

Product Information

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Proteomics Dynamic Range Standard Set

Catalog Number **UPS2**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

Product Description

The Proteomics Dynamic Range Standard Set (UPS2) is comprised of one vial of Proteomics Dynamic Range Standard (Catalog Number S5697) and one vial (20 μg) of Proteomics Grade Trypsin (Catalog Number T6567).

The Proteomics Dynamic Range Standard is produced from a mixture of 48 individual human source or human sequence recombinant proteins, each of which has been selected to limit heterogeneous post-translational modifications (PTMs). The protein standard has a dynamic range of 5 orders of magnitude, ranging from 50 pmoles to 500 amoles. The total protein content in each vial is 10.6 μg . Each protein has been quantitated by amino acid analysis (AAA) prior to formulation.

The standard contains the same proteins included in the Universal Proteomics Standard (UPS1) and is formulated from 6 mixtures of different concentrations. Each mixture contains 8 different proteins selected to present a diverse group of proteins, e.g., varying molecular masses, isoelectric points, and hydrophobicities.

UPS2 can be used to standardize and/or evaluate mass spectrometric (e.g., LC-MS/MS, MALDI-TOF-MS, etc.) and electrophoretic analysis conditions prior to the analysis of complex protein samples. Moreover, UPS2 can be used to bracket precious experimental data sets between runs of a known complex standard sample; thereby, confirming the robustness of the analysis method and stability of the instrument employed. Additionally, laboratories generating or comparing mass spectrometric data derived from poorly defined samples can use UPS2 as an external reference to assist with the evaluation of results and experimental methodology.

Running of UPS2 as an external standard can facilitate the comparison of mass spectrometric or other proteomic data that are generated in different laboratories using a wide range of workflows, analytical techniques, and instrumentation. Also UPS2 can potentially help identify limitations of proteomics analysis systems and search algorithms.^{1,2}

Components

Proteomics Dynamic Range Standard 1 vial
48 human proteins ranging from 50 picomoles to 500 attomoles dried in a 0.5 mL vial.
Total protein content is 10.6 μg .
Catalog Number S5697

Proteomics Grade Trypsin 20 μg
lyophilized enzyme
Catalog Number T6567

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

The preparation procedure should be compatible with the analysis to be run. For peptide analysis, it is suggested that proteins be dissolved in an appropriate denaturant prior to reduction, alkylation, and tryptic digestion.

Storage/Stability

The set ships on wet ice and storage at $-20\text{ }^{\circ}\text{C}$ is recommended. After reconstitution and/or digestion, the standard should be dispensed into microcentrifuge tubes in single use aliquots and frozen.

References

1. Tabb, D.L. *et al.*, *J. Proteome Res.*, **6**, 654-661 (2007).
2. Uwaje, N.C. *et al.*, *Electrophoresis*, **28**(12), 1867-1874 (2007).
3. UniProt (Universal Protein Resource), © 2006 by UniProt Consortium.
<http://www.pir.uniprot.org/index.shtml>

