**Supplementary Information**

# DNA tetrahedron-inspired magnetic hybrid with regular distribution of trypsin for ultra-fast digestion of proteins and glycoproteomics analysis

*Jiahui Lai, Danni Wang, Xiuqin Sheng, Chuan-Fan Ding*, Yinghua Yan**

*School of Materials Science and Chemical Engineering, Ningbo University, Ningbo 315211, China*

*Corresponding author: Chuan-Fan Ding, Yinghua Yan

E-mail: dingchuanfan@nbu.edu.cn; yanyinghua@nbu.edu.cn。

**Characterization**

Deionized water was got through using Milli-Q IQ 7000. Scanning electron microscopy (SEM) was characterized by ZEISS Sigma 300 (Germany). Transmission electron microscopy (TEM) was characterized by FEI Tecnai F20 (USA). Fourier transform infrared spectra (FT-IR) was characterized by Thermo Fisher Scientific 10 infrared spectrometer analysis. Thermogravimetry Analysis was characterized by TA TGA 550 (USA). X-ray photoelectron spectroscopy (XPS) was characterized by Thermo Kalpha. AFM was characterized by Agilent 5500.

**Standard protein pretreatment**

According to the classic method, BSA was pretreated with DTT and IAA. BSA (50 mg) dispersed in $NH_4HCO_3$ (50 mM, 2.5 mL) was boiled and denatured at 100 °C for 10 min. Then a mixed solution of DTT (5 mM, 0.25 mL) and $NH_4HCO_3$ (50 mM, 2.25 mL) was added to it and shook at 56 °C for 1 h. Afterwards, a mixed solution of IAA (14 mM, 0.5 mL) and $NH_4HCO_3$ (50 mM, 4.5 mL) was added to it under dark conditions and alkylated at 37 °C for 1 h.

HRP was pretreated with DTT and IAA. HRP (50 mg) was dispersed to $NH_4HCO_3$ (50 mM, 2.5 mL), and then heating it at 100 °C for 10 min to denature it. Then a mixed solution of DTT (5 mM, 0.25 mL) and $NH_4HCO_3$ (50 mM, 2.25 mL) was added to it and shook at 56 °C for 1 h. Afterwards, a mixed solution of IAA (14 mM, 0.5 mL) and $NH_4HCO_3$ (50 mM, 4.5 mL) was added to it under dark conditions and alkylated at 37 °C for 1 h.

**Practical sample pretreatment**

The protein sample (0.4 mg) was completely dissolved in $NH_4HCO_3$ (50 mM, 20 μL) solution and heated at 100 °C for 10 min to denature it. Subsequently, a mixed solution of DTT (5 mM, 2 μL) and $NH_4HCO_3$ (50 mM, 18 μL) was added to it and shook at 56 °C for 1 h. Afterwards, a mixed

solution of IAA (14 mM, 4 μL) and $NH_4HCO_3$ (50 mM, 36 μL) was added to it under dark conditions and alkylated at 37 °C for 1 h.

**MALDI-TOF MS analysis**

All studies were carried out in reflected positive ion mode using MALDI-TOF MS (Bruker Auto Flex Max). An enhanced Nd:YAG laser (the detection frequency was 1000 Hz) operated the device. The mass charge ratio measurement range was 1000-3500 Da, the detector voltage was around 18 kV, and the launch tube acceleration voltage was 20 kV. The matrix used was DHB (20 mg/mL), dissolved in a mixed solution (ACN: $H_2O$: TFA = 20%: 79.9%: 0.1%, volume ratio).

**Nano LC-MS/MS analysis.**

Liquid phase A was a 0.1% formic acid aqueous solution, and B was a 0.1% formic acid acetonitrile solution (acetonitrile is 100%). Column Thermo Scientific analytical column (75μm×25 cm, 5μm, 100 Å, C18) was equilibrated with 95% A liquid. The sample was loaded by the autosampler to the Thermo Scientific EASY trap column (100μm×2cm, 5μm, 100Å, C18), and then separated by the chromatographic column. The relevant liquid gradient was as follows: from 0 min to 40 min, linear gradient of liquid B was from 5% to 28%; from 40 minutes to 42 minutes, the linear gradient of liquid B was from 28% to 90%; from 42 minutes to 60 minutes, the liquid B was maintained at 90%. The enzymatic hydrolysis products were desalted and separated by capillary high performance liquid chromatography, and then analyzed by mass spectrometry using Obitrap Fusion Lumos mass spectrometer (Thermo Finnigan, San Jose, CA). Analysis time: 60min, detection method: positive ion, precursor ion scan range: 375-1800 m/z, primary mass spectrometry resolution: 120,000 at m/z 200, scan mode: Top-Speed, AGC target: 4e5, first-level Maximum IT: 50 ms, Number of scan ranges: 1, Dynamic exclusion: 40.0 s, Data Dependent Mode: Cycle Time,

Time between Master Scan: 3s. The mass-to-charge ratios of peptides and peptide fragments were collected according to the following method: the secondary spectrum scan (MS2 scan) was performed at the same time as each primary scan (Master scan), the scanning cycle was 3s, MS2 Activation Type: HCD, secondary mass spectrometry Resolution: 50,000 at m/z 200, Microscans: 1, Level 2 Maximum IT: 105 ms, AGC target: 1e5.

**Database search and data analysis.**

RAW files were utilized for MS analysis, library detection and quantification using the Proteome Discoverer 2.4 software (Thermo Scientific). The human database downloaded from the website “http://www.uniprot.org” was used for comparison. The library search involved uploading RAW files to SequestHT through software and selecting and searching the established databases. The following were the search parameters: peptides with charged numbers of $2^+$, $3^+$, and $4^+$; a maximum of 2 allowed missing cut sites; trypsin digestion; and monoisotopic mass. Additionally, fixed modifications to carbamidomethylation (C), dynamic modifications to oxidation (M), acethyl (protein N-term), deamidated [N], and phospho (S, T, Y) were considered. The maximum error was 0.05 Da for precursor ions and 10 ppm for precursor ions. Proteome Discoverer 2.4 outputs the results after high-confidence peptide screening based on the peptide identification results.

**Preparation of $Fe_3O_4$**

Magnetic $Fe_3O_4$ were synthesized through a solvothermal reduction method. Firstly, $FeCl_3 \cdot 6H_2O$ (2.16 g), diethylene glycol (60 mL), and ethylene glycol (20 mL) were added to a beaker (100 mL) and sonicated for 10 min until homogeneous, then NaAc (6.0 g) and sodium acrylates (6.0 g) were added, and mechanically stirred until this mixed solution was a homogeneous dark yellow solution, and then the mixed solution was transferred to a reactor (100 mL) and heated at 200 °C for 10 h. After the reaction, the mixed solution was cooled to room temperature, the product was separated with a magnet, washed three times with anhydrous ethanol, and the washed product was dried under vacuum. The $Fe_3O_4$ was finally obtained.

**Preparation of poly ($Fe_3O_4$@DOPA/PEI)**

Firstly, $Fe_3O_4$ (40 mg), Tris-HCl (10 mM, 160 mL), and L-DOPA (160 mg) were added to a beaker (500 mL) and sonicated for 10 min until homogeneous, then PEI (2 mL), $CuSO_4$ (212 mg), and $H_2O_2$ (1.6 mL) were added sequentially, sonicated to a homogeneous dark brown solution, and the mixed solution was subsequently mechanically stirred for 12 h at room temperature. After the reaction, the product was separated with a magnet, washed three times with deionized water, and the washed product was dried under vacuum. The poly ($Fe_3O_4$@DOPA/PEI) was finally obtained.

**Preparation of AuNPs solution**

$HAuCl_4 \cdot 4H_2O$ (20 $mg \cdot mL^{-1}$, 2.5 mL) was added to deionized water (122 mL) for condensation reflux with continuous heating. Waiting for the heating to 181 °C, sodium citrate dihydrate (38.8 mM, 12.5 mL) was quickly added, and the color of the solution rapidly changed from light yellow to dark purple. After continuous heating at 181 °C for 15 min, the solution was cooled to room temperature and set aside. The AuNPs solution was finally obtained.

**Preparation of $Fe_3O_4$@DOPA/PEI@Au**

Firstly, poly ($Fe_3O_4$@DOPA/PEI) (90 mg) was added to AuNPs solution (60 mL) and sonicated for 30 min until homogeneous. Subsequently, the mixed solution was mechanically stirred at room temperature for 1 h. After the reaction, the product was separated with a magnet, washed three times with anhydrous ethanol, and the washed product was dried under vacuum. The $Fe_3O_4$@DOPA/PEI@Au was finally obtained.

**Preparation of DNA tetrahedron (DNA TET)**

Through the principle of base complementary pairing, four ssDNA were carefully designed, which were used to prepare DNA TET. First, each ssDNA was dissolved and diluted to a concentration of 100 μmol·$L^{-1}$. Then, each ssDNA solution (1 μL) was added to TE buffer (96 μL). The final concentration of each ssDNA solution was 1 μmol·$L^{-1}$. The above solutions were reacted at 95 °C for 10 min and then at 4 °C for 30 min. The product (DNA TET) was finally obtained.

**Optimization of Trypsin amount in preparing $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin**

We optimized the amount of trypsin to achieve the maximum loading of trypsin on the precursor material, thereby improving the digestion and enrichment efficiency of $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin. We evaluated the effects of trypsin solutions of different concentrations for digestion and enrichment performance of material. Firstly, we added trypsin solutions of different concentrations (0.5, 1.0, 1.5, 2.0 mg·$mL^{-1}$, 0.1 mL) to the prepared $Fe_3O_4$@DOPA/PEI@Au@DNA TET and incubated overnight at 4 ℃. Then, we washed the obtained mixed solution with PBS and freeze-dried to obtain the target product. Finally, we enriched the glycopeptides in the standard protein utilizing these target products obtained under different experimental conditions, and analyzed these eluates utilizing MALDI-TOF-MS. The spectra is

shown in Figure S9. By comparing the information provided by the MALDI-TOF mass spectra, we can see that when the concentration of trypsin solution is greater than 1.0 $mg \cdot mL^{-1}$, the enrichment performance of $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin on glycopeptides does not change significantly.

**Study on the loading capacity of trypsin on the $Fe_3O_4$@DOPA/PEI@Au@DNA TET**

We quantified the loading capacity of trypsin on $Fe_3O_4$@DOPA/PEI@Au@DNA TET using the BCA protein assay kit. Firstly, we plotted a standard curve ($y=1.35783x+0.0075$, $R^2=0.99649$) by measuring the standard protein. Subsequently, we determined that the average absorbance value of the supernatant after the reaction between trypsin solution ($1.0mg \cdot mL^{-1}$, 0.1mL) and $Fe_3O_4$@DOPA/PEI@Au@DNA TET was 1.2974. Based on the standard curve, we can calculate that the protein concentration of the supernatant at this time is $0.95mg \cdot mL^{-1}$. Therefore, after reacting trypsin solution ($1.0mg \cdot mL^{-1}$, 0.1mL) with $Fe_3O_4$@DOPA/PEI@Au@DNA TET, approximately 0.005mg of trypsin was successfully loaded onto precursor material.

