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# Supporting Information

## Experiment Section

**Materials**: Tetraethyl orthosilicate (TEOS), 3-aminepropyltrimethoxysilane (APTES), 1-(3-dimethylaminoprophyl)-3-ethylcarbodiimide hydrochloride (EDC), N-hydroxysuccinimide (NHS), concentrated ammonia aqueous solution ($NH_3 \cdot H_2O$, 28 wt%), chitosan (CS, low molecular weight), human serum immunoglobulin G (human IgG), chicken avidin, horseradish peroxidase (HRP), trypsin (TPCK treated), dithiothreitol (DTT), iodoacetamide (IAA), and 2,5-dihydroxyl benzoic acid (DHB were purchased from sigma-Aldrich (St, Louis, MO, USA). Acetonitrile (ACN), trifluoroacetic acid (TFA) and formic acid (FA) were purchased from Merck (Darmstadt, Germany). PNGase F was from New England Biolabs (Ipswich, MA). Iron(Ⅲ) chloride hexahydrate ($FeCl_3 \cdot 6H_2O$), sodium acetate (NaAc), ethylene glycol (EG), and isopropanol were obtained from Tianjin Chemical Plant (Tianjin, China). Sodium hyaluronate (HA) (Mw = 100 KDa) was purchased from Zhenjiang Dong Yuan Biotech Co., Ltd., (Zhenjiang, China). Pure water (18.4 MΩ cm) used in all experiments was purified by a Milli-Q system (Millipore, Milford, MA, USA).

### Synthesis of MNPs-(HA/CS)$_{10}$

**Initiator $NH_2$-modification of MNPs.** The MNPs-$NH_2$ nanoparticles were prepared according to previous work with a minimal modification.[1,2] The $Fe_3O_4$ nanoparticles were synthesized by means of a solvothermal reaction and coated by a layer of amorphous silica. Briefly, $Fe_3O_4$ nanoparticles (200 mg) were dispersed in a mixture of ethanol (200 mL), pure water (50 mL) and $NH_3 \cdot H_2O$ (1.5 mL) with 0.5 h sonication, and the resulting mixture was stirred for 30 min at room temperature. TEOS (0.4 mL) was added and stirred for another 12 h. The result nanoparticles were collected with a magnet and wash with ethanol, water and isopropanol, and then redispersed in isopropanol (50 mL), APTS (1.0 mL) was added dropwise and the solution were mechanically stirred for 24 h at room temperature. The resultant MNPs-$NH_2$ nanoparticles were dried in a vacuum oven at 50 ℃ for overnight.

**LbL assembly of MNPs-(HA/CS)$_{10}$.** MNPs-$NH_2$ nanoparticles (50 mg) were activated with ethanol and water, respectively, and dispersed in HA solution (1 mg $mL^{-1}$, 0.135 M NaCl, pH= 5) and stirred for 20 min, the obtained nanoparticles were collected by magnetic separation and the excess HA was removed by three washings with water. After that, MNPs-HA nanoparticles were then redispersed in CS solution (1 mg $mL^{-1}$, 0.135 M NaCl, pH= 5) and mechanically stirred for

20 min, magnetic separation and followed by three washings. After the desired *n* layers, e.g. *n*=10, the obtained nanoparticles were denoted as MNPs-$(HA/CS)_{10}$. Finally, the MNPs-$(HA/CS)_{10}$ were immersed in PBS solution (10 mM, pH= 5.5) containing EDC (2 mg $mL^{-1}$) and NHS (2 mg $mL^{-1}$) to induced cross-linking for overnight, the final product were obtained after thoroughly washed with water, ethanol and acetonitrile.

**Characterization**: Transmission electron microscopy (TEM) image was obtained by JEOL JEM-2000 EX transmission electron microscope (JEOL, Tokyo, Japan). Zeta (ζ) potential measurement was conducted on Nano-ZS90 instrument in water at 25 ℃(Malvern, Worcestershire, United Kingdom). Fourier-transformed infrared spectroscopy (FT-IR) characterization has been performed on Thermo Nicolet 380 spectrometer using KBr pellets (Nicolet, Wisconsin, USA). The saturation magnetization curve was carried out at room temperature on the Physical Property Measurement System 9T (Quantum Design, San Diego, USA). Elemental analyses were performed on Vario EL Ⅲ(Elementar, Hanau, Germany).

**Tryptic digests of proteins**

Human IgG, chicken avidin and HRP were each dissolved in $NH_4HCO_3$ solution (50 mM, pH=8.3) (1 mg $mL^{-1}$ for each protein) and denatured by boiling for 15 min. DTT (1 M, 20 μL) were added the solution and heated at 60 ℃ for 1 h, and then the sample was aklylated by addition of IAA (7.2 mg) and incubated at room temperature in the dark for 45 min. The solution was incubated with trypsin at an enzyme/protein ratio of 1:25 (w/w) at 37 ℃ for overnight. The tryptic digests were stored at -20 ℃ until further use.

The proteins from mouse liver were extracted by following a literature procedure, and the protein mixture sample (1 mg) were dissolved in Tris/HCl solution (50 mM, pH= 8.3) and reduce by DTT (1 M, 20 μL) at 60 ℃ for 1 h, and then alkylated by IAA (7.2 mg) in dark at room temperature for 45 min. After that, the solution was diluted to 1 M urea with Tris/HCl solution (50 mM, pH= 8.3), tryptic was added to the solution at enyme/protein ratio of 1:25 (w/w) and incubated for overnight. The tryptic digests were desalting using $C_{18}$ SPE.

**Enrichment of glycopeptides:** MNPs-$(HA/CS)_{10}$ (15 μg) was added into protein tryptic digests solution (400 μL Loading buffer, ACN/$H_2O$/TFA, 88:19.9:0.1, v/v/v), and gentle incubated at room temperature for 10 min. After that, the MNPs were magnetically isolated with a magnet and the supernatant was discarded, followed by rinsed with of the loading buffer (3 × 200 μL). Then, the captured glycopeptides were eluted by eluting buffer (2 × 10 μL, ACN/$H_2O$/TFA, 30:69.9:0.1, v/v/v) for a 10 min shaking powerful. The eluates were direct analysis by MALDI-TOF MS analyses, or deglycosylation for LC-MS/MS analyses.

**Deglycosylation of N-linked Glycopeptides by PNGase F:** The captured glycopeptides were dried and redissolved in $NH_4HCO_3$ (10 mM), 50 units of PNGase F was added to the solution and incubated at 37 ℃ for overnight.

**Evaluating binding capacity of MNPs-(HA/CS)$_{10}$ for glycopeptides enrichment:** Different amount of MNPs-(HA/CS)$_{10}$ (0.5 – 100 μg) were added to a fixed amount of human IgG digest (3 μg), after the enrichment, the eluted fraction (0.5 μL from 20 μL total) was analyzed with MALDI-TOF MS. When the signals of six selected glycopeptides reached the maximum, the total amount of glycopeptides were bonded onto the MNPs. The binding capacity was calculated by the amount of human IgG digest (3 μg) to MNPs.

**Recovery estimation of glycopeitdes enrichment:** Two of the same amounts of human IgG (3 μg) digest were firstly labeled with light and heavy isotopes by using a stable isotope dimethyl labeling approache according to a previously reported procedure.[3] The heavy-tagged human IgG digest was enriched with MNPs-(HA/CS)$_{10}$ according to above-mentioned procedure and the resulting eluted fraction was spiked into light-tagged human IgG digest. The combined mixture was re-enriched with MNPs-(HA/CS)$_{10}$, the eluted fraction was direct analyzed by MALDI-TOF MS. The recovery was calculated by the peak intensity ration of heavy isotope-labeled glycopeptides to the light isotope-labeled glycopeptides.

**Mass spectrometry analysis**

**MALDI-TOF MS Analysis.** A 0.5 μL aliquot of the eluate and 0.5 μL of DHB matrix were sequentially dropped onto the MALDI plate for MS analysis. Matrix DHB was dissolved in ACN/$H_2O$/$H_3PO_4$ (70: 29: 1, (v/v/v), 25 mg mL$^{-1}$). All experiments were performed in a reflector positive mode on AB Sciex 5800 MALDI-TOF/TOF mass spectrometer (AB Sciex, CA) with a pulsed Nd/YAG laser at 355 nm.

**LC-MS/MS Analysis.** The delycosylated peptides were redissolved in FA/$H_2O$ (0.1:99.9, v/v) and loaded on a RP trap column (200 $\mu$m i.d.) packed with $C_{18}$ AQ beads (5 μm, 120 Å, Daison, Osaka, Japan), then separated using a homemade $C_{18}$ capillary analysis column (75 $\mu$m i.d.) packed with $C_{18}$ AQ beads (3 μm, 120 Å, Daison, Osaka, Japan), followed by MS/MS analysis using a LTQ-Orbitrap Velos (Thermo, San Jose, CA). The gradient elution was performed on an Accela 600 HPLC (Thermo, San Jose, CA) and as follows: from 0 to 5 % buffer B (FA/ACN= 0.1:99.9, v/v) for 5 min, from 5 to 35% buffer B for 120 min, and from 35 to 80% buffer B for 30 min. After running with 80% buffer B for 10 min, the separation system was equilibrated by buffer A (FA/$H_2O$= 0.1:99.9, v/v) for 15 min. The flow rate was adjusted to about 200 nL/min. The spray voltage was operated at 2.0 kV with the ion transfer capillary at 250 ℃. The MS/MS spectra were

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obtained in a data-dependent collision induced dissociation (CID) mode, and the full MS was acquired from *m/z* 400 to 2000 with resolution 60 000. The collision energy was 35.0 %, and the activation time was 10 ms. The 20 most intense ions were selected for MS/MS. The dynamic exclusion was set as follows: repeat count 1, duration 30 s, exclusion list size 500 and an exclusion duration 90 s.

**Database searching**. All the LC-MS/MS raw data was searched with MaxQuant version (1.1.1.36) against a database (target database of object glycoprotein or ipi. mouse. 3.80). the mass tolerances were 20 ppm for initial precursor ions and 0.5 Da for fragment ions. Two missed cleavages were allowed for trypsin restriction. The cut off false discovery (FDR) for peptide identifications was controlled to < 1%.

References:

