

Examples of Successful Protein Expression with SUMO

Protein	Type	Family	kDa	System	Reference (PubMed ID)
23 (FGF23), human	Growth factor	FGF superfamily	~26	E. coli	22249723
3C-like (3CL) protease	Viral membrane protein	SARS coronavirus (SARS-CoV) membrane protein	33.8	E. coli	16211506
5'nucleotidase-related apyrase (5'Nuc)	Saliva protein (apyrase)	5'nucleotidase-related proteins	65	E. coli	20351782
Acetyl-CoA carboxylase 1 (ACC1)	Cytosolic enzyme	Family of five biotin-dependent carboxylases	~7	E. coli	22123817
Acetyl-CoA carboxylase 2 (ACC2) BCCP domain	Cytosolic enzyme	Family of five biotin-dependent carboxylases	~7	E. coli	22123817
Actinohivin (AH)	Lectin	Anti-HIV lectin of CBM family 13	12.5	E. coli	DTIC
Allium sativum leaf agglutinin (ASAL)	Sugar-binding protein	Mannose-binding lectins	25	E. coli	20100526
Anosmin	Extracellular matrix protein	Marix protein	100	Mammalian	22898776
Antibacterial peptide CM4 (ABP-CM4)	Antibacterial peptide	Cecropin family of antimicrobial peptides	3.8	E. coli	19582446
Antimicrobial peptide scolopin 1 (AMP-scolopin 1)	small cationic peptide	peptide from centipede venoms of Scolopendra subspinipes mutilans	2.6	E. coli	24145284
Antitumor-analgesic peptide (AGAP)	Antitumor-analgesic peptide	Multifunction scorpion peptide	7	E. coli	20945481
Anti-VEGF165 single-chain variable fragment (scFv)	Antibody	Small antibody-engineered antibody	30	E. coli	18795288
APRIL	TNF receptor ligand	tumor necrosis factor (TNF) ligand	16	E. coli	24412409
APRIL (A proliferation-inducing ligand, also named TALL-2, TRDL-1 and TNFSF-13a)	Type II transmembrane protein	Tumor necrosis factor (TNF) family	27.51	E. coli	22387304
Aprotinin/Basic pancreatic trypsin inhibitor (BPTI)	Inhibitor	Kunitz-type inhibitor	6.5	E. coli	19152836
Archaeal Argonaute family proteins					19383157
Arginine deiminase, <i>P. aeruginosa</i> (Pa-ADI)	Anticancer bacterial protein	Guanidine-modifying enzyme (GME) superfamily	46	E. coli	19250673
Artemin (ARTN)	Neurotrophic growth factor	GDNF family	24	E. coli	21907286
ARVCF (Armadillo repeat gene deleted in Velo-cardio-facial syndrome)	Membrane signaling	Catenin family	~130	E. coli	18445649
ASH2L (absent small or homeotic-2-like)	Regulatory protein	Histone H3 lysine 4 (H3K4) methyltransferase (HMT) core complex		E. coli	23210835
Aspartyl-tRNA synthetase (hDRS), human	Enzyme	tRNA synthetases	~57	E. coli	17434317
Atlastin, atl(1-422) (pJM781) and atl(1-328)	GTP-dependent membrane fusion protein	Hereditary spastic paraplegia (HSP)	49/37	E. coli	21690399
Bat coronavirus (BtCoV) nucleocapsid (N) protein	Viral membrane protein	SARS coronavirus (SARS-CoV) membrane protein	63	E. coli	22833101
B-cell activating factor, dove (doBAFF)	Activating factor	Tumor necrosis factor (TNF) family	15	E. coli	19117613

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B-cell activating factor, zebrafish (zBAFF)	Activating factor	Tumor necrosis factor (TNF) family	18	E. coli	20382231
β-Catenin peptide				E. coli	16322573
β-defensins 4, human (hBD4)	Antimicrobial peptide	β-Defensin family peptides	6	E. coli	20526896
β-Glucuronidase					20071375
Biotin carboxylase carrier protein (BCCP), human	Enzyme	C-terminal 67 amino acids of the BCCP domain of propionyl-CoA carboxylase	16.7	E. coli	21343300
BosR (BB0647) DNA-binding protein in <i>Borrelia burgdorferi</i>	Regulatory protein	Fur/PerR family of transcriptional regulators	18.7	E. coli	21347346
