (unopened)	–20 °C ≥ 4 years	2-8 °C ≥ 4 years	–20 °C ≥ 4 years	At least 4 years at –20 °C; 8 months at 2-8 °C; and 2 months at RT	At least 4 years at –20 °C; 8 months at 2-8 °C; and 2 months at RT	At least 4 years at –20 °C; 8 months at 2-8 °C; and 2 months at RT	At least 4 years at –20 °C; 3 months at 2-8 °C; and 2 weeks at RT	At least 4 years at –20 °C; 8 months at 2-8 °C; and 2 months at RT	2-8 °C ≥ 2 years	2-8 °C ≥ 4 years

Coming Soon! **Sigma*FAST*™ Protease Inhibitor Tablet** for General Use (Cat. No. S8820)

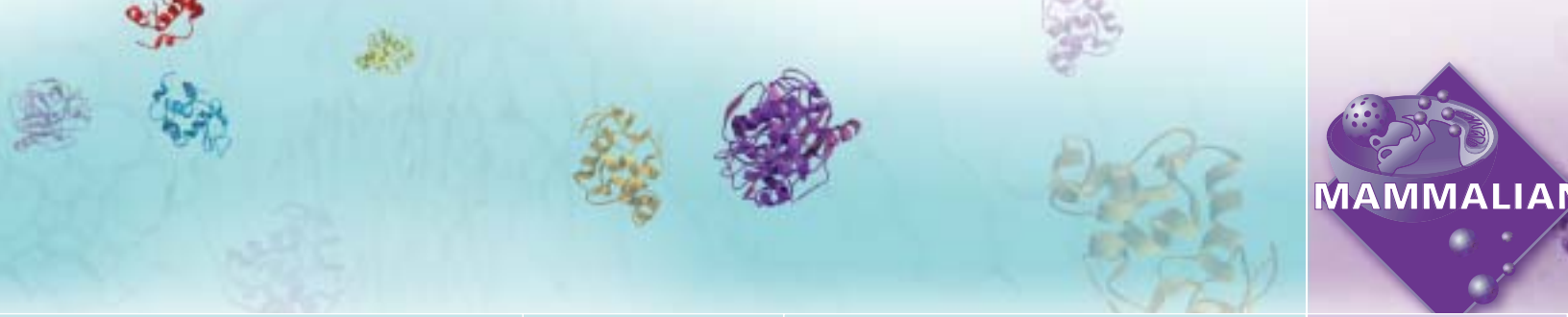
Protease and Phosphatase Inhibitors *Available Individually*

Protease Inhibitors	Cat. No.	Application
AEBSF	A8456	Inhibits serine proteases, such as trypsin and chymotrypsin
Aprotinin saline solution Aprotinin, affinity purified	A6279 A4529	Inhibits serine proteases such as trypsin, chymotrypsin, plasmin, trypsinogen, urokinase, and kallikrein. Also inhibits human leukocyte elastase, but not pancreatic elastase
Bestatin, hydrochloride	B8385	Inhibits aminopeptidases, such as leucine aminopeptidase proteases
Cantharidin	C7632	Inhibits protein phosphatase 2A (PP-2A)
Chymostatin	C7268	Inhibits serine and cysteine proteases
E-64	E3132	Inhibits cysteine proteases such as calpain, papain, and cathepsin B
EDTA disodium salt dihydrate EDTA, 0.5 M solution disodium salt	E5134 E7889	Inhibits metalloproteases; chelates; permeabilizes Gram-negative bacteria
EGTA	E8145	Inhibits metalloproteases; chelates
Imidazole	I0125	Inhibits alkaline phosphatases
Leupeptin hemisulfate Leupeptin, TFA salt Leupeptin hydrochloride	L2884 L2023 L9783	Inhibits both serine and cysteine proteases such as calpain, trypsin, papain, and cathepsin B
Microcystin LR	M2912	Inhibits protein phosphatases 1 and 2A (PP-1 and PP-2A)
Pepstatin A Pepstatin A, 90% pure	P4265 P5318	Inhibits acid proteases such as pepsin (human or procine), renin, cathepsin D, chymosin (bovine rennin), and protease B
1,10-Phenanthroline	P9375	Inhibits metalloproteases
Phosphoramidon	R7385	Inhibits thermolysin and collagenase
PMSF	P7626	Inhibits serine proteases
Sodium molybdate	M1003	Inhibits acid and phosphoprotein phosphatases
Sodium orthovanadate	S6508	Inhibits a number of ATPases, protein tyrosine phosphatases, and other phosphate-transferring enzymes
Sodium tartrate	S4797	Inhibits alkaline phosphatases

Organism

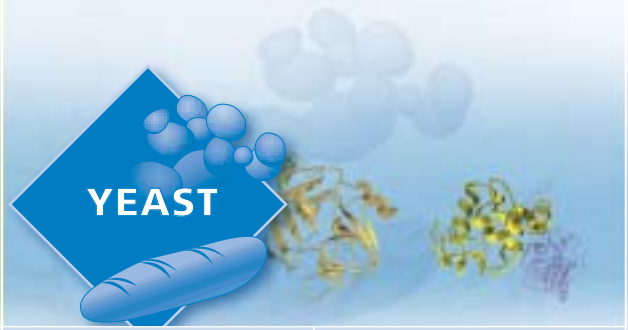


	WHOLE CELL DETERGENT LYSIS			WHOLE
Product	**CelLytic™ B**	**CelLytic B 2x**	**CelLytic B 10x**	**CelLytic Express**
Catalog number	**B7435**	**B7310**	**C8740**	**C1990**
Description	A ready-to-use solution containing 40 mM Tris-HCl, pH 8, and a proprietary, non-denaturing detergent formulation of zwitterionic detergents	A more concentrated (2x), ready-to-use solution containing 40 mM Tris-HCl, pH 8, and a proprietary, non-denaturing formulation detergent	A highly concentrated (10x) solution containing a proprietary, non-denaturing detergent formulation and no buffering components	A ready-to-use, all-in-one, non-denaturing proprietary powder formulation of detergent and enzymes optimized for one-step extraction of proteins from bacterial cells (in-culture cell lysis)
