Supporting Information

A Facilely Synthesized Glutathione-Functionalized Silver Nanoparticles-Grafted Covalent Organic Framework for Rapid and Highly Efficient Enrichment of N-Linked Glycopeptides

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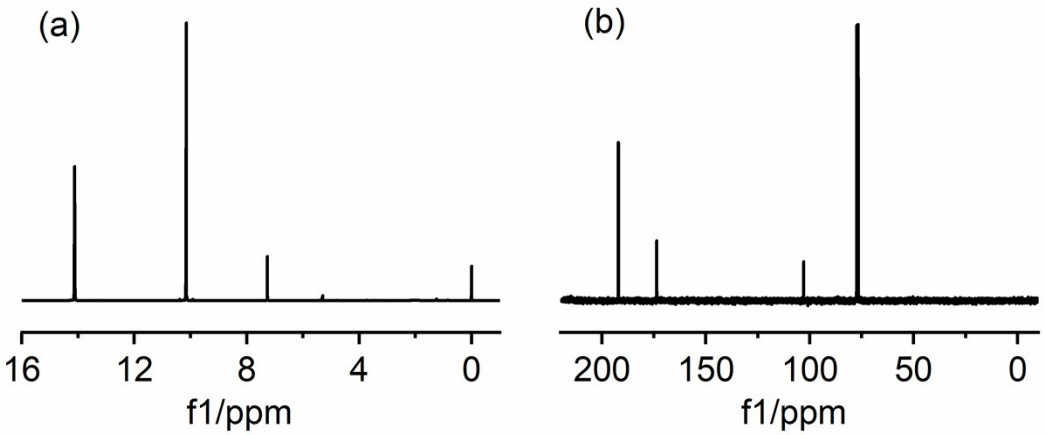

Fig. S1 (a) ^{1}H NMR and (b) ^{13}C NMR spectra of synthesized Tp.

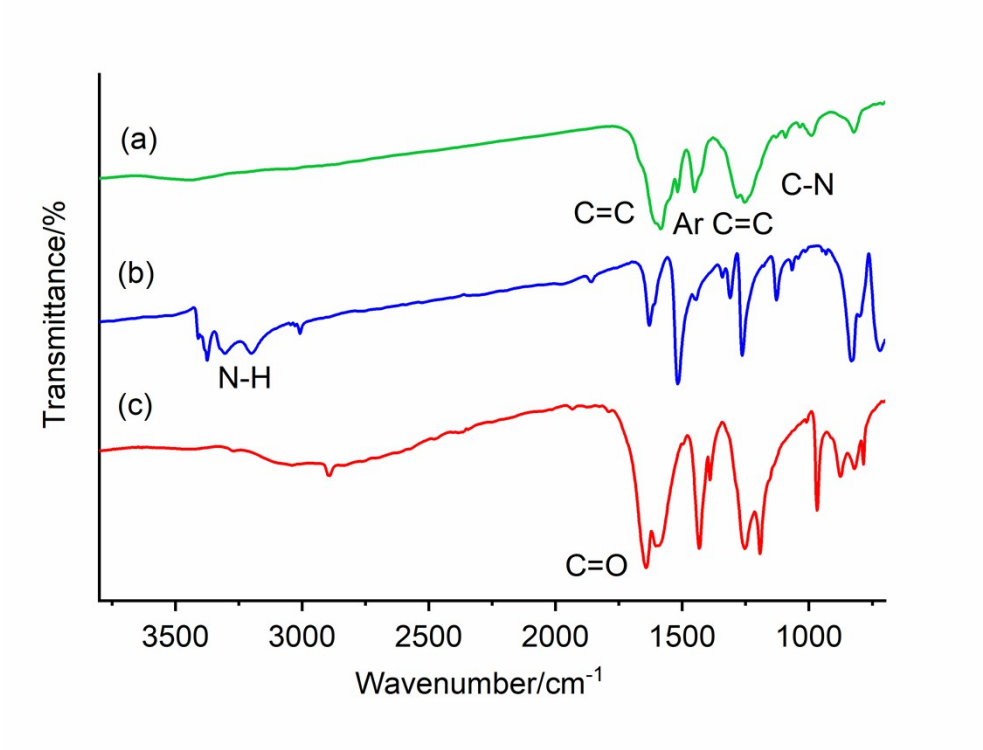

Fig. S2 FT-IR spectra of (a) synthesized TpPa-1, (b) Pa-1 and (c) synthesized Tp.

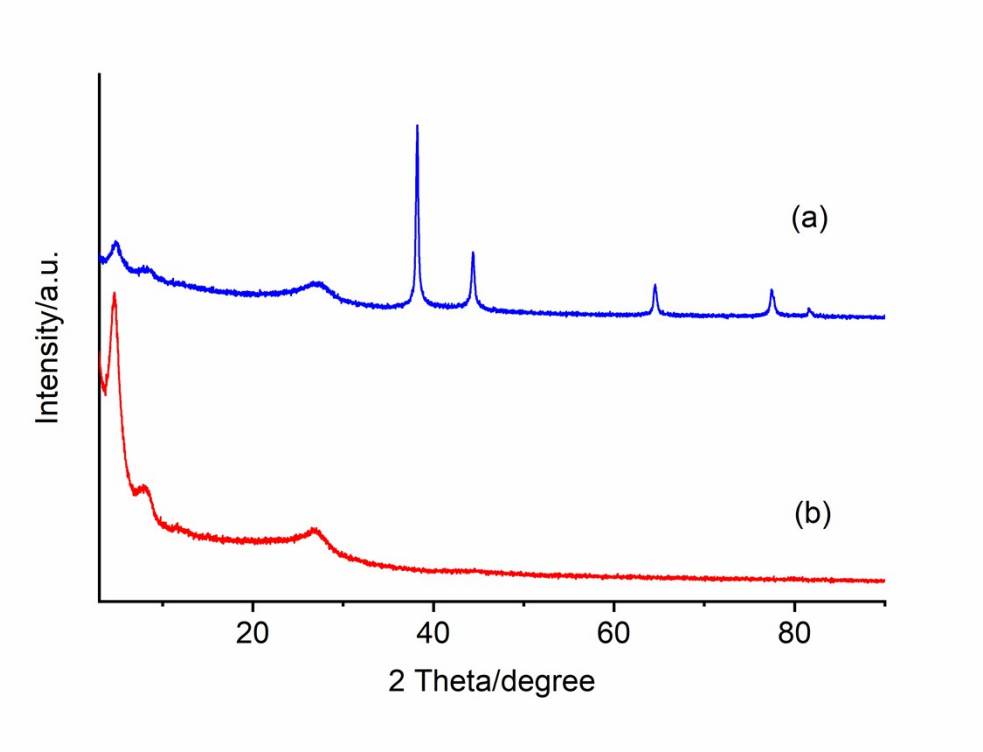

Fig. S3 XRD patterns of (a) TpPa-1@Ag and (b) TpPa-1.

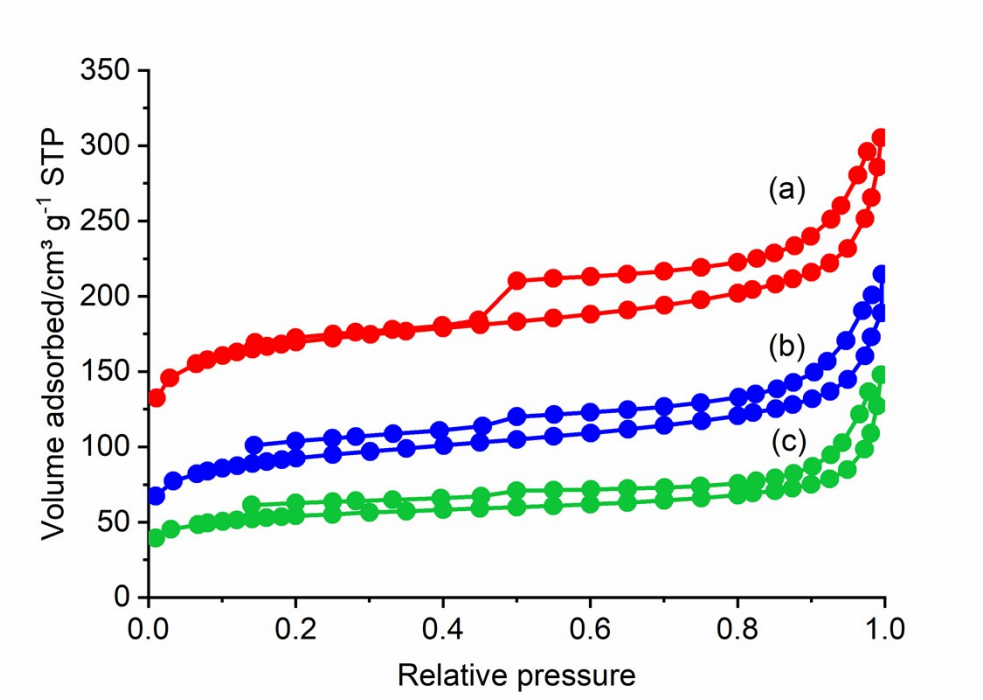

Fig. S4 N_2 adsorption and desorption isotherms of (a) TpPa-1, (b) TpPa-1@Ag and (c) TpPa-1@Ag@GSH.