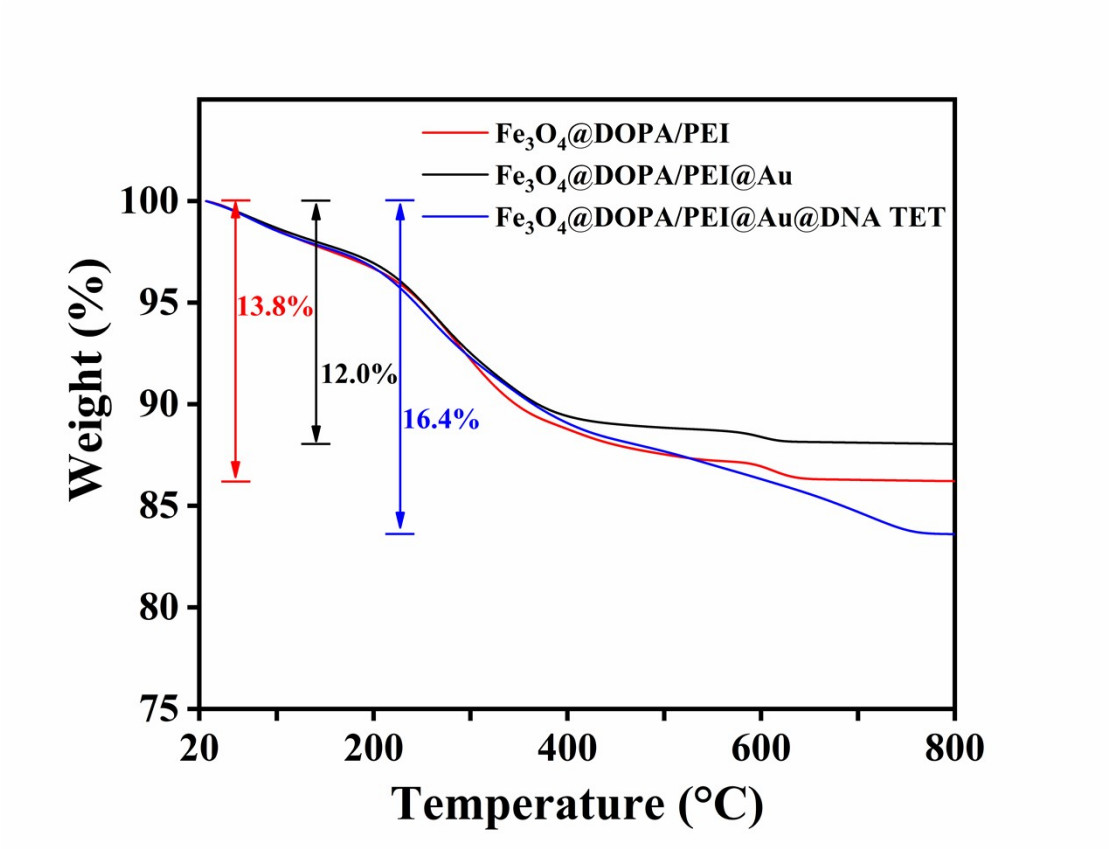


**FIGURE S1.** The TGA curves of $Fe_3O_4$@DOPA/PEI, $Fe_3O_4$@DOPA/PEI@Au, and $Fe_3O_4$@DOPA/PEI@Au@DNA TET.

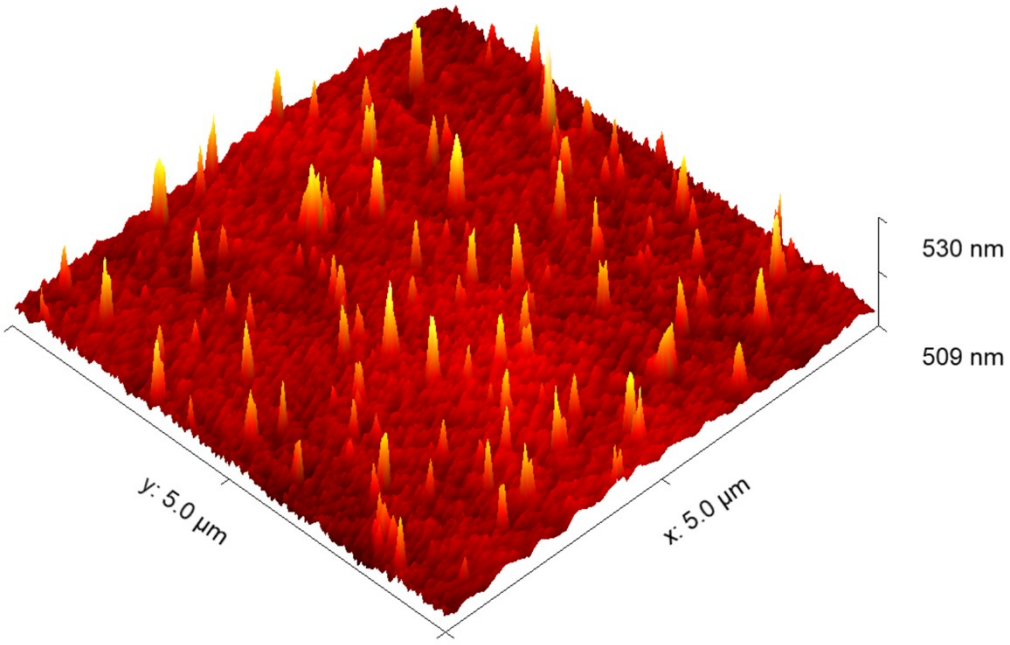


**FIGURE S2.** The AFM image of DNA tetrahedron (DNA TET).

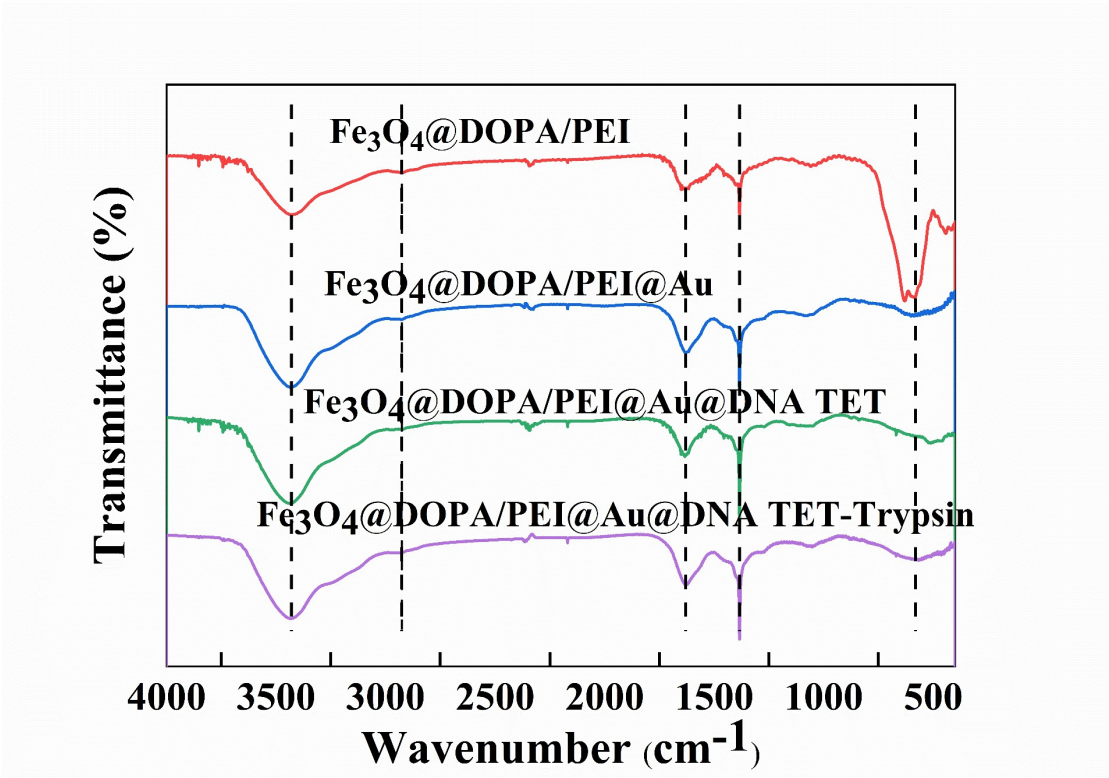


**FIGURE S3.** The FT-IR spectra of $Fe_3O_4$@DOPA/PEI, $Fe_3O_4$@DOPA/PEI@Au, $Fe_3O_4$@DOPA/PEI@Au@DNA TET, and $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin.

**FIGURE S4.** The XPS spectra of $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin.

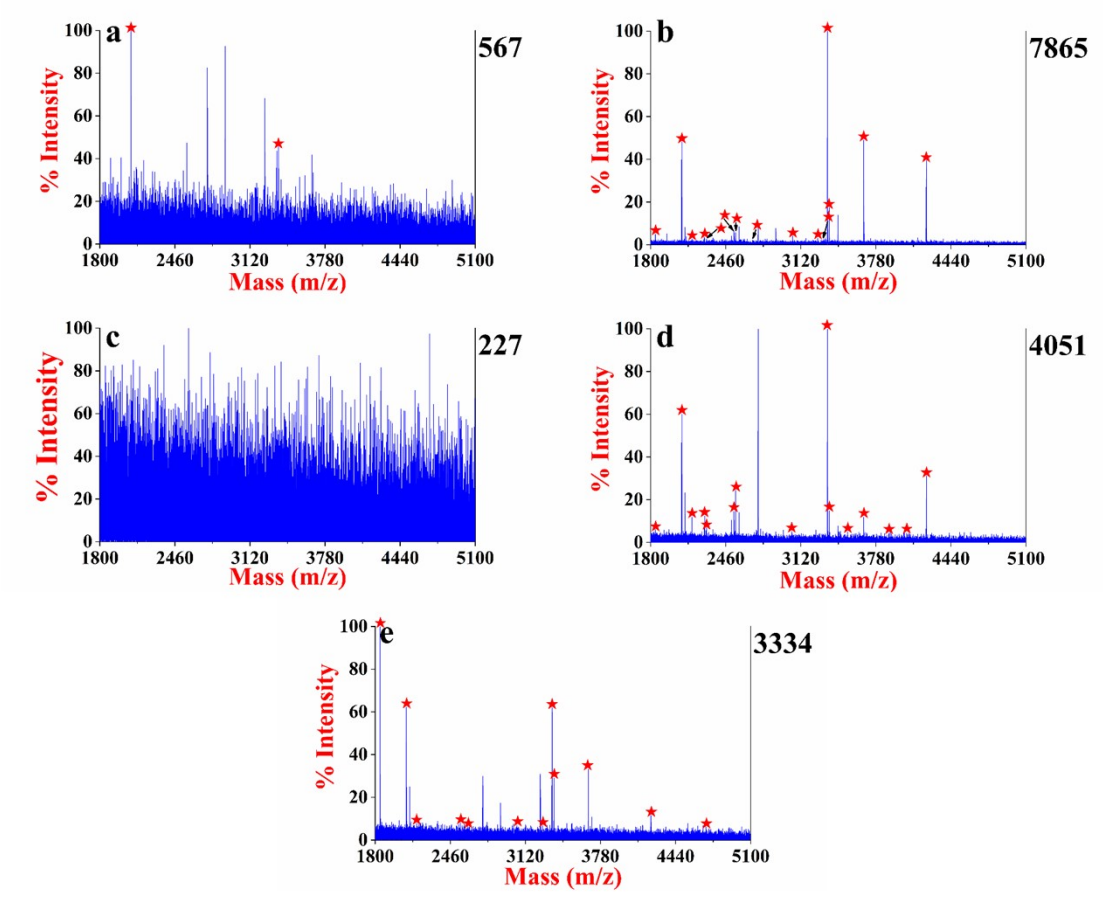


**FIGURE S5.** The MALDI-TOF mass spectra of glycopeptides from the HRP pretreatment solution after digested and enriched by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin prepared under different conditions. (a)EDC: NHS=3:1; (b)EDC: NHS =2:1; (c)EDC: NHS =1:1; (d)EDC: NHS =1:2; (e)EDC: NHS =1:3. Glycopeptide peaks are marked with "★".

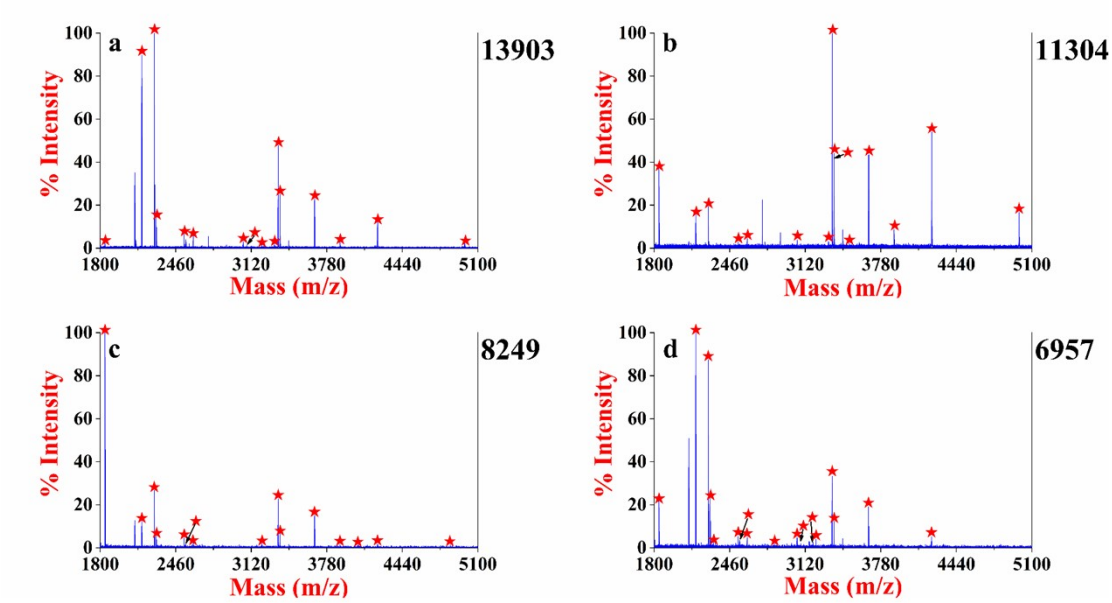


**FIGURE S6.** The MALDI-TOF mass spectra of glycopeptides from the HRP pretreatment solution after digested and enriched by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin at different elution times. (a)1 h; (b)30min; (c)10min; (d)5min. Glycopeptide peaks are marked with "★".

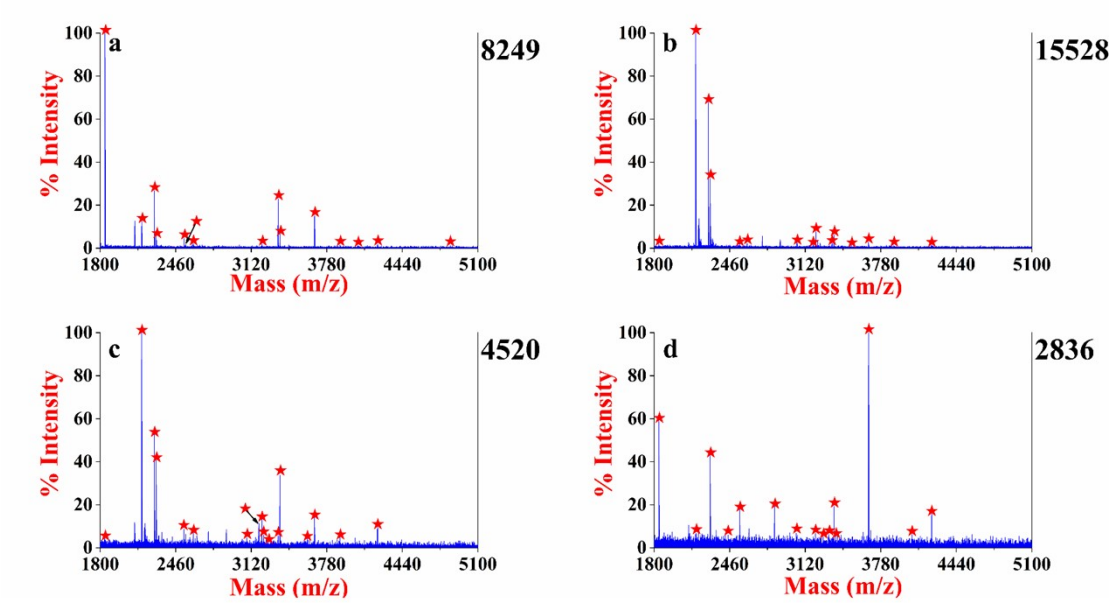


**FIGURE S7.** The MALDI-TOF mass spectra of glycopeptides from the HRP pretreatment solution after digested and enriched by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin at different enrichment times. (a)1 h; (b)30min; (c)10min; (d)5min. Glycopeptide peaks are marked with "★".

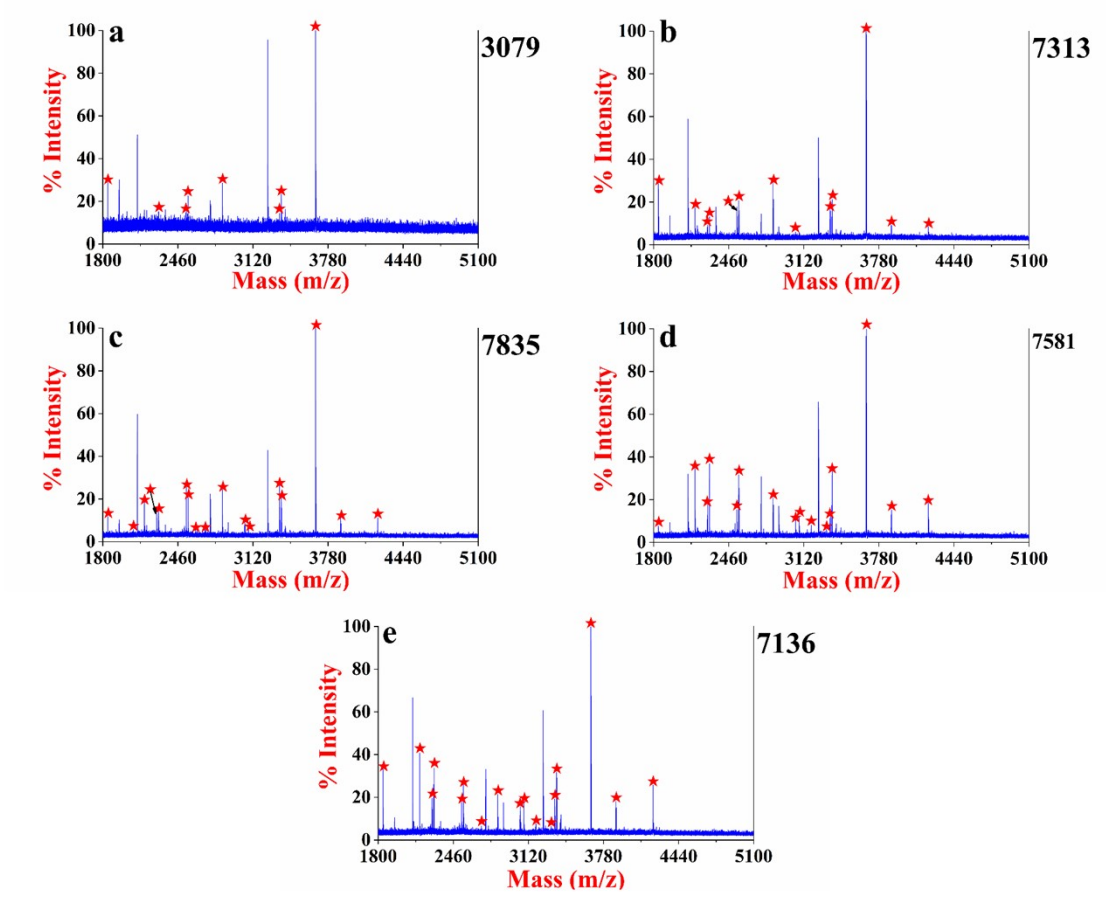


**FIGURE S8.** The MALDI-TOF mass spectra of glycopeptides from the HRP pretreatment solution after digested and enriched by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin with different amounts. (a) 0.1 mg; (b) 0.5 mg; (c) 1.0 mg; (d) 1.5 mg; (e) 2.0 mg. Glycopeptide peaks are marked with "★".