Package sizes	50 ml, 500 ml (Sufficient for processing 5 g and 50 g of wet cell paste, respectively)	50 ml, 250 ml (Sufficient for processing up to 10 g and 50 g of wet cell paste, respectively)	10 ml, 50 ml, 100 ml (Sufficient for processing ~10 g, 50 g, and 100 g of wet cell paste, respectively)	25 ml (1.26 g) 10 x 25 ml 6 x 500 ml (25.2 g)
Sample type	• Bacterial cell pellets (lysis and protein extraction) • Isolation of inclusion bodies	• Bacterial cell pellets (concentrated at 2x for more difficult to lyse organisms) • Isolation of inclusion bodies	• Bacterial cell pellets (concentrated at 10x in water; dilute for use into buffer of choice) • Isolation of inclusion bodies	• Direct lysis of bacterial cell cultures (without centrifugation) • Affinity purification of proteins without the need for special equipment
Strain/Cell line compatibility	• Optimized for *E. coli* strain BL21 • DH5α • JM109 • Other similar cells	• Optimized for *E. coli* strain BL21 • DH5α • JM109 • Other similar cells	• Optimized for *E. coli* strain BL21 • DH5α • JM109 • Other similar cells	• Optimized for *E. coli* strain BL21 • DH5α • JM109 • Other similar cells
Usage	Small scale: 0.4 ml of CelLytic B per 1.5 ml culture pellet Large scale: 10-20 ml per g of wet cell paste	Small scale: 0.2 ml of CelLytic B 2x per 1.5 ml of culture pellet Large scale: 5 ml per g of wet cell paste	Test 5, 10, and 20-fold dilutions into the desired buffer; add diluted solution at 10-20 ml per g of wet cell paste	Small scale: one 25 ml bottle per 25 ml of culture Large Scale: one 500 ml bottle for 500 ml of culture *For cultures <25 ml, add 0.05 g of powder per ml of culture
Type of detergent/ Dialyzable?	Zwitterionic/Yes	Zwitterionic/Yes	Zwitterionic/Yes	Zwitterionic/Yes
Protein active?	Yes – Suitable for protein activity assays	Yes – Suitable for protein activity assays	Yes – Suitable for protein activity assays	N/A; typically resin-bound protein-activity dependent on isolation/elution methods
Compatible purification and detection products	• Antibody/EZview™ Affinity Gels • FLAG® • HIS-Select™/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)	• Antibody/ EZview™ Affinity Gels • FLAG® • HIS-Select™/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)
Quantitation and staining capabilities	• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay • Protein staining
Applications	• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation
Related products containing this reagent	See CB0050 & CB0500 kits	See B7435 & CB0500 kits	See B7435 & CB0500 kits	CelLytic Express Tablets (C5491)
Physical form	Ready-to-use solution	Concentrated solution (2x)	Concentrated solution (10x)	Easy-to-dissolve powder
Storage and stability	Room temperature 2 years	Room temperature 2 years	Room temperature 2 years	–20 °C 2 years



CELL DETERGENT & ENZYMATIC LYSIS		INCLUSION BODY SOLUBILIZATION	INTEGRATED LYSIS & AFFINITY PURIFICATION – WHOLE CELLS		WHOLE CELLS
CellLytic™ Express Tablets	**CellLytic B Plus Kit**	**CellLytic IB**	**HIS-Select iLAP HC Nickel Coated Plate**	**HIS-Select iLAP 5 ml Column**	**CellLytic™ M**
C5491	**CB0050 & CB0500**	**C5236**	**H9412**	NEW **H9913**	**C2978**