1 X. Q. Xu, C. H. Deng, M. X. Gao, W. J. Yu, P. Y. Yang and X. M. Zhang, *Adv. Mater.*, 2006, **18**, 3289-3293.

2 J. P. Ge, Q. Zhang, T. R. Zhang and Y. D. Yin, *Angew chem. Int. Ed.*, 2008, **46**, 9056-9060.

3 P. J. Boersema, R. Raijmarkers, S. Lemeer, S. Mohammed and A. J. Heck, *Nat. Protoc.*, 2009, **4**, 484-494.

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## Results

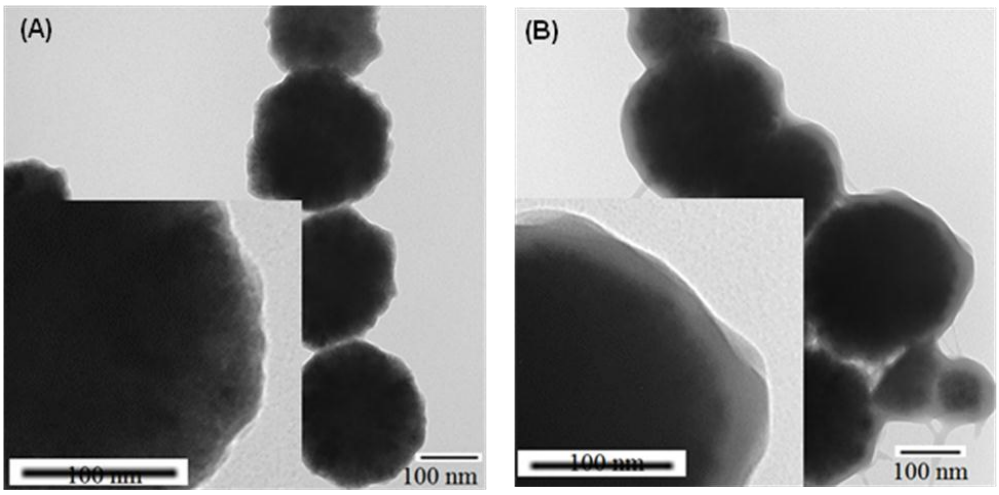


**Fig. S1** TEM images of (A) MNPs-$(HA/CS)_5$ and (B) MNPs-$(HA/CS)_{20}$ with scale bar 100 nm.

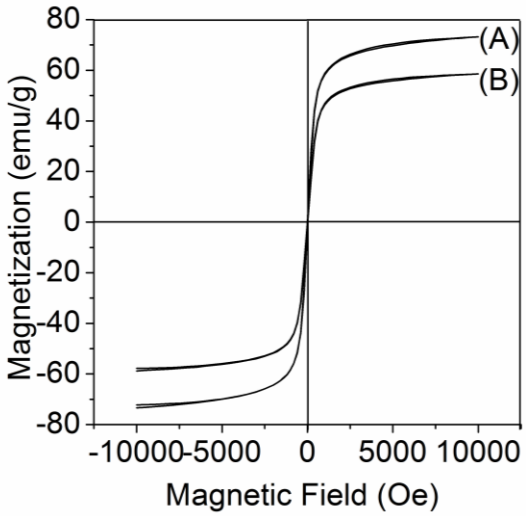


**Fig. S2** Magnetic hysteresis curves of (A) MNPs-$NH_2$, and (B) MNPs-$(HA/CS)_{10}$.

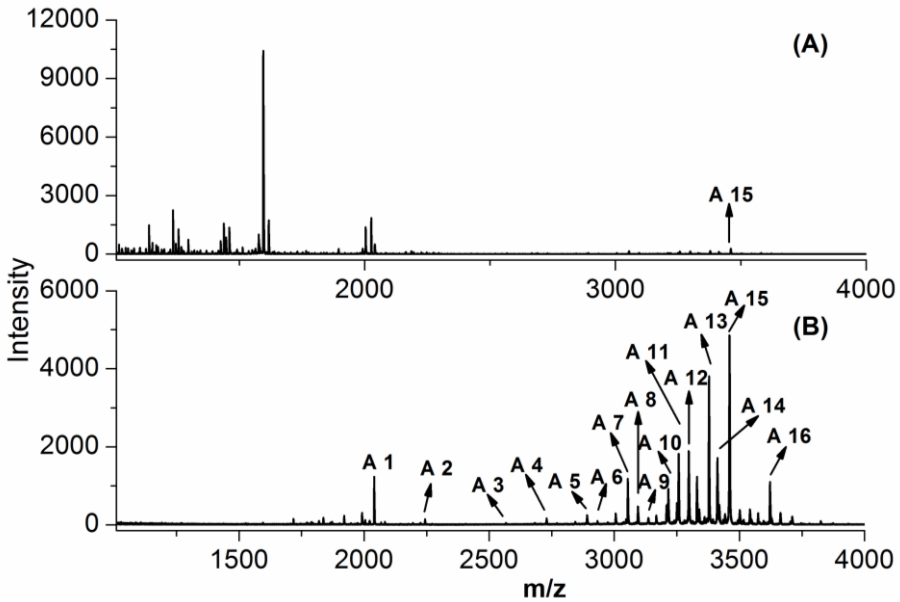


**Fig. S3** MALDI-TOF MS spectra of (A) direct analysis of 5 pmol tryptic digest of chicken avidin, (B) after enrichment by MNPs-(HA/CS)$_{10}$.

**Horseradish peroxidase**:

QLTPTFYDNS CPN*VSNIVRD TIVNELRSDP RIAASILRLH FHDCFVNGCD ASILLDN*TTS FRTEKDAFGN ANSARGFPVI DRMKAAVESA CPRTVSCADL LTIAAQQSVT LAGGPSWRVP LGRRDSLQAF LDLANANLPA PFFLPQLKD SFRNVGLN*RS SDLVALSGGH TFKNQCRFI MDRLYN*FSNT GLPDPTLN*TT YLQTLRGLCP LNGN*LSALVD FDLRTPTIFD NKYYVNLEEQ KGLIQSDQEL FSSPN*ATDTI PLVRSFAN*ST QTFFNAFVEA MDRMGN*ITPL TGTQGQIRLN CRVVNSNS

**Fig. S4** N-glycosites from HRP identified after enrichment by MNPs-(HA/CS)$_{10}$ (underlined with black line). N* denotes the N-linked glycosylation site.

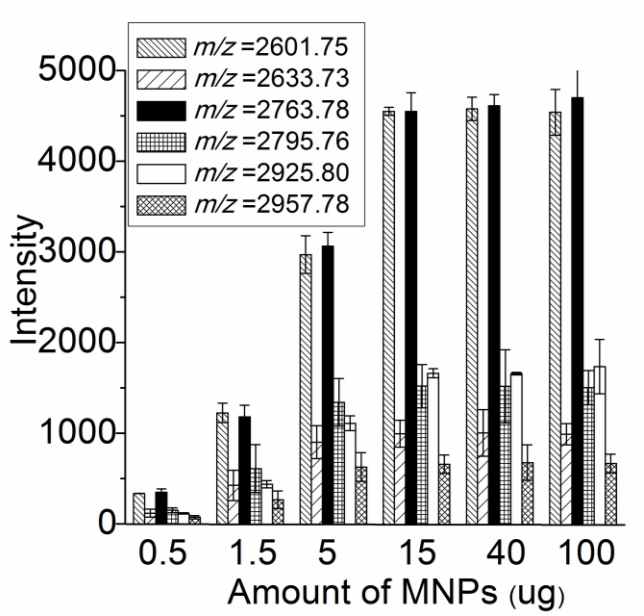


**Fig. S5** The amount of MNPs influencing intensity of six selected glycopeptides from tryptic digests of human IgG (3 μg) after enrichment using MNPs-$(HA/CS)_{10}$.

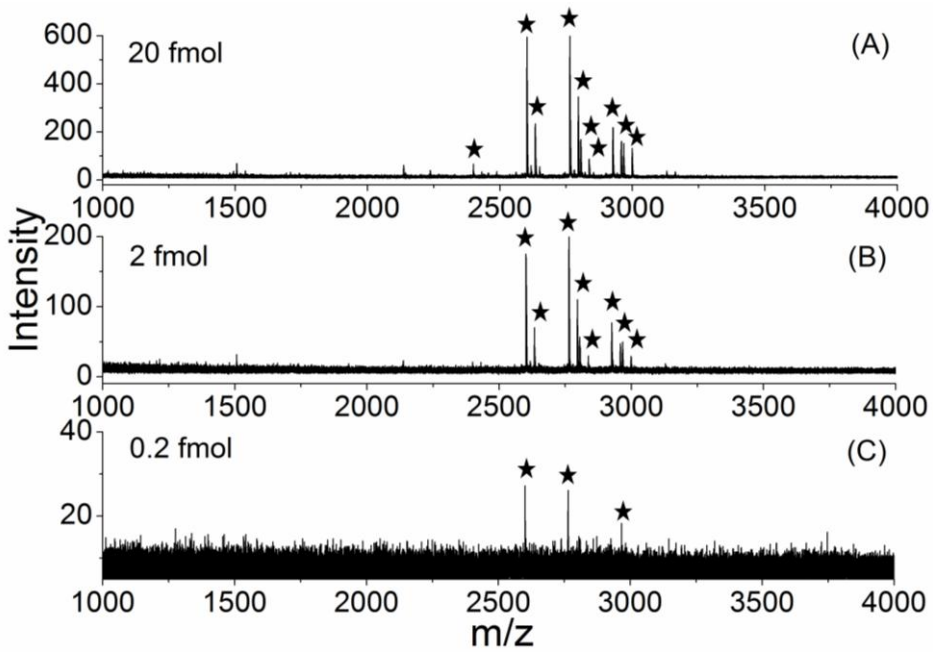


**Fig. S6** MALDI-TOF MS spectra of tryptic digests of human IgG analysis after enrichment by MNPs-$(HA/CS)_{10}$. (A) 20 fmol (0.5 μL), (B) 2 fmol (0.5 μL) and (C) 200 amol (0.5 μL). (★) indicate glycopeptides.

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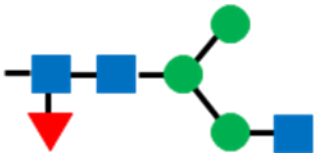
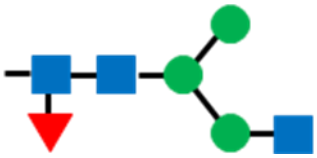
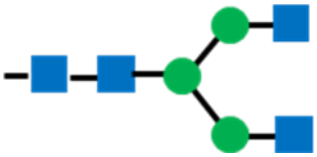
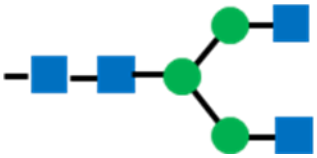
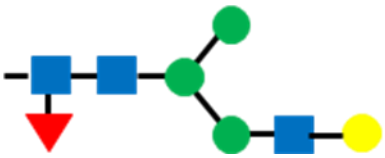
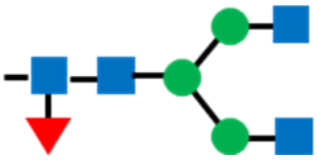
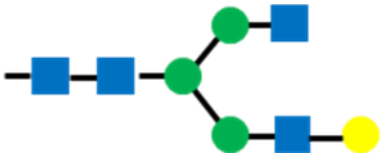
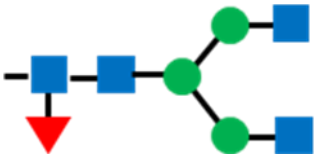
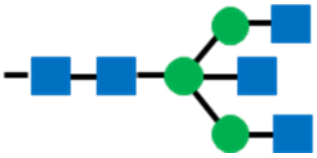
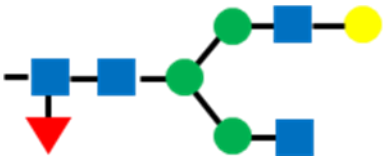
**Table S1.** Molecular masses and glycan structure of the glycopeptides from human IgG after enrichment by MNPs-(HA/CS)$_{10}$. N* denotes the N-linked glycosylation sites.

| No. | *m/z* | Glycan structure | Amino acid sequence |
|---|---|---|---|
| I1 | 2398.70 |  | EEQFN*STFR |
| I2 | 2430.68 |  | EEQYN*STYR |
| I3 | 2455.72 |  | EEQFN*STFR |
| I4 | 2487.68 |  | EEQYN*STYR |
| I5 | 2560.74 |  | EEQFN*STFR |
| I6 | 2601.75 |  | EEQFN*STFR |
| I7 | 2618.75 |  | EEQFN*STFR |
| I8 | 2633.73 |  | EEQYN*STYR |
| I9 | 2690.72 |  | EEQYN*STYR |
| I10 | 2763.78 |  | EEQFN*STFR |