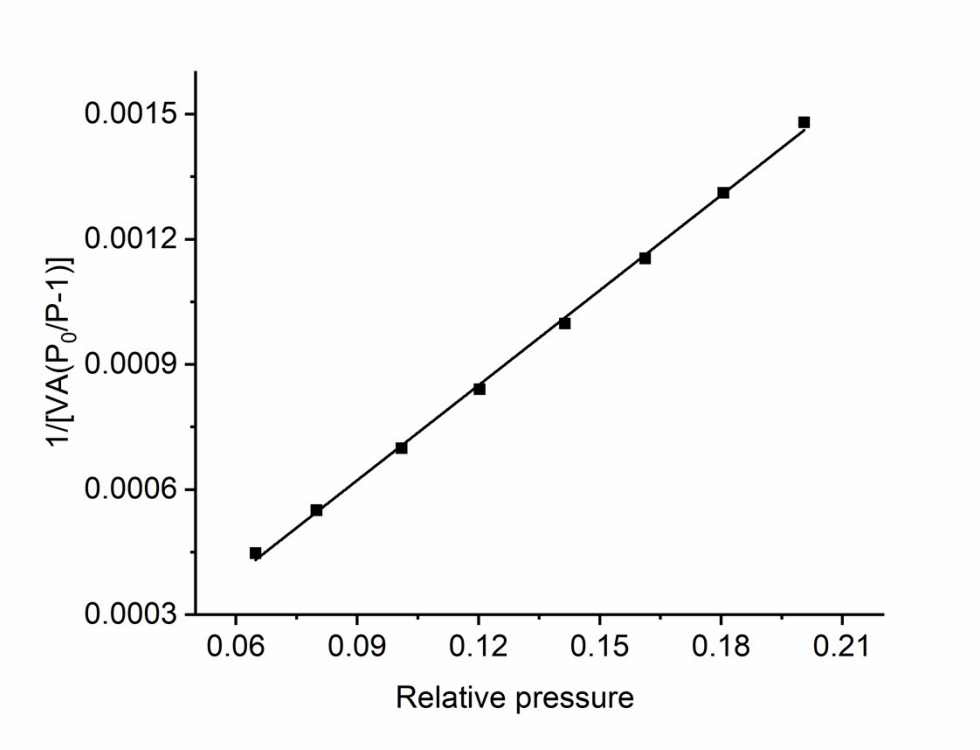

Fig. S5 BET surface area plot for TpPa-1 calculated from the isotherm.

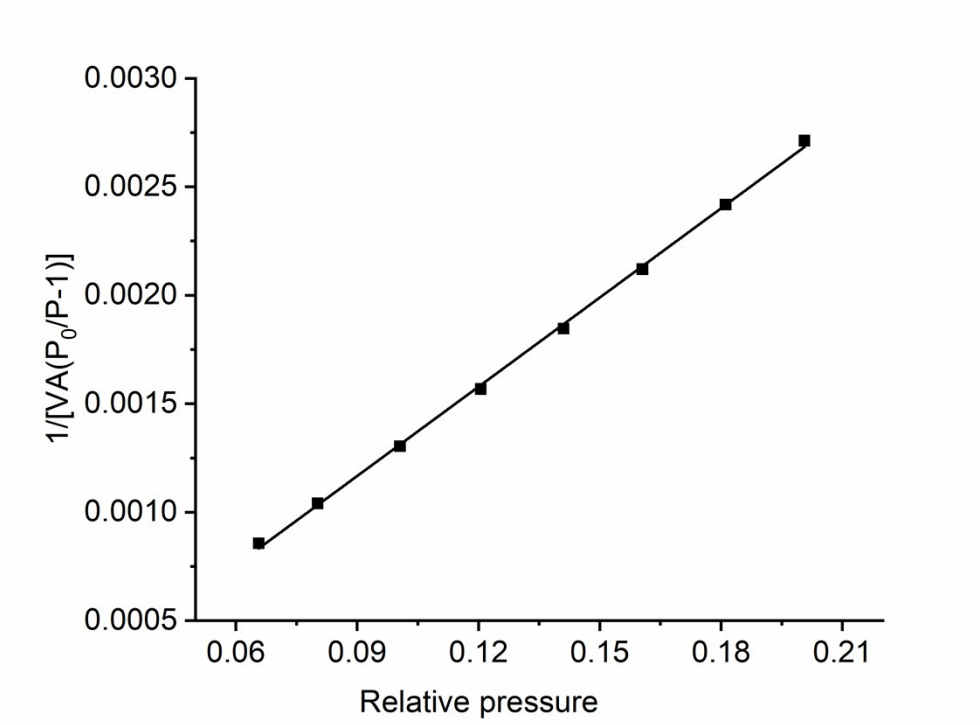

Fig. S6 BET surface area plot for TpPa-1@Ag calculated from the isotherm.

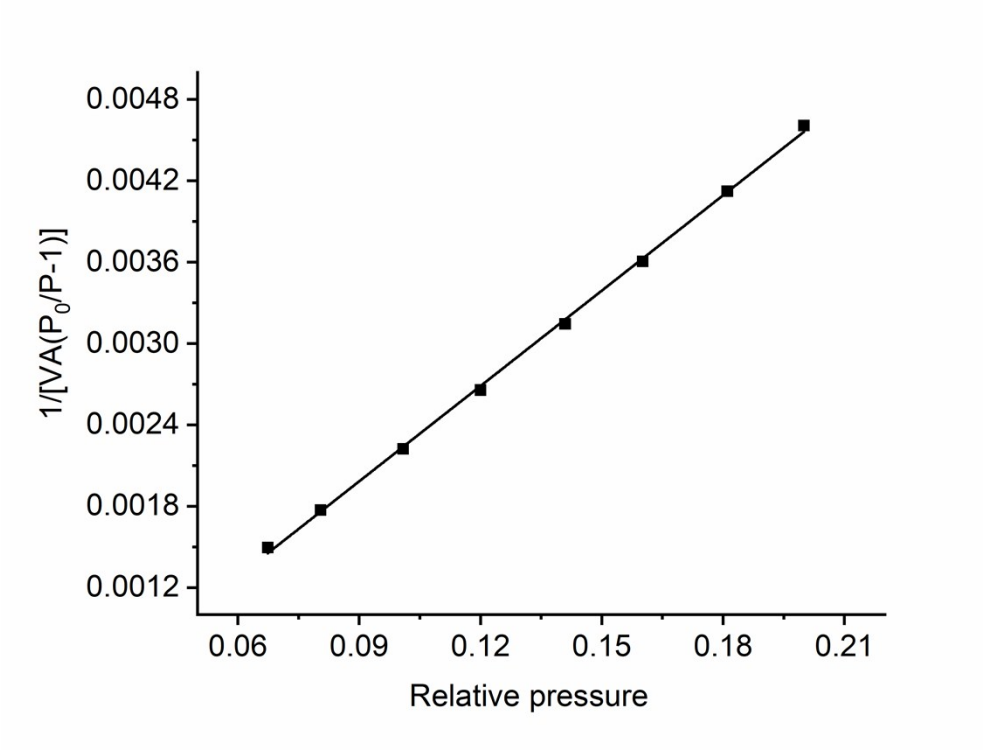

Fig. S7 BET surface area plot for TpPa-1@Ag@GSH calculated from the isotherm.

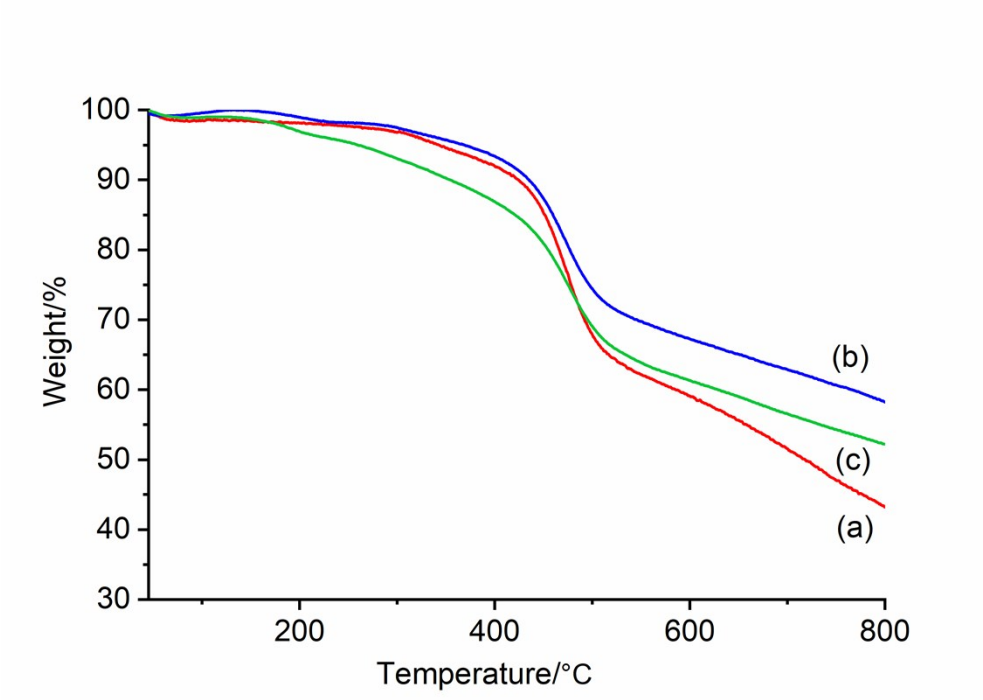

Fig. S8 TGA data of (a) TpPa-1, (b) TpPa-1@Ag and (c) TpPa-1@Ag@GSH.