A ready-to-use, all-in-one, non-denaturing proprietary tablet formulation of detergent and enzymes optimized for one-step extraction of proteins from bacterial cells (in-culture cell lysis)	Kits containing CelLytic B Cell Lysis Reagent (B7435), lyszozyme, Benzonase®, and a Protease Inhibitor Cocktail to extract soluble proteins and remove cell debris from inclusion bodies	A ready-to-use solution designed to solubilize inclusion bodies formed in bacteria over-expressing recombinant proteins	A single-use integrated lysis and affinity purification plate that combines cell lysis and purification steps into one. Plate contains proprietary coatings for both lysis and affinity purification of histidine-tagged proteins.	A single-use integrated lysis and affinity purification column designed for one-step purification of histidine-tagged proteins directly from a 5 ml bacterial culture	A ready-to-use solution containing a mild detergent in a bicine buffer designed for efficient whole-cell protein extraction from cultured mammalian cells
25 ea 100 ea	1 kit: 50 ml (CB0050) or 500 ml (CB0500) CelLytic B for processing 5 g or 50 g of cell paste, respectively	25 ml 100 ml	1 each 5 x 1 each	1 each 25 each	50 ml 250 ml
• Direct lysis of bacterial cell cultures (without centrifugation) • Affinity purification of proteins without the need for special equipment	Both Gram-negative and difficult to lyse Gram-positive bacteria	Bacterial inclusion bodies	Bacterial culture (direct lysis, no centrifugation necessary)	Bacterial culture (direct lysis, no centrifugation necessary)	Both suspension and adherent cells (no cell scraping necessary; efficient and rapid cell lysis and protein solubilization)
• Optimized for *E. coli* strain BL21 • DH5α • JM109 • Other similar cells	• Optimized for *E. coli* strain BL21 • Other similar bacteria	• Various *E. coli* strains	• Optimized for *E. coli* strain BL 21 • Other similar bacteria	• Optimized for *E. coli* strain BL 21 • Other similar bacteria grown in Terrific Broth	• HeLa • HL-60 • PC-12 • CHO • Bovine Aorta Endothelial Cells (BAEC) • Jurkat • COS • A431
Use 1 tablet for 1 ml of culture; for high OD cultures, additional tablets can be used	10 ml per g of wet cell paste (~250 ml culture); dilute 1:10 for inclusion body isolation	8 ml per g of purified inclusion body pellet	200 µl of overnight bacterial culture per well	5 ml of an overnight bacterial culture per column	125 µl for 10^6-10^7 cells; 500-1000 µl for a 100 mm plate; 200-400 µl for a 35 mm plate
Zwitterionic/Yes	Zwitterionic/Yes	N/A (strong denaturant in mild neutral buffer)	Zwitterionic/Yes	Zwitterionic/Yes	Zwitterionic/Yes
N/A; resin-bound protein – activity dependent on isolation/elution methods	Yes – Suitable for protein activity assays	N/A; need to renature, therefore, dependent on the nature of the specific protein	Activity dependent on method used for isolation and elution of plate-bound protein	Activity dependent on method used for isolation and elution of resin-bound protein	Yes – Suitable for protein activity assays
• Antibody/EZview™ Affinity Gels • FLAG® • HIS-Select™/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease Inhibtor Cocktails • Lysozyme solution (L3790)	Dependent on the nature of the recombinant protein after dialysis and refolding	• HIS-Select/IMAC	• HIS-Select/IMAC	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease and Phosphatase Inhibitor Cocktails • Lysozyme solution (L3790)
• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay – only after renaturation/dialysis • Protein staining – after dialysis	• Protein assay – depending on elution method • Protein staining	• Protein assay – depending on elution method • Protein staining	• Protein assay • Protein staining
• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• Affinity purification • SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• SDS-PAGE (following dialysis of the denaturant) • Protein refolding studies	• Western blotting • Dot blotting	• Western blotting • Dot blotting	• Reporter gene assays • Kinase assays • Phosphatase assays • Immunoassays • DNA-protein interaction assays (gel-shift assays)
CelLytic Express powder (C1990), **Coming soon** – HIS-Select iLAP™ 5 ml column (H9913)	N/A	N/A	N/A	N/A; see CelLytic Express Tablet, C5491	CELLMM2, IP0020, IP0010, EHM1, HMP1 (See catalog/web)
Easy-to-dissolve tablets	Solutions ready to mix	Ready-to-use solution	96-well plate coated with proprietary lysis and affinity capture reagents	5 ml chromatography column containing 5 CelLytic Express tablets and 1 HIS-Select resin pellet	Ready-to-use solution
–20 °C 2 years	CelLytic B at room temperature; the rest of the kit at –20 °C 1 year	Room temperature ≥1 year	2-8 °C 4 years	2-8 °C 2 years	Room temperature 2 years

TISSUES	MEMBRANE	NUCLEAR	WHOLE CELLS	
CelLytic™ MT	**CelLytic MEM**	**CelLytic NuCLEAR™ Extraction Kit**	**RIPA buffer**	**Mammalian Cell Lysis Kit**
C3228	**CE0050**	**NXTRACT**	**R0278**	**MCL1**
A ready-to-use solution consisting of a dialyzable mild detergent, bicine, and 150 mM NaCl for efficient extraction of tissue proteins for analysis	A kit containing Lysis and Separation Buffer, Wash Buffer, 4 M NaCl Solution, and Protease Inhibitor Cocktail for isolation of hydrophobic and raft-associated proteins	A complete system for preparing nuclear and cytoplasmic protein extracts from mammalian cultured cells or tissues, allowing extraction of functional nuclear proteins	A ready-to-use solution for general cell lysis, which contains 50 mM Tris-HCl, pH 8, 150 mM NaCl, 1% IGEPAL® CA-630, 0.5% sodium deoxycholate, and 0.1% SDS	A kit containing all reagents required for the solubilization of mammalian cells and tissue for subsequent protein analysis. Contains: 5x buffer (Tris-EDTA), 5x NaCl, 5x SDS, 5x deoxycholic acid, 5x IGEPAL® CA-630, and protease inhibitor cocktail
50 ml 500 ml	1 kit: 50 ml of lysis and separation buffer, sufficient for 80 samples	1 kit: 100 extractions of 100 µl of packed cells (~10^6-10^7 cells), or 10 extractions of 1 ml of packed cells (~10^8-10^{10} cells)	50 ml 500 ml	1 kit: extraction of 250 ml of total cell suspension, or extraction of cells from 250 plates (100 mm diameter)
• Mammalian tissues • Mammalian cell lines (for efficient extraction of proteins that require higher salt in the lysis buffer)	Cultured mammalian cells (isolation based on phase separation, not high-speed centrifugation)	Mammalian cells and fresh or frozen tissues (Reagents allow for flexible, application-specific methods of extracting functional nuclear proteins)	Both adherent and suspension cultured mammalian cells (Rapid, efficient cell lysis and solubilization of proteins)	Mammalian cell lines (same application as RIPA buffer (R0278))
