

Supporting information

MALDI TOF MS

MALDI-TOF MS (Bruker Auto Flex Max) was used in all studies to measure reflected positive ions. The gadget was powered by an improved Nd: YAG laser with a detection frequency of 1000 Hz. The mass charge ratio measurement range was 1000-3500 Da, with the detector voltage around 18 kV and the launch tube acceleration voltage at 20 kV. All samples were analyzed on a matrix-assisted laser desorption ionization time-of-flight mass spectrometer (MALDI TOF MS) (Bruker, USA). The procedure was as follows: Eluate (1 μ L) was uniformly applied onto the target plate and waited for the liquid to air-dry, then matrix (1 μ L) was overlaid and waited for the liquid to air-dry naturally, and then used for MS analysis.

Nano-LC–MS/MS analysis

Liquid phase A was an aqueous solution of 0.1% formic acid, while liquid phase B was an acetonitrile solution with 0.1% formic acid. Liquid A (95%) was used to equilibrate Thermo Scientific analytical columns (C18, 100 Å, 5 μ m, 75 μ m $\times$ 25 cm). The samples were put onto a Thermo Scientific EASY trap column (C18, 100 Å, 5 μ m, 100 μ m $\times$ 2 cm) with an autosampler for separation. The related liquid gradient was 0-40 min, B liquid linear gradient was 5-28%; 40-42 min, B liquid linear gradient was 28-90%; and liquid B was kept at 90% for 42-60 minutes. Prior to mass spectrometry analysis, the desalted enzyme hydrolysates were separated using high-performance capillary liquid chromatography. Analysis time: 60 minutes; detection method: positive ion; precursor ion scan range: 375–1800 m/z; scan mode: top-speed; time between Masses: 3 s; primary MS resolution: 120,000 at m/z 200; dynamic exclusion: 40 s; AGC target: 4e5; number of scan ranges: 1; max IT: 50 ms; data-dependent mode: cycle time. The mass-to-charge ratios of peptide fragments and peptides were acquired as follows: the MS2 (secondary spectrum scan) was conducted concurrently with each main scan; MS2 resolution: 50,000 at m/z 200; MS2 activation type: HCD; the scan period was 3 s; AGC target: 1e5; micro scan: 1; secondary Max IT: 105 ms.

Database search.

Finding and evaluating data in a database. The mass spectrometry analysis data was in RAW format, and library identification and quantitative analysis were performed using the built-in

application Proteome Discoverer 2.4 (Thermo Scientific). The uniprot database was utilized this time: uniprot_human_20210621_202249.fasta. When searching the library, submit the RAW file to SequestHT via Proteome Discoverer, then select and search the established database. Monoisotopic mass, trypsin digestion, a maximum of two missing cut sites, and peptides were employed as search parameters. 2+, 3+, and 4+ charged numbers, carbamidomethylation (C) fixed modification, oxidation (M) dynamic modification, acethyl (protein N-term), deamidated [N], and phospho (S, T, Y). The maximum error for the precursor ion was 10 ppm, and the maximum error for the fragment ion was 0.05 Da.

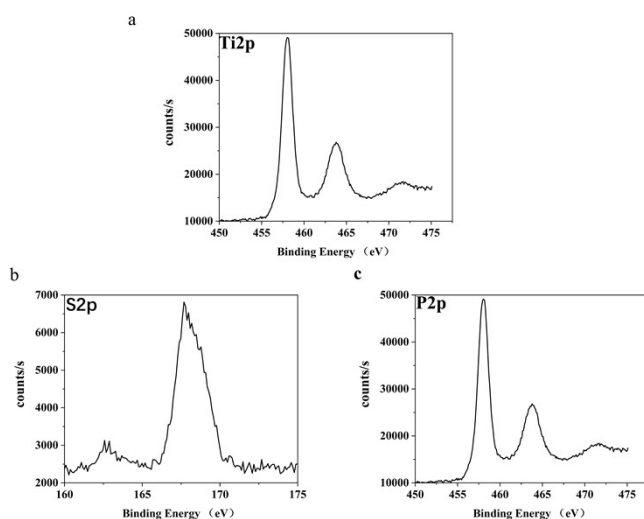


Figure S1. The high-resolution XPS spectrum of (a) Ti2p, (b) S2p, and (c) P2p.

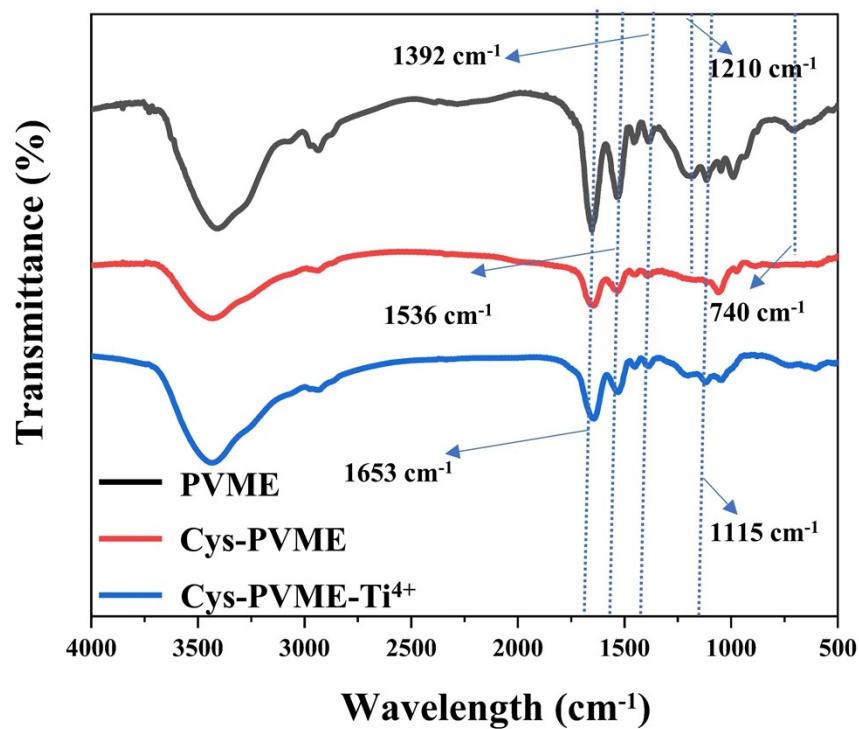


Figure S2. The FT-IR spectra of PVME, Cys-PVME and, Cys-PVME-Ti⁴⁺.

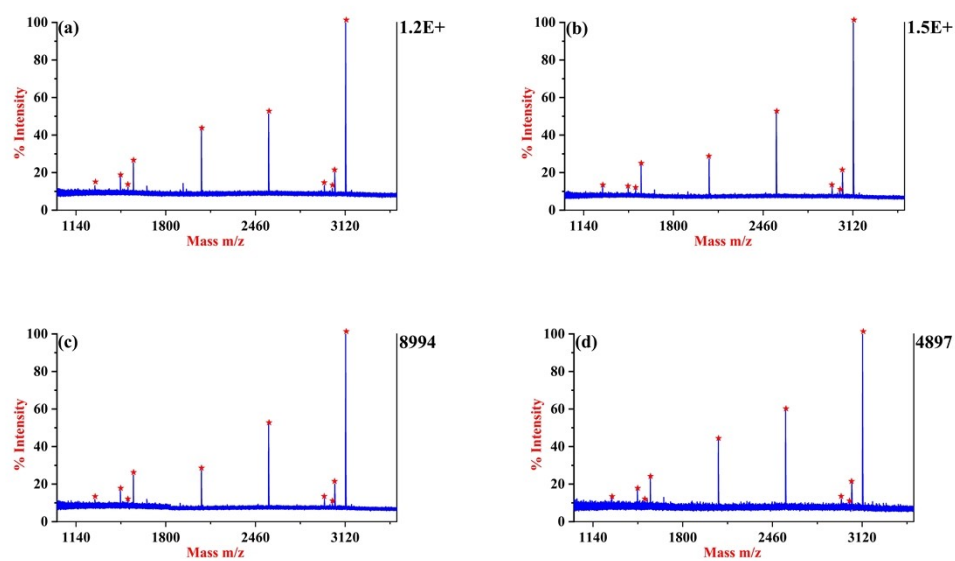


Figure S3. (a) MALDI-TOF mass spectra of phosphopeptides enriched by Cys-PVME-Ti⁴⁺ with different enrichment times: (a) 1h, (b) 45 min, (b) 30 min, (d) 15 min. Phosphopeptide peaks were flagged as pentagram “★”.

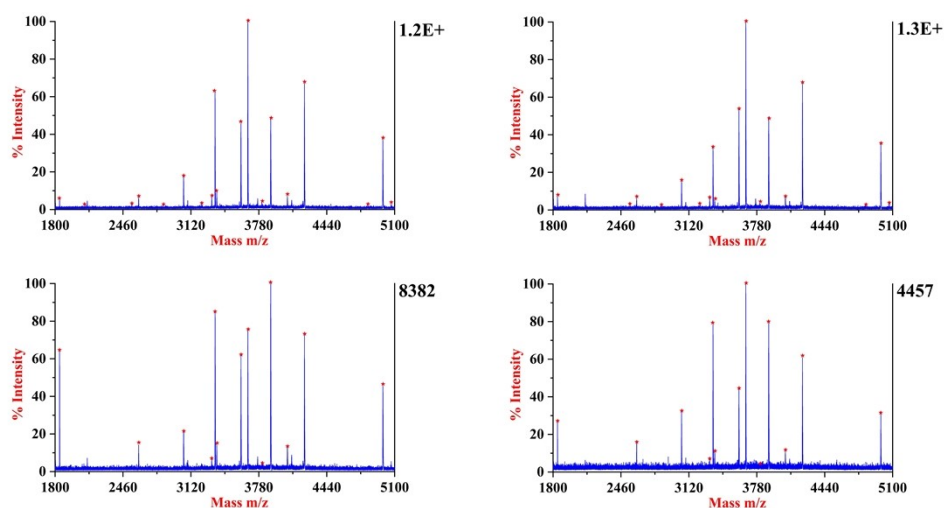


Figure S4. (a) MALDI-TOF mass spectra of glycopeptides enriched by Cys-PVME-Ti⁴⁺ with different enrichment times: (a) 2 h, (b) 1 h, (b) 30 min, (d) 15 min. Glycopeptide peaks were flagged as pentagram “★”.

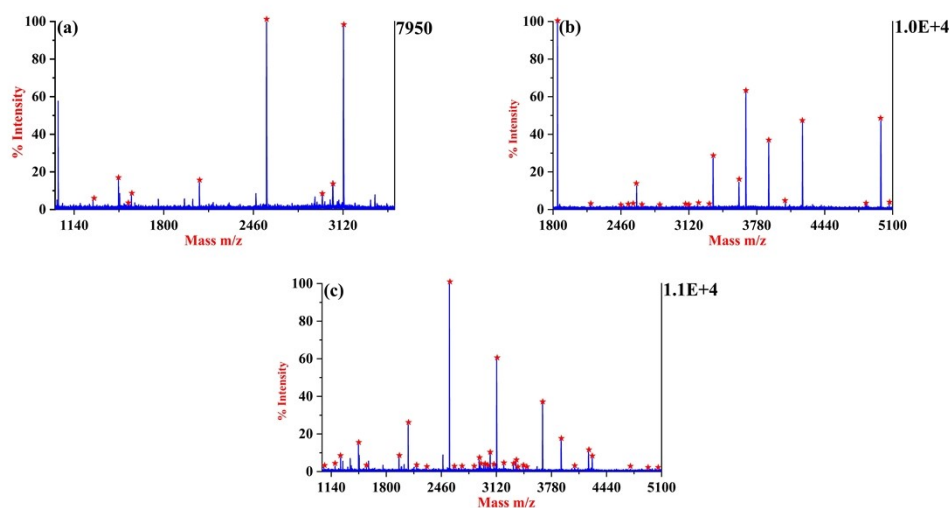


Figure S5. MALDI-TOF mass spectra of phosphopeptides and glycopeptides enriched from the mixtures of β -casein and HRP (molar ratio of 1:1) under different enrichment conditions using Cys-PVME-Ti⁴⁺: (a) ACN/H₂O/TFA=90%/9%/1% (loading buffer) + ACN/H₂O/TFA=30%/69.9%/0.1% (eluent), (b) ACN/H₂O/TFA=90%/9%/1% (loading buffer) + 0.4 M NH₃·H₂O solution (eluent), (c) ACN/H₂O/TFA=90%/9%/1% (loading buffer) + 0.4 M NH₃·H₂O solution (eluent). Phosphopeptide and glycopeptide peaks were signed as “★”.

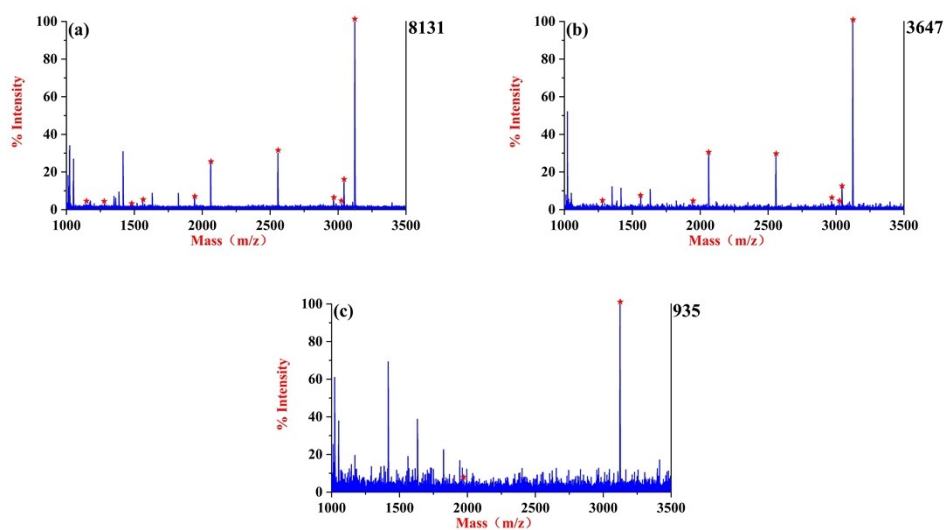


Figure S6. MALDI-TOF mass spectra of enriched phosphopeptides from a mixture of β -casein and BSA with a molar ratio of (a) 1:100, (b) 1:500, and (c) 1:1000. Phosphopeptide peaks were signed as “★”.

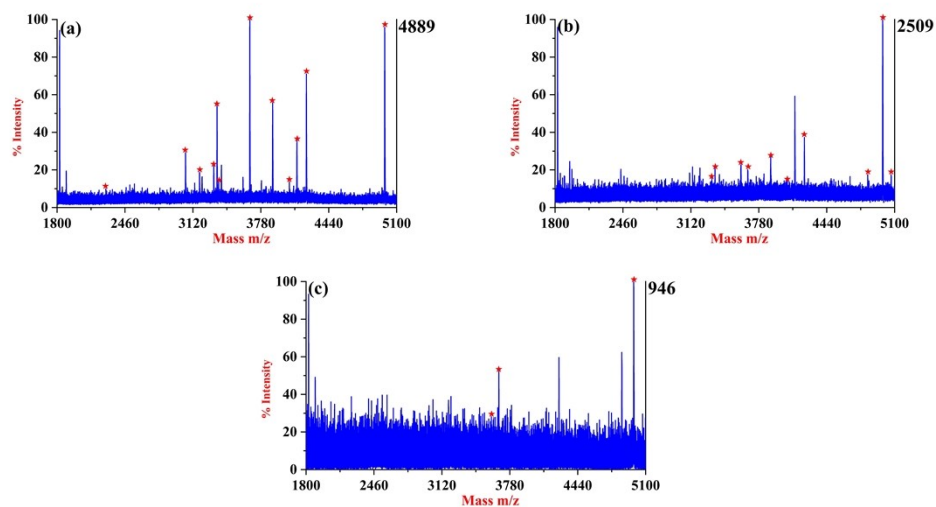


Figure S7. MS spectra of enriched glycopeptides from a mixture of HRP and BSA with a molar ratio of (a) 1:100, (b) 1:500, and (c) 1:2000. Glycopeptide peaks were signed as “★”.