KR,DP,JLT,MAM 01/08-1

UniProt Accession Number ³	Amount (fmol)	UniProt Protein Name [Synonym]	MW (Da) (calculated)	Source or recombinant	Host	Tag	Potential PTMs *
P00915	50,000	Carbonic anhydrase 1	28,738	Erythrocytes			Acetylation
P00918	50,000	Carbonic anhydrase 2	29,095	Erythrocytes			Acetylation
P01031	50,000	Complement C5 [Complement C5a]	8,266	Recombinant	<i>E. coli</i>		
P69905	50,000	Hemoglobin alpha chain	15,127	Erythrocytes			
P68871	50,000	Hemoglobin beta chain	15,867	Erythrocytes			Acetylation, Nitrosylation, Glycosylation
P41159	50,000	Leptin	16,024	Recombinant	<i>E. coli</i>		
P02768	50,000	Serum albumin	66,393	Recombinant	<i>Pichia pastoris</i>		
P62988	50,000	Ubiquitin	9,387	Recombinant	<i>E. coli</i>	6-His	
P04040	5,000	Catalase	59,583	Erythrocytes			
P00167	5,000	Cytochrome b ₅	16,021	Recombinant	<i>E. coli</i>	6-His	
P01133	5,000	Epidermal growth factor	6,211	Recombinant	<i>E. coli</i>		
P02144	5,000	Myoglobin	17,051	Heart			
P15559	5,000	NAD(P)H dehydrogenase [quinone] 1 [DT Diaphorase]	30,984	Recombinant	<i>E. coli</i>		
P62937	5,000	Peptidyl-prolyl cis-trans isomerase A [Cyclophilin A]	17,947	Recombinant	<i>E. coli</i>		
Q06830	5,000	Peroxiredoxin 1	22,106	Recombinant	<i>E. coli</i>		
P63165	5,000	Small ubiquitin-related modifier 1 [SUMO-1]	37,420	Recombinant	<i>E. coli</i>	GST	
P00709	500	Alpha-lactalbumin	14,070	Milk			Glycosylation
P06732	500	Creatine kinase M-type [CK-MM]	43,070	Heart			
P12081	500	Histidyl-tRNA synthetase [Jo-1]	58,223	Recombinant	<i>E. coli</i>		
P61626	500	Lysozyme C	14,692	Milk			
Q15843	500	Neddylin [Nedd8]	9,071	Recombinant	<i>E. coli</i>		
P02753	500	Retinol-binding protein	21,065	Urine			
P16083	500	Ribosylidihyronicotinamide dehydrogenase (quinone) [Quinone oxidoreductase 2 or NQO2]	25,817	Recombinant	<i>E. coli</i>		
P63279	500	Ubiquitin-conjugating enzyme E2 I [UbcH9]	17,995	Recombinant	<i>E. coli</i>		
P01008	50	Antithrombin-III	49,033	Plasma			Glycosylation
P61769	50	Beta-2-microglobulin	11,729	Urine			
P55957	50	BH3 interacting domain death agonist [BID]	21,978	Recombinant	<i>E. coli</i>		
P07339	50	Cathepsin D	26,624	Liver			Glycosylation
P08263	50	Glutathione S-transferase A1 [GST A1-1]	25,482	Recombinant	<i>E. coli</i>		
P01344	50	Insulin-like growth factor II	7,464	Recombinant	<i>E. coli</i>		
P01127	50	Platelet-derived growth factor B chain	12,286	Recombinant	<i>E. coli</i>		
P10599	50	Thioredoxin	12,424	Recombinant	<i>E. coli</i>	6-His	
P08311	5	Cathepsin G	26,751	Sputum			Glycosylation
P99999	5	Cytochrome c [Apocytochrome c]	11,608	Recombinant	<i>E. coli</i>		
P06396	5	Gelsolin	82,954	Plasma			Phosphorylation
P09211	5	Glutathione S-transferase P [GST]	23,220	Placenta			
P01112	5	GTPase HRas [Ras protein]	21,292	Recombinant	<i>E. coli</i>		
P02787	5	Serotransferrin [Apotransferrin]	75,143	Plasma			Glycosylation
O00762	5	Ubiquitin-conjugating enzyme E2 C [UbcH10]	20,473	Recombinant	<i>E. coli</i>	6-His	
P51965	5	Ubiquitin-conjugating enzyme E2 E1 [UbcH6]	22,222	Recombinant	<i>E. coli</i>	6-His	
P08758	0.5	Annexin A5	35,782	Placenta			Acetylation
P02741	0.5	C-reactive protein	23,030	Plasma			
P05413	0.5	Fatty acid-binding protein	14,716	Plasma			Acetylation, Phosphorylation
P10145	0.5	Interleukin-8	8,381	Recombinant	<i>E. coli</i>		
P02788	0.5	Lactotransferrin	78,289	Milk			Glycosylation
P10636	0.5	Microtubule-associated protein tau [Tau protein]	46,810	Recombinant	<i>E. coli</i>	6-His	
P00441	0.5	Superoxide dismutase [Cu-Zn]	15,800	Erythrocytes			Acetylation
P01375	0.5	Tumor necrosis factor [TNF-alpha]	17,350	Recombinant	<i>E. coli</i>		

* As reported in UniProt. Potential PTMs have not been verified by Sigma

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