Bqt1	Complex subunit	Telomere attachment Complex	16	E. coli	23337086
Bqt2	Complex subunit	Telomere attachment Complex	13	E. coli	23337086
Brazzein	Sweet-tasting protein	Cysteine stabilized α-helical and β-sheet (CSαβ) family	6.5	E. coli	18221889
BR11-Associated Kinase (BAK1)	Kinase	Plant receptor-like kinases		E. coli	24953020
Bub1-Related Kinase 1 (BRK1)	Kinase	Ser/Thr protein kinase	~57.8	E. coli	23243128
Calmodulin-lysine N-methyltransferase (CaM KMT)	Methyltransferase	Calmodulin Methyl Transferase	37	E. coli	23285036
Capsid protein (Cap) of PCV2	Capsid protein	Viral capsid protein	26	E. coli	20646322*
Caspase recruitment domain, <i>P. aeruginosa</i> (Pa-CARD)	Anticancer bacterial protein	CARD-containing proteins	17	E. coli	19250673
Catalytic module of Curdlan synthase (cm-CrdS)	Membrane protein	Glycosyltransferase Family 2 (GT2)	32	E. coli	20473714
cathelicidin-BF (CBF)	antimicrobial peptide	Antimicrobial peptides from Bungarus fasciatus venom		Bacillus subtilis	24121930
Cathelin-related antimicrobial peptide (CRAMP)	Host defense peptides (HDP)	Cathelicidin family of anti-microbial peptides	20	E. coli	22879591
Cathelin-related antimicrobial peptide (CRAMP), mouse	Host defense peptides (HDP)	Cathelicidin family of anti-microbial peptides	4	E. coli	20713107*
Cdc13	Complex subunit	Telomere-ending binding protein complex	28	E. coli	23300477
Cecropin AD	Antibacterial peptide	Cecropin family of antimicrobial peptides	3.8	E. coli	19546372
CG3362	Enzyme	5' nucleotidase	36.3	E. coli	23223233
ChiA, ChiB, ChiC (chitinases), chitobiase (Chb), chitin binding protein (CBP)	chitinolytic proteins		57,53, 52,93, 21	E. coli	23824666
Chp1 (chromodomain protein)	Chromodomain protein	RNA- induced transcriptional silencing (RITS) complex	93	E. coli	22081013
Chp1 CD (residues 15-75)	Chromodomain protein	RNA- induced transcriptional silencing (RITS) complex	108	E. coli	19362535

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Class 1 translation release factor (RF)	Release factor	Translation Release Factor family	60	E. coli	23271980
Clr4 chromodomain	Silencing factor	Histone-lysine methyltransferase family	55.9	E. coli	19362535
cNIII (NT5C3)	Enzyme	5' nucleotidase		E. coli	23223233
cNIII-like (NT5C3-like)	Enzyme	5' nucleotidase		E. coli	23223233
Conotoxin PrIIIE	Peptide toxin	Conotoxin family	~2	E. coli	22100524
CotB1-SUMO-mCherry	CotB1 affinity purification tag and mCherry target protein	Bacillus cereusspore coat protein	~57.5	E. coli	24756322
CPE, R ₉ , G ₄ S, E ₉ , rGel fusions (five variants)	Toxin		28.2-34.4	E. coli	21303546
Cr-P4H-1-G30	Active Site	Collagen Prolyl 4-hydroxylases (P4Hs)	~230	E. coli	17940281
CrtJ (from <i>Rhodobacter capsulatus</i>)	Gene regulator		20.5	E. coli	22715852
C-terminal half of human juvenile myoclonic epilepsy protein EFHC1 (EFHC1C)	Binding domain	EF-hand superfamily	27	E. coli	18593566
C-terminal histone acetyltransferase (GNAT)	Enzyme Domain	Histone acetyltransferase (GNAT) family	18	E. coli	22447897
Cyanovirin-N (CVN)	Antiviral protein	Cyanovirin-N family	11	E. coli	19547966
Cyclic GMP-AMP synthase (cGAS)	Enzyme	Nucleotidyltransferase family	~60	E. coli	23258413
Cytidine deaminase (CDA)	Enzyme	Deaminase family	16	E. coli	23230131
D-Amino acid oxidase				E. coli	16322573
Dihydroorotase (PyrC)	Enzyme	Pyrimidine biosynthesis pathway	46.37	E. coli	23246866