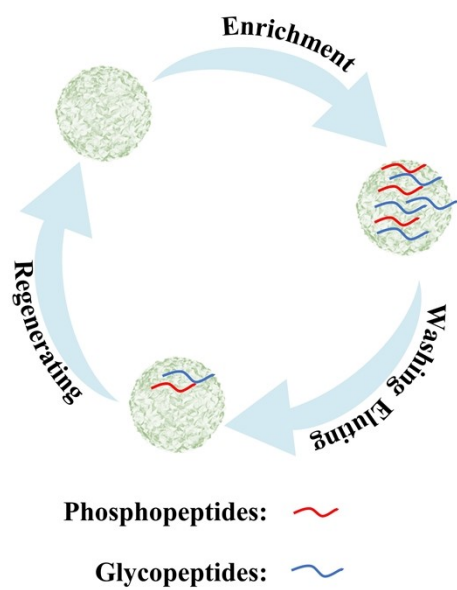


Figure S8. The figure of material recycling mechanism.

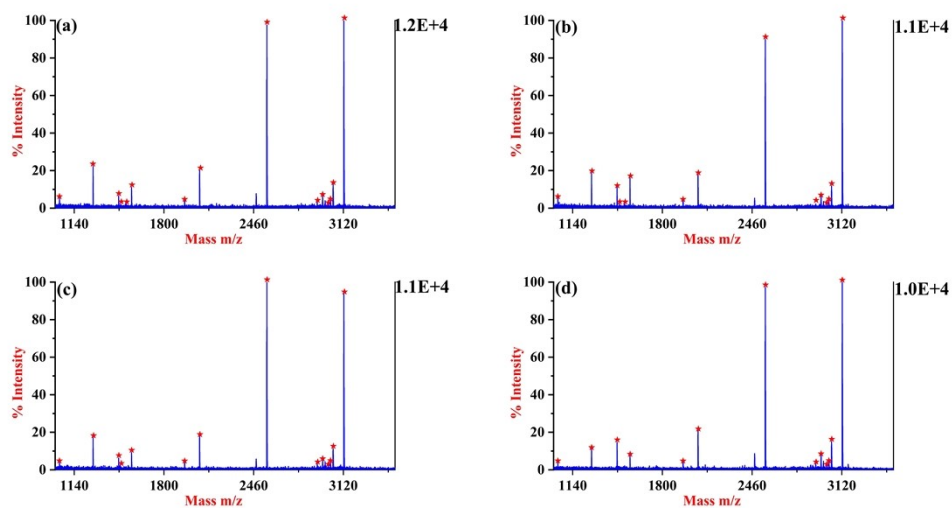
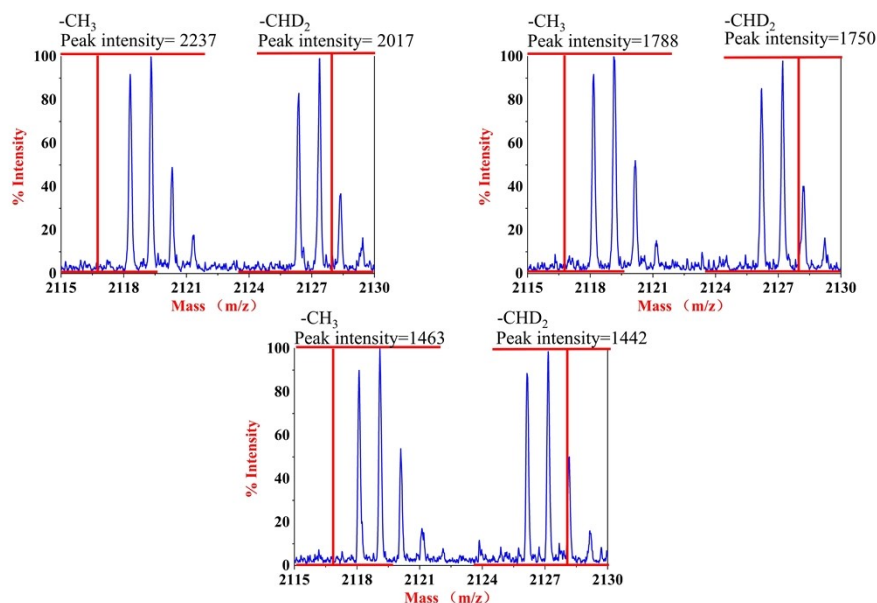


Figure S9. MS spectra of the material after multiple enrichment of phosphopeptides:
 (a) the second time, (b) the fourth time, (c) the sixth time, (d) the ninth time.



Initial m/z of the phosphopeptides	Observed m/z of the phosphopeptides after the stable isotope dimethyl labeling (H/D)	Recovery (H/D, %)	Average $\pm$ S. D. (% , n = 3)
2063.1	2119.1/2127.1	101.0	101.6 $\pm$ 0.60
		102.2	
		101.5	

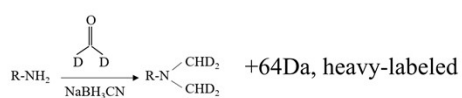
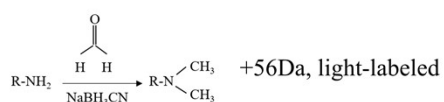
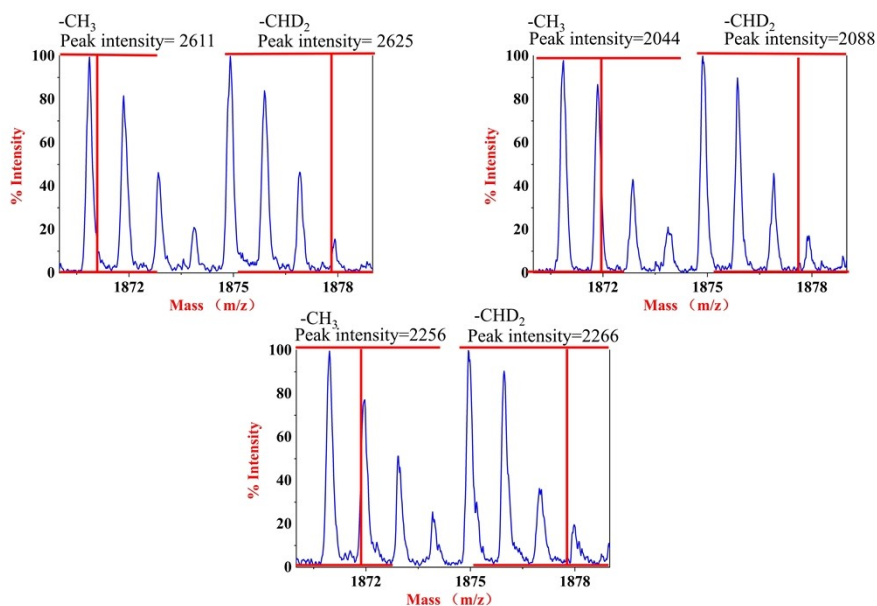


Figure S11. In the experiment of the recovery of the light- and heavy- dimethyl labeling peptides from β -casein digest, recovery was calculated from the measurements of 1:1 a mixture of the H-labeled and D-labeled at m/z = 2063.1 peaks.



Initial m/z of the glycopeptides	Observed m/z of the glycopeptides after the stable isotope dimethyl labeling (H/D)	Recovery (H/D, %)	Average $\pm$ S. D. (% , n = 3)
1842.9	1870.9/1874.9	99.5	98.7 $\pm$ 1.2
		97.6	
		99.7	

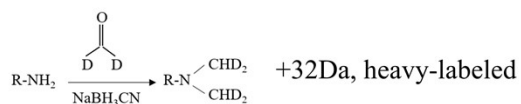
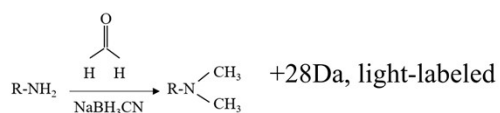


Figure S12. In the experiment of the recovery of the light- and heavy- dimethyl labeling peptides from HRP digest, recovery was calculated from the measurements of 1:1 a mixture of the H-labeled and D-labeled at m/z = 1842 peaks.

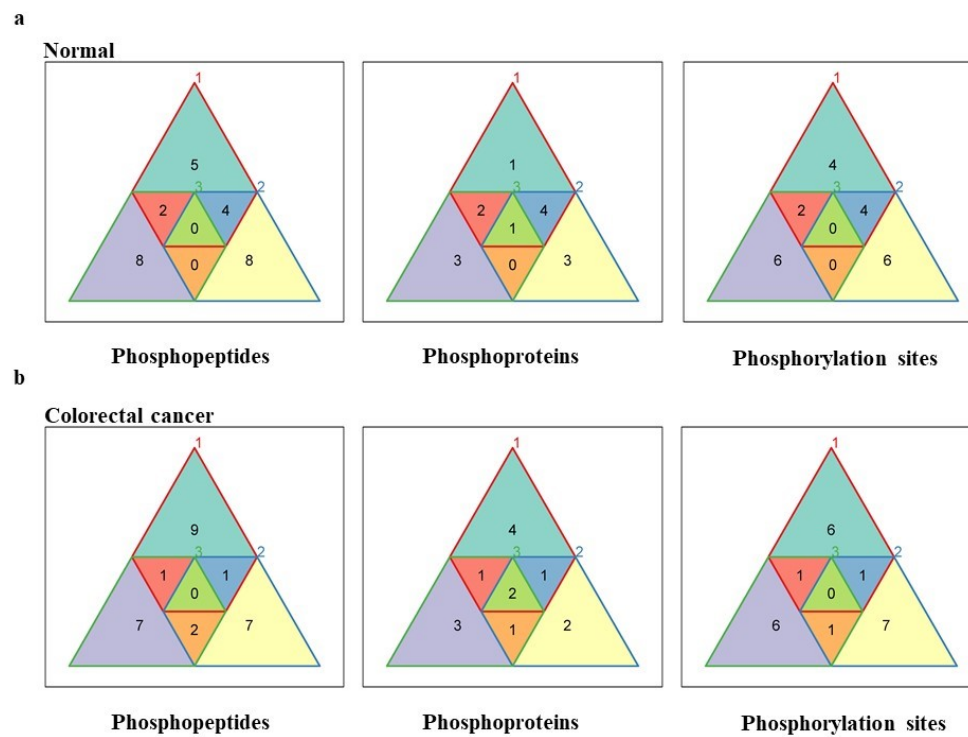


Figure S13. Venn diagram of phosphopeptides, phosphoproteins, and phosphorylation sites of (a) normal controls and, (b) colorectal cancer patients.

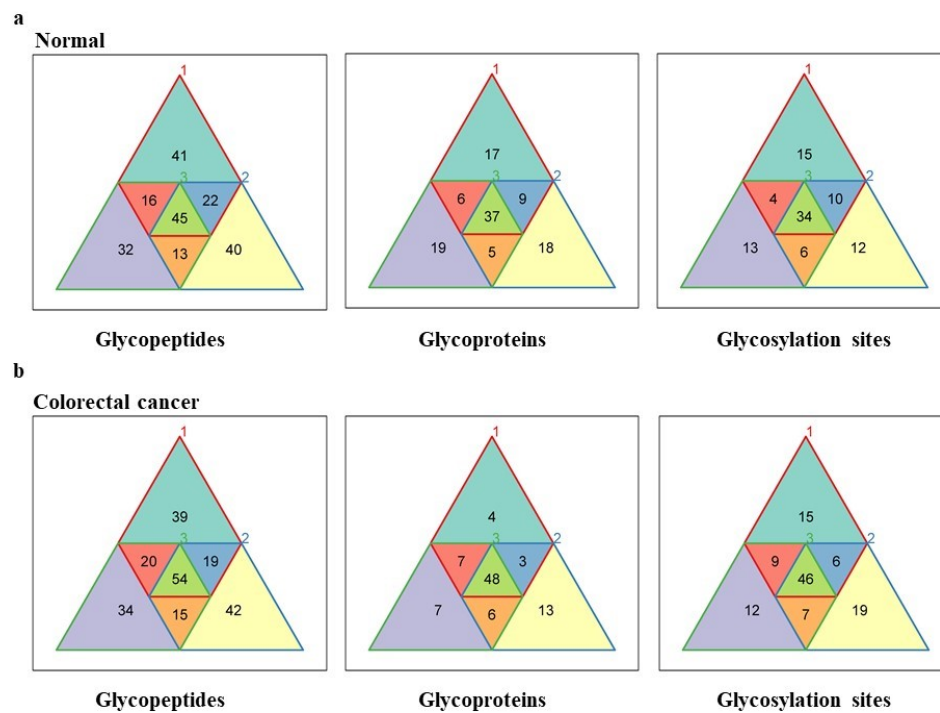


Figure S14. Venn diagram of glycopeptides, glycoproteins, and glycosylation sites of (a) normal controls, and (b) colorectal cancer patients.

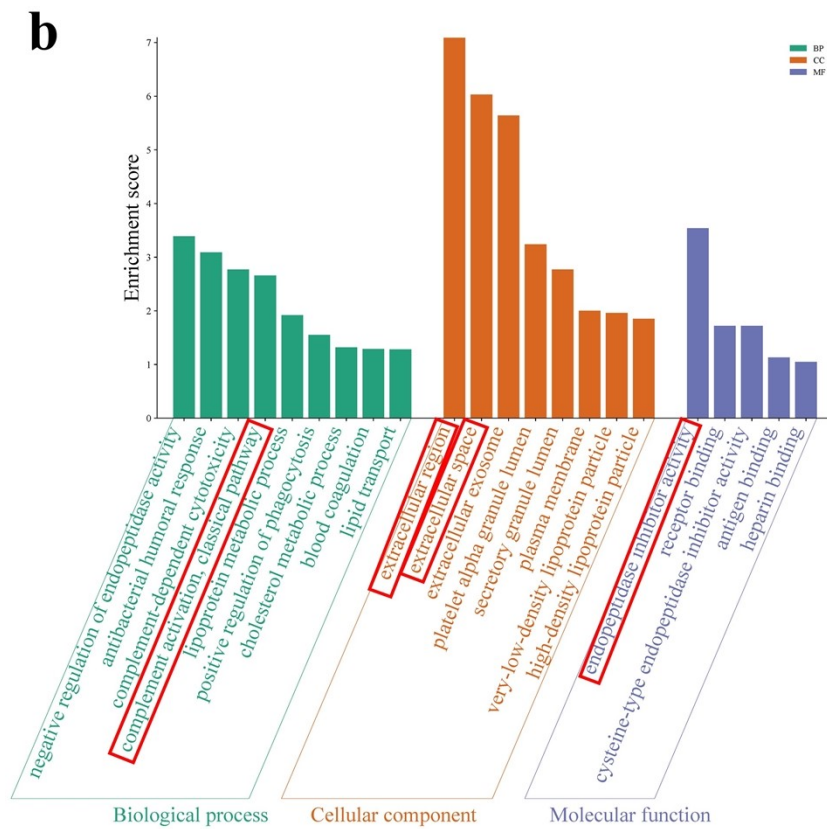
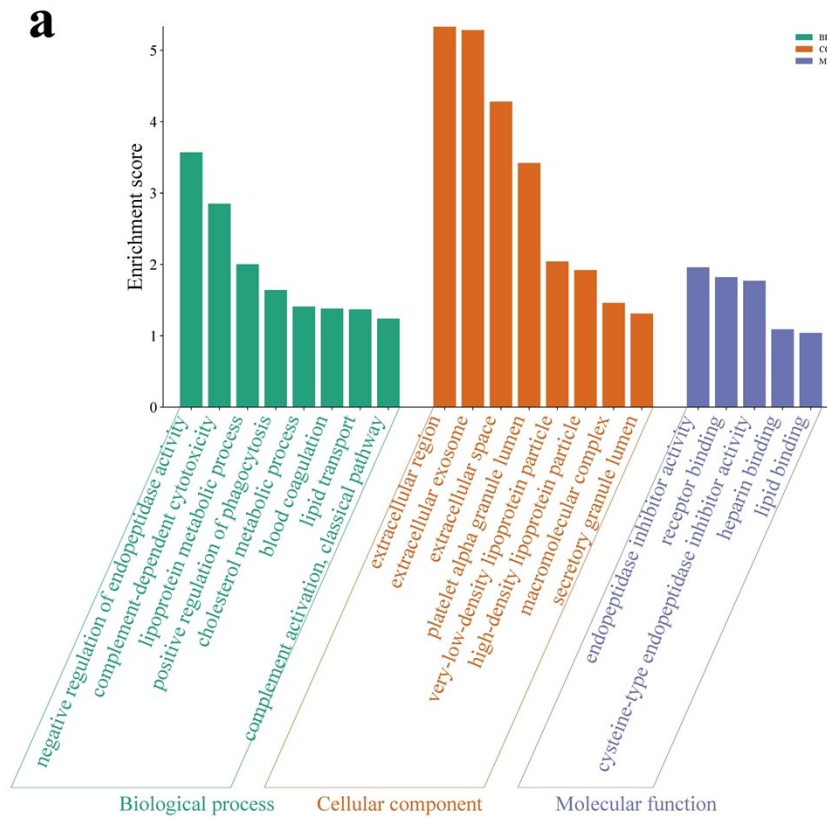


Figure S15. The GO analysis of the molecular function based on the identified phosphopeptides of (a) normal controls, and (b) colorectal cancer patients.