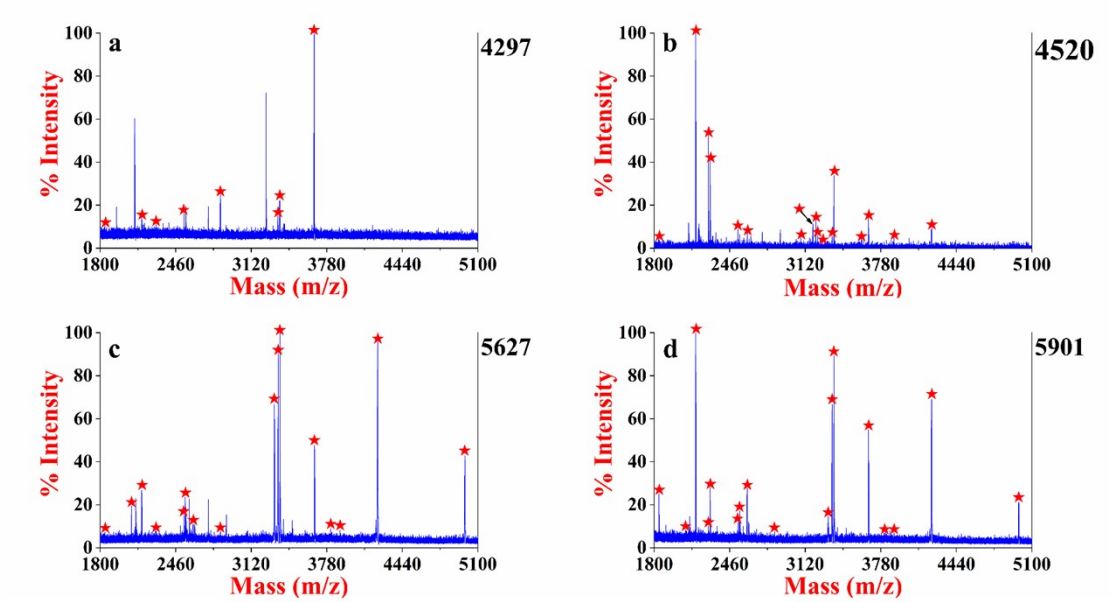


**FIGURE S9.** The MALDI-TOF mass spectra of glycopeptides from the HRP pretreatment solution after digested and enriched by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin prepared under different concentrations of trypsin solution. (a)0.5 mg·mL$^{-1}$; (b) 1.0 mg·mL$^{-1}$; (c) 1.5 mg·mL$^{-1}$; (d) 2.0 mg·mL$^{-1}$. Glycopeptide peaks are marked with "★".

**Table S1.** The detailed information of glycopeptides derived from HRP after digestion and enrichment by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin.

| Number | m/z | Amino acid sequence | Glycan composition |
|---|---|---|---|
| 1 | 1842.6 | NVGLN#R | XylMan3FucGlcNAc2 |
| 2 | 2164.5 | LYN#FSN#TGLP | Man3GlcNAc2Fuc |
| 3 | 2276.2 | SILLDN#TTSFR | XylMan2FucGlcNAc2 |
| 4 | 2291.2 | SILLDN#TTSFR | XylMan2GlcNAc2 |
| 5 | 2533.6 | SFAN#STQTFFNAFVEAMDR | FucGlcNAc |
| 6 | 2545.8 | SSPN#ATDTIPLVR | XylMan3GlcNAc2Fuc |
| 7 | 2612.2 | MGN#ITPLTGTQGQIR | XylMan3GlcNAc2 |
| 8 | 2702.0 | GLIQSDQELFSSPN#ATDTIPLVR | GlcNAc |
| 9 | 2853.7 | GLIQSDQELFSSPN#ATDTIPLVR | FucGlcNAc |
| 10 | 3049.7 | SFAN#STQTFFNAFVEAMDR | XylMan2GlcNAc2 |
| 11 | 3085.5 | GLCPLNGN#LSALVDFDLR | XylMan3FucGlcNAc2 |
| 12 | 3211.3 | SFAN#STQTFFNAFVEAMDR | XylMan3GlcNAc2 |
| 13 | 3323.8 | QLTPTFYDNSCPN#VSNIVR | XylMan3FucGlcNAc2 |
| 14 | 3355.2 | SFAN#STQTFFNAFVEAMDR | XylMan3FucGlcNAc2 |
| 15 | 3369.7 | SFAN#STQTFFNAFVEAM*DR | XylMan3FucGlcNAc2 |
| 16 | 3673.1 | GLIQSDQELFSSPN#ATDTIPLVR | NQCRGLCPLNGN#LSALVDFDLR |
| 17 | 3896.8 | LHFHDCFVNGCDASILLDN#TTSFR | XylMan3FucGlcNAc2 |
| 18 | 4224.6 | QLTPTFYDNSC(AAVESACPR)PN#VSNIVR | XylMan3FucGlcNAc2 |
| 19 | 4985.9 | LYN#FSNTGLPDPTLN#TTYLQTLR | XylMan3FucGlcNAc2, XylMan3FucGlcNAc2 |

**Table S2.** The details of glycopeptides in normal control serum after digestion and enrichment by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin.

| Number | Annotated Sequence | Modifications | Master protein | MH+ [Da] |
|---|---|---|---|---|
| 1 | [R].TLNQSSDELQLSMGNAMFVKEQLSLLDRFTEDAK.[R] | 1xDeamidated [N3] | P01011 | 3859.87284 |
| 2 | [K].LQDRGPDVLTATVSGKLPTQNITFQTESSVAEQEAEFQSPK.[Y] | 1xDeamidated [N21] | Q14624 | 4448.21036 |
| 3 | [K].LATALSLSNKFVEGSHNSTVSLTTK.[N] | 1xDeamidated [N17] | P04114 | 2606.36719 |
| 4 | [R].FSLLGHASISCTVENETIGVWRPSPPTCEK.[I] | 2xCarbamidomethyl [C11; C28]; 1xDeamidated [N15] | P04003 | 3373.61914 |
| 5 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGRK.[D] | 1xCarbamidomethyl [C20]; 1xDeamidated [N6] | P01023 | 3542.70677 |
| 6 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 1xDeamidated [N6] | P00739; P00738 | 2680.37631 |
| 7 | [R].EEQFNSTFRVVSVLTVVHQDWLNGK.[E] | 1xDeamidated [N5] | P01859 | 2933.4792 |
| 8 | [R].EEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 1xDeamidated [N5] | P01859 | 3353.68008 |
| 9 | [K].AGLQAFFQVQECNKSSSKDNIR.[G] | 1xCarbamidomethyl [C12]; 1xDeamidated [N13] | P00450 | 2528.21981 |
| 10 | [K].KQLVEIEKVVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N14] | P00738 | 2763.56549 |
| 11 | [R].RNPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N25] | P02745 | 3270.55965 |
| 12 | [R].IADAHLDRVENTTVYYLVLDVQESDCSVLSR.[K] | 1xCarbamidomethyl [C26]; 1xDeamidated | P04196 | 3581.74282 |

| | | | | |
|---|---|---|---|---|
| | | [N11] | | |
| 13 | [R].QQQHLFGSNVTDCSGNFCLFRSETK.[D] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787 | 2961.32542 |
| 14 | [R].DIPTNSPELEETLTHTITKLNAENNATFYFKIDNVK.[K] | 1xDeamidated [N25] | P01042 | 4122.05536 |
| 15 | [K].ADTHDEILEGLNFNLTEIPEAQIHEGFQELLR.[T] | 1xDeamidated [N14] | P01009 | 3692.80786 |
| 16 | [K].IITILEEEMNVSVCGLYTYGKPVPGHVTVSICR.[K] | 2xCarbamidomethyl [C14; C32]; 1xDeamidated [N10] | P01023 | 3735.87945 |
| 17 | [K].YLGNATAIFFLPDEGKLQHLENELTHDIITK.[F] | 1xDeamidated [N4] | P01009 | 3541.82133 |
| 18 | [R].RNPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N25]; 1xOxidation [M5] | P02745 | 3286.55456 |
| 19 | [K].SKWNITMESYVVHTNYDEYAIFLTK.[K] | 1xDeamidated [N4] | P02760 | 3053.4601 |
| 20 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGK.[E] | 2xDeamidated [N9; N27] | P01859 | 3416.75973 |
| 21 | [K].QLVEIEKVVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N13] | P00738 | 2635.47053 |
| 22 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 1xDeamidated [N6]; 1xOxidation [M1] | P00739; P00738 | 2696.37123 |
| 23 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 1xDeamidated [N9] | P01859 | 3835.9766 |
| 24 | [K].GCVLLSYLNETVTVSASLESVRGNR.[S] | 1xCarbamidomethyl [C2]; 2xDeamidated [N9; N24] | P01023 | 2726.36654 |
| 25 | [R].VNQNLVYESGSLNFSKLEIQSQVDSQHVGHSVLTAK.[G] | 2xDeamidated [N4; N13] | P04114 | 3957.98286 |

| | | | | |
|---|---|---|---|---|
| 26 | [K].QLVEIEKVVLHPNYSQVDIGLIKLK.[Q] | 1xDeamidated [N13] | P00738 | 2876.64956 |
| 27 | [K].NLFLNHSENATAKDIAPTLTLYVGKK.[Q] | 2xDeamidated [N5; N9] | P00739; P00738 | 2860.5091 |
| 28 | [R].VNQNLVYESGSLNFSKLEIQSQVDSQHVGHSVLTAK.[G] | 3xDeamidated [N2; N4; N13] | P04114 | 3958.96688 |
| 29 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N5; N23] | P0DOX5 | 3400.66958 |
| 30 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGR.[K] | 1xCarbamidomethyl [C20]; 1xDeamidated [N6] | P01023 | 3414.6118 |
| 31 | [K].THTNISESHPNATFSAVGEASICEDDWNSGER.[F] | 1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11] | P01871 | 3520.48297 |
| 32 | [R].EEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 2xDeamidated [N5; N23] | P01859 | 3354.6641 |
| 33 | [K].GLKFNLTETSEAEIHQSFQHLLR.[T] | 1xDeamidated [N5] | P01011 | 2699.37875 |
| 34 | [R].ESKPLTAQQTTKLDAPTNLQFVNETDSTVLVR.[W] | 1xDeamidated [N23] | P02751 | 3545.83335 |
| 35 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 2xDeamidated [N9; N27] | P01859 | 3836.96061 |
| 36 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGK.[E] | 1xDeamidated [N9] | P01859 | 3415.77571 |
| 37 | [K].TIDRLAGKPTHVNVSVVMAEVDGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13] | P01876 | 2833.38589 |
| 38 | [R].TVDKSTGKPTLYNVSLVMSDTAGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13] | P0DOX6; P01871 | 2809.32704 |
| 39 | [K].SLGNVNFTVSAEALESQELCGTEVP | 1xCarbamidomethyl [C20]; 2xDeamidated | P01023 | 3543.69078 |

| | | | | |
|---|---|---|---|---|
| | SVPEHGRK.[D] | [N4; N6] | | |
| 40 | [R].GNEANYYSNATTDEHGLVQFSINTTNVMGTSLTVR.[V] | 2xDeamidated [N9; N23] | P01023 | 3806.745 |
| 41 | [K].SVQEIQATFFYFTPNKTEDTIFLR.[E] | 1xDeamidated [N15] | P02763; P19652 | 2896.44035 |
| 42 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 1xDeamidated [N] | P02787 | 2259.11614 |
| 43 | [R].LAGKPTHVNVSVVMAEVDGTCY.[-] | 1xCarbamidomethyl [C21]; 1xDeamidated [N9] | P01876 | 2348.12609 |
| 44 | [R].IQNILTEEPKVTQVYAENGTVLQGSTVASVYK.[G] | 1xDeamidated [N18] | P27169 | 3480.81082 |
| 45 | [R].STQDTVIALDALSAYWIASHTTEERGLNVTLSSTGR.[N] | 1xDeamidated [N28] | P0C0L5 | 3864.92502 |
| 46 | [K].ELHHLQEQNVSNAFLDKGEFYIGSK.[Y] | 1xDeamidated [N9] | P00450 | 2904.41626 |
| 47 | [K].VVLHPNYSQVDIGLIKLK.[Q] | 1xDeamidated [N6] | P00738 | 2037.17429 |
| 48 | [R].KIVLDPSGSMNIYLVLDGSDSIGASNFTGAK.[K] | 1xDeamidated [N26] | P00751 | 3170.59257 |
| 49 | [R].LSLHRPALEDLLLGSEANLTCTLTGLR.[D] | 1xCarbamidomethyl [C21]; 1xDeamidated [N18] | P01876; P01877; P0DOX2 | 2964.58228 |
| 50 | [R].KIVLDPSGSMNIYLVLDGSDSIGASNFTGAKK.[C] | 1xDeamidated [N26] | P00751 | 3298.68753 |
| 51 | [R].GIISALLVPPETEEAKQVLFLDTVYGNCSTHFTVK.[T] | 1xCarbamidomethyl [C28]; 1xDeamidated [N27] | P04114 | 3877.99322 |
| 52 | [K].FNLTETSEAEIHQSFQHLLR.[T] | 1xDeamidated [N2] | P01011 | 2401.17826 |
| 53 | [K].LNAENNATFYFKIDNVKK.[A] | 1xDeamidated [N6] | P01042 | 2130.0866 |

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| 54 | [K].LPTQNITFQTESSVAEQEAEFQSPK.[Y] | 1xDeamidated [N5] | Q14624 | 2810.33667 |
| 55 | [K].SKPTVSSSMEFKYDFNSSMLYSTAK.[G] | 1xDeamidated [N16] | P04114 | 2836.30557 |
| 56 | [K].LGACNDTLQQLMEVFKFDTISEK.[T] | 1xCarbamidomethyl [C4]; 1xDeamidated [N5] | P01008 | 2688.28953 |
| 57 | [R].EEQFNSTFRVVSVLTVVHQDWLNGK.[E] | 2xDeamidated [N5; N23] | P01859 | 2934.46321 |
| 58 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787 | 2516.10815 |
| 59 | [R].NPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N24] | P02745 | 3114.45854 |
| 60 | [K].KLVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N20] | P01024 | 3140.67724 |
| 61 | [R].LFGDKSLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N10] | P01008 | 2739.33997 |
| 62 | [K].VVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N6] | P00738 | 1795.99526 |
| 63 | [K].LDAPTNLQFVNETDSTVLVR.[W] | 1xDeamidated [N11] | P02751 | 2233.13467 |
| 64 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 1xDeamidated [N5] | P0DOX5 | 2979.48468 |
| 65 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N12] | P01024 | 2256.14413 |
| 66 | [K].VTQVYAENGTVLQGSTVASVYKGK.[L] | 1xDeamidated [N8] | P27169 | 2500.29296 |
| 67 | [K].AVLQLNEEGVDTAGSTGVTLNLTSKPIILR.[F] | 1xDeamidated [N21] | P08185 | 3110.69433 |
| 68 | [R].MAGKPTHINVSVVMAEADGTCY.[-] | 1xCarbamidomethyl [C21]; 1xDeamidated | P01877 | 2352.06686 |