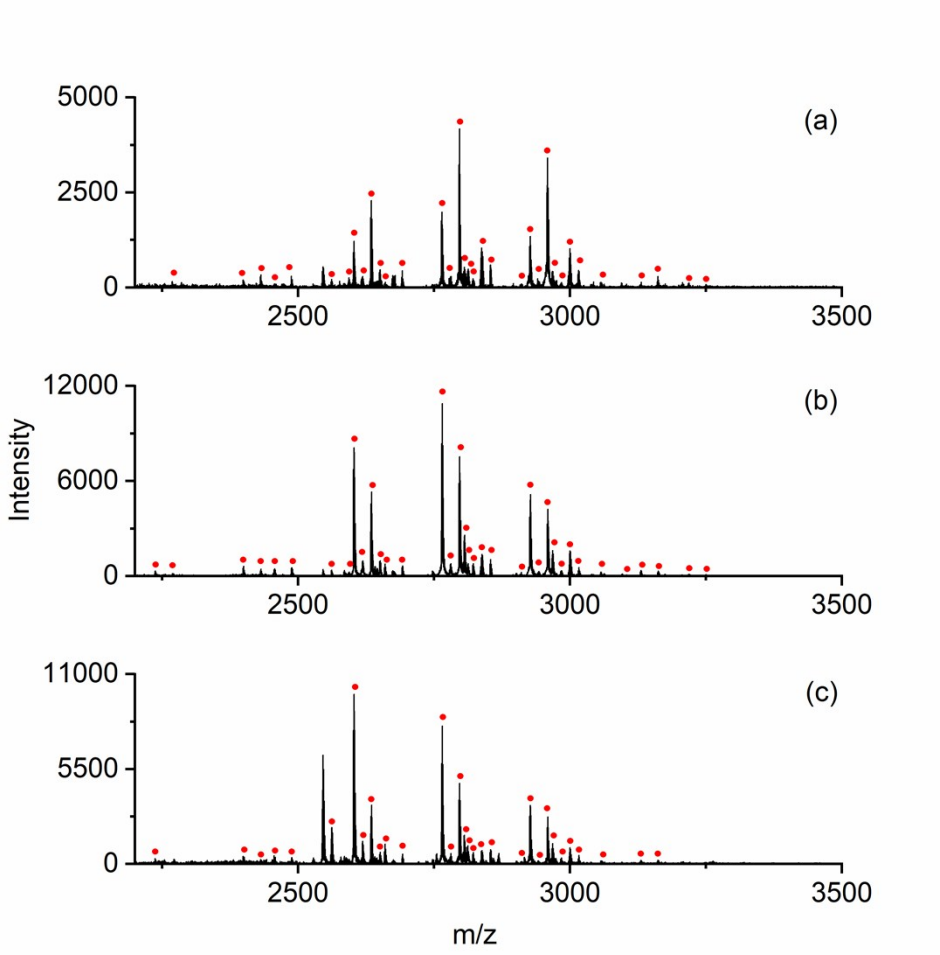

Fig. S9 MALDI-TOF MS spectra of human IgG tryptic digests after enrichment with different washing buffers (a) ACN/H_2O/TFA (79.9/20/0.1, v/v/v), (b) ACN/H_2O/TFA (84.9/15/0.1, v/v/v) and (c) ACN/H_2O/TFA (89.9/10/0.1, v/v/v). N-linked glycopeptides are marked with solid red circles.

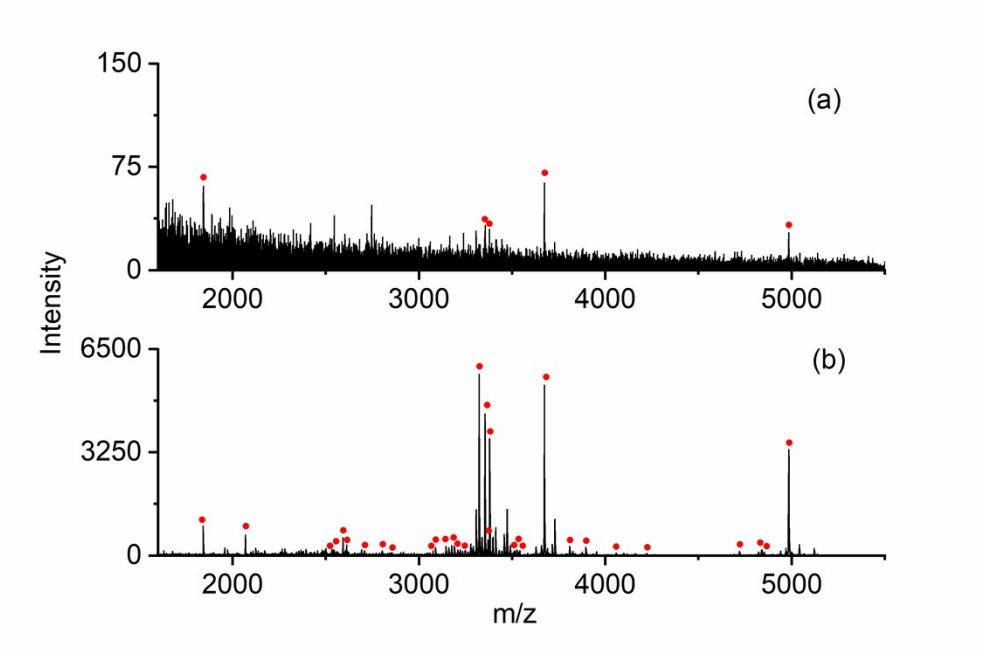

Fig. S10 MALDI-TOF MS spectra of HRP tryptic digests (a) without enrichment and (b) with enrichment of TpPa-1@Ag@GSH. N-Linked glycopeptides are marked with solid red circles.

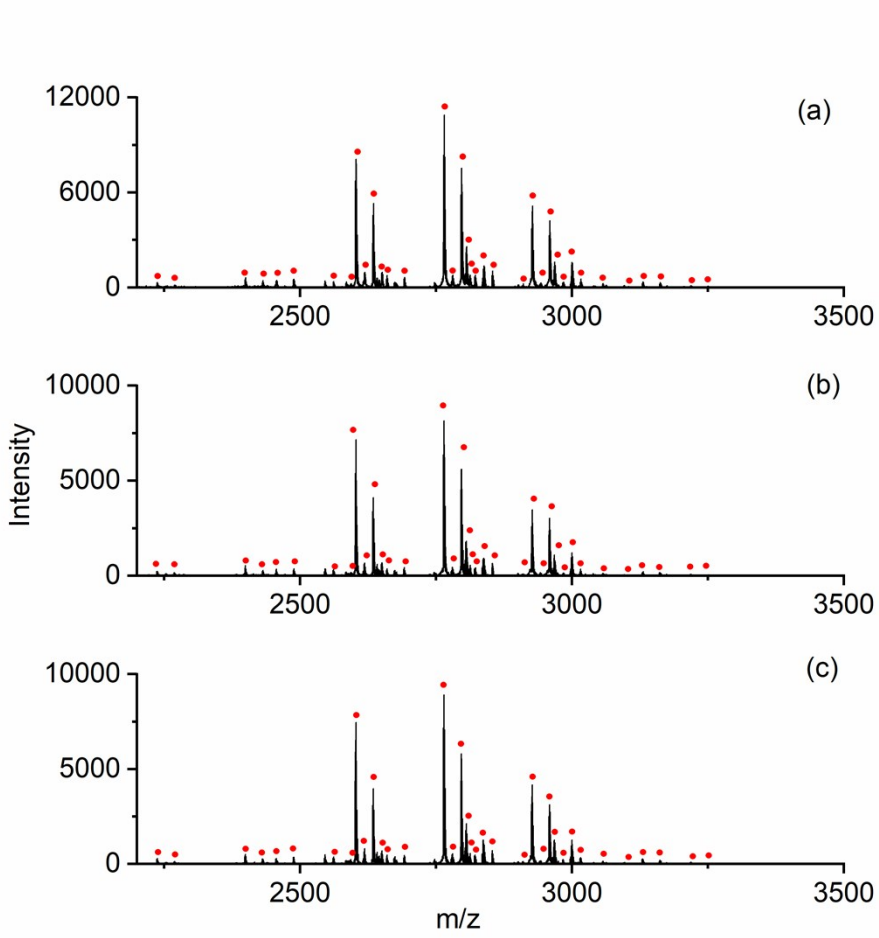

Fig. S11 MALDI-TOF MS spectra of human IgG tryptic digests after enrichment with TpPa-1@Ag@GSH (a) for the first time, (b) for the third time and (c) for the fifth time. N-linked glycopeptides are marked with solid red circles.