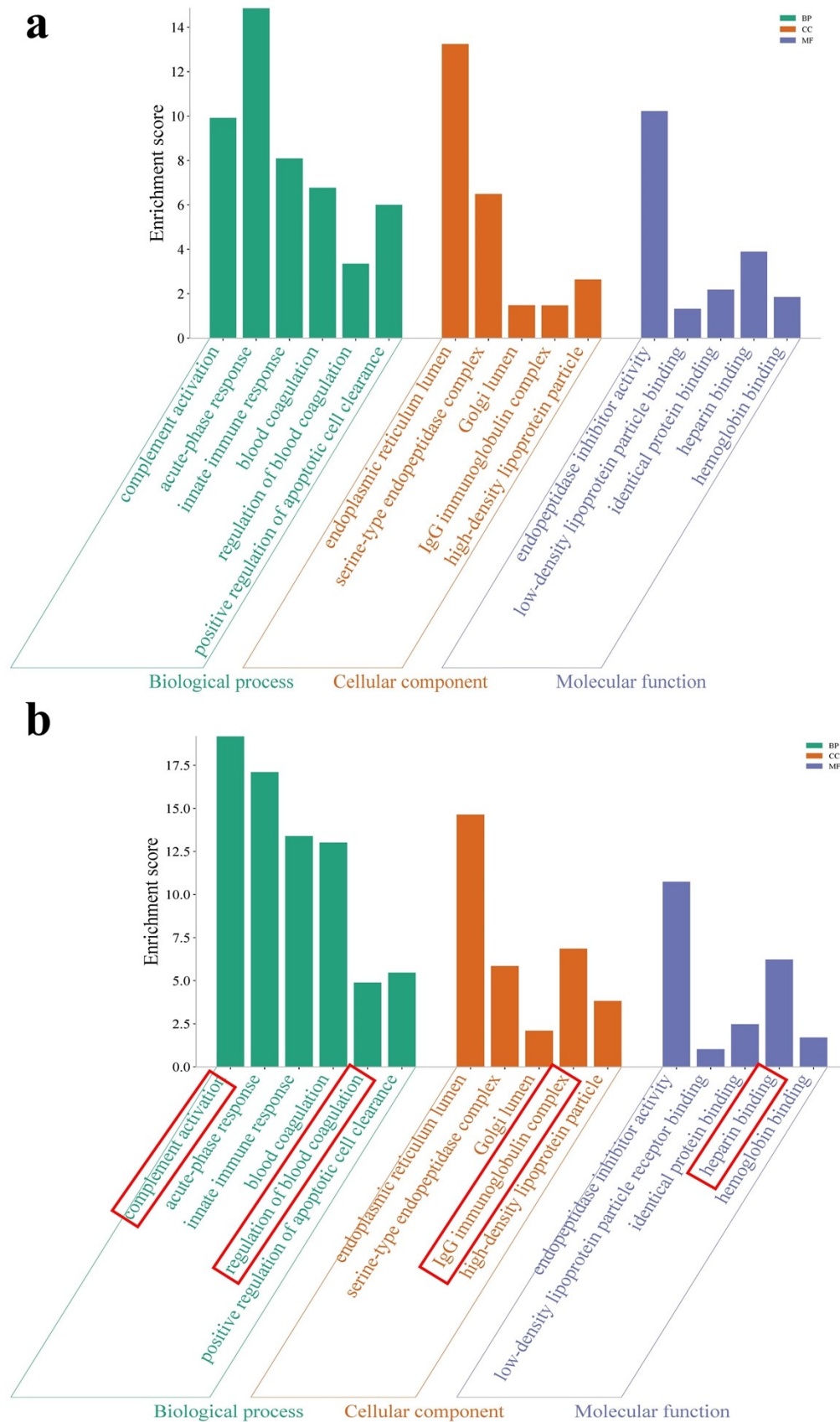


Figure S16. The GO analysis of glycopeptides identified in the serum of (a) normal control, and (b) colorectal cancer patients.

Table S1. The detailed information on phosphopeptides derived from β -casein after enrichment by Cys-PVME-Ti⁴⁺.

No.	m/z	Amnio acid Sequence	Numbers of Phosphorylation site
1	1031	FQ[pS]EEQQQTEDELQDK	1
2	1278	FQ[pS]EEQQQTEDELQDKIHPF	1
3	1466	TVDME[pS]TEVFTK	1
4	1482	RELEELNVPGEIVE[pS]L[pS][pS][pS]EE[pS]ITR	5
5	1539	EQL[pS]T[pS]EENSKK	2
6	1562	RELEELNVPGEIVESL[pS] [pS] [pS]EE[pS]ITR	5
7	1963	FQ[pS]EEQQQTEDELQDK	1
8	2062	FQ[pS]EEQQQTEDELQDK	1
9	2556	FQ[pS]EEQQQTEDELQDKIHPF	1
10	2925	RELEELNVPGEIVE[pS]L[pS][pS][pS]EESITR	4
11	2966	ELEELNVPGEIVE[pS]L[pS][pS][pS]EESITR	4
12	3008	NANEEYSIG[pS][pS][pS]EE[pS]AEVATEEVK	4
13	3023	RELEELNVPGEIVE[pS]L[pS][pS][pS]EESITR	4
14	3042	RELEELNVPGEIVE[pS]L[pS][pS][pS]EESITR	4
15	3123	RELEELNVPGEIVE[pS]L[pS][pS][pS]EESITR	4

Table S2. The detailed information of glycopeptides derived from HRP after enrichment by Cys-PVME-Ti⁴⁺.

No.	m/z	Sequence Glycan composition	Amino acid sequence
1	1842	XylMan3FucGlcNAc2	NVGLN#R
2	2073	Man3GlcNAc2	DSFRNVGLN#R
3	2149	Man3GlcNAc2Xyl	LYN#FSN#TGLP
4	2276	XylMan2FucGlcNAc2	SILLDN#TTSFR
5	2533	FucGlcNAc	SFAN#STQTFNFAVEAMDR
6	2544	XylMan3FucGlcNAc2	SSPN#ATDTIPLVR
7	2591	XylMan3FucGlcNAc2	PTLN#TTYLQTLR
8	2612	XylMan3GlcNAc2	MGN#ITPLTGTQGQIR
9	2852	FucGlcNAc	GLIQSDQELFSSPN#ATDTIPLVR
10	3048	XylMan2GlcNAc2	SFAN#STQTFNFAVEAMDR
11	3223	Man3FucGlcNAc2	SFAN#STQTFNFAVEAMDR
12	3323	XylMan3FucGlcNAc2	QLTPTFYDNPCPN#VSNIVR
13	3354	XylMan3FucGlcNAc2	SFAN#STQTFNFAVEAMDR
14	3369	XylMan3FucGlcNAc2	SFAN#STQTFNFAVEAM*DR
15	3606	XylMan3FucGlcNAc2	NQCRGLCPLNGN#LSALVDFDLR
16	3672	XylMan3FucGlcNAc2	GLIQSDQELFSSPN#ATDTIPLVR
17	3812	XylMan3FucGlcNAc2	LHFHDCFVNGCDASILLDN#TTSFR
18	3895	XylMan3FucGlcNAc2	LHFHDCFVNGCDASILLDN#TTSFR
19	4057	XylMan3GlcNAc2	QLTPTFYDNSC(AAVESACPR)PN#VSNIVR-

			H2O
20	4223	Man3FucGlcNAc2	SFAN#STQTFNNAFVEAMDR
21	4838	XylMan3FucGlcNAc2, XylMan3GlcNAc2	LYN#FSNTGLPDPTLN#TTYLQTLR
22	4985	XylMan3FucGlcNAc2, XylMan3FucGlcNAc2	LYN#FSNTGLPDPTLN#TTYLQTLR
23	5068	XylMan3GlcNAc2	QLTPTFYDNSC(AAVESACPR)PN#VSNIVR

Table S3. The detailed information of average MALDI-TOF MS intensity values of the phosphopeptides enriched from β -casein digests (25 μ g) using different amounts of Cys-PVME-Ti⁴⁺ (0.1 mg, 0.2 mg, 0.3 mg, 0.4 mg, 0.5 mg).

Amount of material	m/z = 2062		m/z = 2556		m/z = 3122	
	Average $\pm$ S. D.	RSD (%)	Average $\pm$ S. D.	RSD (%)	Average $\pm$ S. D.	RSD (%)
0.1 mg	4489.7 $\pm$ 229.2	5.1	1131.3 $\pm$ 69.6	6.2	1225.7 $\pm$ 63.9	5.2
0.2 mg	7259.0 $\pm$ 277.1	3.8	2963.0 $\pm$ 93.5	3.2	5905.3 $\pm$ 137.4	2.3
0.3 mg	8484.7 $\pm$ 456.0	1.4	2958 $\pm$ 35.2	4.1	6070.7 $\pm$ 272.8	4.5
0.4 mg	11958 $\pm$ 614.6	5.3	4960.3 $\pm$ 257.6	5.2	7588.7 $\pm$ 519.8	2.1
0.5 mg	12018 $\pm$ 767.4	6.5	5359 $\pm$ 165.1	3.1	7617 $\pm$ 195.7	2.6

Table S4. The detailed information of average MALDI-TOF MS intensity values of the glycopeptides enriched from HRP digests (25 µg) using different amounts of Cys-PVME-Ti⁴⁺ (0.1 mg, 0.2 mg, 0.3 mg, 0.4 mg, 0.5 mg).

Amount of material	m/z = 3672.0		m/z = 3895.8		m/z = 4985.5	
	Average ± S. D.	RSD (%)	Average ± S. D.	RSD (%)	Average ± S. D.	RSD (%)
0.1 mg	1596.0 ± 119.7	7.5	656.0 ± 37.2	5.7	7001 ± 555.1	7.9
0.2 mg	3498.7 ± 214.0	6.1	2641.0 ± 193.7	7.3	6978.0 ± 146.0	2.1
0.3 mg	3567.3 ± 87.4	2.4	2152.7 ± 116.8	5.4	10371.3 ± 494.8	4.8
0.4 mg	5258.7 ± 80.0	1.5	3303.7 ± 183.1	5.4	11707 ± 374.4	3.2
0.5 mg	5262.7 ± 325.3	6.2	3397.7 ± 199.6	5.8	11555.3 ± 896.5	7.8

Table S5. The detailed information of enrichment efficiency comparison with previously reported materials. G: for glycopeptides. P: for phosphopeptides.

Materials	LOD (fmol)	Selectivity (G: HRP:BSA/ P: β -casein:BSA)	Number of peptides from serum	
CTSM@AMPA-Ti ⁴⁺	P: 0.4	P: 1:1000	P: 35	[2]
Fe ₃ O ₄ @COF@MOF-PS	G: 20	G: 1:2000	G: 243	[6]
Fe ₃ O ₄ @COF@Au@PEI-GF	P: 0.02	P: 1:10000	P: 4	[7]
Imi-Pops-Zr	P: 0.5	P: 1:1000	P: 74	[8]
CTs@DHA@Ti ⁴⁺	P: 2	P: 1:2000	P: 12	[9]
TAPBB@GMA@AMA@Cys	G: 20	G: 1:1000	G: 235	[10]
Fe ₃ O ₄ @poly(MBA/EH)@2AP	G: 1	G: 1:1000	G:290	[12]
hydrazide-POPs-Ti ⁴⁺	P: 0.5 G: 10	P: 1:2000 G: 1:1000	P: 60 G: 186	[14]
eggshell	G: 5	G: 1:1000	/	[16]
H-CeO ₂ @PEI-Ti	P: 0.02	P: 1:5000	P: 49	[18]
β -CD-COF@Ti ⁴⁺	P: 0.5	P: 1:1000	P: 24	[20]
Ti ⁴⁺ -Brush@MAR	P: 10	/	P: 93	[21]
Fe ₃ O ₄ @mSiO ₂ @APA@Ti ⁴⁺ /Nb ⁵⁺	P: 0.5	P: 1:1500	P: 24	[25]
COF-S@Au@GC	G: 0.5	G: 1:2000	G: 161	[27]
Cys-PVME-Ti ⁴⁺	P: 0.02 G: 1	P: 1:2000 G: 1:1000	P: 27 G: 223	This work

Table S6. The detailed information of enriching phosphopeptides derived from serum of the colorectal cancer and normal people by Cys-PVME-Ti⁴⁺. S, T, Y: Phosphorylation site.