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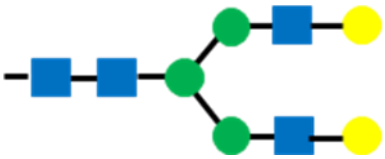
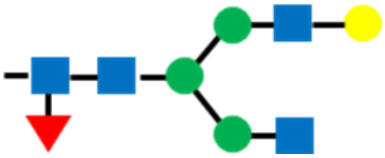
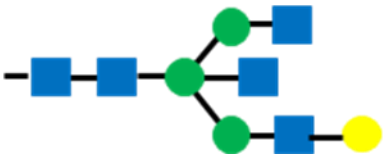
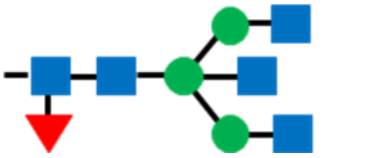
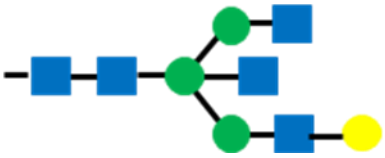
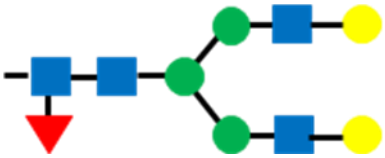
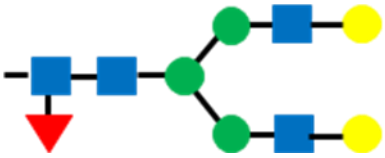
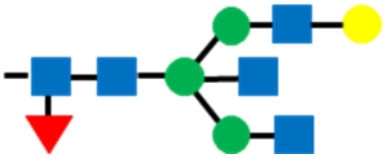
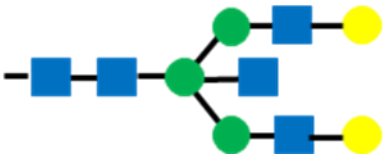
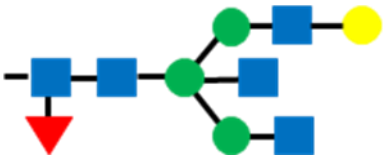
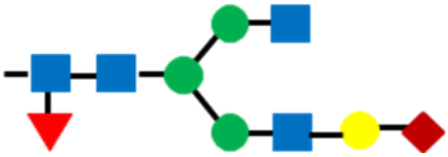
| | | | |
|---|---|---|---|
| I11 | 2780.77 |  | EEQFN*STFR |
| I12 | 2795.76 |  | EEQYN*STYR |
| I13 | 2821.77 |  | EEQFN*STFR |
| I14 | 2836.77 |  | EEQYN*STYR |
| I15 | 2852.75 |  | EEQYN*STYR |
| I16 | 2925.80 |  | EEQFN*STFR |
| I17 | 2957.78 |  | EEQYN*STYR |
| I18 | 2966.82 |  | EEQFN*STFR |
| I19 | 2982.81 |  | EEQFN*STFR |
| I20 | 2998.80 |  | EEQYN*STYR |
| I21 | 3061.78 |  | EEQFN*STFR |

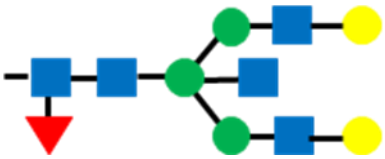
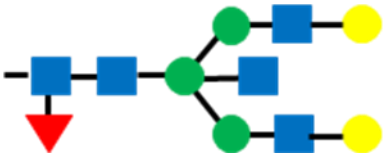
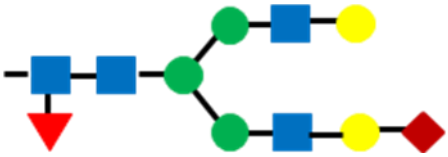
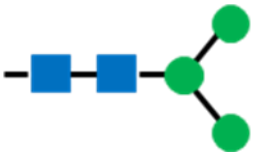
| | | | |
|---|---|---|---|
| I22 | 3128.84 |  | EEQFN*STFR |
| I23 | 3160.82 |  | EEQYN*STYR |
| I24 | 3246.00 |  | EEQYN*STYR |

**Table S2.** The signal to noise (*S/N*) ratio of the six selected glycopeptides from human IgG by direct analysis and analysis after enrichment by MNPs-(HA/CS)$_{10}$ and MNPs-HA.

| No. | *m/z* | *S/N* | | |
|---|---|---|---|---|
| | | Direct | MNPs-(HA/CS)$_{10}$ | MNPs-HA |
| I6 | 2601.75 | 28.10 | 1650.31 | 809.37 |
| I8 | 2633.73 | 13.04 | 343.29 | 114.80 |
| I10 | 2763.78 | 14.69 | 1631.69 | 771.30 |
| I12 | 2795.76 | - | 545.17 | 185.43 |
| I16 | 2925.80 | - | 590.24 | 276.89 |
| I17 | 2957.78 | - | 261.97 | 73.49 |

**Table S3.** Molecular masses and glycan structure of the glycopeptides from chicken avidin after enrichment by MNPs-(HA/CS)$_{10}$. N* denotes the N-linked glycosylation sites.

| No. | *m/z* | Glycan structure | Amino acid sequence |
|---|---|---|---|
| A1 | 2039.11 | | WTNDLGSN*MTIGAVNSR |
| A2 | 2242.19 | | WTNDLGSN*MTIGAVNSR |
| A3 | 2566.29 | | WTNDLGSN*MTIGAVNSR |
| A4 | 2728.36 |  | WTNDLGSN*MTIGAVNSR |

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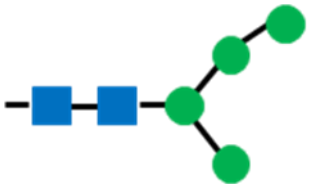
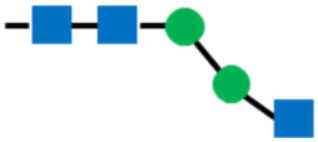
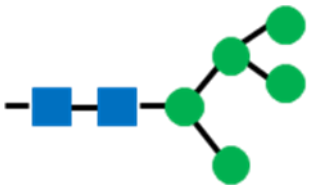
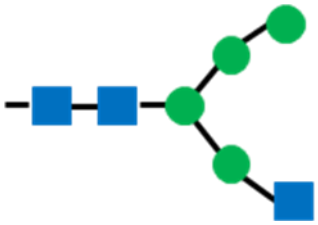
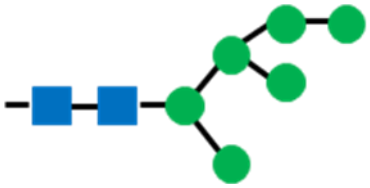
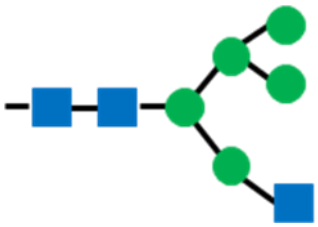
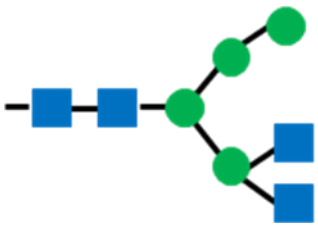
| | | | |
|---|---|---|---|
| A5 | 2890.43 |  | WTNDLGSN*MTIGAVNSR |
| A6 | 2931.38 |  | WTNDLGSN*MTIGAVNSR |
| A7 | 3052.48 |  | WTNDLGSN*MTIGAVNSR |
| A8 | 3093.50 | | WTNDLGSN*MTIGAVNSR |
| A9 | 3135.52 |  | WTNDLGSN*MTIGAVNSR |
| A 10 | 3214.55 |  | WTNDLGSN*MTIGAVNSR |
| A11 | 3255.59 |  | WTNDLGSN*MTIGAVNSR |
| A12 | 3296.60 |  | WTNDLGSN*MTIGAVNSR |

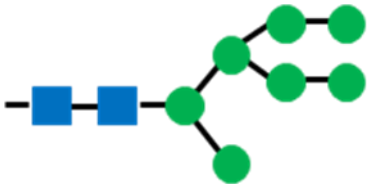
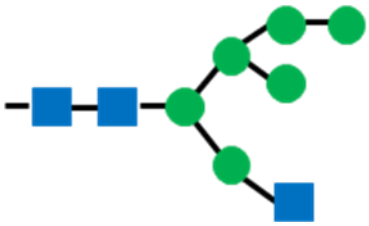
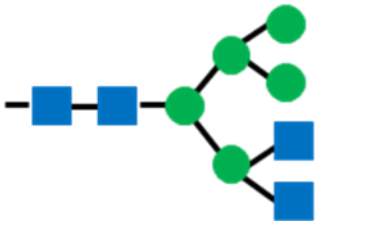
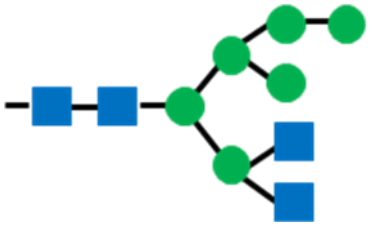
| | | | |
|---|---|---|---|
| A13 | 3376.62 |  | WTNDLGSN*MTIGAVNSR |
| A14 | 3417.65 |  | WTNDLGSN*MTIGAVNSR |
| A15 | 3458.65 |  | WTNDLGSN*MTIGAVNSR |
| A16 | 3620.71 |  | WTNDLGSN*MTIGAVNSR |

**Table S4.** Recovery of six selected glycopeptides from human IgG digest by using MNPs-$(HA/CS)_{10}$.

| No. | *m/z* | Recovery±S.D. (%, n=3) |
|---|---|---|
| I6 | 2601.75 | 69.3±6.5 |
| I8 | 2633.73 | 78.0±2.1 |
| I10 | 2763.78 | 84.5±2.2 |
| I12 | 2795.76 | 96.0±3.9 |
| I16 | 2925.80 | 90.1±3.1 |
| I17 | 2957.78 | 77.4±7.6 |

**Table S5.** List of identified glycoproteins and peptides sequence from tryptic digest of proteins sample extracted from mouse liver after enrichment by MNPs-$(HA/CS)_{10}$, N* denotes the N-linked glycosylation site.

| No | Protein | Description | Peptide sequence |
|---|---|---|---|
| 1 | IPI00108041 | Stim1 Stromal interaction molecule 1 | R.LAVTN*TTMTGTVLK.M |

| | | | |
|---|---|---|---|
| 2 | IPI00108535 | Ceacam1 Isoform Long of Carcinoembryonic antigen-related cell adhesion molecule 1 | K.GN*TTAIDK.E<br>K.GN*TTAIDKEIAR.F<br>R.MTLSQN*NSILR.I<br>R.TLTLLN*VTR.N |
| 3 | IPI00108811 | Gba Glucosylceramidase | R.VYTYADTPNDFQLSN*FSLPEEDTK.L<br>R.DLGPALAN*SSHDVK.L |
| 4 | IPI00108844 | M6pr Cation-dependent mannose-6-phosphate receptor | R.EASN*HSSGAGLVQINK.S |
| 5 | IPI00108849 | St3gal1 CMP-N-acetylneuraminate-beta-galactosamide-alpha-2,3-sialyltransferase 1 | R.KPNN*LSDTVK.E |
| 6 | IPI00109108 | Stt3a Putative uncharacterized protein | R.TILVDNNTWN*NTHISR.V |
| 7 | IPI00109910 | Ighg Ighg protein | R.EDYN*STIR.V |
| 8 | IPI00110172 | Atf2;LOC100047997 Isoform 1 of Cyclic AMP-dependent transcription factor ATF-2 | R.TQSEESRPQSLQQPATSTTETPASPAHTTPQTQN*TSGR.R |
| 9 | IPI00110849 | H2-Aa H-2 class II histocompatibility antigen, A-K alpha chain | K.RSN*STPATNEAPQATVFPK.S<br>R.SN*STPATNEAPQATVFPK.S |
| 10 | IPI00110852 | Ssr1 Translocon-associated protein alpha, muscle specific isoform | K.DLNGNVFQDAVFN*QTVTVIER.E |
| 11 | IPI00111013 | Ctsd Cathepsin D | K.YYHGELSYLN*VTR.K |
| 12 | IPI00111286 | Creld2 Cysteine-rich with EGF-like domain protein 2 | R.N*ETHSICSACDESCK.T |
| 13 | IPI00111794 | Siae Isoform 1 of Sialate O-acetylesterase | K.N*SSDYGFPEIR.W<br>K.N*LTFQGPLPK.K |
| 14 | IPI00111908 | Cps1 Carbamoyl-phosphate synthase [ammonia], mitochondrial | R.DGSIDLVINLPNN*NTK.F<br>K.YM#ESDGIKVAGLLVLN*YSNDYNHWLATK.S |
| 15 | IPI00111960 | Gaa Lysosomal alpha-glucosidase | R.QVVEN*MTR.T<br>R.LEN*LSSTESGYTATLTR.T<br>R.GVFITN*ETGQPLIGK.V |
| 16 | IPI00111981 | Ola1 Isoform 1 of Obg-like ATPase 1 | K.VAN*ESGEDK.F |
| 17 | IPI00112032 | Carkd carbohydrate kinase domain-containing protein precursor | K.LSQALGN*ITVVQK.G |
| 18 | IPI00112614 | Abca1 ATP-binding cassette sub-family A member 1 | R.EAFN*ETNQAIQTISR.F<br>K.TADILQN*LTGR.N |
| 19 | IPI00113057 | Klkb1 Plasma kallikrein | R.GSNFN*ISK.T<br>R.IVGGTN*ASLGEWPWQVSLQVK.L |
| 20 | IPI00113158 | Folr2 Folate receptor beta | K.VSN*YSR.G |
| 21 | IPI00113223 | Fasn Fatty acid synthase | R.RHDGLPGLAVQWGAIGDVGIVLEAM#GTN*DTVIGGTLPQR.I |
| 22 | IPI00113227 | Serpind1 Heparin cofactor 2 | R.DFVN*ASSK.Y |