Distal-less homeobox 3, mouse (DLX3)	Transcription factor	Distal-less homeobox (DLX) protein	32	E. coli	21268066
Dsrl (Dextranucrase)	Enzyme				
Duck hepatitis B virus (DHBV) polymerase (DP)	Polymerase		90	E. coli	22379076
E3 domain (third EGF motif of Del1, mouse)	Epidermal growth factor	Epidermal growth factor (EGF) family	13.7	E. coli	20171188
E5/sub2	Host defense peptide		1.6	E. coli	20713107*
E6/sub3	Host defense peptide		1.6	E. coli	20713107*
EAK(16)	Self-assembling peptide	Novel class of self-assembling peptides	1.7	E. coli	21586326*
EBP50 (ERM-binding phosphoprotein of 50 kD)	Scaffolding protein	ERM (ezrin/radixin/moesin) protein family	50	E. coli	22801783
eGFP	Flourescence protein		27	E. coli	20457256*
Enhanced Green fluorescent protein (eGFP)	Fluorescent protein	GFP family	27	E. coli	20457256*

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enhanced green fluorescent protein (EGFP)	fluorescent protein		32.7	E. coli	23353812
Epidermal growth factor (hEGF), human					17073723
ERM-binding phosphoprotein of 50 kD/Na ⁺ -H ⁺ exchanger regulatory factor (EBP50/NHERF1)	Microvillar scaffolding protein	Ezrin-radixin-moesin (ERM) family of membrane-cytoskeletal linking proteins	50	E. coli	20937695
Exendin(9–39)	Ligand	Glucagon-secretin family	3.4	E. coli	18248821
Exendin-4	Ligand	Glucagon-secretin family	4.1	E. coli	18248821
FANCD2(1–762)	Regulatory/repair protein	Fanconi anemia complementation group D2	156	Insect/BEVS	20154706
FANCI	Regulatory/repair protein	Fanconi anemia complementation group I	142	Insect/BEVS	20154706
FANCL	Ligase	Fanconi anemia complementation group L	43	E. coli	20154706
Fibroblast growth factor	Growth factor	FGF superfamily	~25	E. coli	22249722
Fibroblast growth factor 21 (FGF21)	Growth factor	FGF superfamily	19.4	E. coli	20163718*
Filaggrin-2 (FLG2), human skin	Filament-associated proteins	S100 fused-type protein (SFTP) family	248	E. coli	19384417
FK506 binding domain, <i>Plasmodium vivax</i> (PvFKBD)	Binding domain	FKBP family proteins	14.7	E. coli	20572013
Flagellar basal body rod protein (FliG)	Flagellar protein			E. coli	21895793
Full-length holocarboxylase synthetase, human (FL-HCS)	Chromatin protein		83	E. coli	19740736
γ-glutamyltranspeptidase (γ-GGT)	Extracellular enzyme	Extracellular Enzyme	61.2	E. coli	21327888
GDP-mannose 4,6-dehydratase	Binding partner	GMD family	45	E. coli	22645305
Glucagon-like peptide-1 (GLP-1)	Hormone	Glucagon receptor family	3.3	E. coli	18248821
Glucosyltransferase (Gtf3)	Enzyme	Serine-rich repeat glycoproteins (SRRPs)	76	E. coli	21653318
Groucho Q domain		Transducin-like enhancer of split (TLE) family corepressors	~65	E.coli	20732424
GSTx2, implicated in (DDT) resistance	Enzyme	Glutathione transferase (GST) gene family in the dengue vector <i>Aedes aegypti</i>	25	E. coli	17785190
Guanylate cyclase catalytic domain (CYG12)	Membrane receptor	Guanylate cyclase receptor family	~110	E. coli	18842118
Heat shock protein (hsp70) from <i>Trypanosoma carassii</i>	Heat shock protein	Heat shock protein family	70	E. coli	19527750
Heparinase I (HepA)	Lysase	Glycosaminoglycans family	41	E. coli	22503820*
Heparin-binding epidermal growth factor (HB-EGF)	Epidermal growth factor	EGF family	8	E. coli	19950003 and 25712700
hepassocin (HPS)	hepatic growth factor	Fibrinogen family	33	E. coli	24084006