No.	Peptide sequences	Amino acid Sequence	Modifications	Positions in Master Proteins	MH ⁺ [Da]
Phosphopeptides were detected in the serum of both normal subjects and colorectal cancer patients					
1	DLTKVHTECCHGD	[K].VHTECCHGDLLECADDR.[A]	3xCarbamidomethyl [C5; C6; C13]; 1xPhospho [T3(100)]	P02768 [265-281]	2166.80386
2	EVKFNWYVDGVEV	[K].FNWYVDGVEVHNAK.[T]	1xPhospho [Y4(100)]	P01857 [158-171]	1757.76831
3	RVTEPISAESGEQ	[R].VTEPISAESGEQVER.[V]	1xPhospho [S6(100)]	O14791 [306-320]	1710.7582
4	ATEDEGSEQKIPE	[K].ATEDEGSEQKIPEATNR.[R]	1xPhospho [S7(100)]	P01008 [62-78]	1954.83897
5	CDSSPDSAEDVRK	[K].CDSSPDSAEDVR.[K]	1xCarbamidomethyl [C1]; 1xPhospho [S7(100)]	P02765 [132-143]	1417.49373
6	CDSSPDSAEDVRK	[K].CDSSPDSAEDVRK.[LV]	1xCarbamidomethyl [C1]; 1xPhospho [S7(100)]	P02765 [132-144]	1545.58869
7	KSYFEKSKEQLTP	[K].SKEQLTPLIK.[K]	1xPhospho [S1(100)]	P02652 [68-77]	1236.65993
8	YIIGKDTWEHWP	[K].DTWVEHWPEEDECQDEENQK.[Q]	1xCarbamidomethyl [C13]; 1xPhospho [T2(100)]	P01024 [1625-1644]	2682.99265
9	TTCSKESNEELTE	[R].ETTCSKESNEELTESCETK.[K]	2xCarbamidomethyl [C4;	P01042 [325-343]	2341.90474

			C16]; 1xPhospho [S8(100)]		
10	VSLGSPSGEVSHP	[R].HTFMGVVSLGSPSGEVSHPR.[K]	1xOxidation [M4]; 1xPhospho [S13(100)]	P02765 [318-337]	2176.98453
Phosphopeptides detected only in colorectal cancer serum					
1	ISHMKQSTSC LDS	[R].LVRPEVDVMCTAFHDNEETFLK.[K]	1xCarbamidomethyl [C5]; 3xPhospho [S/T]	Q9UPN3 [2930-2941]	1664.53119
2	SHMKQSTSC LDSE	[R].ETTCSKESNEELTESCETKK.[L]	1xCarbamidomethyl [C5]; 3xPhospho [S/T]	Q9UPN3 [2930-2941]	1664.53119
3	STSC LDSEEIREN	[R].HTFMGVVSLGSPSGEVSHPR.[K]	1xCarbamidomethyl [C5]; 3xPhospho [S/T]	Q9UPN3 [2930-2941]	1664.53119
4	HAKIKDSMP LLEK	[R].LQSESLVNR.[R]	1xPhospho [S4(100)]	Q9ULT0 [85-94]	1253.6211
5	DWKKGDTFSC MVG	[K].GDASGACAAGALPVTGVCYK.[M]	1xCarbamidomethyl [C14]; 2xPhospho [T11(100); S13(100)]	P01876 [300-327]	3296.45571
6	KKGDTFSC MVGHE	[K].GDASGACAAGALPVTGVCYK.[M]	1xCarbamidomethyl [C14]; 2xPhospho [T11(100); S13(100)]	P01876 [300-327]	3296.45571
7	FVARETTCSKESN	[K].SKEQLTPLIK.[K]	2xCarbamidomethyl [C4; C16]; 1xPhospho [T3(99.4)]	P01042 [325-343]	2341.90474
8	CKLCMGSG LNLCE	[R].ETTCSKESNEELTESCETKK.[L]	3xCarbamidomethyl [C6; C9; C17]; 1xOxidation [M10]; 1xPhospho [S]	P02787 [509-530]	2621.12276
9	TCVADESAENC DK	[R].VTEPISAESGEQVER.[V]	2xCarbamidomethyl [C2; C11]; 1xPhospho [S7(100)]	P02768 [76-88]	1578.54478
10	ESNEELTESCETK	[R].MPCAEDYLSVVLNQLCVLHEK.[T]	2xCarbamidomethyl [C4; C16]; 1xPhospho [T/S]	P01042 [325-343]	2341.90474
11	ARETTCSKESNEE	[K].YICENQDSISSK.[L]	1xCarbamidomethyl [C10]; 1xPhospho [S2(100)]	P01042 [331-343]	1635.60915
12	VSLGSPSGEVSHP	[K].EPCVESLVSQYFQTVTDYGK.[D]	1xPhospho [S13(99.2)]	P02765 [318-337]	2160.98961
13	AIEMQNSVP N KAF	[K].IAHVSLTKYINNEK.[I]	1xOxidation [M11]; 1xPhospho [S14(100)]	Q9BXX3 [519-536]	2082.00895
14	DFVARETTCSKES	[K].GRAGSHEGLGWDWFTSFISSISSK.[L]	2xCarbamidomethyl [C4; C16]; 1xPhospho [T2(99.3)]	P01042 [325-344]	2469.99971
15	RVTEPISAESGEQ	[K].GRAGSHEGLGWDWFTSFISSISSK.[L]	1xPhospho [S6(99.6)]	O14791 [306-320]	1710.7582
16	EAGAGGSAPADIP	[K].TLMATLPIYLNALLEGK.[G]	2xPhospho [S/T]	C5JYV0 [422-472]	4302.77392
17	PADIPGTAGGDGV	[K].TLMATLPIYLNALLEGK.[G]	2xPhospho [S/T]	C5JYV0 [422-472]	4302.77392
Phosphopeptides detected only in normal serum					
1	EVDVMCTAFHDNE	[K].QSTSC LDSEEIR.[E]	1xCarbamidomethyl [C10]; 1xPhospho [T11(100)]	P02768 [139-160]	2730.23031

2	ESNEELTESCETK	[K].QSTSCLDSEEIR.[E]	2xCarbamidomethyl [C4; C16]; 1xPhospho [T/S]	P01042 [325-344]	2469.99971
3	VSLGSPSGEVSHP	[K].QSTSCLDSEEIR.[E]	1xOxidation [M4]; 1xPhospho [S13(99.5)]	P02765 [318-337]	2176.98453
4	VLERLQSESLVNR	[K].IKDSMPLEK.[N]	1xPhospho [S3(100)]	Q9GZX5 [91-99]	1125.52998
5	AGALPVTGV CYKM	[R].VAAEDWKKGDTFSCMVGHEALPLAFTQ K.[T]	2xCarbamidomethyl [C7; C18]; 2xPhospho [T15(95.7); Y19(95.7)]	Q9NYU2 [5-24]	2084.82182
6	PVTGV CYKMGVLV	[R].VAAEDWKKGDTFSCMVGHEALPLAFTQ K.[T]	2xCarbamidomethyl [C7; C18]; 2xPhospho [T15(95.7); Y19(95.7)]	Q9NYU2 [5-24]	2084.82182
7	KSYFEKSKEQLTP	[R].ETTCSKESNEELTESCETK.[K]	1xPhospho [S1(100)]	Q8MIQ5 [68-77]	1236.65993
8	ARETTCSKESNEE	[K].KDSSLCKLCMGSLNLCEPNK.[E]	2xCarbamidomethyl [C4; C16]; 1xPhospho [S5(98.9)]	P01042 [325-344]	2469.99971
9	EPISAESGEQVER	[K].TCVADESAENCDK.[S]	1xPhospho [S/T]	O14791 [306-320]	1710.7582
10	MPCAEDYLSVVLN	[R].ETTCSKESNEELTESCETK.[K]	2xCarbamidomethyl [C3; C16]; 1xPhospho [Y/S]	P02768 [470-490]	2598.18019
11	RADLAKYICENQD	[K].ESNEELTESCETK.[K]	1xCarbamidomethyl [C3]; 1xPhospho [Y1(100)]	P02768 [287-298]	1523.60837
12	KEPCVESLVSQYF	[R].HTFMGVVSLGSPSGEVSHPR.[K]	1xCarbamidomethyl [C3]; 1xPhospho [S6(100)]	P02652 [27-46]	2430.05708
13	NKIAHVSLTKYIN	[K].KPSAFKPAIEMQNSVPNK.[A]	1xPhospho [S5(98.8)]	C6KTB7 [6627-6640]	1709.86221
14	EKGRAGSHEGLGW	[R].ETTCSKESNEELTESCETK.[L]	2xPhospho [S/T]	F5HFA1 [154-178]	2885.26955
15	LGWDWFTSFISS	[R].VTEPISAESGEQVER.[V]	2xPhospho [S/T]	F5HFA1 [154-178]	2885.26955
16	GKTLMATLPIYLN	[R].GSQEETEAGAGGSAPADIPGTAGGDGV GVRGGGGGGGGGGVGGSGGGSMR.[G]	1xOxidation [M3]; 2xPhospho [T5(98.3); Y9(100)]	Q6G5U2 [111-126]	1923.89385
17	MATLPIYLNALLEG	[R].GSQEETEAGAGGSAPADIPGTAGGDGV GVRGGGGGGGGGGVGGSGGGSMR.[G]	1xOxidation [M3]; 2xPhospho [T5(98.3); Y9(100)]	Q6G5U2 [111-126]	1923.89385

Table S7. The detailed information of glycopeptides derived from the serum of colorectal cancer patients and healthy people by Cys-PVME-Ti⁴⁺composites. N: N-glycosylation site.

No.	Peptide sequences	Amino acid Sequence	Modifications	Positions in Master Proteins	MH ⁺ [Da]
Glycopeptides were detected in the serum of both normal subjects and colorectal cancer patients					
1	PHKPEINSTTHPG	[R].SRYPHKPEINSTTHPGADLQEN FCR.[N]	1xCarbamidomethyl [C24]; 1xDeamidated [N10]	P00734 [134-158]	2955.38023
2	ISCTVENETIGVW	[R].FSLLGHASISCTVENETIGVWR PSPPTCEK.[I]	2xCarbamidomethyl [C11; C28]; 1xDeamidated [N15]	P04003 [207-236]	3373.61914
3	ISESHPNATFSAV	[K].THTNISESHPNATFSAVGEASI CEDDWNSGER.[F]	1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11]	P01871 [269-300]	3520.48297
4	PLLAPLNDTRVVH	[R].KVCQDCPLLAPLNDTR.[V]	2xCarbamidomethyl [C3; C6]; 1xDeamidated [N13]	P02765 [144-159]	1900.92554
5	KVVLHPNYSQVDI	[K].VVLHPNYSQVDIGLIK.[L]	1xDeamidated [N6]	P00738 [236-251]	1795.99526
6	LSDLINSTECLH	[K].LSDLINSTECLHVHCR.[G]	2xCarbamidomethyl [C11; C16]; 1xDeamidated [N7]	P05156 [171-187]	2041.94299
7	FFYFTPKNKTEDI	[K].SVQEIQATFFYFTPKNKTEDTIFL R.[E]	1xDeamidated [N15]	P02763 [58-81]; P19652 [58-81]	2896.44035
8	PLLAPLNDTRVVH	[K].VCQDCPLLAPLNDTR.[V]	2xCarbamidomethyl [C2; C5]; 1xDeamidated [N12]	P02765 [145-159]	1772.83058
9	PHKPEINSTTHPG	[R].YPHKPEINSTTHPGADLQENFC R.[N]	1xCarbamidomethyl [C22]; 1xDeamidated [N8]	P00734 [136-158]	2712.24709
10	TKLGACNDTLQQL	[K].LGACNDTLQQLMEVFKFDTIS EK.[T]	1xCarbamidomethyl [C4]; 1xDeamidated [N5]	P01008 [124-146]	2688.28953
11	VYEKHANWTLTPL	[K].HANWTLTPLK.[S]	1xDeamidated [N3]	P27169 [251-260]	1181.63133
12	FLNHSENATAKDI	[K].NLFLNHSENATAK.[D]	2xDeamidated [N5; N9]	P00739 [145-157]; P00738 [203- 215]	1460.7016
13	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	2xDeamidated [N10; N11]	P02765 [166-187]	2367.12114
14	RGHGHRNGTGHGN	[R].NGTGHGNSTHHGPEYMR.[C]	2xDeamidated [N1; N7]	P02790 [240-256]	1853.76198

15	NGTGHGNSTHHGP	[R].NGTGHGNSTHHGPEYMR.[C]	2xDeamidated [N1; N7]	P02790 [240-256]	1853.76198
16	YLDKVSNQTLSELF	[K].VSNQTLSELFVTLQDVPVR.[D]	1xDeamidated [N3]	P01023 [1422-1440]	2164.16485
17	YKDLLRNCCNTEN	[R].NCCNTENPPGCYR.[Y]	3xCarbamidomethyl [C2; C3; C11]; 1xDeamidated [N1]	P43652 [383-395]	1642.60429
18	KSLGNVNFTVSAE	[K].SLGNVNFTVSAEALESQELCG TEVPSVPEHGR.[K]	1xCarbamidomethyl [C20]; 1xDeamidated [N6]	P01023 [864-895]	3414.6118
19	ALPQPQNVTSLLG	[K].ALPQPQNVTSLLGCTH.[-]	1xCarbamidomethyl [C14]; 1xDeamidated [N7]	P02790 [447-462]	1736.8636
20	DKSLTFNETYQDI	[R].LFGDKSLTFNETYQDISELVYG AK.[L]	1xDeamidated [N10]	P01008 [178-201]	2739.33997
21	AKNLFLNHSENAT	[K].NLFLNHSENATAK.[D]	3xDeamidated [N1; N5; N9]	P00739 [145-157]; P00738 [203-215]	1461.68562
22	FLNHSENATAKDI	[K].NLFLNHSENATAK.[D]	3xDeamidated [N1; N5; N9]	P00739 [145-157]; P00738 [203-215]	1461.68562
23	QNQCFYNSSYLVN	[R].QNQCFYNSSYLVNQR.[E]	1xCarbamidomethyl [C4]; 1xDeamidated [N7]	P19652 [87-101]	1921.84974
24	PPGLLANFTLLRT	[R].KLPPGLLANFTLLR.[T]	1xDeamidated [N9]	P02750 [178-191]	1553.94138
25	MKNCGVNCSGDVF	[K].NCGVNCSGDVFTALIGEIASPN YKPYPENSR.[C]	2xCarbamidomethyl [C2; C6]; 1xDeamidated [N5]	P09871 [170-201]	3527.62059
26	QDQCIYNTTYLVN	[R].QDQCIYNTTYLVNQR.[E]	1xCarbamidomethyl [C4]; 1xDeamidated [N7]	P02763 [87-101]	1916.8807
27	NLKVPGNVTAVLG	[K].VPGNVTAVLGETLK.[V]	1xDeamidated [N4]	P01833 [466-479]	1398.78387
28	SWPAVGNCSSALR	[R].SWPAVGNCSSALR.[W]	1xCarbamidomethyl [C8]; 1xDeamidated [N7]	P02790 [181-193]	1405.65287
29	LEPHRFNDTEVLQ	[R].FNDTEVLQR.[L]	1xDeamidated [N2]	P43251 [149-157]	1122.54258
30	GTKFLNNGTCTAE	[K].FLNNGTCTAEGK.[F]	1xCarbamidomethyl [C7]; 1xDeamidated [N4]	P05156 [100-111]	1312.58379
31	RDIEFNSTQKFI	[R].DIEFNSTQK.[F]	1xDeamidated [N6]	P43652 [28-37]	1196.54297
32	YAEDKFNETTEKS	[R].YAEDKFNETTEK.[S]	1xDeamidated [N7]	P43652 [396-407]	1475.65365

33	YPPWDKNFTENDL	[K].NFTENDLLVR.[I]	1xDeamidated [N1]	P00734 [416-425]	1221.61099
34	AFGSNPNTLTKVVF	[R].AFGSNPNTLTK.[V]	1xDeamidated [N7]	P22792 [68-77]	1049.5262
35	KQEPERNECFLQH	[R].NECFLQHK.[D]	1xCarbamidomethyl [C3]; 1xDeamidated [N1]	P02768 [123-130]	1076.48296
36	KNDFHRNLTSLT	[R].NLTSLTESVDR.[N]	1xDeamidated [N1]	P80108 [307-318]	1336.65907
37	LMKYLGNATAIFF	[K].KLSSWVLLMKYLGNAIFFL PDEGKLQHLENELTHDIITK.[F]	1xDeamidated [N14]	P01009 [258-298]	4727.51571
38	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	1xDeamidated [N]	P02765 [166-187]	2366.13713
39	FSWKYKNNSDISS	[K].YKNNSDISSTR.[G]	1xDeamidated [N3]	P01871 [44-54]	1285.60188
40	KKEGYSNISYIVV	[K].EGYSNISYIVVNHQGISSR.[L]	1xDeamidated [N5]	P49908 [79-97]	2124.03562
41	AKNLFLNHSENAT	[K].NLFLNHSENATAK.[D]	2xDeamidated [N5; N9]	P00739 [145-157]; P00738 [203-215]	1460.7016
42	TQVYAENGTVLQG	[K].VTQVYAENGTVLQGSTVASV YK.[G]	1xDeamidated [N8]	P27169 [317-338]	2315.17653
43	QHLFGSNVTDCSG	[R].QQHLFGSNVTDCSGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16]	P02787 [622-642]	2517.09217
44	VTDCSGNFCLFRS	[R].QQHLFGSNVTDCSGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16]	P02787 [622-642]	2517.09217
45	AVKTHTNISESHP	[K].THTNISESHPNATFSAVGEASI CEDDWNSGER.[F]	1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11]	P01871 [269-300]	3520.48297
46	GRMKVSNVSCQAS	[K].VSNVSCQASVSR.[M]	1xCarbamidomethyl [C6]; 1xDeamidated [N3]	P55058 [141-152]	1294.60559
47	FSWKYKNNSDISS	[K].YKNNSDISSTR.[G]	2xDeamidated [N3; N4]	P01871 [44-54]	1286.5859
48	LMKYLGNATAIFF	[K].YLGNAIFFLPDEGK.[L]	1xDeamidated [N4]	P01009 [268-283]	1756.87923
Glycopeptides were detected only in the serum of normal subjects					
1	LMKYLGNATAIFF	[K].YLGNAIFFLPDEGKLQHLE	1xDeamidated [N4]	A0A384MDQ7 [268-298]	3541.82133