| | | | |
|---|---|---|---|
| 23 | IPI00113517 | Ctsb Cathepsin B | K.QN*TTWQAGR.N |
| 24 | IPI00113528 | Tm9sf3 Transmembrane 9 superfamily member 3 | R.IVDVN*LTSEGK.V |
| 25 | IPI00113539 | Fn1 Fibronectin | R.N*YTDCTSEGR.R<br>K.LDAPTNLQFVN*ETDR.T |
| 26 | IPI00113797 | Napsa Napsin-A | K.ASSSFRPN*GTK.F |
| 27 | IPI00113869 | Bsg Isoform 2 of Basigin | K.TSDTGEEEAITN*STEANGK.Y<br>K.TQLTCSLN*SSGVDIVGHR.W |
| 28 | IPI00114044 | Man2a1 Alpha-mannosidase 2 | R.GSPGN*ASQGSIHLHSPQLALQADPR.D<br>R.DSVIN*LSESVEDGPR.G |
| 29 | IPI00114206 | F2 Prothrombin (Fragment) | R.SRYPHKPEIN*STTHPGADLK.E<br>R.YPHKPEIN*STTHPGADLK.E |
| 30 | IPI00114256 | Sypl Isoform 1 of Synaptophysin-like protein 1 | K.ETSLHSPSN*TSASHSQGGGPPTSGM#.-<br>R.LNQASFHTPPN*VSVCDVNWEK.H |
| 31 | IPI00114710 | Pcx Pyruvate carboxylase, mitochondrial | R.VVHSYEELEEN*YTR.A |
| 32 | IPI00114710 | Fcgr2b low affinity immunoglobulin gamma Fc region receptor II isoform 1 | K.ATVN*DSGEYR.C |
| 33 | IPI00114953 | Cdk9 Isoform 1 of Cyclin-dependent kinase 9 | K.GSQITQQSTN*QSR.N |
| 34 | IPI00114958 | Kng1 Isoform HMW of Kininogen-1 | K.EGN*CSAQSGLAWQDCDFK.D<br>K.EGN*CSAQSGLAWQDCDFKDAEEAATGECTATVGK.R |
| 35 | IPI00115516 | Emilin1 EMILIN-1 | K.LEGLLAN*VSR.E<br>R.ESN*STSLTQAALLEK.L<br>R.LEDRFN*STLGPSEEQEK.N<br>R.LGALN*NSLLLLEDR.L<br>R.LN*LTAAQLSQLEGLLQAR.G |
| 36 | IPI00115599 | Hsd11b1 Corticosteroid 11-beta-dehydrogenase isozyme 1 | K.QSN*GSIAVISSLAGK.M |
| 37 | IPI00115976 | Itga5 Integrin alpha-5 | K.NALN*LTFHAQNLGEGGAYEAELR.V |
| 38 | IPI00116105 | Serpina6 Corticosteroid-binding globulin | K.LPFSPENTREEDFYVN*ETSTVK.V<br>K.DLFTN*QSDFADTTK.D |
| 39 | IPI00116154 | LOC100046079;Cox5b cytochrome c oxidase subunit 5B, mitochondrial | R.IVGCICEEDN*CTVIWFWLHKGESQR.C |
| 40 | IPI00116192 | Prdx3 Thioredoxin-dependent peroxide reductase, mitochondrial | K.AFQFVETHGEVCPAN*WTPESPTIKPSPTASK.E |
| 41 | IPI00116913 | Lama5 Laminin subunit alpha-5 | R.EALNQAVN*TTR.E<br>R.LN*ASIADLQSK.L<br>R.LN*VTSPDLFR.L |

| | | | |
|---|---|---|---|
| | | | R.QLLAN*SSALEETILGHQGR.L<br>R.SGEGMGIRLDN*ASAFQGAVISPH<br>YDSLLVK.V |
| 42 | IPI00116921 | Scarb1 Scavenger receptor class B member 1 | K.LTYN*ESR.V<br>R.ESGIQN*VSTCR.F<br>R.FTAPDTLFAN*GSVYPPNEGFCPC<br>R.E |
| 43 | IPI00117022 | AI324046 Isoform 2 of Ig gamma-3 chain C region | R.EAQYN*STFR.V |
| 44 | IPI00117348 | Tuba1b Tubulin alpha-1B chain | R.AVCM#LSN*TTAIAEAWAR.L |
| 45 | IPI00117630 | Itpr1 Isoform 7 of Inositol 1,4,5-trisphosphate receptor type 1 | R.VETGEN*CTSPAPK.E |
| 46 | IPI00117731 | Erc1 Isoform 1 of ELKS/Rab6-interacting/CAST family member 1 | R.TN*STGGSSGNSVGGGSGK.T |
| 47 | IPI00117831 | Cp Ceruloplasmin | K.EYEGAVYPDN*TTDFQR.A |
| 48 | IPI00118130 | Orm1 Alpha-1-acid glycoprotein 1 | R.EN*GTFSK.Y |
| 49 | IPI00118168 | Cd163 scavenger receptor cysteine-rich type 1 protein M130 isoform 1 precursor | R.LAGGENN*CSGR.V<br>R.LTNEAHKEN*CTGR.L |
| 50 | IPI00118413 | Thbs1 Thrombospondin 1 | K.VVN*STTGPGEHLR.N |
| 51 | IPI00118437 | C8g Complement component 8, gamma subunit, isoform CRA_b | R.EAN*LTEDQILFFPK.Y<br>R.SLPVN*DSVLDVFER.R |
| 52 | IPI00118674 | Ncstn Nicastrin | K.ATN*LTR.E<br>R.LLN*ATHQIGCQSSISGDTGVIHVV<br>EKEEDLK.W |
| 53 | IPI00119063 | Lrp1 Prolow-density lipoprotein receptor-related protein 1 | K.DN*ATDSVPLR.T<br>K.LTSCATN*ASMCGDEAR.C<br>K.LYWISSGN*HTINR.C<br>K.QTGDVTCN*CTDGR.V<br>K.WTGHN*VTVVQR.T<br>R.AFIN*GTGVETVVSADLPNAHGLA<br>VDWVSR.N<br>R.AVN*SSCR.A<br>R.DGSCIGN*SSR.C<br>R.FGTCSQLCN*NTK.G<br>R.FN*STEYQVVTR.V<br>R.GCKDN*ATDSVPLR.T<br>R.GVTHLN*ISGLK.M<br>R.IETILLN*GTDR.K<br>R.LN*GSFR.Y<br>R.LN*GTDPIVAADSK.R<br>R.MHLN*GSNVQVLHR.T<br>R.TCPLDEFQCN*NTLCKPLAWK.C |

| | | | |
|---|---|---|---|
| | | | R.VDIPQQPM#GIIAVAN*DTNSCELSPCR.I<br>R.WLCDGDNDCGNSEDESN*ATCSAR.T |
| 54 | IPI00119084 | Tmem38b Trimeric intracellular cation channel type B | K.KTEVKPSSN*GSASSASK.R |
| 55 | IPI00119138 | Uqcrc2 Cytochrome b-c1 complex subunit 2, mitochondrial | K.GSHQPFDVSAFN*ASYSDSGLFGIYTISQAAAAGEVINAAYNQVK.A |
| 56 | IPI00119299 | Lifr Isoform 1 of Leukemia inhibitory factor receptor | K.LKN*ITDISQK.T<br>R.GSALPHPSN*ATWEIK.V<br>R.IEGLTN*ETYR.L<br>R.KVPSN*STETVIESDQFQPGVR.Y<br>R.NPLGQAQSAVVIN*VTER.V |
| 57 | IPI00119522 | Cpn2 Carboxypeptidase N subunit 2 | R.AFSGSPN*LTK.V<br>R.LQLLN*LSR.N |
| 58 | IPI00119809 | Lgals3bp Galectin-3-binding protein | K.APIPTALDTN*SSK.T<br>K.GLN*LTEDTYKPR.L<br>R.ALGYEN*ATQALGR.A |
| 58 | IPI00119818 | Itih4 inter alpha-trypsin inhibitor, heavy chain 4 isoform 2 | R.ISASGAELEALEAQVLN*LSLK.Y |
| 60 | IPI00120115 | S1pr1 sphingosine 1-phosphate receptor 1 | R.HYN*YTGK.L |
| 61 | IPI00120123 | Dmgdh Dimethylglycine dehydrogenase, mitochondrial | R.GGYDVEIQN*ITDEFGVLGVAGPYAR.R |
| 62 | IPI00120155 | Il6st Interleukin-6 receptor subunit beta | R.GSN*FTAICVLK.E |
| 63 | IPI00120580 | Abcc2 canalicular multispecific organic anion transporter 1 | K.QN*GTDNSPSQR.D |
| 64 | IPI00120769 | Slc29a1 Isoform 1 of Equilibrative nucleoside transporter 1 | R.LDVSQN*VSSDTDQSCESTK.A |
| 65 | IPI00120832 | Mup3 Major urinary protein 3 | R.AFVEN*ITVLENSLVFK.F |
| 66 | IPI00121105 | Hadh Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial | R.LDKFAAEHTIFASNTSSLQITNIAN*ATTRQDR.F<br>R.LDKFAAEHTIFASN*TSSLQITNIANATTR.Q |
| 67 | IPI00121190 | Egfr Epidermal growth factor receptor | K.DTLSIN*ATNIK.H<br>K.TCPAGIM#GEN*NTLVWK.Y<br>R.DCVSCQN*VSR.G<br>R.EFVENSECIQCHPECLPQAMN*ITCTGR.G |
| 68 | IPI00121240 | Apon apolipoprotein N | K.TQN*GSLPAVTR.T |
| 69 | IPI00121274 | C8b Isoform 1 of Complement component C8 beta chain | K.AVN*GSLVK.S<br>K.KTHMFN*FTSGFK.V |
| 70 | IPI00121362 | F11r junctional adhesion molecule A | R.AFM#N*SSFTIDPK.S |