• Rat tissue (brain, liver, muscle, kidney, heart, and spleen) • Mouse tissue (brain, kidney, and muscle)	• HeLa • COS • HEK-293 • CHO • NIH3T3	• HeLa • CHO • Jurkat • PC-12 • Rat liver • COS • Bovine Aorta Endothelial Cells (BAEC) • Mouse brain and lung • Rabbit muscle	• Mammalian cell lines.	• HeLa • CHO • COS • Jurkat • PC-12 • Bovine Aorta Endothelial Cells (BAEC)
20 ml per g of tissue (1:20 ratio)	600 µl of lysis and separation buffer for every 10^6-10^7 cells	500 µl of 1x lysis buffer for every 100 µl of packed cell volume (5x volume)	1 ml of RIPA Buffer is sufficient to lyse cells from one 100 mm culture dish (0.5 to 5 x 10^7 cells)	1 ml per sample *For adherent or suspension cells, use 10^6-10^7 cells/ml, for tissue, use 5-20 mg of tissue/ml
Zwitterionic/Yes	Non-ionic/No	Non-ionic/No – only partially	Non-ionic/No – only partially Anionic/Yes	Non-ionic/No – only partially Anionic/Yes
Yes – Suitable for protein activity assays	Yes – Suitable for protein activity assays	Yes – Suitable for protein activity assays	N/A	N/A
• Antibody/EZview™ Affinity Gels • FLAG® • HIS-Select™/IMAC • GST • Protease and Phosphatase Inhibitor Cocktails • Lysozyme solution (L3790)	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease and Phosphatase Inhibitor Cocktails	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease and Phosphatase Inhibitor Cocktails	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease and Phosphatase Inhibitor Cocktails	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease Inhibitor Cocktails
• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay – after sample is diluted • Protein staining	• Protein assay – if sample is diluted • Protein staining
• Reporter gene assays • Kinase assays • Phosphatase assays • Immunoassays • DNA-protein interaction assays (gel-shift assays)	• SDS-PAGE • Western blotting • Dot blotting • Immunoprecipitation	• Electrophoresis Mobility Shift Assay (EMSA) • DNase I footprinting analysis • Transcription assays • Further purification	• Affinity purification	• Western blotting • Dot blotting • Immunoprecipitation • Affinity purification
N/A	N/A	N/A	N/A	N/A
Ready-to-use solution	Solutions ready to mix	Solutions ready to mix	Ready-to-use solution	Concentrated solutions ready to mix
Room temperature 2 years	–20 °C; after opening the kit, store the Protease Inhibitor Cocktail at –20 °C and the rest at 2-8 °C 2 years	–20 °C; see bulletin for storage of individual components when opened 3 years	2-8 °C ≥ 2 years	–20 °C 2 years



WHOLE CELLS/TISSUES	NUCLEAR	DETERGENT	DETERGENT & ENZYMATIC LYSIS	
CelLytic™ P	CelLytic PN Kit	CelLytic Y	CelLytic Y Plus Kit	**Product**
C2360	CELLYTPN1	C4482	CYP1	**Catalog number**
A ready-to-use non-ionic detergent formulation for convenient and efficient plant cell lysis and protein solubilization	A kit containing complete reagents for rapid isolation of nuclei and extraction of functional nuclear proteins from plant leaves	A phosphate-free and non-denaturing reagent for effective yeast cell lysis and protein solubilization	A kit for highly efficient protein extraction from yeast cells, which contains Reaction Buffer, DTT, Lyticase, Extraction Buffer, Triton X-100, and Protease Inhibitor cocktail	**Description**