Table S1 Observed molecular masses, proposed glycan compositions and peptide sequences of N-linked glycopeptides enriched from human IgG tryptic digests by TpPa-1@Ag@GSH. Hex, HexNAc, Fuc and NeuAc are the abbreviations of hexose, N-acetylhexosamine, fucose and N-acetylneuraminic acid, respectively. N# denotes the N-linked glycosylation sites.

Peak number	Observed m/z	Glycan composition	Peptide sequence
I1	2238.9	[Hex]2[HexNAc]3[Fuc]1	EEQFN#STFR
I2	2269.5	[Hex]2[HexNAc]3[Fuc]1	EEQYN#STYR
I3	2400.0	[Hex]3[HexNAc]3[Fuc]1	EEQFN#STFR

I4	2432.1	[Hex]3[HexNAc]3[Fuc]1	EEQYN#STYR
I5	2457.0	[Hex]3[HexNAc]4	EEQFN#STFR
I6	2489.1	[Hex]3[HexNAc]4	EEQYN#STYR
I7	2562.0	[Hex]4[HexNAc]3[Fuc]1	EEQFN#STFR
I8	2594.0	[Hex]4[HexNAc]3[Fuc]1	EEQYN#STYR
I9	2603.1	[Hex]3[HexNAc]4[Fuc]1	EEQFN#STFR
I10	2619.1	[Hex]4[HexNAc]4	EEQFN#STFR
I11	2635.1	[Hex]3[HexNAc]4[Fuc]1	EEQYN#STYR
I12	2650.9	[Hex]4[HexNAc]4	EEQYN#STYR
I13	2660.0	[Hex]3[HexNAc]5	EEQFN#STFR
I14	2692.1	[Hex]3[HexNAc]5	EEQYN#STYR
I15	2765.2	[Hex]4[HexNAc]4[Fuc]1	EEQFN#STFR
I16	2781.3	[Hex]5[HexNAc]4	EEQFN#STFR
I17	2797.2	[Hex]4[HexNAc]4[Fuc]1	EEQYN#STYR
I18	2806.2	[Hex]3[HexNAc]5[Fuc]1	EEQFN#STYR
I19	2813.1	[Hex]5[HexNAc]4	EEQYN#STFR
I20	2822.2	[Hex]4[HexNAc]5	EEQFN#STFR
I21	2838.1	[Hex]3[HexNAc]5[Fuc]1	EEQYN#STYR
I22	2854.2	[Hex]4[HexNAc]5	EEQYN#STYR
I23	2910.2	[Hex]4[HexNAc]4 [NeuAc]1	EEQFN#STFR
I24	2927.2	[Hex]5[HexNAc]4[Fuc]1	EEQFN#STFR
I25	2942.2	[Hex]4[HexNAc]4 [NeuAc]1	EEQYN#STYR
I26	2959.3	[Hex]5[HexNAc]4[Fuc]1	EEQYN#STYR
I27	2968.1	[Hex]4[Hex7NAc]5[Fuc]1	EEQFN#STFR
I28	2984.2	[Hex]5[HexNAc]5	EEQFN#STFR
I29	3000.2	[Hex]4[HexNAc]5[Fuc]1	EEQYN#STYR
I30	3016.2	[Hex]5[HexNAc]5	EEQYN#STYR
I31	3057.1	[Hex]4[HexNAc]4[Fuc]1[NeuAc]1	EEQFN#STFR
I32	3104.4	[Hex]5[HexNAc]4[NeuAc]1	EEQYN#STYR

I33	3130.3	[Hex]5[HexNAc]5[Fuc]1	EEQFN#STFR
I34	3162.2	[Hex]5[HexNAc]5[Fuc]1	EEQYN#STYR
I35	3219.0	[Hex]5[HexNAc]4[Fuc]1[NeuAc]1	EEQFN#STFR
I36	3250.1	[Hex]5[HexNAc]4[Fuc]1[NeuAc]1	EEQYN#STYR

Table S2 Observed molecular masses, proposed glycan compositions and peptide sequences of N-linked glycopeptides enriched from HRP tryptic digests by TpPa-1@Ag@GSH. Hex, HexNAc, Fuc and Xyl are the abbreviations of hexose, N-acetylhexosamine, fucose and xylose, respectively. N# denotes the N-linked glycosylation sites.

Peak number	Observed m/z	Glycan composition	Peptide sequence
H1	1842.8	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	NVGLN#R
H2	2068.8	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	PNVSN#IVR
H3	2533.0	[HexNAc]1[Fuc]1	SFAN#STQTFFNAFVEAMDR
H4	2542.0	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	SSPN#ATDTIPLVR
H5	2592.0	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	PTLN#TTYLQTLR
H6	2612.1	[Hex]3[HexNAc]2[Xyl]1	MGN#ITPLTGTQGQIR
H7	2707.1	[HexNAc]1	GLIQSDQELFSSPN#ATDTIPLVR
H8	2803.0	[Hex]2[HexNAc]2	MGN#ITPLTGTQGQIRLNCR
H9	2851.2	[HexNAc][Fuc]1	GLIQSDQELFSSPN#ATDTIPLVR
H10	3075.1	[HexNAc]1[Fuc]1	LHFHDCFVNGCDASILLDN#TTSFR
H11	3089.1	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	GLCPLNGN#LSALVDFDLR
H12	3146.4	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	GLCPLNGN#LSALVDFDLR.Oxide
H13	3190.2	[HexNAc]1[Fuc]1	LHFHDCFVNGCDASILLDN#TTSFR.Oxide
H14	3208.0	[Hex]3[HexNAc]2[Xyl]1	SFAN#STQTFFNAFVEAMDR
H15	3222.2	[Hex]3[HexNAc]2[Fuc]1	SFAN#STQTFFNAFVEAMDR
H16	3322.2	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	QLTPTFYDNSCPN#VSNIVR
H17	3354.1	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	SFAN#STQTFFNAFVEAMDR

H18	3370.2	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	SFAN#STQTFFNAFNEAM*DR
H19	3379.2	[Hex]2[HexNAc]2[Fuc]1	GLIQSDQELFSSPN#ATDTIPLVR
H20	3510.1	[Hex]2[HexNAc]2[Fuc]1[Xyl]1	GLIQSDQELFSSPN#ATDTIPLVR
H21	3526.5	[Hex]3[HexNAc]2[Xyl]1	GLIQSDQELFSSPN#ATDTIPLVR
H22	3541.3	[Hex]3[HexNAc]2[Fuc]1	GLIQSDQELFSSPN#ATDTIPLVR
H23	3672.5	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	GLIQSDQELFSSPN#ATDTIPLVR
H24	3812.9	[Hex]2[HexNAc]2	LHFHDCFVNGCDASILLDN#TTSFRTEK
H25	3895.4	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	LHFHDCFVNGCDASILLDN#TTSFR
H26	4057.6	[Hex]4[HexNAc]2[Fuc]1[Xyl]1	LHFHDCFVNGCDASILLDN#TTSFR
H27	4222.3	[Hex]3[HexNAc]2[Fuc]1[Xyl]1	QLTPTFYDNSC(AAVESACPR)PN#VSNIVR
H28	4720.5	[Hex]3[HexNAc]2[Fuc]1 [Hex]3[HexNAc]2[Fuc]1	LYN#FSNTGLPDPTLN#TTYLQTLR
H29	4839.4	[Hex]3[HexNAc]2[Fuc]1[Xyl]1 [Hex]3[HexNAc]2[Xyl]1	LYN#FSNTGLPDPTLN#TTYLQTLR
H30	4852.6	[Hex]3[HexNAc]2[Fuc]1[Xyl]1 [Hex]3[HexNAc]2[Fuc]1	LYN#FSNTGLPDPTLN#TTYLQTLR
H31	4984.7	[Hex]3[HexNAc]2[Fuc]1[Xyl]1 [Hex]3[HexNAc]2[Fuc]1[Xyl]1	LYN#FSNTGLPDPTLN#TTYLQTLR

Table S3 Observed N-linked glycopeptides of human serum tryptic digests enriched by TpPa-1@Ag@GSH for the first time. OS=Organism Name, GN=Gene Name, PE=Protein Existence, SV=Sequence Version. N# and Q# denote the deamidation modification, and M* denotes the methionine oxidation modification.