| | | | |
|---|---|---|---|
| | | precursor | |
| 71 | IPI00121378 | Alcam CD166 antigen | R.N*ATGDYK.C<br>R.N*ATVVWMK.D<br>K.IIISPEEN*VTLTCTAENQLER.T<br>R.TVNSLN*VSAISIPEHDEADDISDENR.E |
| 72 | IPI00121550 | Atp1b1 Sodium/potassium-transporting ATPase subunit beta-1 | K.LDWLGN*CSGLNDDSYGYR.E<br>R.FKLDWLGN*CSGLNDDSYGYR.E<br>K.YLQPLLAVQFTN*LTVDTEIR.V |
| 73 | IPI00121627 | Clptm1 Cleft lip and palate transmembrane protein 1 homolog | K.DYYPIN*ESLASLPLR.V |
| 74 | IPI00121833 | Acaa1a 3-ketoacyl-CoA thiolase A, peroxisomal | K.DGGSTTAGN*SSQVSDGAAAVLLAR.R |
| 75 | IPI00121985 | Slco1b2 Isoform 1 of Solute carrier organic anion transporter family member 1B2 | R.YATENDISSLHN*STLTCLVNQTTSLTGTSPEIMEK.G<br>R.YATENDISSLHN*STLTCLVN*QTTSLTGTSPEIMEK.G |
| 76 | IPI00122117 | F13b coagulation factor XIII B chain | R.TYEN*GSSVEYR.C |
| 77 | IPI00122272 | Ecm1 Isoform Long of Extracellular matrix protein 1 | R.NVALVAGDTGN*ATGLGEQGPTR.G |
| 78 | IPI00122273 | Dag1 Dystroglycan | R.N*CSSITLQN*ITR.G |
| 79 | IPI00122368 | P2rx4 Isoform c of P2X purinoceptor 4 | K.FN*FSK.R<br>K.GVAVTN*TSQLGFR.I<br>K.AAEN*FTLLVK.N<br>K.TSICDSDAN*CTLGSSDTHSSGIGTGR.C |
| 80 | IPI00122399 | Glg1 Golgi apparatus protein 1 | R.N*DTLQEAK.E<br>K.LN*LTTDPK.F |
| 81 | IPI00122523 | Tapbpl Tapasin-related protein | R.AGN*ASLTLPNLTLK.D |
| 82 | IPI00122557 | Gm4738 liver carboxylesterase 31-like isoform 1 | K.NVN*ISYIVN*DSFFPQRPEK.L |
| 83 | IPI00122973 | Icam1 Isoform 1 of Intercellular adhesion molecule 1 | R.EAFLPQGGSVQVN*CSSSCK.E<br>R.LDETDCLGN*WTWQEGSQQTLK.C |
| 84 | IPI00123183 | Aqp1 Aquaporin-1 | R.N*QTLVQDNVK.V |
| 85 | IPI00123194 | Bgn Biglycan | R.MIEN*GSLSFLPTLR.E |
| 86 | IPI00123196 | Dcn Decorin | R.ISDTN*ITAIPQGLPTSLTEVHLDGNK.I |
| 87 | IPI00123223 | Mug1 Murinoglobulin-1 | K.YLN*ETQQLTQK.I<br>K.EN*NSIHWK.R<br>K.SLDEEAIKEN*NSIHWK.R<br>K.TIEQERN*ASFVYTK.A<br>R.EVNSQLDNNGCSTQEVN*ITELQSK.K |

| | | | |
|---|---|---|---|
| | | | R.N*ASFVYTK.A |
| 88 | IPI00123342 | Hyou1 Hypoxia up-regulated protein 1 | K.EN*GTDAVQEEEESPAEGSK.D<br>K.EN*GTDAVQEEEESPAEGSKDEPA<br>EQGELK.E<br>K.N*ATLAEQAK.L<br>K.VIN*DTWAWK.N<br>R.AEPPLN*ASAGDQEEK.V<br>R.LSALDNLLN*HSSIFLK.G<br>R.VFGSQN*LTTVK.L |
| 89 | IPI00123428 | Slc39a14 zinc transporter ZIP14 isoform a | R.YGKN*DSLTLTQLK.S |
| 90 | IPI00123831 | Nptn Isoform 1 of Neuroplastin | K.AN*ATIEVK.A<br>K.ENGVFEEISN*SSGR.F<br>R.KN*ASNMEYR.I |
| 91 | IPI00123920 | Serpina1c Alpha-1-antitrypsin 1-3 | K.GDTHTQILEGLQFN*LTQTSEADI<br>HK.S |
| 92 | IPI00124221 | Atp1b3 Sodium/potassium-transporting ATPase subunit beta-3 | K.EEN*ATIATYPEFGVLDLK.Y |
| 93 | IPI00124283 | Msr1 Isoform II of Macrophage scavenger receptor types I and II | R.VLNN*ITNDLR.L |
| 94 | IPI00124372 | Aldh9a1 4-trimethylaminobutyraldehyde dehydrogenase | R.VAAELQAGTCYINNYN*VSPVELP<br>FGGYKK.S |
| 95 | IPI00124442 | Ear6 Eosinophil-associated ribonuclease 6 | K.ISQNCHN*SSSR.V |
| 96 | IPI00124640 | Grn granulins | R.CPTN*NTCCK.L<br>K.N*YTTDLLTK.L |
| 97 | IPI00124666 | Sema4g Semaphorin-4G | R.ALWLLN*GSK.S<br>R.GYN*SSQDLPSLVLDFVK.L<br>K.GQTQN*YSTLLLEEASER.L |
| 98 | IPI00124725 | Itih3 Inter-alpha-trypsin inhibitor heavy chain H3 | K.GDEKEN*ITAEALDLSLK.Y |
| 99 | IPI00124830 | Cd47 Isoform 2 of Leukocyte surface antigen CD47 | K.N*STTTDQN*FTSAK.I<br>K.SYIFIYDGNKN*STTTDQN*FTSA<br>K.I<br>R.DAMVGN*YTCEVTELSR.E |
| 100 | IPI00125266 | Asah1 Acid ceramidase | R.SVLEN*TTSYEEAK.N<br>K.CLN*HTTQK.N |
| 101 | IPI00125310 | C1qa Complement C1q subcomponent subunit A | K.VLTNQESPYQN*HTGR.F |
| 102 | IPI00125514 | Entpd5 Ectonucleoside triphosphate diphosphohydrolase 5 | R.GYLTSFEMFN*STFK.L |
| 103 | IPI00125681 | Pigs GPI transamidase component | K.IYN*ASELPVR.V |

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| | | PIG-S | |
| 104 | IPI00125813 | Dpp4 Dipeptidyl peptidase 4 | K.IPN*NTQWITWSPEGHK.L<br>K.KLDFIVLN*ETR.F<br>K.LDFIVLN*ETR.F |
| 105 | IPI00126050 | Pgcp Isoform 1 of Plasma glutamate carboxypeptidase | K.EVMNLLQPLN*VTK.V |
| 106 | IPI00126092 | Ptprc Isoform 2 of Receptor-type tyrosine-protein phosphatase C | R.AQTN*YTCVAEILYR.G |
| 107 | IPI00126184 | Gc Vitamin D-binding protein | K.ICQN*LSK.K |
| 108 | IPI00126253 | Lass2 LAG1 longevity assurance homolog 2 | R.LWLPVN*LTWADLEDKDGR.V |
| 109 | IPI00126769 | Ctsf Cathepsin F | K.VYIN*DSVELSR.N |
| 110 | IPI00126834 | Vcam1 Isoform 1 of Vascular cell adhesion protein 1 | R.N*TTISVHPSTR.L |
| 111 | IPI00127134 | Slc24a6 Isoform 1 of Sodium/potassium/calcium exchanger 6 | R.AVCGLN*TSDR.C |
| 112 | IPI00127237 | Pex14 Peroxisomal membrane protein PEX14 | K.SSSPSSPAAVNHHSSSDISPVSN*ESTSSSPGK.D |
| 113 | IPI00127352 | Ambp Protein AMBP | K.EDSCQLN*YSEGPCLGM#QER.Y |
| 114 | IPI00127407 | Plod1 Procollagen-lysine,2-oxoglutarate 5-dioxygenase 1 | K.YIHEN*YTK.A<br>R.EQIN*ISLDHR.C<br>R.YN*CSVR.A |
| 115 | IPI00127447 | Scarb2 Lysosome membrane protein 2 | K.ANIQFGEN*GTTISAVTNK.A<br>K.NM#VLQN*GTK.V<br>K.TSLDWWTTDTCNMIN*GTDGDSFHPLISK.D<br>R.N*QSVGDPNVDLIR.T |
| 116 | IPI00127558 | Acox1 Peroxisomal acyl-coenzyme A oxidase 1 | K.SKEVAWN*LTSVDLVR.A |
| 117 | IPI00127770 | Cd164 Sialomucin core protein 24 | K.TYCANEPLSN*CSQVNR.T |
| 118 | IPI00128154 | Ctsl Cathepsin L1 | R.AEFAVAN*DTGFVDIPQQEK.A |
| 119 | IPI00128269 | Tmem150a Transmembrane protein 150A | R.HVCPVENWSYN*ESCSPDPAEQGGPK.S |
| 120 | IPI00128336 | Pofut2 GDP-fucose protein O-fucosyltransferase 2 | R.SQHLN*STDAADK.M |
| 121 | IPI00128358 | Insr Insulin receptor | K.ECLGN*CSEPDDPTK.C<br>K.HN*LTITQGK.L<br>R.NN*LTR.L |
| 122 | IPI00128399 | AU018778 Putative uncharacterized protein | K.N*ATTYPPMCSQDAAR.G |
| 123 | IPI00128484 | Hpx Hemopexin | R.SWSTVGN*CTAALR.W<br>R.N*GTAHGN*STHPMHSR.C |
| 124 | IPI00128859 | Enpp1 Isoform 2 of Ectonucleotide | K.VYN*GSVPFEER.I |

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| | | pyrophosphatase/phosphodiesterase family member 1 | |
| 125 | IPI00129158 | Sirpa Isoform 1 of Tyrosine-protein phosphatase non-receptor type substrate 1 | R.VTN*VSDATK.R<br>R.GIAN*LSNFIR.V |
| 126 | IPI00129215 | Vnn1 Pantetheinase | K.KPCN*TSDSHCPPDGR.F |
| 127 | IPI00129240 | Vtn Vitronectin | K.NNTNTGVQPEN*TSPPGDLNPR.T<br>K.N*NTNTGVQPENTSPPGDLNPR.T |
| 128 | IPI00129250 | Lrg1 Leucine-rich alpha-2-glycoprotein 1 | K.MFSQN*DTR.C |
| 129 | IPI00129265 | Lipa Lysosomal acid lipase/cholesteryl ester hydrolase | K.NLN*MSR.V |
| 130 | IPI00129304 | Colec12 Collectin-12 | R.HTDDLTSLN*NTLVNIR.L |
| 131 | IPI00129485 | Fcgr2b low affinity immunoglobulin gamma Fc region receptor II isoform 1 | K.ATVN*DSGEYR.C |
| 132 | IPI00129526 | Hsp90b1 Endoplasmin | K.GVVDSDDLPLN*VSR.E<br>K.HNN*DTQHIWESDSNEFSVIADPR.G<br>R.EEEAIQLDGLN*ASQIR.E<br>R.ELISN*ASDALDK.I<br>R.TDDEVVQREEEAIQLDGLN*ASQIR.E |
| 133 | IPI00129677 | Asgr1 asialoglycoprotein receptor 1 | R.QN*FSN*LTVSTEDQVK.A |
| 134 | IPI00129685 | Tpt1 Translationally-controlled tumor protein | R.TEGAIDDSLIGGN*ASAEGPEGEGTESTVVTGVDIVMNHHLQETSFTK.E |
| 135 | IPI00130010 | Cfh complement factor H | K.DNSCVDPPHVPN*ATIVTR.T<br>K.IQCVDGN*WTTLPVCIEEER.T<br>K.LTEFTHN*STM#DYK.C<br>K.WDPEPN*CTSK.T |
| 136 | IPI00130015 | Ctsc Dipeptidyl peptidase 1 | R.SDIN*CSVMEATEEK.V |
| 137 | IPI00130117 | Itga9 integrin alpha 9 isoform a | K.VLN*LTDNTYFK.L |
| 138 | IPI00130263 | Rnf126 RING finger protein 126 | R.NTEN*GSAPSTAPTDQNR.Q |
| 139 | IPI00130573 | Cpd Carboxypeptidase D | R.FANEYPN*ITR.L |
| 140 | IPI00130589 | Sod1 Superoxide dismutase [Cu-Zn] | R.HVGDLGNVTAGKDGVAN*VSIEDRVISLSGEHSIIGR.T |
| 141 | IPI00130654 | Afm Isoform 3 of Afamin | K.HN*FSHCCGK.A<br>R.HVEDKFN*ETTQR.S |
| 142 | IPI00130661 | Tpp1 Tripeptidyl-peptidase 1 | R.QRYN*LTAK.D<br>R.YN*LTAK.D |
| 143 | IPI00130736 | Tcf21 Transcription factor 21 | R.N*ATVVEK.L |
| 144 | IPI00130752 | Efna1 Ephrin-A1 | R.HIVFWN*SSNPK.F |
| 145 | IPI00130764 | Ppt2 Lysosomal thioesterase PPT2 | R.DHPN*ATAWR.K |
| 146 | IPI00131091 | C4a;C4b Complement C4-B | K.ALN*VTLSSMGR.N |