		NELTHDIITK.[F]			
2	LLGSEANLTCTLT	[R].LSLHRPALEDLLLGSEANLTCT LTGLR.[D]	1xCarbamidomethyl [C21]; 1xDeamidated [N18]	Q96DK0 [270-296]; Q9NPP6 [190-216]; P0DOX2 [229-255]; Q8NCL6 [267-293]	2964.58228
3	LMKYLGNATAIFF	[K].KLSSWVLLMKYLGNATAIFFL PDEGKLQHLENELTHDIITK.[F]	1xDeamidated [N14]	A0A384MDQ7 [258-298]	4727.51571
4	KMVSHHNLTTGAT	[- K].MVSHHNLTTGATLINEQWLLT TAK.[N]	1xDeamidated [N6]	P00739 [121-144]; P00738 [179- 202]	2680.37631
5	KLQHLENELTHDI	[K].LQHLENELTHDIITK.[F]	1xDeamidated [N6]	A0A384MDQ7 [284-298]	1804.94395
6	SFEGLVNLTFIHL	[K].LGSFEGLVNLTFIHLQHNR.[L]	1xDeamidated [N9]	A0A384N669 [152-170]	2196.15601
7	LEGLNFNLTEIPE	[K].ADTHDEILEGLNFNLTEIPEAQI HEGFQELLR.[T]	1xDeamidated [N]	A0A384MDQ7 [94-125]	3692.80786
8	YQWKMLNTSSLLE	[K].MLNTSSLLEQLNEQFNWVSR.[L]	1xDeamidated [N3]; 1xOxidation [M1]	A0A384NKS6 [404-423]	2426.16565
9	DIVEYYNDSNGSH	[K].AREDIFMETLKDIVEYYNDSN GSHVLQGR.[F]	2xDeamidated [N18; N21]	A0A140VK00 [92-120]	3401.59543
10	EYYNDSNGSHVLQ	[K].AREDIFMETLKDIVEYYNDSN GSHVLQGR.[F]	2xDeamidated [N18; N21]	A0A140VK00 [92-120]	3401.59543
11	ATNHMGNVFTTIP	[K].TVLTPATNHMGNVFTTIPANR. [E]	1xDeamidated [N12]	P01024 [74-94]	2256.14413
12	HVKHYTNSSQDVT	[K].HYTNSSQDVTVPCR.[V]	1xCarbamidomethyl [C13]; 1xDeamidated [N4]	P0DOX2 [204-217]	1664.73331
13	TNLQFVNEDSTV	[K].LDAPTNLQFVNEDSTVLVR.[W]	1xDeamidated [N11]	A0A024R462 [997-1016]	2233.13467
14	GSGSGTNFTLTIS	[R].FSGSGSGTNFTLTISR.[V]	1xDeamidated [N9]	A0A5C2GIQ1 [67-82]	1632.78639
15	DIVEYYNDSNGSH	[K].DIVEYYNDSNGSHVLQGR.[F]	2xDeamidated [N7; N10]	A0A140VK00 [103-120]	2067.9254
16	EYYNDSNGSHVLQ	[K].DIVEYYNDSNGSHVLQGR.[F]	2xDeamidated [N7; N10]	A0A140VK00 [103-120]	2067.9254
17	QHLFGSNVTDCSG	[R].QQQHLFGSNVTDCSGNFCFLFR.	2xCarbamidomethyl [C13];	B4E1B2 [602-622]; P02787	2516.10815

		[S]	C18]; 1xDeamidated [N]	[622-642]	
18	QHLFGSNVTDSCG	[R].QQQHLFGSNVTDSCGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16]	B4E1B2 [602-622]; P02787 [622-642]	2517.09217
19	VTDCSGNFCLFRS	[R].QQQHLFGSNVTDSCGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16]	B4E1B2 [602-622]; P02787 [622-642]	2517.09217
20	QLQLSHNLSLVIL	[K].VGQLQLSHNLSLVILVPQNLK. [H]	1xDeamidated [N9]	Q5UGI6 [177-197]	2314.34929
21	ALFELHNISVADS	[R].FQSPAGTEALFELHNISVADSA NYSCVYVDLKPPFGGSAPSER.[L]	1xCarbamidomethyl [C26]; 2xDeamidated [N15; N23]	P04217 [349-391]	4630.17186
22	SVADSANYSCVYV	[R].FQSPAGTEALFELHNISVADSA NYSCVYVDLKPPFGGSAPSER.[L]	1xCarbamidomethyl [C26]; 2xDeamidated [N15; N23]	P04217 [349-391]	4630.17186
23	LKGLKFNLTTETSE	[K].FNLTTETSEAEIHQSFQHLLR.[T]	1xDeamidated [N2]	A0A024R6P0 [105-124]	2401.17826
24	GAIYPDNTTDFQR	[K].EHEGAIYPDNTTDFQR.[A]	1xDeamidated [N10]	E9PFZ2 [129-144]	1893.82496
25	LLTTAKNLFNLHS	[K].NLFLNHSENATAK.[D]	2xDeamidated [N5; N9]	P00739 [145-157]; P00738 [203- 215]	1460.7016
26	PLKVTQNLTLIEE	[K].VTQNLTLIEESLTSEFIHDIDR.[E]	1xDeamidated [N4]	P36955 [282-303]	2574.29335
27	LEGLGFNLTELSE	[R].SQILEGLGFNLTELSSEVDVHR.[G]	1xDeamidated [N10]	P29622 [99-119]	2345.16195
28	GIQYFNNNTQHSS	[R].HGIQYFNNNTQHSSLFMLNEV K.[R]	1xDeamidated [N8]	B4DPP8 [150-171]	2622.24055
29	LSLGAHNNTLTLTEI	[K].NVIFSPLSISTALAFSLGAHNNTL TLTEILK.[G]	1xDeamidated [N22]	A0A024R6P0 [72-101]	3172.75039
30	GIQYFNNNTQHSS	[R].HGIQYFNNNTQHSSLFTLNEV K.[R]	2xDeamidated [N7; N8]	D3DNU8 [162-183]	2593.23176
31	GSGSGTNFTLTIT	[R].FSGSGSGTNFTLTITR.[L]	1xDeamidated [N9]	A0A5C2GKU3 [63-78]	1646.80204
32	LEKPLQNFTLCFR	[R].ESVTDHVNLTITPLEKPLQNFTL	1xCarbamidomethyl [C23];	P02743 [33-57]	2972.51862

		CFR.[A]	1xDeamidated [N19]		
33	NKSIGFNSSAGGD	[K].SIGFNSSAGGDLEITTHSFN.[-]	2xDeamidated [N5; N20]	A0A2Z3AT15 [97-116]	2055.91417
34	LMKYLGNATAIFF	[K].YLGNATAIFFLPDEGK.[L]	1xDeamidated [N4]	A0A384MDQ7 [268-283]	1756.87923
35	LEGLNFNLTEIPE	[K].ADTHDEILEGLNFNLTEIPEAQI HEGFQELLR.[T]	2xDeamidated [N12; N14]	A0A384MDQ7 [94-125]	3693.79188
36	FVEGSHNSTVSLT	[K].FVEGSHNSTVSLTTK.[N]	1xDeamidated [N7]	C0JYY2 [3405-3419]	1607.79114
37	DEKAFENVTLQW	[K].AFENVTLQWLILDHNLLENS K.[I]	1xDeamidated [N4]	A0A384N669 [85-106]	2613.31951
38	ATNHMGNVFTIP	[K].TVLTPATNHMGNVFTIPANR. [E]	2xDeamidated [N8; N12]	P01024 [74-94]	2257.12814
39	VDSPVYNATWSAS	[R].FEVDSPVYNATWSASLK.[N]	1xDeamidated [N9]	C0JYY2 [3887-3903]	1914.91199
40	QLAHQSNSTNIFF	[R].QLAHQSNSTNIFFSPVSIATAFA MLSLGTK.[A]	1xDeamidated [N7]	A0A384MDQ7 [64-93]	3182.61906
41	ESNLRFNSSYLQG	[R].FNSSYLQGTNQITGR.[Y]	1xDeamidated [N2]	C0JYY2 [1522-1536]	1686.80819
42	GEATPVNLTEPAK	[R].ADGTVNQIEGEATPVNLTEPA K.[L]	1xDeamidated [N16]	B4DGC3 [83-104]	2255.10376
43	YLDKVSNQTLSELF	[R].TEVSSNHVLIYLDKVSNQTLSELF FFTVLQDVPVR.[D]	1xDeamidated [N17]	P01023 [1408-1440]	3762.99527
44	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	1xDeamidated [N6]	D3DNU8 [289-300]; B4DPP8 [277-288]	1432.67432
45	DIFTKENLTAPGS	[K].ENLTAPGSDSAVFEQGTTR.[I]	1xDeamidated [N2]	E9PFZ2 [396-415]	2127.98292
46	TNLQFVNETDSTV	[K].LDAPTNLQFVNETDSTVLVR.[W]	2xDeamidated [N6; N11]	A0A024R462 [997-1016]	2234.11868
47	ASGSGTNFTLTIS	[R].FSASGSGTNFTLTISR.[L]	1xDeamidated [N9]	A0A5C2GLF8 [62-77]	1646.80204
48	FSWKYKNNSDISS	[K].YKNNSDISSTR.[G]	1xDeamidated [N]	P01871 [44-54]	1285.60188
49	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	2xDeamidated [N5; N6]	D3DNU8 [289-300]; B4DPP8 [277-288]	1433.65834
50	LMKYLGNATAIFF	[K].KLSSWVLLMKYLGNATAIFFL PDEGK.[L]	1xDeamidated [N14]	A0A384MDQ7 [258-283]	2942.57361

51	VYSKVHNGSEILF	[K].VHNGSEILFSYFQDLVITLPFEL R.[K]	1xDeamidated [N3]	C0JYY2 [4235-4258]	2838.47126
52	DPDYPRNISDGF	[R].NISDGFDPDNVDAALALPA HSYSGR.[E]	1xDeamidated [N1]	D9ZGG2 [242-268]	2773.30638
53	GSFGSGTNFTLKIS	[RK].FSGSGSGTNFTLK.[I]	1xDeamidated [N9]	A0A5C2FT34 [67-79]	1303.61647
54	YKPSAGNNSLYRD	[R].VYKPSAGNNSLYR.[D]	2xDeamidated [N8; N9]	D9IWP9 [136-148]	1470.72233
55	DREVRANLSSQAL	[R].ANLSSQALR.[M]	1xDeamidated [N2]	B7Z539 [587-595]	960.51089
56	PREEQFNSTFRVV	[K].TKPREEQFNSTFR.[V]	1xDeamidated [N9]	Q6N093 [259-271]; Q6MZU6 [306-318]	1640.80271
57	PREEQYNSTYRVV	[K].TKPREEQYNSTYR.[V]	1xDeamidated [N9]	V9HW68 [312-324]; Q6N095 [317-329]; Q6N089 [314-326]; Q7Z351 [324-336]	1672.79254
58	PREEQFNSTFRVV	[R].EEQFNSTFR.[V]	1xDeamidated [N5]	Q6N093 [263-271]; Q6MZU6 [310-318]	1158.50619
59	RALGFENATQALG	[R].ALGFENATQALGR.[A]	1xDeamidated [N6]	B4DVE1 [64-76]	1348.68555
60	PLNNRENISDPTS	[R].ENISDPTSPLR.[T]	1xDeamidated [N2]	D6RHJ6 [86-96]	1229.60082
61	LRSLRNDTAVYY	[R].SNDTAVYYCAR.[LG]	1xCarbamidomethyl [C9]; 1xDeamidated [N2]	A0A5C2GMM1 [91-101]	1320.55249
62	YSIVQTNCSKENF	[R].ITYSIVQTNCSK.[E]	1xCarbamidomethyl [C10]; 1xDeamidated [N9]	D3DNU8 [197-208]; B4DPP8 [185-196]	1414.68826
63	SDGLESNSSTQFE	[R].FSDGLESNSSTQFEVK.[K]	1xDeamidated [N8]	B7Z1F8 [139-154]; A0A0G2JPR0 [219-234]; P0C0L5 [219-234]	1775.79702
64	TEERGLNVTLSST	[R].GLNVTLSSTGR.[N]	1xDeamidated [N3]	A0A0G2JPR0 [1326-1336]; P0C0L5 [1326-1336]	1105.58478
65	ECTKLGNWSAMPS	[K].LGNWSAMPSC.[AE]	1xCarbamidomethyl [C10]; 1xDeamidated [N3]	D9IWP9 [232-242]	1251.54966
66	NVLDMKNNTCQDL	[K].NTTCQDLQIEVTVK.[G]	1xCarbamidomethyl [C4]; 1xDeamidated [N1]	A0A0G2JPR0 [1391-1404]; P0C0L5 [1391-1404]	1649.80508

67	LQNNENNISCOVER	[R].LQNNENNISCOVER.[G]	1xCarbamidomethyl [C10]; 1xDeamidated [N7]	A0A8V8TQ26 [39-51]	1590.71766
68	PREEQFNSTYRVV	[R].EEQFNSTYR.[V]	1xDeamidated [N5]	A0A286YFJ8 [173-181]	1174.50111
69	KIDSTGNVTNELR	[K].IDSTGNVTNELR.[V]	1xDeamidated [N6]	B4DZ36 [295-306]	1319.64375
70	KMDGASNVCINS	[K].MDGASNVCINSR.[W]	1xCarbamidomethyl [C9]; 1xDeamidated [N6]	A0A8Q3WKW7 [965-977]; A8K5T0 [1024-1036]	1425.60969
71	DTDGWTNDIPICE	[K].EDALNETR.[E]	1xDeamidated [N5]	A0A384NKS6 [134-141]	948.42688
72	GVVKLQNLTLPTN	[K].LQNLTLPTNASIK.[F]	2xDeamidated [N3; N9]	Q13201 [112-124]	1414.77879
73	NLTLPTNASIKFN	[K].LQNLTLPTNASIK.[F]	2xDeamidated [N3; N9]	Q13201 [112-124]	1414.77879
74	GSGAGTNFTLKIS	[R].FSGSGAGTNFTLK.[I]	1xDeamidated [N9]	A0A5C2H0U9 [67-79]	1287.62156
75	EFKYDFNSSMLYS	[K].YDFNSSMLYSTAK.[G]	1xDeamidated [N4]	C0JYY2 [3462-3474]	1527.66719
76	GRGLCVNASAVSR	[R].GLCVNASAVSR.[L]	1xCarbamidomethyl [C3]; 1xDeamidated [N5]	A6XND1 [84-94]	1134.55718
77	PREEQYNSTFRVV	[R].EEQYNSTFR.[V]	1xDeamidated [N5]	A0A4W9A917 [223-231]	1174.50111
78	FRISEENETTCYM	[R].ISEENETTCYMGK.[W]	1xCarbamidomethyl [C9]; 1xDeamidated [N5]	A0A8Q3WKW7 [848-860]	1562.6349
79	KSPDVINGSPISQ	[K].SPDVINGSPISQK.[I]	1xDeamidated [N6]	A0A8Q3WKW7 [212-224]; A8K5T0 [212-224]	1342.68489
80	WVSRLANLTQGED	[R].LANLTQGEDQYYLR.[V]	1xDeamidated [N3]	A0A384NKS6 [424-437]	1684.81769
81	KWSDIWNATKYAN	[K].WSDIWNATK.[Y]	1xDeamidated [N6]	F8WF14 [80-88]	1121.5262
82	PSALDTNSSKSTS	[K].AAIPALDTNSSK.[S]	1xDeamidated [N10]	B4DVE1 [530-542]	1275.64269
83	ISRDNANNSLFLQ	[KR].GRFNISR.[D]	1xDeamidated [N4]	A0A7S5C1Q2 [66-72]	850.45298
84	PREEQYNSTYRVV	[R].EEQYNSTYR.[V]	1xDeamidated [N5]	V9HW68 [316-324]; Q6N095 [321-329]; Q6N089 [318-326]; Q7Z351 [328-336]	1190.49602
85	DGEEKNNATVHEQ	[K].NNATVHEQVGGPSLTSDLQAAQ SK.[G]	1xDeamidated [N]	D9ZGG2 [85-107]	2382.15317
86	LMKYLGNATAIFF	[K].YLGNATAIFFLPDEGKLQHLE NELTHDIITK.[F]	1xDeamidated [N4]	P01009 [268-298]	3541.82133