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hGai1 (human G α_{i1})	Intracellular signaling	Heterotrimeric guanine nucleotide-binding proteins (G proteins with α , β , and γ subunits)	40	E. coli	22713620
HHC-10	Host defense peptide (HDP)	EF-hand superfamily of Ca(2+)-binding proteins	1.4	E. coli	20713107*
Hirudin hirudin variant-1 (HV1)	Thrombin inhibitor	Hirudin family	~7	E. coli	22371262
HIV gp120 peptide				E. coli	16322573
HPLC6 (<i>Pseudopleuronectes americanus</i>)	Antifreeze protein (AFP)	Also known as thermal hysteresis (TH) proteins, ice-binding proteins, or ice-structuring proteins	4	E. coli	20936690
HsBCCP, C-terminal 67 amino acids of the biotin-carboxyl carrier protein (BCCP) domain	Substrate fragment	BCCP domain of propionyl-CoA carboxylase		E. coli	21343300
Hsp110	Heat Shock protein	Hsp70 family homolog	110	E. coli	22157767
Human Argonaute-2 (hArgo2)	Guide strand protien	Argonaute family proteins	~97	Insect	22682761
Human Hemangiopoietin (hHAPO)	Growth factor		~70	E. coli	20618138
Human holocarboxylase synthetase (58-HCS and FL-HCS)	Enzyme		81	E. coli	19740736
Human IFN- γ (hIFN- γ)	Antiviral glycoprotein (cytokine)	Macrophage activating factor (MAF) family	16.7	E. coli	23054704*
<i>Xenopus laevis</i> Interleukin-8 (IL-8)	Cytokine	Interleukin 8 cytokine family	8	E. coli	21530580
Interleukin (IL) 1 β , canine (IL-1 β)	Cytokine	Interleukin 1 cytokine family	31	E. coli	16893658
Human IL-18				E. coli	16322573
Human IL-21				E. coli	16322573
Human IL-23				E. coli	16322573
Human IL- 24	Cytokine	IL-10 family		E. coli	25681151
Human Oxidoreductase				E. coli	16322573
Huwentoxin-IV (HwTx-IV)	neurotoxin peptide	inhibitory cystine knot (ICK) peptide family		E. coli	24324842
hybrid peptide melittin (1-37)-LL37 (7-30)	antibacterial peptide	Antimicrobial peptides (AMPs)		E. coli	24871991
Interferon consensus (IFN-con)	interferon	Type I interferon consensus	~15	E. coli	24680730
Interferon α -2a (IFNA2)	interferon	Type I interferon cytokine family	19	E. coli	24794500
Jacob protein (<i>E. histolytica</i>) Jacob-A11 (yeast-scFv probe)	Cyst wall-specific glycoprotein	Yeast-scFv probe	34	E. coli	22363793
KcsA K+ channel (membrane spanning N-Cys peptides)	Membrane protein			E. coli	19803500
Keratinocyte Growth Factor 2 (hKGF-2), human	Growth factor		19.3	E. coli	19104760*

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Lactate dehydrogenase (LdhB) protein	Lactate dehydrogenase		32	E. coli	17551728
lactacin Q	antimicrobial peptide	Class II bacteriocin from Lactococcus lactis QU 5		Bacillus subtilis	23473826
Lagos bat virus membrane protein (LAG M)	Membrane protein		~25	E. coli	18391421
Lethal Factor (N29C-LF _N ²⁹⁻²⁶³), Anthrax	Enzymatic moiety	Protective-Antigen (PA) binding domain	90	E. coli	20180595
Liver Pyruvate Kinase (hL-PYK), human	Kinase	Pyruvate kinase family	~63	E. coli	22052499
Liver X Receptor (LXR)					22541735
LL37	Antimicrobial host defense peptides (HDP)			E. coli	20713107*
LL-37	antimicrobial peptide	human antimicrobial peptide		E. coli	23142587
Luffin P1 peptides	Ribosome-inactivating protein	Ribosome-inactivating protein	10	E. coli	21195767
Lycotoxin-1 insecticidal peptide	Lycotoxins			E. coli	18465835*
Macro Histone H2A1.2 (MacroH2A1)	MACROH2A core histone family		~30	E. coli	22194607
MAP kinase, human					14514699
Matrix (M) from VSV serotype New Jersey (VSV _{NJ})	Membrane protein			E. coli	19112510