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| | | | K.N*TTCQDLQIEVK.V |
| 147 | IPI00131143 | Sel1l Isoform 1 of Protein sel-1 homolog 1 | K.ILN*GSNR.K<br>R.EATIVGEN*ETYPR.A |
| 148 | IPI00131168 | Bche Cholinesterase | R.RVN*YTR.A<br>K.DN*DSLITR.K |
| 149 | IPI00131830 | Serpina3k Serine protease inhibitor A3K | K.NLINDYVSN*QTQGMIK.E<br>K.YTGN*ASALLILPDQGR.M |
| 150 | IPI00131881 | Adam10 Disintegrin and metalloproteinase domain-containing protein 10 | R.IN*TTSDEKDPTNPFR.F<br>R.N*ISQVLEK.K |
| 151 | IPI00132474 | Itgb1 Integrin beta-1 | K.NGVN*GTGENGR.K<br>K.CHEGN*GTFECGACR.C |
| 152 | IPI00132600 | Npc1 Niemann-Pick C1 protein | R.LIASN*ITETMR.S<br>R.LYN*VTHQFCN*ASVM#DPTCVR.C<br>R.TEQLIIQAPN*TSVHIYEPYPAGADVPFGPPLNK.E |
| 153 | IPI00133103 | Creg1 Protein CREG1 | K.VN*KTEEDYAR.D |
| 154 | IPI00133184 | Tm2d3 Isoform 2 of TM2 domain-containing protein 3 | R.YFAN*CTVR.D<br>R.NFVIN*MTCR.F |
| 155 | IPI00133292 | Cldnd1 Claudin domain-containing protein 1 | R.SPIQEN*SSDSNK.I<br>R.YN*GSLGLWR.R |
| 156 | IPI00133456 | Rgn Regucalcin | K.FCALNWEN*QSVFVLAM#VDEDKKNNR.F |
| 157 | IPI00133500 | Lcat Phosphatidylcholine-sterol acyltransferase | R.IVYN*HSSGR.V<br>K.AELSN*HTRPVILVPGCLGNR.L |
| 158 | IPI00133751 | Mfap4 Isoform 1 of Microfibril-associated glycoprotein 4 | R.VDLEDFEN*NTAYAK.Y |
| 159 | IPI00134549 | Lamp2 Isoform LAMP-2A of Lysosome-associated membrane glycoprotein 2 | R.LN*NSQIK.Y<br>K.YWGIHLQAFVQN*GTVSK.N |
| 160 | IPI00134585 | Enpep Glutamyl aminopeptidase | K.GWLN*GSLVGFYK.T<br>R.VNYEGGTWDWIAEALSSN*HTR.F |
| 161 | IPI00134691 | Ugt1a1;Ugt1a2 UDP-glucuronosyltransferase 1-1 | K.EN*VTATLVELGR.T<br>K.KPLSQEFEAYVN*ASGEHGIVVFSLGSM#VSEIPEKK.A<br>R.KFPVPFQKEN*VTATLVELGR.T |
| 162 | IPI00134808 | C4bp C4b-binding protein | R.LACLN*GTVLR.G |
| 163 | IPI00135560 | Pltp Phospholipid transfer protein | K.VSN*VSCEASVSK.M |
| 164 | IPI00135635 | Serpina3m Serine protease inhibitor A3M | K.FN*LTETSEADIHQGFGHLLQR.L |
| 165 | IPI00136012 | Ggcx Vitamin K-dependent gamma-carboxylase | K.N*QTLQEGEK.M<br>K.EKVEN*GSETGPLPPELQPLLEGEVK.G |

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| | | | K.VEN*GSETGPLPPELQPLLEGEVK.G |
| 166 | IPI00136642 | Serpinc1 Antithrombin-III | K.LGACN*DTLK.Q |
| 167 | IPI00136925 | Igj Immunoglobulin J chain | R.EN*ISDPTSPLR.R<br>R.IVVPLNNREN*ISDPTSPLR.R |
| 168 | IPI00136972 | Procr Endothelial protein C receptor | R.HQGN*ASLGK.L |
| 169 | IPI00137177 | Ctsa Lysosomal protective protein | K.MYVTN*DTEVAENNYEALK.D |
| 170 | IPI00137831 | Rcn1 Reticulocalbin-1 | R.VVRPDSELGERPPEDN*QSFQYDHEAFLGK.E |
| 171 | IPI00138061 | Cr1l Isoform 1 of Complement regulatory protein Crry | R.IN*YTCNQGYR.L |
| 172 | IPI00138209 | Dsc2 Isoform 2A of Desmocollin-2 | R.IN*DTAAR.L<br>R.AN*YTILK.G |
| 173 | IPI00138342 | Es1 Liver carboxylesterase N | K.N*ATSYPPM#CSQDAGWAK.I<br>K.NIQAVNEIIATLSQCN*DTSSAAMVQCLR.Q<br>R.FHSELN*ISESM#IPAVIEKYLR.G<br>R.FHSELN*ISESMIPAVIEK.Y |
| 174 | IPI00139788 | Trf Serotransferrin | K.N*STLCDLCIGPLK.C<br>K.FDEFFSQGCAPGYEKN*STLCDLCIGPLK.C |
| 175 | IPI00153143 | Ugt2b1 UDP glucuronosyltransferase 2 family, polypeptide B1 | K.WVGN*WTYELK.K |
| 176 | IPI00153258 | Serpina10 Isoform 1 of Protein Z-dependent protease inhibitor | R.EGN*FTSTFDK.K |
| 177 | IPI00153632 | Pomt1 Protein O-mannosyl-transferase 1 | R.FVHVN*TSAILK.L |
| 178 | IPI00153959 | Stab1 Isoform 1 of Stabilin-1 | K.CIN*CTR.K<br>K.GN*CSDGVR.G<br>R.N*VTAAAESFGYK.I |
| 179 | IPI00154043 | Ces6 MCG23407 | K.TVAN*LSGCEATDSEALIHCLR.A |
| 180 | IPI00154056 | Acp2 Lysosomal acid phosphatase | R.YEQLQN*ETR.Q<br>R.YHGFLN*TSYHR.Q |
| 181 | IPI00165730 | Plbd2 Isoform 1 of Putative phospholipase B-like 2 | R.LEDGFHPDAVAWAN*LTNAIR.E |
| 182 | IPI00165807 | Pglyrp2 Isoform 1 of N-acetylmuramoyl-L-alanine amidase | K.N*SSTHNSLHQR.L |
| 183 | IPI00169896 | Slc44a2 Isoform 2 of Choline transporter-like protein 2 | R.KN*ITDLVEGAK.K<br>K.TCNPETFPLRN*ESLQCPTAR.C |
| 184 | IPI00173158 | Tm9sf1 Transmembrane 9 superfamily member 1 | R.IIFAN*VSVR.D |
| 185 | IPI00187353 | Ero1lb ERO1-like protein beta | K.LGAIN*STLSN*ESK.E<br>K.LGAIN*STLSNESK.E<br>K.YSQAAN*STK.E |

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| 186 | IPI00221418 | Pld4 Isoform 1 of Phospholipase D4 | R.N*ISVVVATHSPTLAK.T |
| 187 | IPI00221426 | Gns N-acetylglucosamine-6-sulfatase | K.GDRN*LTWR.S<br>K.TPMTN*SSIR.F<br>K.YPHNHHVVN*NTLEGN*CSSK.A<br>R.GPGIKPN*QTSK.M |
| 188 | IPI00221706 | Ostm1 Osteopetrosis-associated transmembrane protein 1 | R.NIGN*TSEGPR.C |
| 189 | IPI00222037 | Mia3 Isoform 1 of Melanoma inhibitory activity protein 3 | R.TGN*SSPASVER.E |
| 190 | IPI00222480 | Tspan9 Tetraspanin-9 | R.N*STTPLWR.T |
| 191 | IPI00222937 | Hspa13 Isoform 1 of Heat shock 70 kDa protein 13 | R.N*STIQAANLAGLK.I |
| 192 | IPI00222945 | Smoc1 Isoform 2 of SPARC-related modular calcium-binding protein 1 | K.LN*NTNVR.N |
| 193 | IPI00223272 | Tor1a Torsin-1A | R.GN*VSACAR.S |
| 194 | IPI00223987 | Lnpep Leucyl-cystinyl aminopeptidase | R.DIILHSTGHN*ISR.V<br>R.EETLLYDN*ATSSVADR.K |
| 195 | IPI00224073 | Pm20d1 Probable carboxypeptidase PM20D1 | K.GALDLM#LQVN*MTPGHSSAPPK.E<br>K.GAIQIPTVSFSHEESN*TTALAEFGEYIR.K |
| 196 | IPI00224091 | Lass6 LAG1 longevity assurance homolog 6 | R.FWLPHN*VTWADLK.N |
| 197 | IPI00224559 | Ugt3a2 Putative uncharacterized protein | R.VSQVLHEGGHN*VTK.L |
| 198 | IPI00224752 | Atrn Attractin | K.IDSTGN*VTNELR.V |
| 199 | IPI00225072 | Enpp4 Isoform 1 of Ectonucleotide pyrophosphatase/phosphodiesterase family member 4 | K.GN*SSDSSAPR.L<br>R.SN*YSVIDLTPVAAILPK.I |
| 200 | IPI00225715 | Gpld1 phosphatidylinositol-glycan-specific phospholipase D | R.LSSSPN*VTISCK.D<br>R.N*HTLSGSK.V<br>R.VN*GTLTQVLLVGAPTHDDVSK.M |
| 201 | IPI00226310 | Col6a6 Isoform 2 of Collagen alpha-6(VI) chain | R.ASEDN*VTK.A<br>R.VGLVTYSN*ETR.V |
| 202 | IPI00226430 | Acaa2 3-ketoacyl-CoA thiolase, mitochondrial | K.DGTVTAGN*ASGVSDGAGAVIIASEDAVK.K |
| 203 | IPI00226609 | Clptm1l Cleft lip and palate transmembrane protein 1-like protein | R.TVN*VSVPK.K |
| 204 | IPI00226852 | Lrrc49 Isoform 2 of Leucine-rich repeat-containing protein 49 | R.EAMIM#DN*QTVETGNIK.Q |
| 205 | IPI00226932 | C230096C10Rik Isoform 1 of Uncharacterized protein KIAA0090 | R.FINYN*QTVSR.M |
| 206 | IPI00229534 | Marcks Myristoylated alanine-rich | K.EELQAN*GSAPAADKEEPASGSAA |

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| | | C-kinase substrate | TPAAAEKDEAAAATEPGAGAADK.E |
| 207 | IPI00229992 | Plxnb1 Plexin-B1 | R.VVAVSPAN*ISR.E |
| 208 | IPI00230013 | Cacna2d1 Isoform 2B of Voltage-dependent calcium channel subunit alpha-2/delta-1 | K.IDVNSWIEN*FTK.T |
| 209 | IPI00230034 | Ddt D-dopachrome decarboxylase | K.STEPCAHLLVSSIGVVGTAEQN*R THSASFFK.F |
| 210 | IPI00230353 | Os9 Isoform 2 of Protein OS-9 | R.YHSQTYGN*GSK.C |
| 211 | IPI00230718 | C9 complement component C9 | K.GAGEVSPAEHSSKPTN*ISAK.F K.TVN*ITR.D |
| 212 | IPI00271262 | Cpamd8 Murinoglobulin-2 | K.LDNNGCSTQEVN*ITELQSK.K K.EVNSKLDNNGCSTQEVN*ITELQS K.K |
| 213 | IPI00276430 | Clec2d C-type lectin domain family 2 member D | K.WTDNTEYN*NTIPIR.G |
| 214 | IPI00307966 | Cd38 ADP-ribosyl cyclase 1 | K.NPCN*ITR.E |
| 215 | IPI00308213 | Ighg1 Ig gamma-1 chain C region, membrane-bound form | R.EEQFN*STFR.S |
| 216 | iPI00308885 | Hspd1 Isoform 1 of 60 kDa heat shock protein, mitochondrial | K.LVQDVAN*NTNEEAGDGTTTATV LAR.S |
| 217 | IPI00308971 | Igf2r Cation-independent mannose-6-phosphate receptor | K.ISTN*ITLVCKPGDLESAPVLR.A R.HQN*QTLR.Y R.AACAVRPQEVTM#VN*GTLTNPV TGK.S |
| 218 | IPI00309230 | Gusb Beta-glucuronidase | R.YGIVVIDECPGVGIVLPQSFGN*ES LR.H R.IAN*ETGGHGSGPR.T |
| 219 | IPI00310049 | Cpb2 Carboxypeptidase B2 | K.AHLN*VSR.I K.EVHFFVN*ASDVDSVK.A |
| 220 | IPI00310059 | Pigr Polymeric immunoglobulin receptor | K.TN*QSCELVIDSTEK.V R.N*VTIECPFK.R |
| 221 | IPI00311405 | Pvrl1 Poliovirus receptor-related protein 1 | R.NPN*GTVTVISR.Y R.SGQVEVN*ITEFPYTPTPEHGR.R |
| 222 | IPI00313817 | Hdgf Hepatoma-derived growth factor | K.N*STPSEPDSGQGPPAEEEEGEEE AAKEEAEAQGVR.D |
| 223 | IPI00313900 | Lum Lumican | K.AFEN*VTDLQWLILDHNLLENSK. I K.KLHINYNN*LTESVGPLPK.S K.LHINYNN*LTESVGPLPK.S |
| 224 | IPI00314443 | Adam17 Putative uncharacterized protein | K.CQEAIN*ATCK.G |
| 225 | IPI00314726 | Naglu alpha-N-acetylglucosaminidase | R.SVYN*CSGEACSGHNR.S R.LLLTAAPN*LTTSPAFR.Y |
| 226 | IPI00315593 | Naga | K.VN*YTEVSR.V |