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| | | [N9] | | |
| 69 | [K].QEPERNECFLQHKDDNPNLPR.[L] | 1xCarbamidomethyl [C8]; 1xDeamidated [N6] | P02768 | 2637.21104 |
| 70 | [R].GFGVAIVGNYTAALPTEAALR.[T] | 1xDeamidated [N9] | Q96PD5 | 2092.10733 |
| 71 | [R].VLSNNSDANLELINTWVAK.[N] | 1xDeamidated [N] | P05155 | 2102.07642 |
| 72 | [K].IITILEEEMNVSVCGLYTYGKPVPGHVTVSICRK.[Y] | 2xCarbamidomethyl [C14; C32]; 1xDeamidated [N10] | P01023 | 3863.97441 |
| 73 | [R].ITYSIVQTNCSKENFLFLTPDCK.[S] | 2xCarbamidomethyl [C10; C22]; 1xDeamidated [N9] | P01042 | 2779.33173 |
| 74 | [K].TVLTPATNHMGNVTFTIPANREFKSEK.[G] | 1xDeamidated [N12] | P01024 | 3004.51968 |
| 75 | [R].TLNQSSDELQLSMGNAMFVK.[E] | 1xDeamidated [N3] | P01011 | 2214.0417 |
| 76 | [K].AALAAFNAQNNGSNFQLEEISR.[A] | 1xDeamidated [N11] | P02765 | 2366.13713 |
| 77 | [K].QVLFLDTVYGNCSTHFTVK.[T] | 1xCarbamidomethyl [C12]; 1xDeamidated [N11] | P04114 | 2230.08488 |
| 78 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 1xDeamidated [N5] | P0DOX5 | 3399.68556 |
| 79 | [R].ESVTDHVNLITPLEKPLQNFTLCFR.[A] | 1xCarbamidomethyl [C23]; 1xDeamidated [N19] | P02743 | 2972.51862 |
| 80 | [R].VIDFNCTTSSVSSALANTK.[D] | 1xCarbamidomethyl [C6]; 1xDeamidated [N5] | P04196 | 2015.95901 |
| 81 | [R].GVNFNVSKVSSVEECQKR.[C] | 1xCarbamidomethyl [C15]; 1xDeamidated [N5] | P03952 | 2068.01278 |
| 82 | [K].LQAPLNYTEFQ | 1xCarbamidome | P03952 | 2248.16822 |

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| | KPICLPSK.[G] | thyl [C15]; 1xDeamidated [N6] | | |
| 83 | [R].QDQCIYNTTYLNVQR.[E] | 1xCarbamidomethyl [C4]; 1xDeamidated [N7] | P02763 | 1916.8807 |
| 84 | [R].QDQCIYNTTYLNVQRENGTISR.[Y] | 1xCarbamidomethyl [C4]; 2xDeamidated [N12; N17] | P02763 | 2675.23658 |
| 85 | [K].TLYETEVFSTDFSNISAAKQEINSHVEMQTK.[G] | 1xDeamidated [N14] | P05543 | 3548.67373 |
| 86 | [K].LGSFEGLVNLTFIHLQHNR.[L] | 1xDeamidated [N9] | P51884 | 2196.15601 |
| 87 | [K].ERSWPAVGNCSSALR.[W] | 1xCarbamidomethyl [C10]; 1xDeamidated [N9] | P02790 | 1690.79658 |
| 88 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGR.[K] | 1xCarbamidomethyl [C20]; 2xDeamidated [N4; N6] | P01023 | 3415.59582 |
| 89 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 2xDeamidated [N7; N10] | P01009 | 3183.60308 |
| 90 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 2xDeamidated [N8; N12] | P01024 | 2257.12814 |
| 91 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N12]; 1xOxidation [M10] | P01024 | 2272.13904 |
| 92 | [K].LHINHNNLTESVGPLPK.[S] | 1xDeamidated [N7] | P51884 | 1883.99739 |
| 93 | [K].VGQLQLSHNLSLVILVPQNLK.[H] | 1xDeamidated [N9] | P05155 | 2314.34929 |
| 94 | [K].KLINDYVKNGTR.[G] | 1xDeamidated [N9] | P01011 | 1421.7747 |
| 95 | [K].GAFISNFSMTVDGKTFR.[S] | 1xDeamidated [N6] | P19823 | 1878.90546 |
| 96 | [R].TTLSGAPCQPWASEATYRNVTAEQAR.[N] | 1xCarbamidomethyl [C8]; 1xDeamidated | P00748 | 2866.34245 |

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| | | [N19] | | |
| 97 | [R].QNQCFYNSSYLNVQR.[E] | 1xCarbamidomethyl [C4]; 1xDeamidated [N7] | P19652 | 1921.84974 |
| 98 | [R].GLNVTLSSTGRNGFK.[S] | 2xDeamidated [N3; N12] | P0C0L5 | 1552.79656 |
| 99 | [R].LTWEAGADHNSNISEYIVEFEGNK.[E] | 3xDeamidated [N10; N12; N23] | O00533 | 2726.21041 |
| 100 | [R].NHSCEPCQTLAVR.[S] | 2xCarbamidomethyl [C4; C7]; 1xDeamidated [N1] | P00748 | 1572.68934 |
| 101 | [R].FNSSYLQGTNQITGR.[Y] | 1xDeamidated [N2] | P04114 | 1686.80819 |
| 102 | [R].GLTFQQNASSMCVPDQDTAIR.[V] | 1xCarbamidomethyl [C12]; 1xDeamidated [N7] | P0DOX6; P01871 | 2340.05947 |
| 103 | [K].VCQDCPLLAPLNDTR.[V] | 2xCarbamidomethyl [C2; C5]; 1xDeamidated [N12] | P02765 | 1772.83058 |
| 104 | [K].SLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N5] | P01008 | 2179.04412 |
| 105 | [R].ANISHKDMQLGR.[L] | 1xDeamidated [N2] | P01031 | 1370.68451 |
| 106 | [K].LNAENNATFYFKIDNVK.[K] | 1xDeamidated [N6] | P01042 | 2001.99163 |
| 107 | [R].KVCQDCPLLAPLNDTR.[V] | 2xCarbamidomethyl [C3; C6]; 1xDeamidated [N13] | P02765 | 1900.92554 |
| 108 | [K].GCVLLSYLNETVTVSASLESVR.[G] | 1xCarbamidomethyl [C2]; 1xDeamidated [N9] | P01023 | 2398.21702 |
| 109 | [R].VYKPSAGNNSLYR.[D] | 1xDeamidated [N8] | P02749 | 1469.73832 |
| 110 | [K].VVNSTTGPGEHLR.[N] | 1xDeamidated [N3] | P07996 | 1367.69137 |
| 111 | [R].LANLTQGEDQY | 1xDeamidated | P10909 | 1684.81769 |

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| | YLR.[V] | [N3] | | |
| 112 | [K].TKPREEQFNSTFR.[V] | 1xDeamidated [N9] | P01859 | 1640.80271 |
| 113 | [K].NLFLNHSENATAK.[D] | 2xDeamidated [N5; N9] | P00739; P00738 | 1460.7016 |
| 114 | [K].KYNSQNQSNNQFVLYR.[I] | 1xDeamidated [N6] | P01042 | 2003.95698 |
| 115 | [K].YLGNATAIFFLPDEGK.[L] | 1xDeamidated [N4] | P01009 | 1756.87923 |
| 116 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16] | P02787 | 2517.09217 |
| 117 | [K].EHEGAIYPDNTTDFQR.[A] | 1xDeamidated [N10] | P00450 | 1893.82496 |
| 118 | [K].IVLDPSGSMNIYLVLDGSDSIGASNFTGAKK.[C] | 1xDeamidated [N25] | P00751 | 3170.59257 |
| 119 | [R].LSHNELADSGIPGNSFNVSSLVELDLSYNK.[L] | 2xDeamidated [N14; N17] | P51884 | 3221.54846 |
| 120 | [K].TAFITNFTLTIDGVTYPGNVKEK.[E] | 1xDeamidated [N6] | Q06033 | 2530.30755 |
| 121 | [K].ALPQPQNVTSLLGCTH.[-] | 1xCarbamidomethyl [C14]; 1xDeamidated [N7] | P02790 | 1736.8636 |
| 122 | [R].NTSISTAYMELSSLRSEDTAVYYCAR.[-] | 1xCarbamidomethyl [C24]; 1xDeamidated [N1] | P0DP01 | 2989.35538 |
| 123 | [K].FVEGSHNSTVSLTTK.[N] | 1xDeamidated [N7] | P04114 | 1607.79114 |
| 124 | [R].GNEANYYSNATTDEHGLVQFSINTTNVMGTSLTVR.[V] | 3xDeamidated [N5; N9; N23] | P01023 | 3807.72902 |
| 125 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 2xDeamidated [N5; N23] | P0DOX5 | 2980.46869 |
| 126 | [R].GCNDSDVLAVAGFALR.[D] | 1xCarbamidomethyl [C2]; 1xDeamidated [N3] | Q9UGM5 | 1665.7901 |

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| 127 | [K].STGKPTLYNVSLVMSDTAGTCY.[-] | 1xCarbamidomethyl [C21]; 1xDeamidated [N9] | P0DOX6; P01871 | 2366.08904 |
| 128 | [K].MDGASNVTCINSR.[W] | 1xCarbamidomethyl [C9]; 1xDeamidated [N6] | P08603 | 1425.60969 |
| 129 | [R].FSDGLESNSSTQFEVKK.[Y] | 1xDeamidated [N8] | P0C0L5 | 1903.89198 |
| 130 | [K].SPDVINGSPISQK.[I] | 1xDeamidated [N6] | P08603 | 1342.68489 |
| 131 | [K].LGNWSAMPSCK.[A] | 1xCarbamidomethyl [C10]; 1xDeamidated [N3] | P02749 | 1251.54966 |
| 132 | [R].LQNNENNISCVER.[G] | 1xCarbamidomethyl [C10]; 1xDeamidated [N7] | Q03591 | 1590.71766 |
| 133 | [K].ENLTAPGSDSAVFFEQGTTR.[I] | 1xDeamidated [N2] | P00450 | 2127.98292 |
| 134 | [K].TPLTANITK.[S] | 1xDeamidated [N6] | P01877; P0DOX2 | 959.54079 |
| 135 | [K].LNAENNATFYFK.[I] | 1xDeamidated [N6] | P01042 | 1432.67432 |
| 136 | [R].ALGFENATQALGR.[A] | 1xDeamidated [N6] | Q08380 | 1348.68555 |
| 137 | [R].ITYSIVQTNCSK.[E] | 1xCarbamidomethyl [C10]; 1xDeamidated [N9] | P01042 | 1414.68826 |
| 138 | [R].AQLLQGLGFNLTER.[S] | 1xDeamidated [N10] | P08185 | 1560.83803 |
| 139 | [R].SWPAVGNCSSALR.[W] | 1xCarbamidomethyl [C8]; 1xDeamidated [N7] | P02790 | 1405.65287 |
| 140 | [R].GLNVTLSSTGR.[N] | 1xDeamidated [N3] | P0C0L5 | 1105.58478 |
| 141 | [K].LINDYVKNGTR.[G] | 1xDeamidated [N8] | P01011 | 1293.67974 |
| 142 | [K].FLNNGTCTAEG | 1xCarbamidomethyl [C7]; | P05156 | 1312.58379 |

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| | K.[F] | 1xDeamidated [N4] | | |
| 143 | [K].GAFISNFSMTVDGK.[T] | 1xDeamidated [N6] | P19823 | 1474.68826 |
| 144 | [K].AGAFLGLTNVAVMNLSGNCLR.[N] | 1xCarbamidomethyl [C19]; 1xDeamidated [N14] | P35858 | 2179.09982 |
| 145 | [R].EEQFNSTFR.[V] | 1xDeamidated [N5] | P01859 | 1158.50619 |
| 146 | [R].LSCAASGFTVSNHSMSWVR.[Q] | 1xCarbamidomethyl [C3]; 1xDeamidated [N12]; 1xOxidation [M15] | P0DOX2 | 2113.94299 |
| 147 | [R].NECFLQHK.[D] | 1xCarbamidomethyl [C3]; 1xDeamidated [N1] | P02768 | 1076.48296 |
| 148 | [R].ENISDPTSPLR.[T] | 1xDeamidated [N2] | P01591 | 1229.60082 |
| 149 | [R].EEQFNSTYR.[V] | 1xDeamidated [N5] | P01861 | 1174.50111 |
| 150 | [R].EEQYNSTYR.[V] | 1xDeamidated [N5] | P0DOX5 | 1190.49602 |
| 151 | [R].EEQYNSTFR.[V] | 1xDeamidated [N5] | P01860 | 1174.50111 |
| 152 | [K].NASEIEVPFVTR.[N] | 1xDeamidated [N1] | P07093 | 1362.68997 |
| 153 | [R].VIDFNCTTSSVSSALANTKDSPVLIDFFEDTERYR.[K] | 1xCarbamidomethyl [C6]; 1xDeamidated [N5] | P04196 | 3998.89642 |
| 154 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 1xDeamidated [N] | P02790 | 3780.79962 |
| 155 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 2xDeamidated [N5; N10] | P02790 | 3781.78364 |
| 156 | [K].FNWYVDGVEVHNAKTKPREEQYNS | 1xDeamidated [N23] | P0DOX5 | 3331.57668 |

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| | TYR.[V] | | | |
| 157 | [K].DIAPTLTLYVGKKQLVEIEKVVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N26] | P00738 | 4035.27803 |
| 158 | [K].ILRQQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C16; C21]; 1xDeamidated [N12] | P02787; A5A6I6 | 2898.37739 |
| 159 | [K].LVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N19] | P01024 | 3012.58228 |
| 160 | [R].ETYGEMADCCAKQEPERNECFLQHKDDNPNLPR.[L] | 3xCarbamidomethyl [C9; C10; C20]; 1xDeamidated [N18] | P02768 | 4052.72661 |
| 161 | [R].EGDHEFLEVPEAQEDVEATFPVHQPGNYSCSYR.[T] | 1xCarbamidomethyl [C30]; 1xDeamidated [N27] | P04217 | 3837.66094 |
| 162 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N9; N27] | P0DOX5 | 3882.96609 |
| 163 | [R].LSLHRPALEDLLLGSEANLTCTLTGLR.[D] | 1xCarbamidomethyl [C21]; 1xDeamidated [N18] | P01876; P0DOX2 | 2964.58228 |
| 164 | [K].LCMGSGLNLCEPNNKEGYYGYTGAFR.[C] | 2xCarbamidomethyl [C2; C10]; 1xDeamidated [N] | P02787 | 2972.30117 |
| 165 | [R].ADGTVNQIEGEATPVNLTEPAKLEVK.[F] | 1xDeamidated [N16] | P05090 | 2724.3938 |
| 166 | [K].LVSANRLFGDKSLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N16] | P01008 | 3379.70563 |
| 167 | [K].GVTSVSQIFHSPDLAIRDTFVNASR.[T] | 1xDeamidated [N22] | P05155 | 2718.38457 |
| 168 | [K].VVLHPNYSQVDIGLIKLKQK.[V] | 1xDeamidated [N6] | P00738 | 2293.32783 |
| 169 | [R].TAGWNIPMGLLYNKINHCRFDEFFS | 2xCarbamidomethyl [C18; C28]; 1xDeamidated | P02787; A5A6I6 | 3817.75598 |