Protein accession number	Protein description	Peptide sequence
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSN#FQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQN#N#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo	AALAAFNAQ#NN#GSNFQLEEISR

	sapiens GN=AHSG PE=1 SV=1	
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFN#AQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQ#N#N#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	KVCQDCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQ#DCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQDCPLLAPLN#DTR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	GCVLLSYLN#ETVTVSASLESVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQ#ELCGTEVPSV PEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQELCGTEVPSV PEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQ#ELCGTEVPS VPEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQELCGTEVPSVP EHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSNHVLIYLDKVSN#Q#TLSLFFTVLQ DVPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSNHVLIYLDKVSN#Q#TLSLFFTVLQ #DVPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSN#HVLIYLDKVSN#Q#TLSLFFTVL QDVPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSNHVLIYLDKVSN#QTLSLFFTVLQD VPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	VSN#Q#TLSLFFTVLQDVPVR
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLM*EVFK

ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFKFDTISEK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQ#DISELVYGAK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQDISELVYGAK
TTHY_HUMAN	Transthyretin OS=Homo sapiens GN=TTR PE=1 SV=1	ALGISPFHEHAEVVFTAN#DSGPR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQIHEGFQ#ELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQ#IHEGFQELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQIHEGFQELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQ#IHEGFQELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQIHEGFQELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ITPNLAEFAFSLYRQ#LAHQSN#STN#IFFSPVSIATAFAMLSLGTK
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ITPNLAEFAFSLYRQ#LAHQSN#STN#IFFSPVSIATAFAM*LSLGTK
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	KLSSWVLLMKYLGN#ATAIFFLPDEGK
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	QLAHQSN#STN#IFFSPVSIATAFAMLSLGTK
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	YLGN#ATAIFFLPDEGK
IGHG1_HUMAN	Ig gamma-1 chain C region OS=Homo sapiens GN=IGHG1 PE=1 SV=1	EEQYN#STYR
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQ#CIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQCIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTNLQ#FVN#ETDSTVLVR
FINC_HUMAN	Fibronectin OS=Homo sapiens	LDAPTN#LQFVN#ETDSTVLVR

	GN=FN1 PE=1 SV=3	
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTNLQFVN#ETDSTVLVR
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	FSDGLESN#SSTQFEVK
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	GLN#VTLSSTGR
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	N#TTCQ#DLQIEVTVK
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	N#TTCQDLQIEVTVK
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALAN#TK
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALANTK
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VLSN#N#SDANLELINTWVAK
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VLSN#NSDANLELINTWVAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	M*VSHHN#LTTGATLIN#EQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	MVSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	M*VSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	N#LFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLNHSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLN#HSENATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	VVLHPN#YSQ#VDIGLIK

HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	VVLHPN#YSQVDIGLIK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	M*VSHHN#LTTGATLIN#EQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	MVSHHN#LTTGATLINEQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	M*VSHHN#LTTGATLINEQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	N#LFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLNHSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSENATAK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FEVDSPVYN#ATWSASLK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTN#QITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQ#GTN#QITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTNQITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FVEGSHN#STVSLTTK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	VNQNLVYESGSLN#FSK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	YDFN#SSM*LYSTAK
IGHG4_HUMAN	Ig gamma-4 chain C region OS=Homo sapiens GN=IGHG4 PE=1 SV=1	EEQFN#STYR

ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQ#TESSVAEQEAEFQSPK
ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQTESSVAEQEAEFQSPK
IGHG3_HUMAN	Ig gamma-3 chain C region OS=Homo sapiens GN=IGHG3 PE=1 SV=2	EEQYN#STFR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EHEGAIYPDN#TTDFQR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSN#AFLDK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSNAFLDK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSN#AFLDKGEFYIGSK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQ#N#VSN#AFLDKGEFYIGSK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EN#LTAPGSDSAVFFEQ#GTTR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EN#LTAPGSDSAVFFEQGTTR
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQ#N#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQ#PQ#N#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQN#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	SWPAVGN#CSSALR
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1 SV=2	EEQFN#STFR
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1 SV=2	TKPREEQFN#STFR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	EN#GTISR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1	QDQ#CIYN#TTYLNVQR

	SV=1	
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQCIYN#TTYLNVQR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYNDSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSNGSHVLQGR
CBG_HUMAN	Corticosteroid-binding globulin OS=Homo sapiens GN=SERPINA6 PE=1 SV=1	AQLLQGLGFN#LTER
CO9_HUMAN	Complement component C9 OS=Homo sapiens GN=C9 PE=1 SV=2	AVN#ITSENLIDDVVSLIR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQGEDQ#YYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQ#GEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQGEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	MLN#TSSLLEQ#LNEQFNWVSR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	MLN#TSSLLEQLNEQFNWVSR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	EN#GTVSR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QNQ#CFYN#SSYLNVQR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QN#Q#CFYN#SSYLNVQR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QNQCFYN#SSYLNVQR
IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	LSLHRPALEDLLLGSEAN#LTCTLTGLR

IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	TPLTAN#ITK
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQPPQ#IEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQPPQIEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	MDGASN#VTCINSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	M*DGASN#VTCINSR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQ#N#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQ#QN#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQ#Q#N#ASSM*CVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQN#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQN#ASSM*CVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	THTN#ISESHPN#ATFSAVGEASICEDDW NSGER
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	YKN#NSDISSTR
AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	FN#LTETSEAEIHQSFQHLLR
AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	YTGN#ASALFILPDQDK
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN PE=1 SV=1	NN#ATVHEQ#VGGPSLTSDLQAQSK
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN PE=1 SV=1	NN#ATVHEQVGGPSLTSDLQAQSK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	GVNFN#VSK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	IYPGVDFGGEELN#VTFVK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens	IYSGILN#LSDITK

	GN=KLKB1 PE=1 SV=1	
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	LQAPLN#YTEFQKPICLPSK
PLTP_HUMAN	Phospholipid transfer protein OS=Homo sapiens GN=PLTP PE=1 SV=1	EGHFYYN#ISEVK
PLTP_HUMAN	Phospholipid transfer protein OS=Homo sapiens GN=PLTP PE=1 SV=1	VSN#VSCQASVSR
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQ#IEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVN#Q#IEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQ#IEGEATPVN#LTEPAKLEVK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAKLEVK
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQYVEPEN#VTIQCDSGYGVVGP QSITCSGN#R
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQYVEPEN#VTIQ#CDSGYGVVG PQSITCSGN#R
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQ#YVEPEN#VTIQ#CDSGYGVV GPQSITCSGN#R
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	N#FTENDLLVR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	SRYPHKPEIN#STTHPGADLQENFCR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	YPHKPEIN#STTHPGADLQ#ENFCR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	YPHKPEIN#STTHPGADLQENFCR
IPSP_HUMAN	Plasma serine protease inhibitor OS=Homo sapiens GN=SERPINA5 PE=1 SV=2	VVGVPYQGN#ATALFILPSEGK

LG3BP_HUMAN	Galectin-3-binding protein OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	ALGFEN#ATQALGR
LG3BP_HUMAN	Galectin-3-binding protein OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	GLN#LTEDTYKPR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	DVQIIVFPEDGIHGFN#FTR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	FN#DTEVLQR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	N#PVGLIGAEN#ATGETDPSHSK
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	NPVGLIGAEN#ATGETDPSHSK
KAIN_HUMAN	Kallistatin OS=Homo sapiens GN=SERPINA4 PE=1 SV=3	SQILEGLGFN#LTELSESDVHR
ATRN_HUMAN	Attractin OS=Homo sapiens GN=ATRN PE=1 SV=2	AATCINPLN#GSVCERPAN#HSAK
ATRN_HUMAN	Attractin OS=Homo sapiens GN=ATRN PE=1 SV=2	IDSTGN#VTNELR
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQ#N#LTLIEESLTSEFIHDIDR
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQN#LTLIEESLTSEFIHDIDR
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	ITYSIVQTN#CSK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	LNAEN#N#ATFYFK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	LNAENN#ATFYFK
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#N#SLYR
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#NSLYR
IGJ_HUMAN	Immunoglobulin J chain OS=Homo sapiens GN=IGJ PE=1 SV=4	EN#ISDPTSPLR
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	WSDIWN#ATK

CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	YGNPN#ETQNN#STSWPVFK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	AFEN#VTDLQWLILDHNLLENSK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	LHIN#HNN#LTESVGPLPK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	LHINHNN#LTESVGPLPK
IBP3_HUMAN	Insulin-like growth factor-binding protein 3 OS=Homo sapiens GN=IGFBP3 PE=1 SV=2	AYLLPAPPAPGN#ASESEEDR
CPN2_HUMAN	Carboxypeptidase N subunit 2 OS=Homo sapiens GN=CPN2 PE=1 SV=2	LYLGSNN#LTALHPALFQN#LSK
NGAL_HUMAN	Neutrophil gelatinase-associated lipocalin OS=Homo sapiens GN=LCN2 PE=1 SV=2	SYN#VTSVLFR
VASN_HUMAN	Vasorin OS=Homo sapiens GN=VASN PE=1 SV=1	LHEITN#ETFR
LYAM1_HUMAN	L-selectin OS=Homo sapiens GN=SELL PE=1 SV=2	DN#YTDLVAIQNK
CADH5_HUMAN	Cadherin-5 OS=Homo sapiens GN=CDH5 PE=1 SV=4	EVYPWYN#LTVEAK
C4BPB_HUMAN	C4b-binding protein beta chain OS=Homo sapiens GN=C4BPB PE=1 SV=1	LGHCPDPVLVN#GEFSSSGPVN#VSDK
ICAM2_HUMAN	Intercellular adhesion molecule 2 OS=Homo sapiens GN=ICAM2 PE=1 SV=2	AAPAPQEATATFN#STADR
FA5_HUMAN	Coagulation factor V OS=Homo sapiens GN=F5 PE=1 SV=3	TWN#QSIALR
PIGR_HUMAN	Polymeric immunoglobulin receptor OS=Homo sapiens GN=PIGR PE=1 SV=4	LSLLEEPGN#GTFTVILNQLTSR
MMRN1_HUMAN	Multimerin-1 OS=Homo sapiens GN=MMRN1 PE=1 SV=3	LQN#LTLPTN#ASIK
MMRN1_HUMAN	Multimerin-1 OS=Homo sapiens GN=MMRN1 PE=1 SV=3	TQAALSN#LTCCIDR
PTGDS_HUMAN	Prostaglandin-H2 D-isomerase	SVVAPATDGGLN#LTSTFLR

	OS=Homo sapiens GN=PTGDS PE=1 SV=1	
ZPI_HUMAN	Protein Z-dependent protease inhibitor OS=Homo sapiens GN=SERPINA10 PE=1 SV=1	ETFFN#LSK
CHP1_HUMAN	Calcium-binding protein p22 OS=Homo sapiens GN=CHP PE=1 SV=3	GEN#GTLSR

Table S4 Observed N-linked glycopeptides of human serum tryptic digests enriched by TpPa-1@Ag@GSH for the second time. OS=Organism Name, GN=Gene Name, PE=Protein Existence, SV=Sequence Version. N# and Q# denote the deamidation modification, and M* denotes the methionine oxidation modification.