87	LLGSEANLTCTLT	[R].LSLHRPALEDLLLGSEANLTCT LTGLR.[D]	1xCarbamidomethyl [C21]; 1xDeamidated [N18]	Q96DK0 [270-296]; Q9NPP6 [190-216]; P0DOX2 [229-255]	2964.58228
88	LEGLNFNLTEIPE	[K].ADTHDEILEGLNFNLTEIPEAQI HEGFQELLR.[T]	1xDeamidated [N]	P01009 [94-125]	3692.80786
89	DITYNVNDTFHKR	[R].DQCIVDDITYNVNDTFHK.[R]	1xCarbamidomethyl [C3]; 1xDeamidated [N13]	A0A024R462 [516-533]	2197.97064
90	GIQYFNNNTQHSS	[R].HGIQYFNNNTQHSSLFTLNEV K.[R]	1xDeamidated [N]	D3DNU8 [162-183]	2592.24774
91	KLQAPLNYTEFQK	[K].LQAPLNYTEFQKPICLPSK.[G]	1xCarbamidomethyl [C15]; 1xDeamidated [N6]	A8K9A9 [489-507]	2248.16822
92	LEGLNFNLTEIPE	[K].ADTHDEILEGLNFNLTEIPEAQI HEGFQELLR.[T]	2xDeamidated [N12; N14]	P01009 [94-125]	3693.79188
93	EVVFTANDSGPRR	[K].ALGISPFHEHADEVVFTANDSGP R.[R]	1xDeamidated [N18]	A0A087WT59 [69-91]	2452.18916
94	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	2xDeamidated [N11; N]	P02765 [166-187]	2367.12114
95	QHLFGSNVTDCSG	[R].QQQHLFGSNVTDCSGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9]	P02787 [622-642]	2516.10815
96	QLQLSHNLSLVIL	[K].VGQLQLSHNLSLVILVPQNLK. [H]	1xDeamidated [N9]	E9KL26 [344-364]	2314.34929
97	QLQLSHNLSLVIL	[K].AKVGQLQLSHNLSLVILVPQN LK.[H]	1xDeamidated [N11]	E9KL26 [342-364]	2513.48137
98	LKGLKFNLTESE	[K].GLKFNLTESEAEIHQSFGHLL R.[T]	1xDeamidated [N5]	A0A024R6P0 [102-124]	2699.37875
99	YKPSAGNNSLYRD	[R].VYKPSAGNNSLYR.[D]	1xDeamidated [N8]	D9IWP9 [136-148]	1469.73832
100	GEATPVNLTEPAK	[R].ADGTVNQIEGEATPVNLTEPA KLEVK.[F]	1xDeamidated [N16]	B4DGC3 [83-108]	2724.3938
101	HHLQEQNVSNAFL	[K].ELHHLQEQNVSNAFLDKGEFY IGSK.[Y]	1xDeamidated [N9]	E9PFZ2 [683-707]	2904.41626

102	ALGLPTNLTHILL	[R].ISALGLPTNLTHILLFGMGR.[G]	1xDeamidated [N9]	P40197 [43-62]	2125.18381
103	GSMSGTNTFTLEIS	[R].FSGSGGTNTFTLEISR.[V]	1xDeamidated [N9]	A0A5C2GK21 [67-82]	1660.78131
104	DGIHGFNFRTSI	[K].DVQIIVFPEDGIHGFNFTR.[T]	1xDeamidated [N16]	C9JSN9 [84-102]	2205.09749
105	LESGPGNLTKVIR	[K].KNQLKTIFPEFLFLESGPGNLT K.[V]	1xDeamidated [N20]	Q9DHQ4 [55-77]	2622.41777
106	KMVSHHNLTTGAT	[- K].MVSHHNLTTGATLINEQWLLT TAK.[N]	1xDeamidated [N6]; 1xOxidation [M1]	P00739 [121-144]; P00738 [179- 202]	2696.37123
107	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	1xDeamidated [N6]	D3DNU8 [289-300]	1432.67432
108	LGQERRNHSCEPC	[R].NHSCEPCQLAVR.[S]	2xCarbamidomethyl [C4; C7]; 1xDeamidated [N1]	Q8IZZ5 [433-445]	1572.68934
109	ELPRFMNYTLYNT	[R].RELPRFMNYTLYNTKNNNVT SK.[K]	3xDeamidated [N8; N13; N16]; 1xOxidation [M7]	A0A2Z5VEG1 [109-131]	2835.39817
110	HHLQEQNVSN AFL	[K].ELHHLQEQNVSN AFLDKGEFY IGSK.[Y]	2xDeamidated [N9; N12]	E9PFZ2 [683-707]	2905.40028
111	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	3xDeamidated [N10; N11; N14]	P02765 [166-187]	2368.10516
112	KTPLTANITKSGN	[K].TPLTANITK.[S]	1xDeamidated [N6]	Q9NPP6 [276-284]; P0DOX2 [315-323]	959.54079
113	LYLAAYNCTLRPV	[R].VLYLAAYNCTLRPVSK.[K]	1xCarbamidomethyl [C9]; 1xDeamidated [N8]	Q9UGM5 [129-144]	1868.99388
114	LRVIDFNCTTSSV	[R].VIDFNCTTSSVSALANTK.[D]	1xCarbamidomethyl [C6]; 1xDeamidated [N5]	B2R8I2 [121-139]	2015.95901
115	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	2xDeamidated [N5; N]	D3DNU8 [289-300]	1433.65834
116	LHINHNNLTESVG	[K].LHINHNNLTESVGPLPK.[S]	1xDeamidated [N7]	A0A384N669 [121-137]	1883.99739
117	KMVSHHNLTTGAT	[- K].MVSHHNLTTGATLINEQWLLT TAK.[N]	2xDeamidated [N6; N15]	P00739 [121-144]; P00738 [179- 202]	2681.36033
118	CTDDVRNATRTNS	[R].NATRTNSSWGKPMK.[G]	1xDeamidated [N1]	G1FEE0 [136-150]	1707.81189

119	AHFVALNGSKLNI	[K].QSVPAHFVALNGSK.[L]	1xDeamidated [N11]	E7ETN3 [382-395]	1455.75905
120	GEATPVNLTEPAK	[R].ADGTVNQIEGEATPVNLTEPA K.[L]	2xDeamidated [N6; N16]	B4DGC3 [83-104]	2256.08778
121	ESVKKENKTLQEE	[K].ENKTLQEEIKDLIDLQLEGGR.[S]	1xDeamidated [N2]	Q9H6N6 [664-684]	2386.20962
122	YSIVQTNCSENF	[R].ITYSIVQTNCSE.[E]	1xCarbamidomethyl [C10]; 1xDeamidated [N9]	D3DNU8 [197-208]	1414.68826
123	INKWVSNKTEGRI	[K-].WVSNKTEGR.[I]	1xDeamidated [N4]	P01008 [221-229]	1077.53235
124	AFGSNPNTKVVVF	[R].AFGSNPNTK.[V]	1xDeamidated [N7]	P22792 [68-77]	1049.5262
125	LEPHRFNDTEVLQ	[R].FNDTEVLQR.[L]	1xDeamidated [N2]	C9JSN9 [129-137]	1122.54258
126	IRDTFVNASRTLY	[R].DTFVNASR.[T]	1xDeamidated [N5]	E9KL26 [234-241]	910.42649
127	PREEQYNSTYRVV	[R].EEQYNSTYR.[V]	1xDeamidated [N5]	Q7Z351 [328-336]	1190.49602
128	ELKYTGNASALFI	[K].YTGNASALFILPDQDK.[M]	1xDeamidated [N4]	A0A024R6P0 [268-283]	1753.86431
129	KEDKSYNVTSVLF	[K].SYNVTSVLFR.[KE]	1xDeamidated [N3]	P80188 [83-92]	1186.61026
130	SAGLASNSSWLRE	[R].WFSAGLASNSSWLR.[E]	1xDeamidated [N9]	Q5SQ11 [43-56]	1582.76487
131	QHLFGSNVTDCSG	[R].QQQHLFGSNVTDCSGNFCLFR. [S]	2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9]	A0A0K0K1H8 [622-642]; B4E1B2 [602-622]	2516.10815
132	PLLAPLNDTRVHA	[R].KVCQDCPLLAPLNDTR.[V]	2xCarbamidomethyl [C3; C6]; 1xDeamidated [N13]	P02765 [144-159]	1900.92554
133	LLGSEANLTCTLT	[R].LSLHRPALEDLLGSEANLTCT LTGLR.[D]	1xCarbamidomethyl [C21]; 1xDeamidated [N18]	Q96DK0 [270-296]; P0DOX2 [229-255]; Q7Z379 [252-278]	2964.58228
134	KMVSHHNLTTGAT	[- K].MVSHHNLTTGATLINEQWLLT TAK.[N]	2xDeamidated [N6; N15]; 1xOxidation [M1]	P00739 [121-144]; P00738 [179- 202]	2697.35524
135	PLKVTQNLTLEE	[K].VTQNLTLEESLTSEFIHDIDR.[E]	1xDeamidated [N4]	I3L4N7 [80-101]	2574.29335
136	VISKVHNGSEILF	[K].VHNGSEILFSYFQDLVITLPEL R.[K]	1xDeamidated [N3]	C0JYY2 [4235-4258]	2838.47126
137	GSGSGTNFTLKIT	[RK].FSGSGSGTNFTLK.[I]	1xDeamidated [N9]	A0A5C2GMY4 [67-79]	1303.61647

138	VPWKDKNCTSRLD	[R].LQAILGVPWKDKNCTSR.[L]	1xCarbamidomethyl [C14]; 1xDeamidated [N13]	A0A7P0Z441 [149-165]	1987.04296
139	SGGLAQNRSTITY	[R].GGSSGWSGGLAQNR.[S]	1xDeamidated [N13]	A0A8Q3WKN4 [425-438]	1334.60837
140	DITYNVNDTFHKR	[R].DQCIVDDITYNVNDTFHK.[R]	1xCarbamidomethyl [C3]; 2xDeamidated [N11; N13]	A0A024R462 [516-533]	2198.95466
141	TRDGGVNRTGNET	[R].IKQIINMWQRPQAIYAPPIQGI IRCASNITGLLLTRDGGVNR.[T]	1xCarbamidomethyl [C26]; 1xDeamidated [N42]; 1xOxidation [M7]	A2Q785 [155-197]	4819.59744
142	LHINHNNLTESVG	[K].KLHINHNNLTESVGPLPK.[S]	1xDeamidated [N8]	A0A384N669 [120-137]	2012.09235
143	GKLPTQNITFQTE	[K].LPTQNITFQTESSVAEQAEFQ SPK.[Y]	1xDeamidated [N5]	B2RMS9 [513-537]	2810.33667
144	GRMSVSNVSCQAS	[K].VSNVSCQASVSR.[M]	1xCarbamidomethyl [C6]; 1xDeamidated [N3]	P55058 [141-152]	1294.60559
145	YKDLLRNCCNTEN	[R].NCCNTENPPGCYR.[Y]	3xCarbamidomethyl [C2; C3; C11]; 2xDeamidated [N1; N4]	P43652 [383-395]	1643.5883
146	KPGASVNVSKAT	[KR].KPGASVNVSK.[AT]	1xCarbamidomethyl [C10]; 1xDeamidated [N7]	A0A5C2GAK6 [13-23]	1147.57758
147	GKPTHVNVSVVMA	[R].LAGKPTHVNVSVVMAEVDGT CY.-]	1xCarbamidomethyl [C21]; 1xDeamidated [N9]	Q96DK0 [475-496]; Q7Z379 [457-478]	2348.12609
148	VLAENYNKSDNCE	[K].CGLVPVLAENYNK.[S]	1xCarbamidomethyl [C1]; 1xDeamidated [N12]	A0A0K0K1H8 [421-433]; B4E1B2 [401-413]	1477.73554
149	FQVQECNKSSSKD	[K].AGLQAFFQVQECNK.[S]	1xCarbamidomethyl [C12]; 1xDeamidated [N13]	E9PFZ2 [346-359]	1640.77372
150	GCEIENNRSSGAF	[R].FGCEIENNR.[S]	1xCarbamidomethyl [C3]; 1xDeamidated [N8]	A0A140VK00 [121-129]	1139.4786
151	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	1xDeamidated [N9]	Q6UY50 [100-109]	1193.54331
152	NITRTSNITGLIL	[R].AIYAPPIEGNITRTSNITGLILTR DGGTGEDNKTETFRPIGGDMR.[D]	1xDeamidated [N16]	B0YYB8 [433-477]	4819.43193
153	KKEDALNETRESE	[K].EDALNETR.[E]	1xDeamidated [N5]	A0A384NKS6 [134-141]	948.42688

154	SDGLESNSSTQFE	[R].FSDGLESNSSTQFEVK.[K]	1xDeamidated [N8]	B7Z1F8 [139-154]; A0A0G2JPR0 [219-234]	1775.79702
155	DVDQALNRSHEIW	[R].LDVDQALNR.[S]	1xDeamidated [N8]	I3L145 [315-323]	1044.53201
156	WTWVGTKNSLTEE	[K].IGGIWTKWVGTKN.[S]	1xDeamidated [N11]	P14151 [94-105]	1332.69466
157	LQNNENNISCVER	[R].LQNNENNISCVER.[G]	1xCarbamidomethyl [C10]; 2xDeamidated [N6; N7]	A0A8V8TQ26 [39-51]	1591.70168
158	EVFVHPNYSKSTT	[K].EVFVHPNYSK.[S]	1xDeamidated [N7]	Q8J009 [18-27]	1220.59461
159	TEERGLNVTLSST	[R].GLNVTLSSTGR.[N]	1xDeamidated [N3]	A0A0G2JPR0 [1326-1336]	1105.58478
160	SVKGRFNISRDTs	[KR].GRFNISR.[D]	1xDeamidated [N4]	A0A7S5BZZ3 [66-72]	850.45298
161	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	2xDeamidated [N7; N9]	Q6UY50 [100-109]	1194.52732
162	IREAYCNISGTEW	[R].KSIPIGPGQALYATGAIIGNIRE AYCNISGTEWKNTLQEVVK.[Q]	1xCarbamidomethyl [C26]; 3xDeamidated [N20; N27; N35]	Q7ZNF7 [33-74]	4563.34396
Glycopeptides were detected only in the serum of colorectal cancer patients					
1	KVVLHPNYSQVDI	[K].QLVEIEKVVLHPNYSQVDIGLI K.[L]	1xDeamidated [N13]	P00738 [229-251]	2635.47053
2	IKQSVINDSIVGD	[K].QSVINDSIVGDKTKVGPFAQL RPGSNLGSVDK.[V]	2xDeamidated [N5; N26]	Q4L3F6 [311-342]	3328.73832
3	NVLDMKNNTTCQDL	[K].NTTCQDLQIEVTVK.[G]	1xCarbamidomethyl [C4]; 1xDeamidated [N1]	P0C0L5 [1391-1404]	1649.80508
4	KQEPERNECFLQH	[K].QEPERNECFLQHK.[D]	1xCarbamidomethyl [C8]; 1xDeamidated [N6]	P02768 [118-130]	1715.78059
5	KSLGNVNFTVSAE	[K].SLGNVNFTVSAEALESQELCG TEVPSVPEHGR.[K]	1xCarbamidomethyl [C20]; 2xDeamidated [N4; N6]	P01023 [864-895]	3415.59582
6	LLGSEANLTCTLT	[R].LSLHRPALEDLLGSEANLTCT LTGLR.[D]	1xCarbamidomethyl [C21]; 1xDeamidated [N18]	P01876 [127-153]; P01877 [114- 140]	2964.58228
7	FRISEENETTCYM	[R].ISEENETTCYMGK.[W]	1xCarbamidomethyl [C9]; 1xDeamidated [N5]	P08603 [907-919]	1562.6349
8	GECKISNSSDTVE	[K].ISNSSDTVECECSENWK.[G]	2xCarbamidomethyl [C10];	O75882 [262-278]	2045.80628