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| | EGCAPGSK.[K] | [N16] | | |
| 170 | [R].FSDGLESNSSTQFEVKKYVLPNFEVK.[I] | 1xDeamidated [N8] | P0C0L5 | 2993.47786 |
| 171 | [R].TAGWNIPMGLLYNKINHCRFDEFFSEGCAPGSK.[K] | 2xCarbamidomethyl [C18; C28]; 2xDeamidated [N13; N16] | P02787; A5A6I6 | 3818.74 |
| 172 | [K].LPETAERFQDNASMWSDATAAIPSIEER.[L] | 1xDeamidated [N11] | Q4WPQ8 | 3136.45278 |
| 173 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYKCK.[V] | 1xCarbamidomethyl [C29]; 2xDeamidated [N5; N23] | P0DOX5 | 3688.79519 |
| 174 | [R].QQQHLFGSNVTDCSGNFCLFRSETK.[D] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787; A5A6I6 | 2961.32542 |
| 175 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 1xDeamidated [N] | P02787; A5A6I6 | 2259.11614 |
| 176 | [K].GAVGVSFMFNGTSFGFVNCHLTSGNEKTAR.[R] | 1xCarbamidomethyl [C19]; 2xDeamidated [N10; N18]; 1xOxidation [M8] | O15357 | 3210.46191 |
| 177 | [K].YPPTVSMVEGQGEKNVTFWGRPLPR.[C] | 1xDeamidated [N15] | P27918 | 2846.42941 |
| 178 | [R].WQSIPLCVEKIPCSQPPQIEHGTINSSR.[S] | 2xCarbamidomethyl [C7; C13]; 1xDeamidated [N25] | P08603 | 3262.59834 |
| 179 | [K].VLNQELRADGTVNQIEGEATPVNLTEPAKLEVK.[F] | 1xDeamidated [N23] | P05090 | 3576.87555 |
| 180 | [R].SRYPHKPEINSTTHPGADLQENFCR.[N] | 1xCarbamidomethyl [C24]; 1xDeamidated [N10] | P00734 | 2955.38023 |
| 181 | [R].TVDKSTGKPTLYNVSLVMSDTAGT | 1xCarbamidomethyl [C25]; 1xDeamidated | P01871 | 2809.32704 |

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| | CY.[-] | [N13] | | |
| 182 | [K].CGLVPVLAENYNKSDNCEDTPEAGYFAVAVVKK.[S] | 2xCarbamidomethyl [C1; C17]; 2xDeamidated [N10; N12] | P02787 | 3659.72439 |
| 183 | [R].AAINKWVSNKTEGR.[I] | 1xDeamidated [N9] | P01008 | 1574.82853 |
| 184 | [K].TVLTPATNHMGNVTFTIPANREFK.[S] | 1xDeamidated [N12] | P01024 | 2660.3501 |
| 185 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 1xDeamidated [N9] | P0DOX5 | 3881.98208 |
| 186 | [R].SPYYNVSDEISFHCYDGYTLR.[G] | 1xCarbamidomethyl [C14]; 1xDeamidated [N5] | P00751 | 2587.1082 |
| 187 | [R].GLNVTLSSTGRNGFKSHALQLNNR.[Q] | 2xDeamidated [N3; N12] | P0C0L5 | 2586.33829 |
| 188 | [R].NISDGFDGIPDNVDAALALPAHSYSGRER.[V] | 1xDeamidated [N1] | P04004 | 3058.45008 |
| 189 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787; A5A6I6 | 2516.10815 |
| 190 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16] | P02787; A5A6I6 | 2517.09217 |
| 191 | [R].AVNITSENLIDDVVSLIRGGTR.[K] | 1xDeamidated [N3] | P02748 | 2343.25143 |
| 192 | [R].GLTFQQNASSMCVPDQDTAIR.[V] | 1xCarbamidomethyl [C12]; 1xDeamidated [N7] | P01871 | 2340.05947 |
| 193 | [K].AGEQVTYTCATYYKMDGASNVTCINSR.[W] | 2xCarbamidomethyl [C9; C23]; 1xDeamidated [N20] | P08603 | 3061.3336 |
| 194 | [R].VLYLAAYNCTLRPVSK.[K] | 1xCarbamidomethyl [C9]; 1xDeamidated | Q9UGM5 | 1868.99388 |

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| | | [N8] | | |
| 195 | [R].FLCTGGVSPYADPNTCRGDSGGPLIVHKR.[S] | 2xCarbamidomethyl [C3; C16]; 1xDeamidated [N14] | P00751 | 3132.49896 |
| 196 | [K].NLFLNHSENATAKDIAPTLTLYVGK.[K] | 2xDeamidated [N5; N9] | P00739; P00738 | 2732.41414 |
| 197 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 2xDeamidated [N5; N13] | P02787; A5A6I6 | 2260.10015 |
| 198 | [K].CVEISCKSPDVINGSPISQK.[I] | 2xCarbamidomethyl [C1; C6]; 1xDeamidated [N13] | P08603 | 2219.06825 |
| 199 | [R].AVNITSENLIDDVVSLIR.[G] | 1xDeamidated [N3] | P02748 | 1972.05971 |
| 200 | [R].VVGVPYQGNATALFILPSEGK.[M] | 1xDeamidated [N9] | P05154 | 2161.15395 |
| 201 | [K].NLFLNHSENATAK.[D] | 1xDeamidated [N5] | P00739; P00738 | 1459.71758 |
| 202 | [R].KLPPGLLANFTLLR.[T] | 1xDeamidated [N9] | P02750 | 1553.94138 |
| 203 | [K].SVVAPATDGGLNLTSTFLR.[K] | 1xDeamidated [N12] | P41222 | 1920.00728 |
| 204 | [K].KLINDYVKNGTR.[G] | 2xDeamidated [N4; N9] | P01011 | 1422.75872 |
| 205 | [K].TKPREEQFNSTYR.[V] | 1xDeamidated [N9] | P01861 | 1656.79762 |
| 206 | [R].FSDGLESNSSTQFEVK.[K] | 1xDeamidated [N8] | P0C0L5 | 1775.79702 |
| 207 | [K].TPLTANITK.[S] | 1xDeamidated [N6] | P0DOX2 | 959.54079 |
| 208 | [R].ISEENETTCYMGK.[W] | 1xCarbamidomethyl [C9]; 1xDeamidated [N5] | P08603 | 1562.6349 |
| 209 | [K].YTGNASALFILPDQDK.[M] | 1xDeamidated [N4] | P01011 | 1753.86431 |
| 210 | [K].NLSKLSMLSIRENK.[I] | 1xDeamidated [N1] | Q9UQ13 | 1633.89417 |

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| 211 | [K].NKSGKNQFNRGGGHR.[G] | 3xDeamidated [N1; N6; N9] | Q00839 | 1659.79461 |
| 212 | [K].ILRQQQHLFGSNVTDCSGNFCLFRSETK.[D] | 2xCarbamidomethyl [C16; C21]; 1xDeamidated [N12] | P02787 | 3343.59465 |
| 213 | [K].ILRQQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C16; C21]; 1xDeamidated [N12] | P02787 | 2898.37739 |
| 214 | [K].HYTNSSQDVTVPCRVPPPPPCCHPR.[L] | 3xCarbamidomethyl [C13; C21; C22]; 1xDeamidated [N4] | P0DOX2 | 2959.33963 |
| 215 | [K].LCMGSGLNLCEPNNKEGYYGYTGAFR.[C] | 2xCarbamidomethyl [C2; C10]; 1xDeamidated [N]; 1xOxidation [M3] | P02787 | 2988.29609 |
| 216 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 2xDeamidated [N6; N15]; 1xOxidation [M1] | P00739; P00738 | 2697.35524 |
| 217 | [R].QDQCIYNTTYLNVQRENGTISR.[Y] | 1xCarbamidomethyl [C4]; 2xDeamidated [N7; N12] | P02763 | 2675.23658 |
| 218 | [R].VVHAAKAALAAFNAQNNGSNFQLEEISR.[A] | 1xDeamidated [N17] | P02765 | 2971.50206 |
| 219 | [K].ILRQQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C16; C21]; 2xDeamidated [N12; N19] | P02787 | 2899.36141 |
| 220 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 2xDeamidated [N6; N15] | P00739; P00738 | 2681.36033 |
| 221 | [R].VYIHPFHLVIHNESTCEQLAK.[A] | 1xCarbamidomethyl [C16]; 1xDeamidated [N12] | Q9GLN8 | 2536.26531 |
| 222 | [K].KLHINHNNLTESVGPLPK.[S] | 1xDeamidated [N8] | P51884 | 2012.09235 |
| 223 | [R].GKLSFWEAGTTKAGYPYNYNTTAS | 3xDeamidated | Q9IVZ8 | 3947.87225 |

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|---|---|---|---|---|
| | DQILIENAAGHR.[V] | [N18; N20; N31] | | |
| 224 | [K].RHEEGHMLNCTCFGQGR.[G] | 2xCarbamidomethyl [C10; C12]; 1xDeamidated [N9] | P02751 | 2089.87492 |
| 225 | [R].TVDKSTGKPTLYNVSLVMSDTAGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13]; 1xOxidation [M18] | P01871 | 2825.32195 |
| 226 | [K].YNSQNQSNNQFVLYR.[I] | 1xDeamidated [N] | P01042 | 1875.86202 |
| 227 | [R].VLSAMINSNDDNGVLAGNWSGTYTGGRDPR.[S] | 1xDeamidated [N18]; 1xOxidation [M5] | Q08188 | 3154.44943 |
| 228 | [R].TSPSLSPQVNGTPSRNYPATSMVSGLSSPR.[T] | 2xDeamidated [N10; N16] | Q8WXI7 | 3077.48442 |
| 229 | [R].CIQANYSLMENGKIK.[V] | 1xCarbamidomethyl [C1]; 2xDeamidated [N5; N11] | P05090 | 1770.84008 |
| 230 | [R].GGSSGWSGGLAQNRSTITYR.[S] | 1xDeamidated [N13] | P07357 | 2055.98426 |
| 231 | [R].GLCVNASAVSR.[L] | 1xCarbamidomethyl [C3]; 1xDeamidated [N5] | P17936 | 1134.55718 |
| 232 | [R].QPPPAPITMNQSLNPPNK.[T] | 2xDeamidated [N10; N14] | E7F1U2 | 1945.96879 |

**Table S3.** The details of glycopeptides in TB serum after digestion and enrichment by $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin.

| Number | Annotated Sequence | Modifications | Master protein | MH+ [Da] |
|---|---|---|---|---|
| 1 | [R].VIDFNCTTSSVSSALANTKDSPVLIDFFEDTERYR.[K] | 1xCarbamidomethyl [C6]; 1xDeamidated [N5] | P04196 | 3998.89642 |
| 2 | [R].TLNQSSDELQLSMGNAMFVKEQLSLLDRFTEDAKR.[L] | 1xDeamidated [N3] | P01011 | 4015.97396 |
| 3 | [R].RNPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N25] | P02745 | 3270.55965 |
| 4 | [R].ETYGEMADCCAKQEPERNECFLQHKDDNPNLPR.[L] | 3xCarbamidomethyl [C9; C10; C20]; 1xDeamidated [N18] | P02768 | 4052.72661 |
| 5 | [R].NSITLTNLTPGTEYVVSIVALNGREESPLLIGQQSTVSDVPR.[D] | 1xDeamidated [N] | P02751 | 4469.34098 |
| 6 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 1xDeamidated [N] | P01009 | 3182.61906 |
| 7 | [R].IADAHLDRVENTTVYYLVLDVQESDCSVLSR.[K] | 1xCarbamidomethyl [C26]; 1xDeamidated [N11] | P04196 | 3581.74282 |
| 8 | [K].LATALSLSNKFVEGSHNSTVSLTTK.[N] | 1xDeamidated [N17] | P04114 | 2606.36719 |
| 9 | [K].AGLQAFFQVQECNKSSSKDNIR.[G] | 1xCarbamidomethyl [C12]; 1xDeamidated [N13] | P00450 | 2528.21981 |
| 10 | [R].NQALNLSLAYSFVTPLTSMVVTKPDDQEQSQVAEKPMEGESR.[N] | 1xDeamidated [N5] | Q14624 | 4639.25421 |
| 11 | [K].ELHHLQEQNVSNAFLDKGEFYIGSK.[Y] | 1xDeamidated [N9] | P00450 | 2904.41626 |

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|---|---|---|---|---|
| 12 | [K].YLGNATAIFFLPDEGKLQHLENELTHDIITK.[F] | 1xDeamidated [N4] | P01009 | 3541.82133 |
| 13 | [K].ADTHDEILEGLNFNLTEIPEAQIHEGFQELLR.[T] | 1xDeamidated [N14] | P01009 | 3692.80786 |
| 14 | [K].LGACNDTLQQLMEVFKFDTISEK.[T] | 1xCarbamidomethyl [C4]; 1xDeamidated [N5] | P01008 | 2688.28953 |
| 15 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 1xDeamidated [N6] | P00739; P00738 | 2680.37631 |
| 16 | [K].ILRQQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C16; C21]; 1xDeamidated [N12] | P02787 | 2898.37739 |
| 17 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N5; N23] | P01857; P0DOX5 | 3400.66958 |
| 18 | [R].ESVTDHVNLITPLEKPLQNFTLCFR.[A] | 1xCarbamidomethyl [C23]; 1xDeamidated [N19] | P02743 | 2972.51862 |
| 19 | [R].WVLTAAHCLLYPPWDKNFTENDLLVR.[I] | 1xCarbamidomethyl [C8]; 1xDeamidated [N17] | P00734 | 3172.59245 |
| 20 | [R].HGIQYFNNNTQHSSLFMLNEVKR.[A] | 1xDeamidated [N8] | P01042 | 2778.34166 |
| 21 | [K].AALAAFNAQNNGSNFQLEEISR.[A] | 1xDeamidated [N11] | P02765 | 2366.13713 |
| 22 | [K].GVTSVSQIFHSPDLAIRDTFVNASR.[T] | 1xDeamidated [N22] | P05155 | 2718.38457 |
| 23 | [R].TEVSSNHVLIYLDKVSNQTLSLFFTVLQDVPVRDLKPAIVK.[V] | 1xDeamidated [N17] | P01023 | 4627.53856 |
| 24 | [K].LVSANRLFGDKSLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N16] | P01008 | 3379.70563 |
| 25 | [R].LSLHRPALEDLLLGSEANLTCTLTGL | 1xCarbamidomethyl [C21]; | P01876; | 2964.58228 |

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|---|---|---|---|---|
| | R.[D] | 1xDeamidated [N18] | P0DOX2 | |
| 26 | [K].ALGISPFHEHAEVVFTANDSGPRR.[Y] | 1xDeamidated [N18] | P02766 | 2608.29027 |
| 27 | [R].ANLSSQALQMSLDYGFVTPLTSMSIR.[G] | 1xDeamidated [N2] | P19827 | 2831.39539 |
| 28 | [R].RNPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 2xDeamidated [N18; N25] | P02745 | 3271.54366 |
| 29 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N9; N27] | P01857; P0DOX5 | 3882.96609 |
| 30 | [K].YTGNASALFILPDQDKMEEVEAMLLPETLKR.[W] | 1xDeamidated [N4] | P01011 | 3523.76988 |
| 31 | [K].THTNISESHPNATFSAVGEASICEDDWNSGER.[F] | 1xCarbamidomethyl [C23]; 2xDeamidated [N4; N11] | P01871 | 3520.48297 |
| 32 | [R].ESVTDHVNLITPLEKPLQNFTLCFR.[A] | 1xCarbamidomethyl [C23]; 2xDeamidated [N8; N19] | P02743 | 2973.50263 |
| 33 | [K].MLNTSSLLEQLNEQFNWVSR.[L] | 1xDeamidated [N3] | P10909 | 2410.17074 |
| 34 | [R].DTAVFECLPQHAMFGNDTITCTTHGNWTKLPECR.[E] | 3xCarbamidomethyl [C7; C21; C33]; 2xDeamidated [N16; N26] | P02749 | 4009.7612 |
| 35 | [K].KLVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N20] | P01024 | 3140.67724 |
| 36 | [R].SRYPHKPEINSTTHPGADLQENFCR.[N] | 1xCarbamidomethyl [C24]; 1xDeamidated [N10] | P00734 | 2955.38023 |
| 37 | [K].SVQEIQATFFYFTPNKTEDTIFLR.[E] | 1xDeamidated [N15] | P02763; P19652 | 2896.44035 |
| 38 | [R].NPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N24] | P02745 | 3114.45854 |