Matrix (M) protein from Lagos bat virus (LBV)	Membrane protein			E. coli	19112510
Matrix metalloproteinase-13 (MMP13/Collagenase-3)	Enzyme			E. coli	20457256*
MbtA, adenylation enzyme	Adenylation enzyme	Aryl Acid Adenylating Enzymes	62	E. coli	18928302
mCherry (Fluorescent Protein) fused to peptides (3 motifs)	Peptide motifs	Preferential binding to ischemic heart tissue	40	E. coli	21316369
MD145 norovirus polymerase (Po)	Polymerase		57	E. coli	15681440
Medin	fibrillar 50aa protein	main fibrillar component of human aortic medial amyloid (AMA)	5.4	E. coli	24602872
Membrane-type 1-metalloprotease (MT1)-MMP catalytic domain	Transmembrane metalloprotease	Matrix metalloproteinases family	57	E. coli	22118498
Metallothionein (MT)	Membrane (Golgi) protein		43	E. coli	19208897
Methionine 58 holocarboxylase synthetase, human (58-HCS)	Chromatin protein		74	E. coli	19740736
Methylcrotonoyl-CoA carboxylase (MCC) BCCP domain	Mitochondrial enzyme	Family of five biotin-dependent carboxylases	~7	E. coli	22123817
Mitochondrial Transduction Domain - Transcription Factor A, Mitochondrial, human (MTD-TFAM)	Mitochondrial membrane protein	HMG family protein	29	E. coli	19460293
MLL1 (mixed lineage leukemia 1)	Methyltransferase	Histone H3 lysine 4 (H3K4) methyltransferase (HMT)		E. coli	23210835

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MMP-2-resistant variant of SDF-1, [SSDF-1 (SV4)]	Chemokine	Chemokine family		8	E. coli 21403096
monomeric streptavidin (mSA)		component of streptavidin-biotin molecular recognition system		14	E. coli 24691867
Mps1 N-terminal domain (M-NTD)	Kinase enzyme	Mps1 family of kinases			E. coli 19120698
MreA (Methanosarcina regulator of energy-converting metabolism) MA3302 gene locus	Archaeal regulatory protein				E. coli 22851658
Mx226	Host defense peptide (HDP)			1.7	E. coli 20713107*
myo-inositol oxygenase (MIOX)	metabolic enzyme	non-heme di-iron oxygenase		33	E. coli 24333274
Myostatin peptide/growth differentiating factor-8 (GDF8)	Glycoprotein	TGF- β family		12	E. coli 16322573
New Delhi metallo-beta-lactamase-1 (NDM-1)	Enzyme	Metallo- β -lactamase (MBL, class B) family		28	E. coli 21887283
Nogo-66 peptide	Part of Nogo-A				E. coli 25758955
Nonstructural one (NS1), Dengue virus (DENV)	Non-structural glycoprotein	Flavivirus family		50	Insect/BEVS 22100526*
Nonstructural protein 3 (NS3) variants, hepatitis C virus (HCV)	Helicase, NTPase, and protease	DExH/D-box family of proteins		68	E. coli 19153239
Nonstructural protein 3 (nsP3) from Venezuelan alphavirus	Viral protein	Alphavirus			E. coli 23221551
Nonstructural protein 4 (NS4A) variants, hepatitis C virus (HCV)	Cofactors	DExH/D-box family of proteins		6	E. coli 19153239
NS3-4A, hepatitis C virus (HCV)	Membrane enzyme complex			76	E. coli 21047963
N-terminal domain of dynein intermediate chain (IC)	Dynein Intermediate Chain Complex			<74	E. coli 20472935
N-terminal portion of rLiTat 1.3 and rLiTat 1.5	Trypanosoma brucei gambiense protein	Variant surface glycoprotein (VSG)			Pichia pastoris 25032684
Nucleocapsid protein (Nc)	Viral membrane protein	SARS coronavirus (SARS-CoV) membrane protein		46	E. coli 16211506
NZ17074 peptide	antimicrobial peptide	Antimicrobial peptides (AMPs)			Pichia pastoris 24617894
Outer membrane protein B (OmpB)	Membrane (virulence) Protein	Autotransporters, family of proteins in Gram-negative bacteria		120	E. coli 21444665