			C12]; 1xDeamidated [N3]		
9	QNNENNISCVERG	[R].LQNNENNISCVER.[G]	1xCarbamidomethyl [C10]; 2xDeamidated [N6; N]	Q03591 [120-132]	1591.70168
10	LQNNENNISCVER	[R].LQNNENNISCVER.[G]	1xCarbamidomethyl [C10]; 1xDeamidated [N7]	Q03591 [120-132]	1590.71766
11	YSIVQTNCSKENF	[R].ITYSIVQTNCSK.[E]	1xCarbamidomethyl [C10]; 1xDeamidated [N9]	P01042 [197-208]	1414.68826
12	KLQAPLNYTEFQK	[K].LQAPLNYTEFQKPICLPSK.[G]	1xCarbamidomethyl [C15]; 1xDeamidated [N6]	P03952 [489-507]	2248.16822
13	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	1xDeamidated [N6]	P01042 [289-300]	1432.67432
14	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	2xDeamidated [N5; N6]	P01042 [289-300]	1433.65834
15	GKLPTQNITFQTE	[K].LPTQNITFQTESSVAEQAEFQ SPK.[Y]	1xDeamidated [N5]	Q14624 [513-537]	2810.33667
16	KQEPERNECFLOH	[R].NECFLOHKDDNPNLPR.[L]	1xCarbamidomethyl [C3]; 1xDeamidated [N1]	P02768 [123-138]	1997.9134
17	MKNCGVNCSGDVF	[K].NCGVNCSGDVFTALIGEIASPN YPKYPENS.[C]	2xCarbamidomethyl [C2; C6]; 2xDeamidated [N1; N5]	P09871 [170-201]	3528.60461
18	MKNCGVNCSGDVF	[K].NCGVNCSGDVFTALIGEIASPN YPKYPENS.[C]	2xCarbamidomethyl [C2; C6]; 1xDeamidated [N]	P09871 [170-201]	3527.62059
19	DGEEKNNATVHEQ	[K].NNATVHEQVGGPSLTSDLQAQ SK.[G]	2xDeamidated [N1; N2]	P04004 [85-107]	2383.13719
20	DGEEKNNATVHEQ	[K].N ATVHEQVGGPSLTSDLQAQSK.[G]	1xDeamidated [N2]	P04004 [85-107]	2382.15317
21	EQLNNKNLSMPLL	[K].NLSMPLLPADPHK.[E]	1xDeamidated [N1]	P05546 [49-61]	1483.76136
22	KMVSHHNLTTGAT	[K].MVSHHNLTTGATLINEQWLLT TAK.[N]	2xDeamidated [N6; N15]; 1xOxidation [M1]	P00739 [121-144]; P00738 [179- 202]	2697.35524
23	KMVSHHNLTTGAT	[K].MVSHHNLTTGATLINEQWLLT TAK.[N]	1xDeamidated [N6]	P00739 [121-144]; P00738 [179- 202]	2680.37631
24	KMDGASNVTCINS	[K].MDGASNVTCINS.[W]	1xCarbamidomethyl [C9];	P08603 [1024-1036]	1425.60969

			1xDeamidated [N6]		
25	IYSGILNLSDTK	[R].IYSGILNLSDTK.[D]	1xDeamidated [N7]	P03952 [447-459]	1437.78354
26	KMVSHHNLTTGAT	[K].MVSHHNLTTGATLINEQWLLT TAK.[N]	1xDeamidated [N6]; 1xOxidation [M1]	P00739 [121-144]; P00738 [179- 202]	2696.37123
27	KSPDVINGSPISQ	[K].SPDVINGSPISQK.[I]	1xDeamidated [N6]	P08603 [212-224]	1342.68489
28	SAGLASNSSWLRE	[R].WFSAGLASNSSWLR.[E]	1xDeamidated [N9]	Q8WNM0 [43-56]	1582.76487
29	YKPSAGNNSLYRD	[R].VYKPSAGNNSLYR.[D]	1xDeamidated [N8]	P02749 [155-167]	1469.73832
30	YKPSAGNNSLYRD	[R].VYKPSAGNNSLYR.[D]	2xDeamidated [N8; N9]	P02749 [155-167]	1470.72233
31	INKWVSNKTEGRI	[K].WVSNKTEGR.[I]	1xDeamidated [N4]	P01008 [221-229]	1077.53235
32	KWSDIWNATKYAN	[K].WSDIWNATK.[Y]	1xDeamidated [N6]	P06276 [80-88]	1121.5262
33	QLQLSHNLSLVIL	[K].VGQLQLSHNLSLVILVPQNLK. [H]	1xDeamidated [N9]	P05155 [344-364]	2314.34929
34	AVKTHTNISESHP	[K].THTNISESHPNATFSAVGEASI CEDDDWSGER.[F]	1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11]	P0DOX6 [392-423]	3521.46699
35	ISESHPNATFSAV	[K].THTNISESHPNATFSAVGEASI CEDDDWSGER.[F]	1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11]	P0DOX6 [392-423]	3521.46699
36	RKSRPANHCYFY	[K].SRPANHCYFYFGDEISFSCHET SR.[F]	2xCarbamidomethyl [C7; C19]; 1xDeamidated [N5]	P04003 [381-404]	2920.24135
37	LEGLGFNLTELSE	[R].SQILEGLGFNLTESEDVHR.[G]	1xDeamidated [N10]	Q5RCR2 [99-119]	2345.16195
38	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	2xDeamidated [N7; N9]	O75636 [181-190]	1194.52732
39	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	1xDeamidated [N9]	O75636 [181-190]	1193.54331
40	IRDTFVNASRTLY	[R].DTFVNASR.[T]	1xDeamidated [N5]	P05155 [234-241]	910.42649
41	KKEDALNETRES	[K].EDALNETR.[E]	1xDeamidated [N5]	P10909 [82-89]	948.42688
42	DITYNVNDTFHKR	[R].DQCIVDDITYNVNDTFHK.[R]	1xCarbamidomethyl [C3]; 1xDeamidated [N13]	Q28749 [466-483]; P02751 [516- 533]	2197.97064
43	DIVEYYNDSNGSH	[K].DIVEYYNDSNGSHVLQGR.[F]	2xDeamidated [N7; N10]	P25311 [103-120]	2067.9254
44	EYYNDSNGSHVLQ	[K].DIVEYYNDSNGSHVLQGR.[F]	2xDeamidated [N7; N10]	P25311 [103-120]	2067.9254
45	EYYNDSNGSHVLQ	[K].DIVEYYNDSNGSHVLQGR.[F]	1xDeamidated [N10]	P25311 [103-120]	2066.94139

46	EVFVHPNYSKSTT	[K].EVFVHPNYSK.[S]	1xDeamidated [N7]	P04070 [284-293]	1220.59461
47	GCEIENNRSSGAF	[R].FGCEIENNR.[S]	1xCarbamidomethyl [C3]; 2xDeamidated [N7; N8]	P25311 [121-129]	1140.46261
48	GCEIENNRSSGAF	[R].FGCEIENNR.[S]	1xCarbamidomethyl [C3]; 1xDeamidated [N7]	P25311 [121-129]	1139.4786
49	ASKEWDNTTTECR	[K].EWDNTTTECR.[L]	1xCarbamidomethyl [C9]; 1xDeamidated [N4]	P20851 [68-77]	1312.51102
50	DIFTKENLTAPGS	[K].ENLTAPGSDSAVFFEQGTTR.[I]	1xDeamidated [N2]	P00450 [396-415]	2127.98292
51	PREEQYNSTYRVV	[R].EEQYNSTYR.[V]	1xDeamidated [N5]	P01857 [176-184]	1190.49602
52	PREEQYNSTFRVVS	[R].EEQYNSTFR.[V]	1xDeamidated [N5]	P01860 [223-231]	1174.50111
53	PREEQFNSTFRVV	[R].EEQFNSTFR.[V]	1xDeamidated [N5]	P01859 [172-180]	1158.50619
54	GAIYPDNTTDFQR	[K].EHEGAIYPDNTTDFQR.[A]	1xDeamidated [N10]	P00450 [129-144]	1893.82496
55	PLNNRENISDPTS	[R].ENISDPTSPLR.[T]	1xDeamidated [N2]	P01591 [70-80]	1229.60082
56	HHLQEQNVSNAFL	[K].ELHHLQEQNVSNAFLDKGEFY IGSK.[Y]	2xDeamidated [N9; N12]	P00450 [754-778]	2905.40028
57	GIRAGPNGTLFVA	[R].AGPNGTLFVADAYK.[G]	1xDeamidated [N4]	Q9HDC9 [157-170]	1424.70562
58	FQVQECNKSSSKD	[K].AGLQAFFQVQECNK.[S]	1xCarbamidomethyl [C12]; 1xDeamidated [N13]	P00450 [346-359]	1640.77372
59	DEKAFENVTDLQW	[K].AFENVTDLQWLILDHNLENS K.[I]	1xDeamidated [N4]	P51884 [85-106]	2613.31951
60	EVVFTANDSGPRR	[K].ALGISPFHEHADEVVFTANDSGP R.[R]	1xDeamidated [N18]	P02766 [101-123]	2452.18916
61	RALGFENATQALG	[R].ALGFENATQALGR.[A]	1xDeamidated [N6]	Q08380 [64-76]	1348.68555
62	QLQLSHNLSLVIL	[K].AKVGQLQLSHNLSLVILVPQN LK.[H]	1xDeamidated [N11]	P05155 [342-364]	2513.48137
63	TCINPLNGSVCER	[K].AATCINPLNGSVCERPANHSA K.[Q]	2xCarbamidomethyl [C4; C13]; 2xDeamidated [N9; N18]	O75882 [906-927]	2369.09725
64	VCERPANHSAKQC	[K].AATCINPLNGSVCERPANHSA	2xCarbamidomethyl [C4;	O75882 [906-927]	2369.09725

		K.[Q]	C13]; 2xDeamidated [N9; N18]		
65	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	2xDeamidated [N]	P02765 [166-187]	2367.12114
66	LEGLNFNLTEIPE	[K].ADTHDEILEGLNFNLTEIPEAQI HEGFQELLR.[T]	1xDeamidated [N14]	P01009 [94-125]	3692.80786
67	GEATPVNLTEPAK	[R].ADGTVNQIEGEATPVNLTEPA K.[L]	1xDeamidated [N16]	P05090 [83-104]	2255.10376
68	EVVFTANDSGPRR	[K].ALGISPFHEHAEVVFTANDSGP RR.[Y]	1xDeamidated [N18]	P02766 [101-124]	2608.29027
69	VLAENYNKSDNCE	[K].CGLVPVLAENYNK.[SN]	1xCarbamidomethyl [C1]; 1xDeamidated [N12]	P02787 [421-433]	1477.73554
70	AGVVCTNETRSTH	[R].DAGVVCTNETR.[S]	1xCarbamidomethyl [C6]; 1xDeamidated [N8]	Q08380 [118-128]	1222.53684
71	LQGLGFNLTERSE	[R].AQLLQGLGFNLTER.[S]	1xDeamidated [N10]	P08185 [87-100]	1560.83803
72	KANQQLNFTEAKE	[K].ANQQLNFTEAK.[E]	1xDeamidated [N6]	Q9Y5Y7 [48-58]	1264.61681
73	LMKYLGNATAIFF	[K].KLSSWVLLMKYLGNATAIFFL PDEGK.[L]	1xDeamidated [N14]	P01009 [258-283]	2942.57361
74	HVKHYTNSSQDVT	[K].HYTNSSQDVTVPCR.[V]	1xCarbamidomethyl [C13]; 1xDeamidated [N4]	P01877 [89-102]	1664.73331
75	SFEGLVNLTFIHL	[K].LGSFEGLVNLTFIHLQHNR.[L]	1xDeamidated [N9]	P51884 [152-170]	2196.15601
76	SSSGPVNVSDKIT	[R].LGHCDPVVLVNGEFSSSGPVN VSDK.[I]	1xCarbamidomethyl [C4]; 2xDeamidated [N11; N21]	P20851 [78-102]	2613.21372
77	SSSGPVNVSDKIT	[R].LGHCDPVVLVNGEFSSSGPVN VSDK.[I]	1xCarbamidomethyl [C4]; 1xDeamidated [N21]	P20851 [78-102]	2612.22971
78	ECTKLGNWSAMPS	[K].LGNWSAMPSC.[A]	1xCarbamidomethyl [C10]; 1xDeamidated [N3]	P02749 [251-261]	1251.54966
79	LHINHNLTESVG	[K].LHINHNLTESVGPLPK.[S]	1xDeamidated [N7]	P51884 [121-137]	1883.99739
80	TNLQFVNETDSTV	[K].LDAPTNLQFVNETDSTVLVR.[	1xDeamidated [N11]	P02751 [997-1016]	2233.13467

		W]			
81	WVSRLANLTQGED	[R].LANLTQGEDQYYLR.[V]	1xDeamidated [N3]	P10909 [372-385]	1684.81769
82	KIDSTGNVTNELR	[K].IDSTGNVTNELR.[V]	1xDeamidated [N6]	O75882 [411-422]	1319.64375
83	FVEGSHNSTVSLT	[K].FVEGSHNSTVSLTTK.[N]	1xDeamidated [N7]	P04114 [3405-3419]	1607.79114
84	GTKFLNNGTCTAE	[K].FLNNGTCTAEGK.[F]	1xCarbamidomethyl [C7]; 2xDeamidated [N3; N4]	P05156 [100-111]	1313.56781
85	ESNLRFNSSYLQG	[R].FNSSYLQGTNQITGR.[Y]	1xDeamidated [N2]	P04114 [1522-1536]	1686.80819
86	ESNLRFNSSYLQG	[R].FNSSYLQGTNQITGR.[Y]	2xDeamidated [N2; N10]	P04114 [1522-1536]	1687.7922
87	SDGLESNSSTQFE	[R].FSDGLESNSSTQFEVK.[K]	1xDeamidated [N8]	P0C0L5 [219-234]	1775.79702
88	TFVKGVNVCQETC	[K].GVNVCQETCTK.[M]	2xCarbamidomethyl [C5; C9]; 1xDeamidated [N3]	P03952 [314-324]	1296.55586
89	GRGLCVNASAVSR	[R].GLCVNASAVSR.[L]	1xCarbamidomethyl [C3]; 1xDeamidated [N5]	P17936 [112-122]	1134.55718
90	TEERGLNVLST	[R].GLNVLSTSTR.[N]	1xDeamidated [N3]	P0C0L5 [1326-1336]	1105.58478
91	ARYKGLNLTDITY	[K].GLNLTDITYKPR.[I]	1xDeamidated [N3]	Q08380 [396-407]	1407.71144
92	PRSPYYNVSDAIS	[R].SPYYNVSDAISFHCYDGYTLR.[G]	1xCarbamidomethyl [C14]; 1xDeamidated [N5]	P00751 [118-138]	2587.1082
93	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	2xDeamidated [N10; N]	P02765 [166-187]	2367.12114
94	LKGLKFNLTTSE	[K].FNLTTSEAEIHQSFQHLLR.[T]	1xDeamidated [N2]	P01011 [105-124]	2401.17826
95	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	1xDeamidated [N11]	P02765 [166-187]	2366.13713
96	KLYLGSNNLTALHP	[K].LYLGSNNLTALHPALFQNLK. [L]	2xDeamidated [N7; N18]	P22792 [342-362]	2316.22342
97	HPALFQNLKLEL	[K].LYLGSNNLTALHPALFQNLK. [L]	2xDeamidated [N7; N18]	P22792 [342-362]	2316.22342
98	HHLQEQNVSNAFL	[K].ELHHLQEQNVSNAFLDK.[G]	1xDeamidated [N9]	P00450 [754-770]	2022.98794
99	REEQFNSTFRVVS	[R].EEQFNSTFRVVSVLTVVHQDW LNGK.[E]	2xDeamidated [N5; N23]	P01859 [172-196]	2934.46321