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| 39 | [K].NPVGLIGAENATGETDPSHSK.[F] | 1xDeamidated [N10] | P43251 | 2094.99382 |
| 40 | [K].QEPERNECFLQHKDDNPNLPR.[L] | 1xCarbamidomethyl [C8]; 1xDeamidated [N6] | P02768 | 2637.21104 |
| 41 | [R].LFGDKSLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N10] | P01008 | 2739.33997 |
| 42 | [R].IQNILTEEPKVTQVYAENGTVLQGSTVASVYKGK.[L] | 1xDeamidated [N18] | P27169 | 3665.92725 |
| 43 | [R].HGIQYFNNNTQHSSLFMLNEVK.[R] | 1xDeamidated [N8] | P01042 | 2622.24055 |
| 44 | [K].GCVLLSYLNETVTVSASLESVRGNR.[S] | 1xCarbamidomethyl [C2]; 2xDeamidated [N9; N24] | P01023 | 2726.36654 |
| 45 | [K].LKELPGVCNETMMALWEECKPCLK.[Q] | 3xCarbamidomethyl [C8; C19; C22]; 1xDeamidated [N9] | P10909 | 2937.36873 |
| 46 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787 | 2516.10815 |
| 47 | [R].GIISALLVPPETEEAKQVLFLDTVYGNCSTHFTVK.[T] | 1xCarbamidomethyl [C28]; 1xDeamidated [N27] | P04114 | 3877.99322 |
| 48 | [R].ADGTVNQIEGEATPVNLTEPAKLEVK.[F] | 1xDeamidated [N16] | P05090 | 2724.3938 |
| 49 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGRK.[D] | 1xCarbamidomethyl [C20]; 1xDeamidated [N6] | P01023 | 3542.70677 |
| 50 | [R].EGDHEFLEVPEAQEDVEATFPVHQPGNYSCSYR.[T] | 1xCarbamidomethyl [C30]; 1xDeamidated [N27] | P04217 | 3837.66094 |
| 51 | [K].LPTQNITFQTESSVAEQEAEFQSPK.[Y] | 1xDeamidated [N5] | Q14624 | 2810.33667 |

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|---|---|---|---|---|
| 52 | [R].GLTFQQNASSMCVPDQDTAIR.[V] | 1xCarbamidomethyl [C12]; 1xDeamidated [N7] | P01871 | 2340.05947 |
| 53 | [K].LVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N19] | P01024 | 3012.58228 |
| 54 | [K].KLHINHNNLTESVGPLPK.[S] | 1xDeamidated [N8] | P51884 | 2012.09235 |
| 55 | [K].SLTFNETYQDISELVYGAKLQPLDFKENAEQSR.[A] | 1xDeamidated [N5] | P01008 | 3834.87085 |
| 56 | [R].NKGCSSSTSVLLTLDNNVVNGSSPAIR.[T] | 1xCarbamidomethyl [C4]; 1xDeamidated [N20] | P07996 | 2791.38906 |
| 57 | [R].FGCEIENNRSSGAFWK.[Y] | 1xCarbamidomethyl [C3]; 1xDeamidated [N8] | P25311 | 1902.84392 |
| 58 | [R].NISDGFDGIPDNVDAALALPAHSYSGRER.[V] | 1xDeamidated [N1] | P04004 | 3058.45008 |
| 59 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 1xDeamidated [N5] | P01857; P0DOX5 | 2979.48468 |
| 60 | [R].AAINKWVSNKTEGR.[I] | 1xDeamidated [N9] | P01008 | 1574.82853 |
| 61 | [R].LSVDKDQYVEPENVTIQCDSGYGVVGPQSITCSGNR.[T] | 2xCarbamidomethyl [C18; C32]; 2xDeamidated [N13; N35] | P04003 | 3973.80662 |
| 62 | [K].LNAENNATFYFKIDNVKK.[A] | 1xDeamidated [N6] | P01042 | 2130.0866 |
| 63 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGRK.[D] | 1xCarbamidomethyl [C20]; 2xDeamidated [N4; N6] | P01023 | 3543.69078 |
| 64 | [R].QDQCIYNTTYLNVQRENGTISR.[Y] | 1xCarbamidomethyl [C4]; 2xDeamidated [N7; N12] | P02763 | 2675.23658 |
| 65 | [K].VCQDCPLLAPLNDTRVVHAAK.[A] | 2xCarbamidomethyl [C2; C5]; 1xDeamidated | P02765 | 2378.19551 |

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| | | [N12] | | |
| 66 | [R].AVNITSENLIDDVVSLIR.[G] | 1xDeamidated [N3] | P02748 | 1972.05971 |
| 67 | [K].GAVGVSFMFNGTSFGFVNCHLTSGNEKTAR.[R] | 1xCarbamidomethyl [C19]; 2xDeamidated [N10; N18]; 1xOxidation [M8] | O15357 | 3210.46191 |
| 68 | [K].RHEEGHMLNCTCFGQGR.[G] | 2xCarbamidomethyl [C10; C12]; 1xDeamidated [N9] | P02751 | 2089.87492 |
| 69 | [R].GVNFNVSKVSSVEECQKR.[C] | 1xCarbamidomethyl [C15]; 1xDeamidated [N5] | P03952 | 2068.01278 |
| 70 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 3xDeamidated [N5; N10; N21] | P02790 | 3782.76765 |
| 71 | [R].ESKPLTAQQTTKLDAPTNLQFVNETDSTVLVR.[W] | 1xDeamidated [N23] | P02751 | 3545.83335 |
| 72 | [K].ALGISPFHEHAEVVFTANDSGPR.[R] | 1xDeamidated [N18] | P02766 | 2452.18916 |
| 73 | [K].YTGNASALFILPDQDKMEEVEAMLLPETLK.[R] | 1xDeamidated [N4] | P01011 | 3367.66877 |
| 74 | [R].SPYYNVSDEISFHCYDGYTLR.[G] | 1xCarbamidomethyl [C14]; 1xDeamidated [N5] | P00751 | 2587.1082 |
| 75 | [R].DIPTNSPELEETLTHTITKLNAENNATFYFK.[I] | 1xDeamidated [N25] | P01042 | 3552.73805 |
| 76 | [K].AGEQVTYTCATYYKMDGASNVTCINSR.[W] | 2xCarbamidomethyl [C9; C23]; 1xDeamidated [N20] | P08603 | 3061.3336 |
| 77 | [K].QVLFLDTVYGNCSTHFTVK.[T] | 1xCarbamidomethyl [C12]; 1xDeamidated [N11] | P04114 | 2230.08488 |

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| 78 | [R].HGIQYFNNNTQHSSLFMLNEVKR.[A] | 2xDeamidated [N8; N9] | P01042 | 2779.32567 |
| 79 | [R].SQILEGLGFNLTELSESDVHR.[G] | 1xDeamidated [N10] | P29622 | 2345.16195 |
| 80 | [R].LAGKPTHVNVSVVMAEVDGTCY.[-] | 1xCarbamidomethyl [C21]; 1xDeamidated [N9] | P01876 | 2348.12609 |
| 81 | [R].SIPACVPWSPYLFQPNDTCIVSGWGR.[E] | 2xCarbamidomethyl [C5; C19]; 1xDeamidated [N16] | P05156 | 3008.40696 |
| 82 | [K].ELHHLQEQNVSNAFLDKGEFYIGSKYK.[K] | 1xDeamidated [N9] | P00450 | 3195.57455 |
| 83 | [K].QEPERNECFLQHKDDNPNLPR.[L] | 1xCarbamidomethyl [C8]; 2xDeamidated [N6; N16] | P02768 | 2638.19505 |
| 84 | [R].KLPPGLLANFTLLR.[T] | 1xDeamidated [N9] | P02750 | 1553.94138 |
| 85 | [K].KYNSQNQSNNQFVLYR.[I] | 1xDeamidated [N6] | P01042 | 2003.95698 |
| 86 | [R].QDQCIYNTTYLNVQR.[E] | 1xCarbamidomethyl [C4]; 1xDeamidated [N7] | P02763 | 1916.8807 |
| 87 | [R].NHSCEPCQTLAVR.[S] | 2xCarbamidomethyl [C4; C7]; 1xDeamidated [N1] | P00748 | 1572.68934 |
| 88 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 2xDeamidated [N5; N23] | P01857; P0DOX5 | 2980.46869 |
| 89 | [K].KAFITNFSMIIDGMTYPGIIKEK.[A] | 1xDeamidated [N6] | Q14624 | 2618.36084 |
| 90 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N12] | P01024 | 2256.14413 |
| 91 | [R].GLNVTLSSTGRNGFK.[S] | 2xDeamidated [N3; N12] | P0C0L5 | 1552.79656 |
| 92 | [R].SKAAGMLMRQDNASALNSLGIFIWAWPDGPANMPERL | 3xDeamidated [N12; N17; N32] | Q5PC41 | 4559.25199 |

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| | SQLAK.[A] | | | |
| 93 | [K].AALAAFNAQNNGSNFQLEEISR.[A] | 2xDeamidated [N] | P02765 | 2367.12114 |
| 94 | [R].NSITLTNLTPGTEYVVSIVALNGREESPLLIGQQSTVSDVPR.[D] | 2xDeamidated [N7; N22] | P02751 | 4470.32499 |
| 95 | [R].GFGVAIVGNYTAALPTEAALR.[T] | 1xDeamidated [N9] | Q96PD5 | 2092.10733 |
| 96 | [R].NECFLQHKDDNPNLPR.[L] | 1xCarbamidomethyl [C3]; 1xDeamidated [N1] | P02768 | 1997.9134 |
| 97 | [K].LDAPTNLQFVNETDSTVLVR.[W] | 1xDeamidated [N11] | P02751 | 2233.13467 |
| 98 | [R].QNQCFYNSSYLNVQRENGTVSR.[Y] | 1xCarbamidomethyl [C4]; 2xDeamidated [N12; N17] | P19652 | 2666.18997 |
| 99 | [R].NGTGHGNSTHHGPEYMR.[C] | 2xDeamidated [N1; N7] | P02790 | 1853.76198 |
| 100 | [R].VLSNNSDANLELINTWVAK.[N] | 1xDeamidated [N4] | P05155 | 2102.07642 |
| 101 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 2xDeamidated [N5; N10] | P02790 | 3781.78364 |
| 102 | [R].RNPPMGGNVVIFDTVITNQEEPYQNHSGR.[F] | 1xDeamidated [N25]; 1xOxidation [M5] | P02745 | 3286.55456 |
| 103 | [R].TTLSGAPCQPWASEATYRNVTAEQAR.[N] | 1xCarbamidomethyl [C8]; 1xDeamidated [N19] | P00748 | 2866.34245 |
| 104 | [K].LHINHNNLTESVGPLPK.[S] | 1xDeamidated [N7] | P51884 | 1883.99739 |
| 105 | [R].VIDFNCTTSSVSSALANTK.[D] | 1xCarbamidomethyl [C6]; 1xDeamidated [N5] | P04196 | 2015.95901 |
| 106 | [K].KLINDYVKNGTR.[G] | 1xDeamidated [N9] | P01011 | 1421.7747 |

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| 107 | [K].TVLTPATNHMGNVTFTIPANREFKSEK.[G] | 1xDeamidated [N12] | P01024 | 3004.51968 |
| 108 | [K].SLTFNETYQDISELVYGAK.[L] | 1xDeamidated [N5] | P01008 | 2179.04412 |
| 109 | [K].LGACNDTLQQLMEVFK.[F] | 1xCarbamidomethyl [C4]; 1xDeamidated [N5] | P01008 | 1867.89285 |
| 110 | [R].TVDKSTGKPTLYNVSLVMSDTAGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13] | P01871 | 2809.32704 |
| 111 | [R].QNQCFYNSSYLNVQR.[E] | 1xCarbamidomethyl [C4]; 1xDeamidated [N7] | P19652 | 1921.84974 |
| 112 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 2xDeamidated [N7; N10]; 1xOxidation [M24] | P01009 | 3199.59799 |
| 113 | [R].NISDGFDGIPDNVDAALALPAHSYSGR.[E] | 1xDeamidated [N1] | P04004 | 2773.30638 |
| 114 | [K].GAFISNFSMTVDGKTFR.[S] | 1xDeamidated [N6] | P19823 | 1878.90546 |
| 115 | [K].YNSQNQSNNQFVLYR.[I] | 1xDeamidated [N] | P01042 | 1875.86202 |
| 116 | [K].VVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N6] | P00738 | 1795.99526 |
| 117 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 2xDeamidated [N8; N12] | P01024 | 2257.12814 |
| 118 | [K].VGQLQLSHNLSLVILVPQNLK.[H] | 1xDeamidated [N9] | P05155 | 2314.34929 |
| 119 | [K].EHEGAIYPDNTTDFQR.[A] | 1xDeamidated [N10] | P00450 | 1893.82496 |
| 120 | [K].VVNSTTGPGEHLR.[N] | 1xDeamidated [N3] | P07996 | 1367.69137 |
| 121 | [K].ENLTAPGSDSAVFFEQGTTR.[I] | 1xDeamidated [N2] | P00450 | 2127.98292 |
| 122 | [K].KLINDYVKNGTR.[G] | 2xDeamidated [N4; N9] | P01011 | 1422.75872 |

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|---|---|---|---|---|
| 123 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 2xDeamidated [N9; N16] | P02787 | 2517.09217 |
| 124 | [R].KVCQDCPLLAPLNDTR.[V] | 2xCarbamidomethyl [C3; C6]; 1xDeamidated [N13] | P02765 | 1900.92554 |
| 125 | [R].VYKPSAGNNSLYR.[D] | 1xDeamidated [N8] | P02749 | 1469.73832 |
| 126 | [K].YTGNASALFILPDQDK.[M] | 1xDeamidated [N4] | P01011 | 1753.86431 |
| 127 | [R].QDQCIYNTTYLNVQRENGTISR.[Y] | 1xCarbamidomethyl [C4]; 3xDeamidated [N7; N12; N17] | P02763 | 2676.2206 |
| 128 | [-].MDPMELNNVSIEPDGDSCSGDSIQDSYTGMENSDK.[D] | 1xAcetyl [N-Term]; 1xCarbamidomethyl [C18]; 1xDeamidated [N8]; 2xOxidation [M4; M30] | Q8R1S9 | 3912.51982 |
| 129 | [K].TELFSSSCPGGIMLNETGQGYQR.[F] | 1xCarbamidomethyl [C8]; 1xDeamidated [N15] | O95445 | 2533.13336 |
| 130 | [R].TAGWNVPIGTLRPFLNWTGPPEPIEAAVAR.[F] | 1xDeamidated [N16] | P02788 | 3231.69494 |
| 131 | [K].VTQVYAENGTVLQGSTVASVYKGK.[L] | 1xDeamidated [N8] | P27169 | 2500.29296 |
| 132 | [K].TVLTPATNHMGNVTFTIPANR.[E] | 1xDeamidated [N12]; 1xOxidation [M10] | P01024 | 2272.13904 |
| 133 | [K].INVTGSAAAIADVGNSPTSSTTR.[I] | 1xDeamidated [N2] | Q9L5A4 | 2191.08369 |
| 134 | [K].QEPERNECFLQHK.[D] | 1xCarbamidomethyl [C8]; 1xDeamidated [N6] | P02768; P02770 | 1715.78059 |
| 135 | [K].ALPQPQNVTSLL | 1xCarbamidomethyl [C14]; | P02790 | 1736.8636 |