P11-4, P11-13, P11-14 (K)	Self-assembling peptide	Novel class of self-assembling peptides		1.5	E. coli 22759375
Parkin	Component of E3 ubiquitin ligase			52	E. coli 22496854
PAS-cal	peptide	artificial polypeptide concatamer of peptide cassettes			E. coli 24867428
Human PCBP1	Iron-chaperone	Metalloprotein			E. coli 22055506

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PDE4B2 (full-length and 152-528)	cyclic nucleotide phosphodiesterase (PDE)	type IV, cAMP specific, cyclic nucleotide PDE	~80	E. coli	24517368
PfM6T α	Membrane protein	M6T family	33	Insect/BEVS	19465059*
PfM6T β	Membrane protein	M6T family	43	Insect/BEVS	19465059*
PfM6T γ	Membrane protein	M6T family	34	Insect/BEVS	19465059*
Photoactivated adenylyl cyclase (bPAC)	Lyase enzyme	PAC family	38.5	E. coli	21030594
Plectasin	Antimicrobial	Defensin	4.4	E. coli	25311837
PnTx3-4	Toxin, knottin scaffold	ω -toxins family	8	E. coli	22659539
Polo-box domain (PBD) of Plk1	Binding partner	Polo-like kinases family	35	E. coli	18599640
Polyglutamine (Poly-Q) fibril forming peptide	Fibril forming peptide	Poly-Q	30-46	E. coli	21943395
PP2Cm phosphatase AKA Branched-chain α -ketoacid dehydrogenase complex phosphatase (BDP)	Metallo-phosphatases	PPM family of Mn ²⁺ /Mg ²⁺ -dependent phosphatases	460	E. coli	22291014
PpsR	Heme-sensing transcription factor	PpsR regulator family	~52	E. coli	22378778
Pramlintide precursor w/ C-terminal glycine (PAG)	Peptide hormone	Synthetic equivalent of amylin	4	E. coli	24728756
prepro-urocortin 2	neuropeptide	corticotrophin-releasing hormone (CRH)	~11	E. coli	24291344
Prestin (SLC26A5) STAS domain	Membrane protein	Mammalian solutelinked carrier 26 (SLC26) anion exchangers	~3	E. coli	20471983
Prolactin1 (PRL1), zebrafish	Hormone	PRL1/PRL2 family	20	E. coli	19584915
Prolactin2 (PRL2), zebrafish	Hormone antibody	PRL1/PRL2 family	27	E. coli	19584915
Propionyl-CoA carboxylase	Mitochondrial matrix enzyme	Family of five biotin-dependent carboxylases	~7	E. coli	22123817
PTH(1-34)	Hormone	Parathyroid hormone family	4.1	E. coli	18248821
PTH(1-84)	Hormone	Parathyroid hormone family	9	E. coli	18248821
pUL50 (1-181) from human cytomegalovirus (HCMV) ¹²	Nuclear envelope	β -Herpesvirinae (family Herpesviridae)	~20	E. coli	22589554
PYL1	Signaling protein	PYR/PYL/RCAR family of START proteins	31	E. coli	19898420
Pyruvate carboxylase (PC) BCCP domain	Mitochondrial matrix enzyme	Family of five biotin-dependent carboxylases	~7	E. coli	22123817
Pyruvate dehydrogenase phosphatase catalytic subunit (PDP1c)	Kinase	PPM protein family	50	E. coli	20208177
Pyruvate dehydrogenase phosphatase catalytic subunit (PDP2c)	Kinase	PPM protein family	42	E. coli	20208177

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R9-EGFP	cell penetrating peptide	Polyarginine-based cell penetrating peptide			24701829
Rabies Virus Glycoprotein (RGP)	Glycoprotein		60	E. coli	22134654
Rad51 capsid protein	DNA repair factor	Rad51 protein family	37	E. coli	18467498
RbBP5 (retinoblastoma binding protein 5)	Regulatory protein	Histone H3 lysine 4 (H3K4) methyltransferase (HMT) core complex		E. coli	23210835
RecA protein	DNA repair factor	RecA protein family	38	E. coli	18467498
Renalase1, human renalase/Monoamine oxidase-C (MAO-C)	Hormone-like protein	New class of FAD-containing monoamine oxidases	38	E. coli	20302943