Protein accession number	Protein description	Peptide sequence
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSN#FQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQN#N#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQ#NN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFN#AQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQ#N#N#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	KVCQDCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQ#DCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQDCPLLAPLN#DTR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	GCVLLSYLN#ETVTVSASLESVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQ#ELCGTEVPSV PEHGR

A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQELCGTEVPSV PEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQ#ELCGTEVPS VPEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQELCGTEVPSVP EHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSN#HVLIYLDKVSN#Q#TLSLFFTVL QDVPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSNHVLIYLDKVSN#QTLSLFFTVLQD VPVR
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLM*EVFK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFKFDTISEK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQ#DISELVYGAK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQDISELVYGAK
TTHY_HUMAN	Transthyretin OS=Homo sapiens GN=TTR PE=1 SV=1	ALGISPFHEHAEVVFTAN#DSGPR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQ#IHEGFQ ELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQIHEGFQ ELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQ#IHEGF QELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQIHEGFQE LLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	YLGN#ATAIFFLPDEGK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQ#CIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQCIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens	LDAPTNLQ#FVN#ETDSTVLVR

	GN=FN1 PE=1 SV=3	
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTN#LQFVN#ETDSTVLVR
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTN#LQ#FVN#ETDSTVLVR
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTNLQFVN#ETDSTVLVR
IGHG1_HUMAN	Ig gamma-1 chain C region OS=Homo sapiens GN=IGHG1 PE=1 SV=1	EEQYN#STYR
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	FSDGLESN#SSTQFEVK
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	GLN#VTLSSTGR
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	N#TTCQDLQIEVTVK
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALAN#TK
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALANTK
IGHG4_HUMAN	Ig gamma-4 chain C region OS=Homo sapiens GN=IGHG4 PE=1 SV=1	EEQFN#STYR
IGHG3_HUMAN	Ig gamma-3 chain C region OS=Homo sapiens GN=IGHG3 PE=1 SV=2	EEQYN#STFR
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	DTFVN#ASR
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VGQLQLSHN#LSLVILVPQNLK
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VLSN#N#SDANLELINTWVAK
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1	EEQFN#STFR

	SV=2	
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1 SV=2	TKPREEQFN#STFR
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	MVSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	M*VSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	N#LFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLNHSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLN#HSENATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	VVLHPN#YSQ#VDIGLIK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	VVLHPN#YSQVDIGLIK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FEVDSPVYN#ATWSASLK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTN#QITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQ#GTN#QITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTNQITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FVEGSHN#STVSLTTK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	VNQNLVYESGSLN#FSK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	YDFN#SSM*LYSTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	MVSHHN#LTTGATLINEQWLLTTAK

HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	M*VSHHN#LTTGATLINEQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	N#LFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLNHSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSENATAK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EHEGAIYPDN#TTDFQ#R
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EHEGAIYPDN#TTDFQR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSNAFLDK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSNAFLDKGEFYIGSK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EN#LTAPGSDSAVFFEQ#GTTR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EN#LTAPGSDSAVFFEQGTTR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	EN#GTISR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQCIYN#TTYLN#VQR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQ#CIYN#TTYLNVQR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQCIYN#TTYLNVQR

ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQTESSVAEQ#EAEFQSPK
ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQ#TESSVAEQEAEFQSPK
ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQTESSVAEQEAEFQSPK
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQ#N#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQ#PQN#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQN#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	SWPAVGN#CSSALR
CO9_HUMAN	Complement component C9 OS=Homo sapiens GN=C9 PE=1 SV=2	AVN#ITSEN#LIDDVVSLIR
CO9_HUMAN	Complement component C9 OS=Homo sapiens GN=C9 PE=1 SV=2	AVN#ITSENLIDDVVSLIR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYNDSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSNGSHVLQGR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	EDALN#ETR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQ#GEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQGEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens	M*LN#TSSLLEQ#LNEQFNWVSR

	GN=CLU PE=1 SV=1	
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	M*LN#TSSLLEQLNEQFNWVSR
IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	LSLHRPALEDLLLGSEAN#LTCTLTGLR
IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	TPLTAN#ITK
CBG_HUMAN	Corticosteroid-binding globulin OS=Homo sapiens GN=SERPINA6 PE=1 SV=1	AQ#LLQGLGFN#LTER
CBG_HUMAN	Corticosteroid-binding globulin OS=Homo sapiens GN=SERPINA6 PE=1 SV=1	AQLLQGLGFN#LTER
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQ#PPQIEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQPPQIEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	MDGASN#VTCINSR
AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	FN#LTETSEAEIHQ#SFQHLLR
AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	TLN#QSSDELQLSM*GNAM*FVK
AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	YTGN#ASALFILPDQDK
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQ#N#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQN#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQ#NASSM*CVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	YKN#NSDISSTR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2	QNQ#CFYN#SSYLNVQR

	OS=Homo sapiens GN=ORM2 PE=1 SV=2	
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QN#Q#CFYN#SSYLNVQR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QNQCFYN#SSYLNVQR
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN PE=1 SV=1	NN#ATVHEQ#VGGPSLTSDLQAQSK
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN PE=1 SV=1	NN#ATVHEQVGGPSLTSDLQAQSK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	GVNFN#VSK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	IYPGVDFGGEELN#VTFVK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	IYSGILN#LSDITK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	LQAPLN#YTEFQKPICLPSK
IPSP_HUMAN	Plasma serine protease inhibitor OS=Homo sapiens GN=SERPINA5 PE=1 SV=2	VVGVPYQGN#ATALFILPSEGK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQ#IEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAKLEVK
PLTP_HUMAN	Phospholipid transfer protein OS=Homo sapiens GN=PLTP PE=1 SV=1	EGHFYYN#ISEVK
PLTP_HUMAN	Phospholipid transfer protein OS=Homo sapiens GN=PLTP PE=1 SV=1	VSN#VSCQASVSR
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQYVEPEN#VTIQCDSGYGVVGP QSITCSGN#R
LG3BP_HUMAN	Galectin-3-binding protein	ALGFEN#ATQALGR

	OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	
LG3BP_HUMAN	Galectin-3-binding protein OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	GLN#LTEDTYKPR
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	LGN#WSAMPSCK
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#N#SLYR
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#NSLYR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	DVQIIVFPEDGIHGFN#FTR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	FN#DTEVLQR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	NPVGLIGAEN#ATGETDPSHSK
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	SRYPHKPEIN#STTHPGADLQENFCR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	YPHKPEIN#STTHPGADLQENFCR
KAIN_HUMAN	Kallistatin OS=Homo sapiens GN=SERPINA4 PE=1 SV=3	SQILEGLGFN#LTELSESDVHR
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQ#N#LTLIEESLTSEFIHDIDR
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQN#LTLIEESLTSEFIHDIDR
ATRN_HUMAN	Attractin OS=Homo sapiens GN=ATRN PE=1 SV=2	IDSTGN#VTNELR
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	AFEN#VTDLQWLILDHNLLENSK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	KLHINHNN#LTESVGPLPK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	LHINHN#N#LTESVGPLPK
LUM_HUMAN	Lumican OS=Homo sapiens	LHINHNN#LTESVGPLPK