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| | GCTH.[-] | 1xDeamidated [N7] | | |
| 136 | [K].VSNQTLSLFFTVLQDVPVR.[D] | 1xDeamidated [N3] | P01023 | 2164.16485 |
| 137 | [K].TKPREEQFNSTFR.[V] | 1xDeamidated [N9] | P01859 | 1640.80271 |
| 138 | [K].QLDEEIKELNESNSQMEADMIK.[L] | 2xDeamidated [N10; N13]; 1xOxidation [M16] | Q9UL68 | 2612.15897 |
| 139 | [K].SYNETKIKFDKYK.[A] | 1xDeamidated [N3] | P04114 | 1664.85301 |
| 140 | [K].TKPREEQFNSTYR.[V] | 1xDeamidated [N9] | P01861 | 1656.79762 |
| 141 | [R].LANLTQGEDQYYLR.[V] | 1xDeamidated [N3] | P10909 | 1684.81769 |
| 142 | [K].SLGNVNFTVSAEALESQELCGTEVPSVPEHGR.[K] | 1xCarbamidomethyl [C20]; 2xDeamidated [N4; N6] | P01023 | 3415.59582 |
| 143 | [K].TKPREEQYNSTYR.[V] | 1xDeamidated [N9] | P01857; P0DOX5 | 1672.79254 |
| 144 | [R].GAFFPLTERNWSLPNR.[A] | 1xDeamidated [N10] | P55058 | 1905.96061 |
| 145 | [K].NLFLNHSENATAK.[D] | 2xDeamidated [N5; N9] | P00739; P00738 | 1460.7016 |
| 146 | [K].YLGNATAIFFLPDEGK.[L] | 1xDeamidated [N4] | P01009 | 1756.87923 |
| 147 | [R].YAEDKFNETTEK.[S] | 1xDeamidated [N7] | P43652 | 1475.65365 |
| 148 | [K].NPSTNVSVVVFDSTKDVEDAHSGLLKGNSR.[Q] | 3xDeamidated [N1; N5; N28] | Q3T906 | 3175.53896 |
| 149 | [K].SPDVINGSPISQK.[I] | 1xDeamidated [N6] | P08603 | 1342.68489 |
| 150 | [K].LISNCSKFYGNR.[F] | 1xCarbamidomethyl [C5]; 1xDeamidated [N4] | P05156 | 1459.69983 |
| 151 | [K].MDGASNVTCINSR.[W] | 1xCarbamidomethyl [C9]; 1xDeamidated | P08603 | 1425.60969 |

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| | | [N6] | | |
| 152 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 1xDeamidated [N16] | P02787 | 2259.11614 |
| 153 | [K].VCQDCPLLAPLNDTR.[V] | 2xCarbamidomethyl [C2; C5]; 1xDeamidated [N12] | P02765 | 1772.83058 |
| 154 | [K].CVEISCKSPDVINGSPISQK.[I] | 2xCarbamidomethyl [C1; C6]; 1xDeamidated [N13] | P08603 | 2219.06825 |
| 155 | [K].TVLTPATNHMGNVTFTIPANREFK.[S] | 1xDeamidated [N12] | P01024 | 2660.3501 |
| 156 | [R].GCNDSDVLAVAGFALR.[D] | 1xCarbamidomethyl [C2]; 1xDeamidated [N3] | Q9UGM5 | 1665.7901 |
| 157 | [K].ENKTLQEEIKDLIDQLGEGGR.[S] | 1xDeamidated [N2] | Q9H6N6 | 2386.20962 |
| 158 | [R].FNSSYLQGTNQITGR.[Y] | 1xDeamidated [N2] | P04114 | 1686.80819 |
| 159 | [R].DQCIVDDITYNVNDTFHK.[R] | 1xCarbamidomethyl [C3]; 1xDeamidated [N13] | P02751 | 2197.97064 |
| 160 | [R].LQNNENNISCVER.[G] | 1xCarbamidomethyl [C10]; 1xDeamidated [N7] | P36980; Q03591 | 1590.71766 |
| 161 | [K].NLSMPLLPADFHK.[E] | 1xDeamidated [N1] | P05546 | 1483.76136 |
| 162 | [R].VVGVPYQGNATALFILPSEGK.[M] | 1xDeamidated [N9] | P05154 | 2161.15395 |
| 163 | [K].KPGNNEGSGAPSPLSKSSPATTVTSPNSTPAK.[T] | 3xDeamidated [N4; N5; N27] | O60641 | 3069.48586 |
| 164 | [K].AGAFLGLTNVAVMNLSGNCLR.[N] | 1xCarbamidomethyl [C19]; 1xDeamidated [N14] | P35858 | 2179.09982 |
| 165 | [K].STGKPTLYNVSL | 1xCarbamidome | P01871 | 2366.08904 |

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| | VMSDTAGTCY.[-] | thyl [C21]; 1xDeamidated [N9] | | |
| 166 | [R].FSDGLESNSSTQFEVKK.[Y] | 1xDeamidated [N8] | P0C0L5 | 1903.89198 |
| 167 | [K].YDFNSSMLYSTAK.[G] | 1xDeamidated [N4] | P04114 | 1527.66719 |
| 168 | [R].SWPAVGNCSSALR.[W] | 1xCarbamidomethyl [C8]; 1xDeamidated [N7] | P02790 | 1405.65287 |
| 169 | [K].LINDYVKNGTR.[G] | 1xDeamidated [N8] | P01011 | 1293.67974 |
| 170 | [R].ISEENETTCYMGK.[W] | 1xCarbamidomethyl [C9]; 1xDeamidated [N5] | P08603 | 1562.6349 |
| 171 | [R].GLNVTLSSTGR.[N] | 1xDeamidated [N3] | P0C0L5 | 1105.58478 |
| 172 | [R].FSDGLESNSSTQFEVK.[K] | 1xDeamidated [N8] | P0C0L5 | 1775.79702 |
| 173 | [K].TPLTANITK.[S] | 1xDeamidated [N6] | P0DOX2 | 959.54079 |
| 174 | [R].AQLLQGLGFNLTER.[S] | 1xDeamidated [N10] | P08185 | 1560.83803 |
| 175 | [K].VSNVSCQASVSR.[M] | 1xCarbamidomethyl [C6]; 1xDeamidated [N3] | P55058 | 1294.60559 |
| 176 | [K].LNAENNATFYFK.[I] | 1xDeamidated [N6] | P01042 | 1432.67432 |
| 177 | [K].GAFISNFSMTVDGK.[T] | 1xDeamidated [N6] | P19823 | 1474.68826 |
| 178 | [K].LGNWSAMPSCK.[A] | 1xCarbamidomethyl [C10]; 1xDeamidated [N3] | P02749 | 1251.54966 |
| 179 | [K].TMFPNLTDVR.[E] | 1xDeamidated [N5] | Q8SQ74 | 1194.58234 |
| 180 | [K].GIHFNATKLSDSSAK.[L] | 1xDeamidated [N5] | C0HLG3 | 1576.79656 |
| 181 | [K].WSDIWNATK.[Y | 1xDeamidated | P06276 | 1121.5262 |

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| | ] | [N6] | | |
| 182 | [R].EEQFNSTYR.[V] | 1xDeamidated [N5] | P01861 | 1174.50111 |
| 183 | [K].FLNNGTCTAEGK.[F] | 1xCarbamidomethyl [C7]; 1xDeamidated [N4] | P05156 | 1312.58379 |
| 184 | [R].EEQYNSTYR.[V] | 1xDeamidated [N5] | P01857; P0DOX5 | 1190.49602 |
| 185 | [K].LPPGLLANFTLLR.[T] | 1xDeamidated [N8] | P02750 | 1425.84641 |
| 186 | [R].EEQFNSTFR.[V] | 1xDeamidated [N5] | P01859 | 1158.50619 |
| 187 | [K].KQLVEIEKVVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N14] | P00738 | 2763.56549 |
| 188 | [K].FNWYVDGVEVHNAKTKPREEQYNSTYR.[V] | 1xDeamidated [N23] | P0DOX5 | 3331.57668 |
| 189 | [K].NLFLNHSENATAKDIAPTLTLYVGKK.[Q] | 2xDeamidated [N5; N9] | P00739; P00738 | 2860.5091 |
| 190 | [K].ILRQQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C16; C21]; 1xDeamidated [N12] | P02787; A5A6I6 | 2898.37739 |
| 191 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 1xDeamidated [N6]; 1xOxidation [M1] | P00739; P00738 | 2696.37123 |
| 192 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 1xDeamidated [N5] | P0DOX5 | 3399.68556 |
| 193 | [R].STQDTVIALDALSAYWIASHTTEERGLNVTLSSTGR.[N] | 1xDeamidated [N28] | P0C0L4; P0C0L5 | 3864.92502 |
| 194 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 1xDeamidated [N] | P02787; A5A6I6 | 2259.11614 |
| 195 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N9; N27] | P0DOX5 | 3882.96609 |

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| 196 | [R].FSLLGHASISCTVENETIGVWRPSPPTCEK.[I] | 2xCarbamidomethyl [C11; C28]; 1xDeamidated [N15] | P04003 | 3373.61914 |
| 197 | [R].EEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 2xDeamidated [N5; N23] | P0DOX5 | 3400.66958 |
| 198 | [K].YPPTVSMVEGQGEKNVTFWGRPLPR.[C] | 1xDeamidated [N15] | P27918 | 2846.42941 |
| 199 | [R].TLNQSSDELQLSMGNAMFVKEQLSLLDRFTEDAK.[R] | 2xDeamidated [N3; N15] | P01011 | 3860.85686 |
| 200 | [K].MVSHHNLTTGATLINEQWLLTTAKNLFLNHSENATAK.[D] | 3xDeamidated [N6; N15; N25] | P00739; P00738 | 4122.06007 |
| 201 | [K].QLVEIEKVVLHPNYSQVDIGLIK.[L] | 1xDeamidated [N13] | P00738 | 2635.47053 |
| 202 | [K].VVLHPNYSQVDIGLIKLK.[Q] | 1xDeamidated [N6] | P00738 | 2037.17429 |
| 203 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 1xDeamidated [N] | P02790 | 3780.79962 |
| 204 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEKLNAAK.[A] | 2xCarbamidomethyl [C7; C24]; 2xDeamidated [N10; N] | P02790 | 3781.78364 |
| 205 | [K].TPENYPNAGLTMNYCRNPDADKGPWCFTTDPSVR.[W] | 2xCarbamidomethyl [C15; C26]; 1xDeamidated [N13] | P00747 | 3945.72653 |
| 206 | [K].MVSHHNLTTGATLINEQWLLTTAK.[N] | 2xDeamidated [N6; N15] | P00739; P00738 | 2681.36033 |
| 207 | [K].TIDRLAGKPTHVNVSVVMAEVDGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13] | P01876 | 2833.38589 |
| 208 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 2xDeamidated [N9; N27] | P0DOX5 | 3462.76521 |
| 209 | [K].ILRQQQHLFGSNVTDCSGNFCLFRSE | 2xCarbamidomethyl [C16; C21]; | P02787; A5A6I6 | 3343.59465 |

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| | TK.[D] | 1xDeamidated [N12] | | |
| 210 | [R].LSLHRPALEDLLLGSEANLTCTLTGLR.[D] | 1xCarbamidomethyl [C21]; 1xDeamidated [N18] | P01876; P01877; P0DOX2 | 2964.58228 |
| 211 | [R].WQSIPLCVEKIPCSQPPQIEHGTINSSR.[S] | 2xCarbamidomethyl [C7; C13]; 1xDeamidated [N25] | P08603 | 3262.59834 |
| 212 | [R].EEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 2xDeamidated [N5; N23] | P01859 | 3354.6641 |
| 213 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 1xDeamidated [N9] | P01859 | 3835.9766 |
| 214 | [R].KVCQDCPLLAPLNDTRVVHAAK.[A] | 2xCarbamidomethyl [C3; C6]; 1xDeamidated [N13] | P02765 | 2506.29047 |
| 215 | [R].VYIHPFHLVIHNESTCEQLAK.[A] | 1xCarbamidomethyl [C16]; 1xDeamidated [N12] | Q9GLN8 | 2536.26531 |
| 216 | [K].NLFLNHSENATAKDIAPTLTLYVGK.[K] | 2xDeamidated [N5; N9] | P00739; P00738 | 2732.41414 |
| 217 | [K].CGLVPVLAENYNKSDNCEDTPEAGYFAVAVVKK.[S] | 2xCarbamidomethyl [C1; C17]; 2xDeamidated [N10; N12] | P02787 | 3659.72439 |
| 218 | [R].ENGTVSRYEGGREHVAHLLFLR.[D] | 1xDeamidated [N2] | P19652 | 2541.29569 |
| 219 | [K].LGSFEGLVNLTFIHLQHNR.[L] | 1xDeamidated [N9] | P51884 | 2196.15601 |
| 220 | [R].TVDKSTGKPTLYNVSLVMSDTAGTCY.[-] | 1xCarbamidomethyl [C25]; 1xDeamidated [N13]; 1xOxidation [M18] | P01871 | 2825.32195 |
| 221 | [R].IQNILTEEPKVTQVYAENGTVLQGSTVASVYK.[G] | 2xDeamidated [N3; N18] | P27169 | 3481.79484 |

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| 222 | [R].EYQTRQDQCIYNTTYLNVQRENGTISR.[Y] | 1xCarbamidomethyl [C9]; 2xDeamidated [N17; N22] | P02763 | 3352.54987 |
| 223 | [R].GLNVTLSSTGRNGFK.[S] | 2xDeamidated [N3; N12] | P0C0L4; P0C0L5 | 1552.79656 |
| 224 | [R].QQQHLFGSNVTDCSGNFCLFR.[S] | 2xCarbamidomethyl [C13; C18]; 1xDeamidated [N9] | P02787; A5A6I6 | 2516.10815 |
| 225 | [R].VLSNNSDANLELINTWVAK.[N] | 1xDeamidated [N] | P05155 | 2102.07642 |
| 226 | [K].SLGPNSCSANGPGLYLIHGPNLYCYSDVEK.[L] | 2xCarbamidomethyl [C7; C24]; 2xDeamidated [N5; N10] | P02790 | 3284.48746 |
| 227 | [R].VLYLAAYNCTLRPVSK.[K] | 1xCarbamidomethyl [C9]; 1xDeamidated [N8] | Q9UGM5 | 1868.99388 |
| 228 | [K].ERSWPAVGNCSSALR.[W] | 1xCarbamidomethyl [C10]; 1xDeamidated [N9] | P02790 | 1690.79658 |
| 229 | [R].ITYSIVQTNCSKENFLFLTPDCK.[S] | 2xCarbamidomethyl [C10; C22]; 1xDeamidated [N9] | P01042 | 2779.33173 |
| 230 | [R].LLDTQRDGLQNYEALLGLTNLSGR.[S] | 2xDeamidated [N11; N20] | Q8IWX7 | 2662.36825 |
| 231 | [K].IPASKIVQYDMGNLSGEFPLEVTLAVK.[E] | 1xDeamidated [N13] | Q2NHZ0 | 2920.53762 |
| 232 | [R].ANISHKDMQLGR.[L] | 1xDeamidated [N2] | P01031 | 1370.68451 |
| 233 | [K].FVEGSHNSTVSLTTK.[N] | 1xDeamidated [N7] | P04114 | 1607.79114 |
| 234 | [R].IIVPLNNRENISDPTSPLR.[T] | 1xDeamidated [N10] | P01591 | 2149.16116 |
| 235 | [K].SVVAPATDGGLNLTSTFLR.[K] | 1xDeamidated [N12] | P41222 | 1920.00728 |
| 236 | [K].QSVPAHFVALNGSK.[L] | 1xDeamidated [N11] | Q863A0 | 1455.75905 |