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| | | Alpha-N-acetylgalactosaminidase | |
| 227 | IPI00316469 | Stt3b<br>Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit STT3B | K.AMSSN*ETAAYK.I<br>R.TTLVDNNTWN*NSHIALVGK.A |
| 228 | IPI00316682 | Golga5 Golgin subfamily A member 5 | K.AM#GGNAGSQSPGVN*SSDSVPEVHKEPSEESTAPSATSEEHSSTPSDGSSR.S |
| 229 | IPI00317356 | IPI00317356 | K.HAN*WTLTPLK.V<br>R.IQNILSEDPKITVVYAEN*GTVLQGTTVASVYK.G<br>K.ITVVYAEN*GTVLQGTTVASVYKGK.L |
| 230 | IPI00318595 | Erap1 Endoplasmic reticulum aminopeptidase 1 | K.CFNAMEVDALN*SSHPVSTPVENPAQIR.E |
| 231 | IPI00319509 | Anpep Aminopeptidase N | K.KLN*YTLK.G<br>K.LN*YTLK.G<br>K.SGQEDHYWLDVEKN*QSAK.F<br>R.FTCN*QTTDVIIIHSK.K<br>R.N*ATLVNEADK.L<br>R.N*ATLVNEADKLR.S |
| 232 | IPI00320204 | 2210023G05Rik hypothetical protein LOC72361 | K.LN*LTEEEK.L<br>R.DGTSQPAICPQN*VTMNMEGLK.E |
| 233 | IPI00320420 | Clu Clusterin | R.N*STGCLK.M<br>R.QELN*DSLQVAER.L<br>R.RN*STGCLK.M |
| 234 | IPI00320605 | Itgb2 Integrin beta-2 | K.LN*FTGPGEPDSLR.C |
| 235 | IPI00321190 | Psap Sulfated glycoprotein 1 | K.DN*ATQEEILHYLEK.T<br>K.FSELIVNN*ATEELLVK.G<br>K.N*STKEEILAALEK.G<br>K.TN*SSFIQGFVDHVK.E<br>K.TN*SSFIQGFVDHVKEDCDR.L<br>K.TVVTEAGNLLKDN*ATQEEILHYLEK.T |
| 236 | IPI00321222 | Bst2 Bone marrow stromal antigen 2 | R.N*TTHLLQR.Q |
| 237 | IPI00321375 | Btd biotinidase | K.GHLIIAQVATNPQGLTGTGN*TTSEMDPSHR.K<br>K.GVQIIVFPEDGIHGFN*FTR.T<br>R.FN*DTEVLQR.L<br>R.YQFNTNVVFSDN*GTLVDR.Y |
| 238 | IPI00321477 | Eng endoglin isoform 1 | R.VN*ITVLPSLTSR.K |
| 239 | IPI00322209 | Krt8 Keratin, type II cytoskeletal 8 | R.GSM#GTGVGLGGFGGAGVGGITAVTVN*QSLLSPLK.L |
| 240 | IPI00322304 | Hrg histidine-rich glycoprotein | R.N*CSTQHFPR.S |

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| 241 | IPI00322447 | Cadm1 Isoform 1 of Cell adhesion molecule 1 | K.VSLTN*VSISDEGR.Y<br>R.FQLLN*FSSSELK.V |
| 242 | IPI00322867 | Itih1 Itih1 protein | R.AN*LSSQVLK.M |
| 243 | IPI00323134 | Cdh2 Cadherin-2 | K.RN*WTINR.L<br>K.SN*ISILR.V |
| 244 | IPI00323816 | Selenbp2 Selenium-binding protein 2 | K.CN*VSNTHTSHCLASGEVMVNTLGDLQGNGK.G |
| 245 | IPI00330594 | Clec4f C-type lectin domain family 4 member F | K.SSTEN*TSAELHVLGR.G<br>R.DYEEN*SSSCHK.E<br>R.GSLQSANDLSSQTQGFLQHSMDN*ISAQIQTVR.D<br>R.LRDYEEN*SSSCHK.E |
| 246 | IPI00330632 | Col14a1 Isoform 1 of Collagen alpha-1(XIV) chain | K.AIN*ASAN*ITSDGVEVLGR.M<br>K.GN*GSKPTSPEEVK.F<br>K.VVDKGN*GSKPTSPEEVK.F<br>R.SFMVN*WTQSPGK.V |
| 247 | IPI00330680 | Tmem106b Transmembrane protein 106B | R.LNN*ITNIGPLDM#K.Q |
| 248 | IPI00331174 | Cct7 T-complex protein 1 subunit eta | K.EGTDSSQGIPQLVSN*ISACQVIAEAVR.T |
| 249 | IPI00331214 | Cd36 Platelet glycoprotein 4 | K.RPYIVPILWLN*ETGTIGDEK.A |
| 250 | IPI00331440 | Hfe Hereditary hemochromatosis protein homolog | K.TLN*WSAAEPGAWATK.V |
| 251 | IPI00331680 | Khk Ketohexokinase | R.GVDVSQVTWQSQGDTPCSCCIVNNSN*GSR.T |
| 252 | IPI00337980 | Rab21 Ras-related protein Rab-21 | K.GN*GSSQAGAAR.R |
| 253 | IPI00338209 | Ggt5 Isoform 1 of Gamma-glutamyltransferase 5 | R.LWDPSSHPGIQN*ISR.D<br>R.QLFFN*GTETLR.S |
| 254 | IPI00338561 | Sil1 Nucleotide exchange factor SIL1 | K.FN*SSSSSLEEK.V |
| 255 | IPI00338565 | Fbn1 fibrillin-1 | K.AWGTPCELCPSVN*TSEYK.I<br>R.DACGN*GTCR.N<br>R.N*CTDIDECR.I<br>R.VLPFN*VTDYCQLVR.Y |
| 256 | IPI00339885 | Col6a1 Collagen alpha-1(VI) chain | K.N*ITAQICIDK.K<br>R.N*FTAADWGHSR.D<br>R.RN*FTAADWGHSR.D |
| 257 | IPI00340815 | Rbm15 RNA binding motif protein 15 | K.LGGSGGSN*GSSSGK.T |
| 258 | IPI00342158 | Nup210 Nuclear pore membrane glycoprotein 210 | K.GATN*NTCIIR.T<br>R.IEAVLPAEFFEVLSSSQN*GSYHHIR.A |
| 259 | IPI00344686 | Kdelc2 KDEL (Lys-Asp-Glu-Leu) containing 2 protein | R.N*FTSSPPGQTQFK.V<br>R.KVN*DTPGPIPIISWCGSLDSR.D |
| 260 | IPI00348266 | F9 Coagulation factor IX | R.TIPHHQYN*ATINK.Y |
| 261 | IPI00348586 | Tmem195 Isoform 1 of Alkylglycerol | R.SPGAQDN*VSVSQGMR.A |

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| | | monooxygenase | |
| 262 | IPI00352845 | Lmbrd1 Isoform 2 of Probable lysosomal cobalamin transporter | K.GN*STLAVPK.R |
| 263 | IPI00353998 | Kif16b kinesin family member 16B | R.IN*ETTR.W<br>R.AIGDANHTPADVM#KSNEELHN*GTTQRK.L |
| 264 | IPI00355482 | Slc10a5 Sodium/bile acid cotransporter 5 | K.VLQVVN*VTK.T |
| 265 | IPI00378224 | Txndc15 Thioredoxin domain-containing protein 15 | R.N*VTGLEN*FTLK.I<br>K.IFIFN*QTGIEAK.K |
| 266 | IPI00380009 | Sun2 Isoform 3 of SUN domain-containing protein 2 | K.ALSPN*STISSAPK.D |
| 267 | IPI00380296 | Casd1 CAS1 domain-containing protein 1 | K.MN*ITSIAPLLEK.L |
| 268 | IPI00381178 | Es31 Isoform 1 of Liver carboxylesterase 31 | K.KNVN*ISYTVN*DSFFPQRPQK.L<br>K.NVN*ISYTVN*DSFFPQRPQK.L |
| 269 | IPI00381303 | Man2b1 Lysosomal alpha-mannosidase | K.AN*LTWTVK.E<br>K.QN*FSFCR.E<br>R.DDYRPTWTLN*QTEPVAGNYYPVNTR.I<br>R.ELN*ISICPVSQTSER.F |
| 270 | IPI00381357 | 2310044H10Rik RIKEN cDNA 2310044H10 | R.GSEVEDEDLELFN*TSVQLRPPSTAPGPETAAFIER.L |
| 271 | IPI00381881 | C7 complement component 7 | R.N*YTLVGK.E |
| 272 | IPI00387289 | Ces3 Carboxylesterase 3 | K.DGASEEETN*LSK.M |
| 273 | IPI00387362 | Rhag Ammonium transporter Rh type A | K.N*ASHQN*ASQQGN*TSSSAK.K |
| 274 | IPI00396759 | Sema6d Isoform 4 of Semaphorin-6D | R.GRPSGN*ESQHR.L |
| 275 | IPI00396840 | Ece1 Isoform B of Endothelin-converting enzyme 1 | K.HLLEN*ATASVSEAER.K<br>K.LGGWN*ITGPWAK.D<br>R.ACMN*ETR.I<br>R.FFN*FSWR.V |
| 276 | IPI00399958 | Calu calumenin isoform 2 | R.N*VTYGTYLDDPDPDDGFNYK.Q |
| 277 | IPI00400016 | Lamc1 Laminin subunit gamma-1 | K.LLNN*LTSIK.I<br>R.TLAGEN*QTALEIEELNR.K<br>R.VN*SSLHSQISR.L |
| 278 | IPI00403938 | Tnc Isoform 1 of Tenascin | R.LLQTAEHN*ISGAER.T<br>K.GPN*CSEPDCPGNCNLR.G |
| 279 | IPI00405437 | Lmf1 Isoform 1 of Lipase maturation factor 1 | R.TEVILQGTVSPN*ASAPDAVWEDYEFK.C |
| 280 | IPI00404668 | Thumpd2 Putative uncharacterized protein | K.AGEN*ETIIAKK.L<br>K.AGEN*ETIIAK.K |
| 281 | IPI00405742 | Plxnb2 plexin B2 | R.AM#SN*ISVR.L<br>K.SCVAITDAFPQN*MSR.R |