ribonuclease H domain in HIV-1 reverse transcriptase	enzyme			E. coli	26061827
RNA-dependent RNA polymerase (nsP4)	Polymerase	Polymerase	28	E. coli	19036396*
Rpt2	Regulatory	Regulatory particle triple-A ATPase, that form a distinct family within the AAA superfamily	49	E. coli	18796432
Rpt5	Regulatory	Regulatory particle triple-A ATPase, that form a distinct family within the AAA superfamily	49	E. coli	18796432
RvCD _L , variant of Rv1739c STAS domain	Membrane protein	SulP anion transporters	15.7	E. coli	20471983
RvCD _S , variant of Rv1739c STAS domain	Membrane protein	SulP anion transporters	14	E. coli	20471983
SA2 amphiphilic oligopeptide	Self-assembling peptide	Novel class of self-assembling peptides	1.2	E. coli	20687533
SA2 peptide	Amphiphilic peptide (Ap), self-assembling anti-bacterial and anti-plasmodial		~1.2	E. coli	25551787
Scorpine	antimicrobial protein	Component of Pandinus imperator venom	8.35	E. coli	25068263
Scygonadin	antimicrobial protein	antimicrobial protein from Scylla serrate	~11	E. coli	23344942
Secretory phospholipase A ₂ , murine (sPLA ₂)	Secretory enzyme	Group V sPLA ₂ Family	14	Mammalian	18539905
Secretory phospholipase A ₂ , murine (sPLA ₂)	Secretory enzyme	Group X sPLA ₂ Family	15	Mammalian	18539905
Secretory phospholipase A ₂ , murine (sPLA ₂)	Secretory enzyme	Group IIE sPLA ₂ Family	18	Mammalian	18539905
Secretory phospholipase A ₂ , murine (sPLA ₂)	Secretory enzyme	Group III sPLA ₂ Family	28	Mammalian	18539905
Shinga toxin A chain	Toxin subunit	N-glycosidase family		E. coli	23251345
SigD (Sigma factor σ^D)	Bacterial transcription initiation factor	Sigma factor protein family		E. coli	20233303
single chain Fv (ScFv) against FGFR3 and ScFv-9R	Antibody	recombinant antibody		E. coli	24519456
Single chain variable fragment (scFv) from mAb against BaP1	Antibody	recombinant antibody	~29.4	E. coli	24887282
Sinopotamon henanensemethallothionein (MT)	cysteine-rich, metal binding protein	Methallothionein	~7	E. coli	24276409

Examples of Successful Protein Expression with SUMO

Protein	Type	Family	kDa	System	Reference (PubMed ID)
SM50 domains: C-type lectin domain (CTL), glycine rich region (GRR), proline rich region (PRR)	larval spicule matrix protein		13.6, 27.2, 3.9	E. coli	23796503
SmyD1	Transcriptional regulator	SmyD family (SET/MYND domains)	57	E. coli	20943667
SmyD3	Transcriptional regulator	SmyD family (SET/MYND domains)	49	E. coli	21167177
soluble mature part of LIGHT (TNFSF14)		tumor necrosis factor (TNF) ligand	~27	E. coli	23732292
Soybean calmodulin isoform 4 (SCaM4)	Regulatory enzyme	sCaM4 isoform	17	E. coli	19667066
Spike C (Spk C)	Viral membrane protein	SARS coronavirus (SARS-CoV) membrane protein	58	E. coli	16211506
SPINK6	Inhibitor	Kallikrein-related peptidases (KLK)	8	E. coli	20667819
SPINK9/LEKT12 (Lympho-Epithelial-Kazal-type-Inhibitor 2)	Antimicrobial peptide	Kallikrein-related peptidases (KLK)	7	E. coli	19190773
Sse1	Heat shock protein homolog	HSP70 family	77.6	E. coli	22157767
Steroid receptor coactivator-3 (SRC3) fragment	nuclear receptor coactivator	p160 SRC family	~15	E. coli	20086010
Stn1	Complex subunit	Telomere-ending binding protein complex		E. coli	23300477
Stn1	Complex subunit	Telomere-ending binding protein complex	58	E. coli	23300478
Stromal cell-derived factor-1 (SDF-1 α)	Chemokine	Chemokine family	7.9	E. coli	17875967