	GN=LUM PE=1 SV=2	
IGJ_HUMAN	Immunoglobulin J chain OS=Homo sapiens GN=IGJ PE=1 SV=4	EN#ISDPTSPLR
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	WSDIWN#ATK
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	YGNPNETQ#NN#STSWPVFK
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	YGNPN#ETQNN#STSWPVFK
CPN2_HUMAN	Carboxypeptidase N subunit 2 OS=Homo sapiens GN=CPN2 PE=1 SV=2	LYLGSNN#LTALHPALFQN#LSK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	ITYSIVQTN#CSK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	LNAEN#N#ATFYFK
IBP3_HUMAN	Insulin-like growth factor-binding protein 3 OS=Homo sapiens GN=IGFBP3 PE=1 SV=2	AYLLPAPPAPGN#ASESEEDR
PIGR_HUMAN	Polymeric immunoglobulin receptor OS=Homo sapiens GN=PIGR PE=1 SV=4	VPGN#VTAVLGETLK
ICAM2_HUMAN	Intercellular adhesion molecule 2 OS=Homo sapiens GN=ICAM2 PE=1 SV=2	AAPAPQEATATFN#STADR
NGAL_HUMAN	Neutrophil gelatinase-associated lipocalin OS=Homo sapiens GN=LCN2 PE=1 SV=2	SYN#VTSVLFR
PGRP2_HUMAN	N-acetylmuramoyl-L-alanine amidase OS=Homo sapiens GN=PGLYRP2 PE=1 SV=1	GFGVAIVGN#YTAALPTEAALR
LYAM1_HUMAN	L-selectin OS=Homo sapiens GN=SELL PE=1 SV=2	DN#YTDLVAIQNK
C4BPB_HUMAN	C4b-binding protein beta chain OS=Homo sapiens GN=C4BPB PE=1 SV=1	LGHCPDPVLVN#GEFSSSGPVN#VSDK
ZPI_HUMAN	Protein Z-dependent protease inhibitor OS=Homo sapiens GN=SERPINA10 PE=1 SV=1	ETFFN#LSK

PI16_HUMAN	Peptidase inhibitor 16 OS=Homo sapiens GN=PI16 PE=1 SV=1	SLPNFPN#TSATAN#ATGGR
CO2_HUMAN	Complement C2 OS=Homo sapiens GN=C2 PE=1 SV=2	TM*FPN#LTDVR
FA5_HUMAN	Coagulation factor V OS=Homo sapiens GN=F5 PE=1 SV=3	TWN#QSIALR
CHP1_HUMAN	Calcium-binding protein p22 OS=Homo sapiens GN=CHP PE=1 SV=3	GEN#GTLSR
LPAL2_HUMAN	Apolipoprotein(a)-like protein 2 OS=Homo sapiens GN=LPAL2 PE=2 SV=1	WEYCN#LTR

Table S5 Observed N-linked glycopeptides of human serum tryptic digests enriched by TpPa-1@Ag@GSH for the third time. OS=Organism Name, GN=Gene Name, PE=Protein Existence, SV=Sequence Version. N# and Q# denote the deamidation modification, and M* denotes the methionine oxidation modification.

Protein accession number	Protein description	Peptide sequence
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	GCVLLSYLN#ETVTVSASLESVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQ#ELCGTEVPSV PEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQELCGTEVPSV PEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGN#VN#FTVSAEALESQ#ELCGTEVPS VPEHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	SLGNVN#FTVSAEALESQELCGTEVPSVP EHGR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSNHVLIYLDKVSN#Q#TLSLFFTVLQ DVPVR
A2MG_HUMAN	Alpha-2-macroglobulin OS=Homo sapiens GN=A2M PE=1 SV=2	TEVSSN#HVLIYLDKVSN#Q#TLSLFFTVL QDVPVR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSN#FQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQN#N#GSNFQLEEISR

FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQ#NN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFN#AQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQ#N#N#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	AALAAFNAQNN#GSNFQLEEISR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	KVCQDCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQ#DCPLLAPLN#DTR
FETUA_HUMAN	Alpha-2-HS-glycoprotein OS=Homo sapiens GN=AHSG PE=1 SV=1	VCQDCPLLAPLN#DTR
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLM*EVFK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQ#QLMEVFKFDTISEK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	LGACN#DTLQQLMEVFKFDTISEK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQ#DISELVYGAK
ANT3_HUMAN	Antithrombin-III OS=Homo sapiens GN=SERPINC1 PE=1 SV=1	SLTFN#ETYQDISELVYGAK
TTHY_HUMAN	Transthyretin OS=Homo sapiens GN=TTR PE=1 SV=1	ALGISPFHEHAEVVFTAN#DSGPR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQ#IHEGFQ ELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQIHEGFQ ELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLN#FN#LTEIPEAQ#IHEGF QELLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens GN=SERPINA1 PE=1 SV=3	ADTHDEILEGLNFN#LTEIPEAQIHEGFQE LLR
A1AT_HUMAN	Alpha-1-antitrypsin OS=Homo sapiens	YLGN#ATAIFFLPDEGK

	GN=SERPINA1 PE=1 SV=3	
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQ#CIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	DQCIVDDITYNVN#DTFHK
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTNLQ#FVN#ETDSTVLVR
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTN#LQFVN#ETDSTVLVR
FINC_HUMAN	Fibronectin OS=Homo sapiens GN=FN1 PE=1 SV=3	LDAPTNLQFVN#ETDSTVLVR
IGHG1_HUMAN	Ig gamma-1 chain C region OS=Homo sapiens GN=IGHG1 PE=1 SV=1	EEQYN#STYR
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALAN#TK
HRG_HUMAN	Histidine-rich glycoprotein OS=Homo sapiens GN=HRG PE=1 SV=1	VIDFN#CTTSSVSSALANTK
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	FSDGLESN#SSTQFEVK
CO4A_HUMAN	Complement C4-A OS=Homo sapiens GN=C4A PE=1 SV=1	GLN#VTLSSTGR
IGHG4_HUMAN	Ig gamma-4 chain C region OS=Homo sapiens GN=IGHG4 PE=1 SV=1	EEQFN#STYR
IGHG3_HUMAN	Ig gamma-3 chain C region OS=Homo sapiens GN=IGHG3 PE=1 SV=2	EEQYN#STFR
CO3_HUMAN	Complement C3 OS=Homo sapiens GN=C3 PE=1 SV=2	TVLTPATN#HMGN#VTFTIPANR
CO3_HUMAN	Complement C3 OS=Homo sapiens GN=C3 PE=1 SV=2	TVLTPATNHMGN#VTFTIPANR
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1 SV=2	EEQFN#STFR
IGHG2_HUMAN	Ig gamma-2 chain C region OS=Homo sapiens GN=IGHG2 PE=1 SV=2	TKPREEQFN#STFR
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VGQLQLSHN#LSLVILVPQNLK
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1	VLSN#N#SDANLELINTWVAK

	SV=2	
IC1_HUMAN	Plasma protease C1 inhibitor OS=Homo sapiens GN=SERPING1 PE=1 SV=2	VLSN#NSDANLELINTWVAK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FEVDSPVYN#ATWSASLK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTN#QITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQ#GTNQITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FN#SSYLQGTNQITGR
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	FVEGSHN#STVSLTTK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	VNQNLVYESGSLN#FSK
APOB_HUMAN	Apolipoprotein B-100 OS=Homo sapiens GN=APOB PE=1 SV=1	YDFN#SSM*LYSTAK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EHEGAIYPDN#TTDFQR
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQ#EQN#VSNAFLDK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	ELHHLQEQN#VSNAFLDK
CERU_HUMAN	Ceruloplasmin OS=Homo sapiens GN=CP PE=1 SV=1	EN#LTAPGSDSAVFFEQGTTR
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	MVSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	M*VSHHN#LTTGATLINEQWLLTTAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	N#LFLN#HSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	NLFLNHSEN#ATAK
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP	NLFLN#HSENATAK

	PE=1 SV=1	
HPT_HUMAN	Haptoglobin OS=Homo sapiens GN=HP PE=1 SV=1	VVLHPN#YSQVDIGLIK
IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	LSLHRPALEDLLLGSEAN#LTCTLTGLR
IGHA2_HUMAN	Ig alpha-2 chain C region OS=Homo sapiens GN=IGHA2 PE=1 SV=3	TPLTAN#ITK
IGHA1_HUMAN	Ig alpha-1 chain C region OS=Homo sapiens GN=IGHA1 PE=1 SV=2	LSLHRPALEDLLLGSEAN#LTCTLTGLR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQ#CIYN#TTYLNVQR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	Q#DQCIYN#TTYLNVQR
A1AG1_HUMAN	Alpha-1-acid glycoprotein 1 OS=Homo sapiens GN=ORM1 PE=1 SV=1	QDQCIYN#TTYLNVQR
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	MVSHHN#LTTGATLINEQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	M*VSHHN#LTTGATLINEQWLLTTAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	N#LFLN#HSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLNHSEN#ATAK
HPTR_HUMAN	Haptoglobin-related protein OS=Homo sapiens GN=HPR PE=1 SV=2	NLFLN#HSENATAK
CBG_HUMAN	Corticosteroid-binding globulin OS=Homo sapiens GN=SERPINA6 PE=1 SV=1	AQLLQGLGFN#LTER
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQ#N#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	ALPQPQN#VTSLLGCTH
HEMO_HUMAN	Hemopexin OS=Homo sapiens GN=HPX PE=1 SV=2	SWPAVGN#CSSALR
CO9_HUMAN	Complement component C9 OS=Homo	AVN#ITSEN#LIDDVVSLIR

	sapiens GN=C9 PE=1 SV=2	
CO9_HUMAN	Complement component C9 OS=Homo sapiens GN=C9 PE=1 SV=2	AVN#ITSENLIDDVVSLIR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYNDSN#GSHVLQGR
ZA2G_HUMAN	Zinc-alpha-2-glycoprotein OS=Homo sapiens GN=AZGP1 PE=1 SV=1	DIVEYYN#DSNGSHVLQGR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	KKEDALN#ETR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQ#GEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	LAN#LTQGEDQYYLR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	M*LN#TSSLLEQ#LNEQFNWVSR
CLUS_HUMAN	Clusterin OS=Homo sapiens GN=CLU PE=1 SV=1	M*LN#TSSLLEQLNEQFNWVSR
ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQ#TESSVAEQEAEFQSPK
ITIH4_HUMAN	Inter-alpha-trypsin inhibitor heavy chain H4 OS=Homo sapiens GN=ITIH4 PE=1 SV=4	LPTQN#ITFQTESSVAEQEAEFQSPK
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QNQ#CFYN#SSYLNVQR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QN#QCFYN#SSYLNVQR
A1AG2_HUMAN	Alpha-1-acid glycoprotein 2 OS=Homo sapiens GN=ORM2 PE=1 SV=2	QNQCFYN#SSYLNVQR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQPPQ#IEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	IPCSQPPQIEHGTIN#SSR
CFAH_HUMAN	Complement factor H OS=Homo sapiens GN=CFH PE=1 SV=4	MDGASN#VTCINSR