100	PREEQFNSTFRVV	[R].EEQFNSTFRVSVLTVVHQDW LNGK.[E]	1xDeamidated [N5]	P01859 [172-196]	2933.4792
101	LHINHNLTESVG	[K].KLHINHNLTESVGPLPK.[S]	1xDeamidated [N8]	P51884 [120-137]	2012.09235
102	KMVSHHNLTTGAT	[K].MVSHHNLTTGATLINEQWLLT TAK.[N]	2xDeamidated [N6; N15]	P00739 [121-144]; P00738 [179-202]	2681.36033
103	GKPETHVNSVMA	[R].LAGKPETHVNSVMAEVDGT CY.[-]	1xCarbamidomethyl [C21]; 1xDeamidated [N9]	P01876 [332-353]	2348.12609
104	DIVEYYNDSNGSH	[K].DIVEYYNDSNGSHVLQGR.[F]	1xDeamidated [N]	P25311 [103-120]	2066.94139
105	GEATPVNLTEPAK	[R].ADGTVNQIEGEATPVNLTEPA KLEVK.[F]	1xDeamidated [N16]	P05090 [83-108]	2724.3938
106	KVVLHPNYSQVDI	[K].DIAPTLTYVGKKQLVEIEKV VLHPNYSQVDIGLIK.[L]	1xDeamidated [N26]	P00738 [216-251]	4035.27803
107	SGGLAQNRSTITY	[R].GGSSGWSGGLAQNR.[S]	1xDeamidated [N13]	P07357 [425-438]	1334.60837
108	AHFVALNGSKLNI	[K].QSVPAHFVALNGSK.[L]	1xDeamidated [N11]	Q863A0 [611-624]	1455.75905
109	PREEQYNSTYRVV	[R].EEQYNSTYRVVSVLTVLHQD WLNGK.[E]	2xDeamidated [N5; N23]	P01857 [176-200]	2980.46869
110	DGEEKNNATVHEQ	[K].NNATVHEQVGGPSLTSDLQAQ SK.[G]	1xDeamidated [N2]	P04004 [85-107]	2382.15317
111	SDGLESNSSTQFE	[R].FSDGLESNSSTQFEVK.[K]	1xDeamidated [N8]	P0C0L4 [219-234]; P0C0L5 [219-234]	1775.79702
112	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	2xDeamidated [N5; N]	P01042 [289-300]	1433.65834
113	FLNHSENATAKDI	[K].NLFLNHSENATAK.[D]	1xDeamidated [N]	P00739 [145-157]; P00738 [203-215]	1459.71758
114	GRLQSPNISEVME	[R].LQSPNISEVMEILGQEMCINRM LSAQEL.[-]	1xCarbamidomethyl [C18]; 2xDeamidated [N5; N20]; 2xOxidation [M10; M17]	Q2GKT8 [441-468]	3267.52516
115	PREEQYNSTYRVV	[R].EEQYNSTYRVVSVLTVLHQD WLNGK.[E]	1xDeamidated [N5]	P01857 [176-200]	2979.48468
116	YLGIDNPTSRRY	[R].SFLFDPASNIDTGTAYLAMLN	1xDeamidated [N30];	A1AFE9 [258-291]	3664.74757

		NVYLGGINPTSR.[R]	1xOxidation [M19]		
117	NAPLKSNNSETSS	[K].SKPFAFGNTSATGSLFGFSFNA PLKSNNSETSSVAQSGSESKVEPN K.[C]	2xDeamidated [N27; N28]	H2QII6 [2530-2576]	4842.30169
118	HASHTANLCVLLY	[K].VPGLYYFVYHASHTANLCVLL YR.[S]	1xCarbamidomethyl [C18]; 1xDeamidated [N16]	P02747 [162-184]	2757.38575
119	KQEPERNECFLQH	[K].QEPERNECFLQHK.[D]	1xCarbamidomethyl [C8]; 1xDeamidated [N6]	P02768 [118-130]; P02770 [118-130]	1715.78059
120	PELYNGNYSTTQK	[R].KEHETCLAPELYNGNYSTTQK. [T]	1xCarbamidomethyl [C6]; 2xDeamidated [N13; N15]	P05160 [148-168]	2485.11876
121	CVTGIHNCSINET	[R].NCQDIDECVTGIHNCSINETCF NIQGGFR.[C]	4xCarbamidomethyl [C2; C8; C15; C21]; 3xDeamidated [N1; N14; N18]	P23142 [522-550]	3461.41372
122	IHNCSINETCFNI	[R].NCQDIDECVTGIHNCSINETCF NIQGGFR.[C]	4xCarbamidomethyl [C2; C8; C15; C21]; 3xDeamidated [N1; N14; N18]	P23142 [522-550]	3461.41372
123	LQNNENNISCVER	[R].LQNNENNISCVER.[G]	1xCarbamidomethyl [C10]; 2xDeamidated [N6; N7]	P36980 [120-132]; Q03591 [120-132]	1591.70168
124	QFLMLRNRSEST	[R].LLELLDSLFLQFLMLRNRSEST TLTLFDILPNPK.[E]	1xDeamidated [N17]; 1xOxidation [M14]	Q9QJ55 [150-184]	4134.25592
125	QVFPGLNYCTSGA	[K].QVFPGLNYCTSGAYSNASSTD SASYYPITGDTR.[L]	1xCarbamidomethyl [C9]; 2xDeamidated [N7; N16]	P04114 [968-1000]	3552.53836
126	TSGAYSNASSTD	[K].QVFPGLNYCTSGAYSNASSTD SASYYPITGDTR.[L]	1xCarbamidomethyl [C9]; 2xDeamidated [N7; N16]	P04114 [968-1000]	3552.53836
127	NVLDMKNITCQDL	[K].NTTCQDLQIEVTVK.[G]	1xCarbamidomethyl [C4]; 1xDeamidated [N1]	P0C0L4 [1391-1404]; P0C0L5 [1391-1404]	1649.80508
128	PVLAENYNKSDNCE	[K].CGLVPVLAENYNK.[SN]	1xCarbamidomethyl [C1]; 1xDeamidated [N]	P02787 [421-433]	1477.73554
129	DHCVPRNHSCSEG	[R].NHSCSEGQISIFR.[Y]	1xCarbamidomethyl [C4];	O75882 [731-743]	1535.69072

			1xDeamidated [N1]		
130	GTKFLNNGTCTAE	[K].FLNNGTCTAEGK.[F]	1xCarbamidomethyl [C7]; 1xDeamidated [N]	P05156 [100-111]	1312.58379
131	GCEIENNRSSGAF	[R].FGCEIENNR.[S]	1xCarbamidomethyl [C3]; 1xDeamidated [N8]	P25311 [121-129]	1139.4786
132	FRISEENETTCY	[R].ISEENETTCYMGK.[W]	1xCarbamidomethyl [C9]; 1xDeamidated [N5]	P08603 [907-919]	1562.6349
133	KKEDALNETRESE	[K].EDALNETR.[E]	1xDeamidated [N5]	P10909 [82-89]	948.42688
134	WVSRLANLTQGE	[R].LANLTQGEDQYYLR.[V]	1xDeamidated [N3]	P10909 [372-385]	1684.81769
135	IGEADFNRSEKFM	[K].IGEADFNR.[S]	1xDeamidated [N7]	P04275 [1509-1516]	922.42649
136	KQEPERNECFLQH	[R].NECFLQHK.[D]	1xCarbamidomethyl [C3]; 1xDeamidated [N1]	P02768 [123-130]; P02770 [123-130]	1076.48296
137	LGQERRNHSCEPC	[R].NHSCEPCQTLAVR.[S]	2xCarbamidomethyl [C4; C7]; 1xDeamidated [N1]	P00748 [433-445]	1572.68934
138	EGHFYYNISEVKV	[K].EGHFYYNISEVK.[V]	1xDeamidated [N7]	P55058 [58-69]	1486.68489
139	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	1xDeamidated [N9]	O75636 [181-190]	1193.54331
140	EYQTRQNQCIFYNS	[R].QNQCIFYNSSYLNVR.[E]	1xCarbamidomethyl [C4]; 2xDeamidated [N2; N7]	P19652 [87-101]	1922.83375
141	QNQCIFYNSSYLVN	[R].QNQCIFYNSSYLNVR.[E]	1xCarbamidomethyl [C4]; 2xDeamidated [N2; N7]	P19652 [87-101]	1922.83375
142	PHRGICNSSDVRG	[R].GICNSSDVR.[G]	1xCarbamidomethyl [C3]; 1xDeamidated [N4]	O75882 [297-305]	1008.44149
143	PREEQYNSTFRVV	[R].EEQYNSTFR.[V]	1xDeamidated [N5]	P01860 [223-231]	1174.50111
144	DVDQALNRSHEIW	[R].LDVDQALNR.[S]	1xDeamidated [N8]	P04278 [373-381]	1044.53201
145	NYRGHVNITRSGI	[R].GHVNITR.[S]	1xDeamidated [N4]	P00734 [118-124]	797.42643
146	ECTKLGNWSAMPS	[K].LGNWSAMPSC.[A]	1xCarbamidomethyl [C10]; 1xDeamidated [N3]; 1xOxidation [M7]	P02749 [251-261]	1267.54457
147	HHLQEQNVSNAFL	[K].ELHHLQEQNVSNAFLDKGEFY	1xDeamidated [N9]	P00450 [754-778]	2904.41626

		IGSK.[Y]			
148	KMVSHHNLTTGAT	[K].VVLHPNYSQVDIGLIK.[L]	1xDeamidated [N6]	P00738 [236-251]	1795.99526
149	TNLQFVNEDSTVL	[K].LDAPTNLQFVNEDSTVLVR.[W]	1xDeamidated [N11]	P02751 [997-1016]	2233.13467
150	VDSPVYNATWSAS	[R].FEVDSPVYNATWSASLK.[N]	1xDeamidated [N9]	P04114 [3887-3903]	1914.91199
151	AFNAQNNGSNFQL	[K].AALAAFNAQNNGSNFQLEEIS R.[A]	3xDeamidated [N7; N10; N11]	P02765 [166-187]	2368.10516
152	MKNCGVNCSGDVF	[K].NCGVNCSGDVFTALIGEIASPN YPKPYPENSR.[C]	2xCarbamidomethyl [C2; C6]; 2xDeamidated [N5; N22]	P09871 [170-201]	3528.60461
153	KLNAENNATFYFK	[K].LNAENNATFYFK.[I]	1xDeamidated [N]	P01042 [289-300]	1432.67432
154	LYLGSNNLTALHP	[K].LYLGSNNLTALHPALFQNLK. [L]	2xDeamidated [N7; N18]	P22792 [342-362]	2316.22342
155	PYDPSKNASKKPL	[R].WRCCSQLEKPAVGCAPYDPSK NASK.[K]	3xCarbamidomethyl [C3; C4; C14]; 1xDeamidated [N22]	Q03526 [136-160]	2910.33314
156	IPGNSFNVSSLVE	[R].LSHNELADSGIPGNSFNVSSLV ELDLSYNK.[L]	1xDeamidated [N17]	P51884 [236-265]	3220.56444
157	QHAMFGNDTITCT	[R].DTAVFECLPQHAMFGNDTITC TTHGNWTK.[L]	2xCarbamidomethyl [C7; C21]; 2xDeamidated [N16; N26]	P02749 [168-196]	3354.45002
158	TCTTHGNWTKLPE	[R].DTAVFECLPQHAMFGNDTITC TTHGNWTK.[L]	2xCarbamidomethyl [C7; C21]; 2xDeamidated [N16; N26]	P02749 [168-196]	3354.45002
159	IPGNSFNVSSLVE	[R].LSHNELADSGIPGNSFNVSSLV ELDLSYNK.[L]	2xDeamidated [N14; N17]	P51884 [236-265]	3221.54846
160	LAQVAANATKEFT	[R].LEPVHLQLQCMSQEQLAQVA ANATK.[E]	1xCarbamidomethyl [C10]; 1xDeamidated [N22]	Q96PD5 [346-370]	2808.40187
161	AKNLFLNHSENAT	[K].NLFLNHSENATAK.[D]	1xDeamidated [N5]	P00739 [145-157]; P00738 [203- 215]	1459.71758
162	TEERGLNVTLSST	[R].GLNVTLSSTGRNGFK.[S]	2xDeamidated [N3; N12]	P0C0L5 [1326-1340]	1552.79656

163	GEGRAVNITSENL	[R].AVNITSENLIDDVVSLIR.[G]	1xDeamidated [N3]	P02748 [413-430]	1972.05971
164	LQNNENNISCV	[R].LQNNENNISCV.[G]	1xCarbamidomethyl [C10]; 2xDeamidated [N6; N7]	Q03591 [120-132]	1591.70168
165	SWKYKNNSDISST	[K].NNSDISST.[G]	1xDeamidated [N1]	P01871 [46-54]	994.44359
166	VLAENYNKSDNCE	[K].CGLVPVLAENYNK.[SN]	1xCarbamidomethyl [C1]; 2xDeamidated [N10; N12]	P02787 [421-433]	1478.71956
167	PPGLLANFTLLRT	[K].LPPGLLANFTLLR.[T]	1xDeamidated [N8]	P02750 [179-191]	1425.84641
168	PREEQFNSTYRVV	[R].EEQFNSTYR.[V]	1xDeamidated [N5]	P01861 [173-181]	1174.50111
169	PREEQFNSTFRVV	[R].EEQFNSTFR.[V]	1xDeamidated [N5]	P01859 [172-180]	1158.50619
170	GCEIENNRSSGAF	[R].FGCEIENNR.[S]	1xCarbamidomethyl [C3]; 1xDeamidated [N]	P25311 [121-129]	1139.4786
171	LEDFNGNRTFAHY	[R].VELEDFNGNR.[T]	2xDeamidated [N7; N9]	O75636 [181-190]	1194.52732
172	KANQQLNFTEAK	[K].ANQQLNFTEAK.[E]	1xDeamidated [N6]	Q9Y5Y7 [48-58]	1264.61681
173	DFYVDENTTVRV	[K].DFYVDENTTVR.[V]	1xDeamidated [N7]	Q5RCR2 [232-242]	1359.6063
174	SGSTSGNTTTLTI	[R].FSGSTSGNTTTLTISR.[V]	1xDeamidated [N8]	A0A075B6J6 [80-95]	1630.79187
175	PGFSKDNNSIITR	[K].DNNSIITR.[K]	1xDeamidated [N2]	P06276 [368-375]	933.4636