Suppressors of T-cell receptor signaling 1 (Sts1)	Membrane (endocytic) proteins	ERG4/ERG24 family	52.5	E. coli	16429130
Swi6	Chromodomain protein	RNA- induced transcriptional silencing (RITS) complex	90	E. coli	19362535
Swi6	Transcription cofactor	Heterochromatin Protein 1 (HP1) family protein	37.2	E. coli	19362535
Syntaxin-1A (Syx1A)	Membrane protein (neuronal)	VAMP family, SNARE protein	35	E. coli	20133592
T4 bacteriophage helicase					16322573
Teladorsagia circumcincta apyrase-1 (Tci-APY-1)	Plasma membrane-bound protein	Apyrase enzyme family	38.5	E. coli	21208222
Human Thiosulfate Sulfur Transferase	Enzyme		~11	E. coli	24981631
Tp0956	Lipoprotein	TPATs (TPR-protein-associated TRAP-Ts); RskA superfamily	35	E. coli	22306465
Transcription Factor 4 (Tcf4) peptide				E. coli	16322573
TGF- β Related Growth Factor				E. coli	16322573
Tryptase β -II, human (hTPSB2)	Enzyme	Peptidase family S1	38	Insect/BEVS	18713650

Examples of Successful Protein Expression with SUMO

Protein	Type	Family	kDa	System	Reference (PubMed ID)
TsDHN-1 (acidic)	Dehydrins	Group 2 late embryogenesis abundant (LEA) proteins	31.1	E. coli	23219803
TsDHN-1 (acidic)	Dehydrins	Group 2 late embryogenesis abundant (LEA) proteins	30.1	E. coli	21970344
TsDHN-2 (basic)	Dehydrins	Group 2 late embryogenesis abundant (LEA) proteins	22.4	E. coli	23219803
TsDHN-2 (basic)	Dehydrins	Group 2 late embryogenesis abundant (LEA) proteins	21.4	E. coli	21970344
Tumor necrosis factor (TNF)- α	Cytokine/Type II transmembrane protein	Tumor necrosis factor (TNF) family	51	E. coli	20363332
Tumor necrosis factor-related apoptosis-inducing ligand (TRAIL)-melittin	anticancer-antibacterial	TNF superfamily-antibacterial peptide	23	E. coli	23149754
Ubiquitin binding protein 43, murine (UBP43)	De-conjugating enzyme	UBP family of deubiquitylating enzymes (DUbs)	43	Insect/BEVS	18713650
Ubiquitin specific peptidase 15 (USP15)	Enzyme	UBP family of deubiquitylating enzymes (DUbs)	112	Insect/BEVS	18713650
Ubiquitin specific peptidase 4 (USP4)	Enzyme	UBP family of deubiquitylating enzymes (DUbs)	110	Insect/BEVS	18713650
Uracil-DNA glycosylase-2 (UNG2)	Base excision repair (BER) enzyme	Base excision repair (BER) enzymes	35	E. coli	20870715
Urodilatin, human	Hormone	A-type natriuretic peptides (ANP) family	3.5	E. coli	18189135*
VAMP2/synaptobrevin	Membrane protein	VAMP family, SNARE protein	25	E. coli	20603329
Vip3Aa	Toxin		~100	E. coli	23220241
Virus-like particles (VLP) of Foot-and-mouth disease virus (FMDV) capsid proteins (VP0, VP1, and VP3)	viral capsid proteins	Foot-and-mouth disease virus (FMDV) proteins	23-33	E. coli	23826638 trace.tennessee.edu
Vitronectin (VTN)	Glycoprotein	Pexin family	75	E. coli	24413974
VP2	capsid protein	capsid protein from canine parvovirus (CPV)	64	E. coli	24936129
VP6	structural protein	structural protein in middle capsid layer of rotavirus	45	E. coli	20799727
WCBD4-6 (domains 4-6 of Wilson disease protein (ATP7B))	Membrane protein	Copper-transporting member of the P-type ATPase superfamily		E. coli	23210835
WDR5 (WD (Trp-Asp) repeat domain 5)	Regulatory protein	Histone H3 lysine 4 (H3K4) methyltransferase (HMT) core complex		E. coli	16322573
Wnt peptide					21216997
YcbW (ZapC)	Cytoplasmic protein	FtsZ-binding component of the Z-ring	20	E. coli	19528533
Z dependent protease inhibitor (ZPI)				E. coli	21098102
Zinc metalloprotease B (ZmpB)	Viral protein	Extracellular matrix (ECM) protein	35	E. coli	