AACT_HUMAN	Alpha-1-antichymotrypsin OS=Homo sapiens GN=SERPINA3 PE=1 SV=2	YTGN#ASALFILPDQDK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	GVNFN#VSK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	IYPGVDFGGEELN#VTFVK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	IYSGILN#LSDITK
KLKB1_HUMAN	Plasma kallikrein OS=Homo sapiens GN=KLKB1 PE=1 SV=1	LQAPLN#YTEFQKPICLPSK
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQ#Q#N#ASSM*CVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQN#ASSMCVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	GLTFQQN#ASSM*CVPDQDTAIR
IGHM_HUMAN	Ig mu chain C region OS=Homo sapiens GN=IGHM PE=1 SV=3	YKN#NSDISSTR
LG3BP_HUMAN	Galectin-3-binding protein OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	ALGFEN#ATQALGR
LG3BP_HUMAN	Galectin-3-binding protein OS=Homo sapiens GN=LGALS3BP PE=1 SV=1	GLN#LTEDTYKPR
PLTP_HUMAN	Phospholipid transfer protein OS=Homo sapiens GN=PLTP PE=1 SV=1	VSN#VSCQASVSR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	SRYPHKPEIN#STTHPGADLQ#ENFCR
THRB_HUMAN	Prothrombin OS=Homo sapiens GN=F2 PE=1 SV=2	YPHKPEIN#STTHPGADLQENFCR
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	LGN#WSAMPSCK
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#N#SLYR
APOH_HUMAN	Beta-2-glycoprotein 1 OS=Homo sapiens GN=APOH PE=1 SV=3	VYKPSAGN#NSLYR
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN PE=1 SV=1	NN#ATVHEQ#VGGPSLTSDLQAQSK
VTNC_HUMAN	Vitronectin OS=Homo sapiens GN=VTN	NN#ATVHEQVGGPSLTSDLQAQSK

	PE=1 SV=1	
IPSP_HUMAN	Plasma serine protease inhibitor OS=Homo sapiens GN=SERPINA5 PE=1 SV=2	VVGVPYQGN#ATALFILPSEGK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQ#IEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQ#IEGEATPVN#LTEPAKLEVK
APOD_HUMAN	Apolipoprotein D OS=Homo sapiens GN=APOD PE=1 SV=1	ADGTVNQIEGEATPVN#LTEPAKLEVK
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQYVEPEN#VTIQCDSGYGVVGP QSITCSGN#R
C4BPA_HUMAN	C4b-binding protein alpha chain OS=Homo sapiens GN=C4BPA PE=1 SV=2	LSVDKDQYVEPEN#VTIQ#CDSGYGVVG PQSITCSGN#R
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	WSDIWN#ATK
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	YGNPNETQN#N#STSWPVFK
CHLE_HUMAN	Cholinesterase OS=Homo sapiens GN=BCHE PE=1 SV=1	YGNPN#ETQNN#STSWPVFK
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	DVQIIVFPEDGIHGFN#FTR
BTD_HUMAN	Biotinidase OS=Homo sapiens GN=BTD PE=1 SV=2	NPVGLIGAEN#ATGETDPSHSK
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQ#N#LTLIEESLTSEFIHDIDR
PEDF_HUMAN	Pigment epithelium-derived factor OS=Homo sapiens GN=SERPINF1 PE=1 SV=3	VTQN#LTLIEESLTSEFIHDIDR
KAIN_HUMAN	Kallistatin OS=Homo sapiens GN=SERPINA4 PE=1 SV=3	SQILEGLGFN#LTELSESDVHR
ATRN_HUMAN	Attractin OS=Homo sapiens GN=ATRN PE=1 SV=2	IDSTGN#VTNELR

IGJ_HUMAN	Immunoglobulin J chain OS=Homo sapiens GN=IGJ PE=1 SV=4	EN#ISDPTSPLR
IBP3_HUMAN	Insulin-like growth factor-binding protein 3 OS=Homo sapiens GN=IGFBP3 PE=1 SV=2	AYLLPAPPAPGN#ASESEEDR
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	ITYSIVQTN#CSK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	LNAEN#N#ATFYFK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	LNAENN#ATFYFK
KNG1_HUMAN	Kininogen-1 OS=Homo sapiens GN=KNG1 PE=1 SV=2	YNSQN#QSNNQFVLYR
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	KLHINHN#N#LTESVGPLPK
LUM_HUMAN	Lumican OS=Homo sapiens GN=LUM PE=1 SV=2	LHINHNN#LTESVGPLPK
CO5_HUMAN	Complement C5 OS=Homo sapiens GN=C5 PE=1 SV=4	YN#FSFR
CPN2_HUMAN	Carboxypeptidase N subunit 2 OS=Homo sapiens GN=CPN2 PE=1 SV=2	LYLGSNN#LTALHPALFQN#LSK
MMRN1_HUMAN	Multimerin-1 OS=Homo sapiens GN=MMRN1 PE=1 SV=3	FNPGAESVVLSN#STLK
PTGDS_HUMAN	Prostaglandin-H2 D-isomerase OS=Homo sapiens GN=PTGDS PE=1 SV=1	SVVAPATDGGLN#LTSTFLR
PON1_HUMAN	Serum paraoxonase/arylesterase 1 OS=Homo sapiens GN=PON1 PE=1 SV=2	HAN#WTLTPLK
ZPI_HUMAN	Protein Z-dependent protease inhibitor OS=Homo sapiens GN=SERPINA10 PE=1 SV=1	ETFFN#LSK
PI16_HUMAN	Peptidase inhibitor 16 OS=Homo sapiens GN=PI16 PE=1 SV=1	SLPN#FPN#TSATAN#ATGGR
NGAL_HUMAN	Neutrophil gelatinase-associated lipocalin OS=Homo sapiens GN=LCN2 PE=1 SV=2	SYN#VTSVLFR
PIGR_HUMAN	Polymeric immunoglobulin receptor	VPGN#VTAVLGETLK

	OS=Homo sapiens GN=PIGR PE=1 SV=4	
LYAM1_HUMAN	L-selectin OS=Homo sapiens GN=SELL PE=1 SV=2	DN#YTDLVAIQNK
LYAM1_HUMAN	L-selectin OS=Homo sapiens GN=SELL PE=1 SV=2	FCRDN#YTDLVAIQNK
PGRP2_HUMAN	N-acetylmuramoyl-L-alanine amidase OS=Homo sapiens GN=PGLYRP2 PE=1 SV=1	GFGVAIVGN#YTAALPTEAALR
FA5_HUMAN	Coagulation factor V OS=Homo sapiens GN=F5 PE=1 SV=3	TWN#QSIALR
FHR3_HUMAN	Complement factor H-related protein 3 OS=Homo sapiens GN=CFHR3 PE=1 SV=2	FVQGN#STEVACHPGYGLPK
CADH5_HUMAN	Cadherin-5 OS=Homo sapiens GN=CDH5 PE=1 SV=4	EVYPWYN#LTVEAK
VASN_HUMAN	Vasorin OS=Homo sapiens GN=VASN PE=1 SV=1	LHEITN#ETFR
IL6RB_HUMAN	Interleukin-6 receptor subunit beta OS=Homo sapiens GN=IL6ST PE=1 SV=2	LTVN#LTNDR
APMAP_HUMAN	Adipocyte plasma membrane-associated protein OS=Homo sapiens GN=APMAP PE=1 SV=2	AGPN#GTLFVADAYK
C4BPB_HUMAN	C4b-binding protein beta chain OS=Homo sapiens GN=C4BPB PE=1 SV=1	LGHCPDPVLVN#GEFSSSGPVN#VSDK

Table S6. The comparison of TpPa-1@Ag@GSH with other four HILIC-based materials

Materials	N-linked glycopeptides (human serum)	Capture ability (incubation time)	Selectivity	Reference
TpPa-1@Ag@GSH	223	1 min	1:1500 (IgG:BSA)	this work
TpPa-1	128	20 min	1:1000 (IgG:BSA)	1
Fe_3O_4@G6P	243	20 min	1:100 (HRP:BSA)	2
MIL-101(Cr)-NH_2	116	5 min	1:10 (HRP:BSA)	3

MIL-101(Cr)-NH_2@PAMAM	92	40 min	1:100 (HRP:BSA)	4

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