50 ml 250 ml	1 kit: 30 extractions from 20 g of fresh or frozen plant leaves	50 ml 500 ml	1 kit: spheroplast formation and protein extraction from 10-40 g of yeast cell paste	**Package sizes**
Fresh or frozen plant leaves (Extraction and solubilization of protein from less than one gram to hundreds of grams)	Plant leaves (Isolation of nuclei and extraction of nuclear proteins from a few grams to hundreds of grams)	Fast and efficient lysis and solubilization of proteins from yeast cells	This kit provides a convenient and highly efficient method of spheroplast formation and protein extraction from yeast cells	**Sample type**
• Tobacco • Tomato • Spinach • *Arabidopsis*	• Tobacco • Tomato • Spinach • *Arabidopsis*	• Various strains of *Saccharomyces cerevisia* [Y187, Y190, W303(a), S288C, SP1, ∑1278b, BJ2168, cdc25] • *Schizosaccharomyces pombe*	• *Saccharomyces cerevisiae* • *Pichia pastoris* • *Schizosaccharomyces pombe*	**Strain/Cell line compatibility**
1 ml of reagent is sufficient for extraction of 0.5-1 g of plant leaves	3 ml of 1x nuclei isolation buffer per gram of leaf tissue (typically use 60 ml per isolation for 20 g leaf tissue)	2.5-5 ml per g of yeast cells	300 µl of reaction buffer and 500 µl of extraction buffer per 2 x 10^9 cells	**Usage**
Non-ionic/No – only partially	Non-ionic/No – only partially	Non-ionic/No – only partially	Non-ionic/No – only partially	**Type of detergent/ Dialyzable?**
Yes – Suitable for protein activity assays	N/A; presence of DTT in protein extraction buffer may interfere with protein activity	Yes – Suitable for protein activity assays	Yes – Suitable for protein activity assays	**Protein active?**
• Antibody/EZview™ Affinity Gels • FLAG® • HIS-Select™/IMAC • GST • Protease and Phosphatase Inhibtor Cocktails for plant tissue	• Antibody/EZview Affinity Gels – must be done in absence of DTT • FLAG (no DTT) • HIS-Select/IMAC • GST • Protease and Phosphatase Inhibtor Cocktails for plant tissue	• Antibody/EZview Affinity Gels (no DTT) • FLAG (no DTT) • HIS-Select/IMAC • GST • Protease Inhibtor Cocktails	• Antibody/EZview Affinity Gels • FLAG • HIS-Select/IMAC • GST • Protease Inhibtor Cocktails	**Compatible purification and detection products**
• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay • Protein staining	• Protein assay • Protein staining	**Quantitation and staining capabilities**
• Western blotting • DNA-protein interaction assays (Gel-shift) • Enzymatic assays (e.g., kinase assays and phosphatase assays)	• Western blotting • DNase I footprinting • Gel-shift assays • Source of chromatin, genomic DNA and RNA	• Reporter gene assays • Western blotting • Immunoprecipitation • Affinity purification • Gel-shift assays	• Reporter gene assays • Western blotting • Immunoprecipitation • Affinity purification • Gel-shift assays	**Applications**
N/A	N/A	FLAG Y purification kit (CELLYM2), HIS-Select Y Purification Kit (HYP1)	N/A	**Related products containing this reagent**
Ready-to-use solution	Solutions ready to mix	Ready-to-use solution	Solutions ready to mix	**Physical form**
Room temperature 2 years	2-8 °C; Filter Mesh 100 is stored at room temperature 2 years	Room temperature 2 years	–20 °C; see bulletin for storage of individual components once opened 2 years	**Storage and stability**

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