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| 237 | [R].VLSNNSDANLELINTWVAK.[N] | 2xDeamidated [N4; N5] | P05155 | 2103.06044 |
| 238 | [R].FSDGLESNSSTQFEVKK.[Y] | 1xDeamidated [N8] | P0C0L4; P0C0L5 | 1903.89198 |
| 239 | [K].VETNISKTSWIRSSMAASGKR.[V] | 1xDeamidated [N4] | Q15849 | 2310.18705 |
| 240 | [K].LCMGSGLNLCEPNNKEGYYGYTGAFR.[C] | 2xCarbamidomethyl [C2; C10]; 2xDeamidated [N8; N13] | P02787 | 2973.28519 |
| 241 | [K].TKPREEQYNSTYR.[V] | 1xDeamidated [N9] | P0DOX5 | 1672.79254 |
| 242 | [R].ALGFENATQALGR.[A] | 1xDeamidated [N6] | Q08380 | 1348.68555 |
| 243 | [R].ITYSIVQTNCSK.[E] | 1xCarbamidomethyl [C10]; 1xDeamidated [N9] | P01042 | 1414.68826 |
| 244 | [R].FSDGLESNSSTQFEVK.[K] | 1xDeamidated [N8] | P0C0L4; P0C0L5 | 1775.79702 |
| 245 | [K].TPLTANITK.[S] | 1xDeamidated [N6] | P01877; P0DOX2 | 959.54079 |
| 246 | [R].FEVDSPVYNATWSASLK.[N] | 1xDeamidated [N9] | P04114 | 1914.91199 |
| 247 | [R].ENISDPTSPLR.[T] | 1xDeamidated [N2] | P01591 | 1229.60082 |
| 248 | [R].GLNVTLSSTGR.[N] | 1xDeamidated [N3] | P0C0L4; P0C0L5 | 1105.58478 |
| 249 | [R].VNQNLVYESGSLNFSK.[L] | 1xDeamidated [N13] | P04114 | 1799.88102 |
| 250 | [R].EEQYNSTYR.[V] | 1xDeamidated [N5] | P0DOX5 | 1190.49602 |
| 251 | [R].EEQYNSTFR.[V] | 1xDeamidated [N5] | P01860 | 1174.50111 |
| 252 | [R].LSLHRPALEDLLLGSEANLTCTLTGLRDASGATFTWTPSSGK.[S] | 1xCarbamidomethyl [C21]; 1xDeamidated [N18] | P0DOX2 | 4458.26095 |
| 253 | [R].VNQNLVYESGSLNFSKLEIQSQVDSQHVGHSVLTAK.[G] | 1xDeamidated [N13] | P04114 | 3956.99885 |
| 254 | [R].NEEYNKSVQEIQ | 2xDeamidated | P02763; P19652 | 3674.7537 |

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| | ATFFYFTPNKTEDTIFLR.[E] | [N5; N21] | | |
| 255 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 1xDeamidated [N7] | P01009 | 3182.61906 |
| 256 | [K].AREDIFMETLKDIVEYYNDSNGSHVLQGR.[F] | 1xDeamidated [N21] | P25311 | 3400.61141 |
| 257 | [R].SDHGSSISCQPPAEIPGYLPADTVHLAVEFFNLTHLPANLLQGASK.[L] | 1xCarbamidomethyl [C9]; 1xDeamidated [N32] | P02750 | 4900.42506 |
| 258 | [R].TLNQSSDELQLSMGNAMFVKEQLSLLDRFTEDAK.[R] | 1xDeamidated [N3] | P01011 | 3859.87284 |
| 259 | [R].SNHVSRTEVSSNHVLIYLDKVSNQTLSLFFTVLQDVPVR.[D] | 1xDeamidated [N23] | P01023 | 4443.33069 |
| 260 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 1xDeamidated [N7]; 1xOxidation [M24] | P01009 | 3198.61398 |
| 261 | [K].TKPREEQYNSTYRVVSVLTVLHQDWLNGKEYK.[C] | 1xDeamidated [N9] | P0DOX5 | 3881.98208 |
| 262 | [R].SEGSSVNLSPPLEQCVPDRGQQYQGR.[L] | 1xCarbamidomethyl [C15]; 1xDeamidated [N7] | P00734 | 2889.34317 |
| 263 | [K].MVSHHNLTTGATLINEQWLLTTAKNLFLNHSENATAK.[D] | 3xDeamidated [N15; N25; N29] | P00739; P00738 | 4122.06007 |
| 264 | [R].QLAHQSNSTNIFFSPVSIATAFAMLSLGTK.[A] | 2xDeamidated [N7; N10] | P01009 | 3183.60308 |
| 265 | [R].DKICDLLVANNHFAHFFAPQNLTNMNK.[N] | 1xCarbamidomethyl [C4]; 1xDeamidated [N21] | P19827 | 3173.52953 |
| 266 | [K].QLVEIEKVVLHPNYSQVDIGLIKLK.[Q] | 1xDeamidated [N13] | P00738 | 2876.64956 |

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| 267 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 2xDeamidated [N5; N23] | P0DOX5 | 2980.46869 |
| 268 | [K].TKPREEQFNSTFRVVSVLTVVHQDWLNGKEYK.[C] | 2xDeamidated [N9; N27] | P01859 | 3836.96061 |
| 269 | [R].EEQYNSTYRVVSVLTVLHQDWLNGK.[E] | 1xDeamidated [N5] | P0DOX5 | 2979.48468 |
| 270 | [K].IITILEEEMNVSVCGLYTYGKPVPGHVTVSICR.[K] | 2xCarbamidomethyl [C14; C32]; 1xDeamidated [N10] | P01023 | 3735.87945 |
| 271 | [K].HYTNSSQDVTVPCRVPPPPPCCHPR.[L] | 3xCarbamidomethyl [C13; C21; C22]; 1xDeamidated [N4] | P0DOX2 | 2959.33963 |
| 272 | [R].VDHRGLTFQQNASSMCVPDQDTAIR.[V] | 1xCarbamidomethyl [C16]; 1xDeamidated [N11] | P01871 | 2847.31485 |
| 273 | [R].KSRPANHCVYFYGDEISFSCHETSR.[F] | 2xCarbamidomethyl [C8; C20]; 1xDeamidated [N6] | P04003 | 3048.33631 |
| 274 | [R].TAGWNIPMGLLYNKINHCR.[F] | 1xCarbamidomethyl [C18]; 1xDeamidated [N] | P02787 | 2259.11614 |
| 275 | [K].MLNTSSLLEQLNEQFNWVSR.[L] | 1xDeamidated [N3]; 1xOxidation [M1] | P10909 | 2426.16565 |
| 276 | [K].AREDIFMETLKDIVEYYNDSNGSHVLQGR.[F] | 2xDeamidated [N18; N21] | P25311 | 3401.59543 |
| 277 | [R].VNQNLVYESGSLNFSKLEIQSQVDSQHVGHSVLTAK.[G] | 2xDeamidated [N4; N13] | P04114 | 3957.98286 |
| 278 | [K].NCGVNCSGDVFTALIGEIASPNYPKPYPENSR.[C] | 2xCarbamidomethyl [C2; C6]; 1xDeamidated [N5] | P09871 | 3527.62059 |
| 279 | [R].FEDGVLDPDYPRNISDGFDGIPDNV | 2xDeamidated | P04004 | 4177.92614 |

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| | DAALALPAHSYSGR.[E] | [N13; N24] | | |
| 280 | [R].DIPTNSPELEETLTHTITKLNAENNATFYFKIDNVKK.[A] | 1xDeamidated [N25] | P01042 | 4250.15032 |
| 281 | [R].GNEANYYSNATTDEHGLVQFSINTTNVMGTSLTVR.[V] | 2xDeamidated [N9; N23] | P01023 | 3806.745 |
| 282 | [R].NISDGFDGIPDNVDAALALPAHSYSGR.[E] | 2xDeamidated [N1; N12] | P04004 | 2774.29039 |
| 283 | [K].NLFLNHSENATAKDIAPTLTLYVGKK.[Q] | 3xDeamidated [N1; N5; N9] | P00739; P00738 | 2861.49312 |
| 284 | [K].ALQAVYSMMSWPDDVPPEGWNRTR.[H] | 1xDeamidated [N21] | P00751 | 2807.2916 |
| 285 | [K].LVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 2xDeamidated [N15; N19] | P01024 | 3013.5663 |
| 286 | [R].ETYGEMADCCAKQEPERNECFLQHK.[D] | 3xCarbamidomethyl [C9; C10; C20]; 1xDeamidated [N18] | P02768 | 3131.29617 |
| 287 | [R].FSGSNSGNTATLTISR.[VA] | 1xDeamidated [N8] | P80748 | 1613.77655 |
| 288 | [R].AVNITSENLIDDVVSLIRGGTR.[K] | 1xDeamidated [N3] | P02748 | 2343.25143 |
| 289 | [K].HYTNSSQDVTVPCR.[V] | 1xCarbamidomethyl [C13]; 1xDeamidated [N4] | P0DOX2 | 1664.73331 |
| 290 | [K].KLVLSSEKTVLTPATNHMGNVTFTIPANR.[E] | 2xDeamidated [N16; N20] | P01024 | 3141.66126 |
| 291 | [R].VIDFNCTTSSVSSALANTKDSPVLIDFFEDTER.[Y] | 1xCarbamidomethyl [C6]; 1xDeamidated [N5] | P04196 | 3679.73198 |
| 292 | [K].NLFLNHSENATAK.[D] | 1xDeamidated [N5] | P00739; P00738 | 1459.71758 |
| 293 | [R].IQNILTEEPKVTQVYAENGTVLQGS | 1xDeamidated [N18] | P27169 | 3480.81082 |

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|---|---|---|---|---|
| | TVASVYK.[G] | | | |
| 294 | [K].NNATVHEQVGGPSLTSDLQAQSK.[G] | 1xDeamidated [N2] | P04004 | 2382.15317 |
| 295 | [R].VFHIHNESWVLLTPK.[A] | 1xDeamidated [N6] | O75882 | 1820.96938 |
| 296 | [K].AGLQAFFQVQECNKSSSK.[D] | 1xCarbamidomethyl [C12]; 1xDeamidated [N13] | P00450 | 2029.96477 |
| 297 | [K].QVFPGLNYCTSGAYSNASSTDSASYYPLTGDTR.[L] | 1xCarbamidomethyl [C9]; 1xDeamidated [N16] | P04114 | 3551.55435 |
| 298 | [K].QSVPAHFVALNGSK.[L] | 1xDeamidated [N11] | P06681 | 1455.75905 |
| 299 | [R].CIQANYSLMENGKIK.[V] | 1xCarbamidomethyl [C1]; 2xDeamidated [N5; N11] | P05090 | 1770.84008 |
| 300 | [K].TQKDVISNTSDVIGTCEAADVAQK.[V] | 1xCarbamidomethyl [C16]; 1xDeamidated [N8] | Q9H2G2 | 2551.2192 |
| 301 | [K].TVLTPATNHMGNVTFTIPANREFK.[S] | 2xDeamidated [N8; N12] | P01024 | 2661.33411 |
| 302 | [K].AALAAFNAQNNGSNFQLEEISR.[A] | 2xDeamidated [N10; N11] | P02765 | 2367.12114 |
| 303 | [R].CSDGWSFDATTLDDNGTMLFFK.[G] | 1xCarbamidomethyl [C1]; 1xDeamidated [N15] | P02790 | 2529.05847 |
| 304 | [K].CGLVPVLAENYNKSDNCEDTPEAGYFAVAVVK.[K] | 2xCarbamidomethyl [C1; C17]; 2xDeamidated [N12; N16] | P02787 | 3531.62943 |
| 305 | [R].GLTFQQNASSMCVPDQDTAIR.[V] | 1xCarbamidomethyl [C12]; 1xDeamidated [N7]; 1xOxidation [M11] | P01871 | 2356.05439 |
| 306 | [K].IYPGVDFGGEELNVTFVK.[G] | 1xDeamidated [N13] | P03952 | 1984.99024 |

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|---|---|---|---|---|
| 307 | [K].HANWTLTPLK.[S] | 1xDeamidated [N3] | P27169 | 1181.63133 |
| 308 | [K].VNGTFQANFPLGPATHGGTYR.[C] | 1xDeamidated [N2] | Q14954 | 2206.06759 |
| 309 | [R].WEYCNLTR.[C] | 1xCarbamidomethyl [C4]; 1xDeamidated [N5] | P08519 | 1142.49352 |
| 310 | [K].TMFPNLTDVR.[E] | 1xDeamidated [N5] | P06681 | 1194.58234 |
| 311 | [R].KLNGCTKEEFFAYR.[R] | 1xCarbamidomethyl [C5]; 1xDeamidated [N3] | P07720 | 1763.84213 |

**Table S3.** Sequences of four single-stranded DNA used to synthesize DNA tetrahedron.

| No. | DNA single-stranded sequence (5' to 3')) | 5' modification |
|---|---|---|
| N1 | TACACAGATCATAGTAGGTAAGTTATCGAAC | 5`SH C6 |
| N2 | ATCTGTGTACAGACGACGAATCCCTATCGGA | 5`SH C6 |
| N3 | TTACAGTCTGCTTCGTCGTCGAGTTCGATAA | 5`SH C6 |
| N4 | TCAGTCGGTCAGACTGTAAACTACCTACTAGATCCGATA GG | 5`COOH |

**Table S4.** The comparison table of $Fe_3O_4$@DOPA/PEI@Au@DNA TET-Trypsin and other previous materials in references.

| NO. | Materials used | LOD | Selectivity | Total required time | Standard protein | Ref. |
|---|---|---|---|---|---|---|
| 1 | SCOF-2 | 0.010 fmol·μL$^{-1}$ | BSA: HRP= 5000: 1 | 20.5 h | HRP, IgG | [1] |
| 2 | CCM | 0.250 fmol·μL$^{-1}$ | BSA: IgG= 1000: 1 | 18 h | IgG | [2] |
| 3 | 3D-IL-COF-1 @CS hydrogel | 0.100 fmol·μL$^{-1}$ | BSA: HRP= 2000: 1 | 19 h | HRP | [3] |
| 4 | mM-$TiO_2$@Cys | 1.00 fmol·μL$^{-1}$ | - | 19 h | IgG | [4] |
| 5 | $Fe_3O_4$@DOPA/PEI@Au @DNA TET-Trypsin | 0.001 amol·μL$^{-1}$ | BSA: HRP= 5000: 1 | 20 min | HRP | This work |

‘-’ not given.

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