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| | | | R.TEAGVFEYVADPTFEN*FTGGVK.K |
| 282 | IPI00406459 | Arsb Isoform 2 of Arylsulfatase B | R.IYAGM#VSLM#DEAVGN*VTK.A |
| 283 | IPI00406603 | F5 Coagulation factor V | R.GESTSHTN*TTR.K<br>R.VVDSN*SSR.I |
| 284 | IPI00406609 | Ptprj receptor-type tyrosine-protein phosphatase eta isoform 2 | K.TN*STQVSDVR.A |
| 285 | IPI00408265 | Cobll1 Isoform 2 of Cordon-bleu protein-like 1 | R.ADETVQTSDGSISAQHSSASLQDSVN*ASR.E |
| 286 | IPI00408850 | Ctbs Isoform 1 of Di-N-acetylchitobiase | K.QVN*GSVSGSQWNK.D |
| 287 | IPI00408895 | Tgoln1 Trans-Golgi network integral membrane protein 1 | K.TDAELN*ETARPLSPVNPK.L |
| 288 | IPI00409148 | Hp Haptoglobin | K.CVVHYEN*STVPEK.K<br>K.CVVHYEN*STVPEKK.N<br>K.NLFLN*HSETASAK.D<br>K.VVLHPN*HSVVDIGLIK.L |
| 289 | IPI00410796 | Itfg3 Protein ITFG3 | K.NTN*SSNN*LTR.S<br>R.KPILGHYKPDTLAVVIEN*GTSIDR.Q |
| 290 | IPI00420148 | Ctse Envelope polyprotein | K.THQALCN*TTQK.T<br>R.LLNLVDGAYQALN*LTSPDK.T |
| 291 | IPI00420955 | Sort1 Isoform 1 of Sortilin | K.DITNLIN*NTFIR.T |
| 292 | IPI00454033 | 4632428N05Rik Platelet receptor Gi24 | K.AN*ASHDQPQK.H |
| 293 | IPI00458003 | Enpp3 Ectonucleotide pyrophosphatase/phosphodiesterase family member 3 | R.LN*LSEGEVAATVK.A |
| 294 | IPI00458159 | Igh-VJ558;Gm16735;LOC676478;Gm16844;Gm16747;LOC633774 Igh protein | R.LSGKPTN*VSVSVIM#SEGDGICY.- |
| 295 | IPI00458583 | Hnrnpu Heterogeneous nuclear ribonucleoprotein U | R.LQAALDNEAGGRPAM#EPGN*GSLDLGGDAAGR.S |
| 296 | IPI00460063<br>IPI00460133 | Pcyox1 Prenylcysteine oxidase | K.MSN*ITFR.N<br>R.LLN*QTLR.E<br>R.KM#SN*ITFR.N |
| | | Asph aspartyl/asparaginyl beta-hydroxylase isoform 10 | K.GGGGN*SSSSGSGSGSGSGSPSTGSSGSSSSPGAR.R |
| 297 | IPI00460350 | Igh-VJ558;Gm16735;LOC676478;Gm16844;Gm16747;LOC633774 Igh protein | R.LSGKPTN*VSVSVIMSEGDGICY.-<br>R.ALSSDPVIIGCLIHDYFPSGTM#N*VTWGK.S |
| 298 | IPI00461861 | Mme Neprilysin | R.SCIN*ESAIDSR.G |
| 299 | IPI00462013 | Setbp1 SET-binding protein | K.TN*DTM#TK.V |
| 300 | IPI00462140 | Krt77 Keratin, type II cytoskeletal 1b | R.FLEQQNQVLQTKWELLQQVN*TSTR.T |

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| 301 | IPI00462846 | Ptprd Isoform C of Receptor-type tyrosine-protein phosphatase delta | R.KVEVEAVN*ATAVK.V |
| 302 | IPI00463492 | Tmem2 Transmembrane protein 2 | K.TTN*ASASDPR.E<br>R.QN*GSLSR.I<br>R.NN*VSLVK.F |
| 303 | IPI00463774 | B3gnt2 UDP-GlcNAc:betaGal beta-1,3-N-acetylglucosaminyltransferase 2 | R.ETNVGN*QTVVR.V |
| 304 | IPI00463909 | Huwe1 E3 ubiquitin-protein ligase HUWE1 | R.QQQAATSESSN*QSETSVR.R |
| 305 | IPI00466069 | Eef2 Elongation factor 2 | R.SNTGGQAFPQCVFDHWQILPGDPFDN*SSRPSQVVAETR.K |
| 306 | IPI00466371 | Itga1 Integrin alpha-1 | K.AHFSSLN*LTIR.G<br>K.ANQIVIPHN*TTFQTEPTK.M<br>K.DSCESNQN*ITCR.V<br>K.HFFN*VSDELALVTIVK.A<br>K.LDLPVN*TSIPNVTEIK.E<br>R.GN*LSTEK.F<br>R.SQNDKFN*VSLTVK.N<br>R.YN*HTGQVVIYK.M |
| 307 | IPI00466652 | Slc6a12 Solute carrier family 6 (Neurotransmitter transporter, betaine/GABA), member 12 | R.RPPQDGSSAQN*CSSSPAK.Q |
| 308 | IPI00467180 | Ssr2 Translocon-associated protein subunit beta | R.IAPASN*VSHTVVLRPLK.A<br>K.AGYFN*FTSATITYLAQEDGPVVIGSTSAPGQGGILAQR.E |
| 309 | IPI00467600 | Stab2 Stabilin-2 | K.ITN*GTVGVR.D<br>K.NAN*CSTVSPGQTQCTCQK.G<br>R.CDNN*DTIIVR.G<br>R.VLLN*LTTVAANHGYTK.F |
| 310 | IPI00469218 | Lamp1 Putative uncharacterized protein | K.N*VTVVLR.D<br>R.AFNISPN*DTSSGSCGINLVTLK.V<br>R.GYLLTLN*FTK.N |
| 311 | IPI00469307 | Lrpap1 Alpha-2-macroglobulin receptor-associated protein | R.VIDLWDLAQSAN*FTEK.E |
| 312 | IPI00469387 | Fetub GUGU alpha | R.VLYLPAYN*CTLRPVSK.R |
| 313 | IPI00471081 | Plbd1 Putative phospholipase B-like 1 | R.FN*ETLHR.G<br>K.TIYN*WSGYPLLVHK.L<br>R.DQGN*VTDM#ASM#K.Y |
| 314 | IPI00471476 | Serbp1 Isoform 2 of Plasminogen activator inhibitor 1 RNA-binding protein | K.DELTDLDQSN*VTEETPEGEEHPVADTENKENEVEEVKEEGPK.E |
| 315 | IPI00473680 | Tmed9 Putative uncharacterized protein | R.FTFTSHTPGEHQICLHSN*STK.F |

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| 316 | IPI00475209 | Masp1 Isoform 2 of Mannan-binding lectin serine protease 1 | K.SGAVN*SSAAR.V |
| 317 | IPI00515360 | Hspg2 basement membrane-specific heparan sulfate proteoglycan core protein | K.GVN*VTM#PSQPGVPPLSSTQLQIDPALQEFQLVDLSR.R<br>K.LTVPSSQN*SSFR.L<br>R.ALVN*FTR.S<br>R.SLTQGSLIVGNLAPVN*GTSQGK.F<br>R.TDEAN*CSVK.Q |
| 318 | IPI00556870 | Igh-VJ558;Gm16735;LOC676478;Gm16844;Gm16747;LOC633774 Igh protein | R.LSGKPTN*VSVSVIM#SEGDGICY.-<br>R.ALSSDPVIIGCLIHDYFLSGTMN*VTWGK.S |
| 319 | IPI00620362 | Hnrnpl Heterogeneous nuclear ribonucleoprotein L | K.NDQDTWDYTNPN*LSGQGDPGSNPNKR.Q |
| 320 | IPI00621027 | Col6a2 Collagen alpha-2(VI) chain | R.GTFTDCALAN*MTQQIR.Q<br>R.RGTFTDCALAN*MTQQIR.Q |
| 321 | IPI00622235 | Vcp Transitional endoplasmic reticulum ATPase | R.AVAN*ETGAFFFLINGPEIMSK.L |
| 322 | IPI00622361 | Gnptab Isoform 2 of N-acetylglucosamine-1-phosphotransferase subunits alpha/beta | R.RHDVN*ATGR.F<br>R.HDVN*ATGR.F |
| 323 | IPI00623114 | Fat1 FAT tumor suppressor homolog 1 | K.TGTIAIQN*TTQLR.S |
| 324 | IPI00624138 | H2-L;H2-Q5;H2-D1 H-2 class I histocompatibility antigen, D-B alpha chain | R.NLLGYYN*QSAGGSHTLQQMSGCDLGSDWR.L |
| 325 | IPI00624663 | Pzp Uncharacterized protein | K.LTN*QTLGFSFAVEQDIPVK.N<br>K.SLGEVN*FTATAEALQSPELCGNK.L<br>K.VN*LSFPSAQSLPASDTHLK.V<br>R.IN*VSYTGERPSSNM#VIVDVK.M |
| 326 | IPI00623114 | Fat1 FAT tumor suppressor homolog 1 | R.GVNVITVN*ATDADSK.A |
| 327 | IPI00624138 | H2-L;H2-Q5;H2-D1 H-2 class I histocompatibility antigen, D-B alpha chain | K.EQN*YTCR.V<br>K.NGN*ATLLR.T<br>R.NLLGYYN*QSAGGSHTLQQM#SGCDLGSDWR.L |
| 328 | IPI00624663 | Pzp Uncharacterized protein | K.LTN*QTLGFSFAVEQDIPVK.N<br>K.SLGEVN*FTATAEALQSPELCGNK.L<br>K.VN*LSFPSAQSLPASDTHLK.V<br>R.IN*VSYTGERPSSNM#VIVDVK.M |
| 329 | IPI00649313 | Mrc2 Mannose receptor, C type 2 | R.VTPVCN*ASLPAQR.W |
| 330 | IPI00653158 | Acaa2 Acetyl-Coenzyme A acyltransferase 2 (Mitochondrial 3-oxoacyl-Coenzyme A thiolase), isoform CRA_k | K.DGTVTAGN*ASGVSDGAGAVIIASEDAVK.K |

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| 331 | IPI00653675 | C1s complement C1s-A subcomponent | K.ITAN*STWQPDK.A |
| 332 | IPI00654907 | Ceacam1 Putative uncharacterized protein CEACAM1a-2C1 | R.FHVHQPVTQPFLQVTN*TTVK.E |
| 333 | IPI00666034 | Apob apolipoprotein B precursor | R.LPQQIHHYLN*ASDWER.Q<br>K.LTYESGFLN*YSK.F |
| 334 | IPI00667268 | Ttc17 Tetratricopeptide repeat domain 17 | R.VN*LSAPLLPK.E |
| 335 | IPI00675799 | Gm7455 Collagen alpha-5(VI) chain | K.SN*DSVLEPANR.L<br>R.DLQNFLEN*VTSSVDVK.D<br>R.FN*ETR.D |
| 336 | IPI00749655 | Susd2 Isoform 1 of Sushi domain-containing protein 2 | R.MPN*GTQAR.G |
| 337 | IPI00752080 | Itgav Integrin alpha V | K.TPEKN*DTAAAGQGER.N<br>R.IKTPEKN*DTAAAGQGER.N<br>R.TAADATGLQPILNQFTPAN*VSR.Q |
| 338 | IPI00753008 | 4632428N05Rik Uncharacterized protein | K.AN*ASHDQPQK.H |
| 339 | IPI00756611 | Armcx4 protein (Fragment) | K.GKGN*ASAMAK.A |
| 340 | IPI00775829 | Pklr pyruvate kinase isozymes R/L isoform 2 | K.TVWVDYHN*ITQVVAVGGR.I |
| 341 | IPI00830164 | Pigr Uncharacterized protein | K.KTN*QSCELVIDSTEK.V<br>K.TN*QSCELVIDSTEK.V<br>R.N*VTIECPFK.R |
| 342 | IPI00850413 | Pgap1 Isoform 1 of GPI inositol-deacylase | K.LHVAQPEN*DSHVALLK.M |
| 343 | IPI00845556 | Mia3 Isoform 2 of Melanoma inhibitory activity protein 3 | R.TGN*SSPASVER.E |
| 344 | IPI00848693 | Mgam maltase-glucoamylase | R.IDCYPDEHGASEAN*CSAR.G<br>R.VILILDPAISGN*ETEPYPAFTR.G<br>R.YPNN*GSIVWGK.V |
| 345 | IPI00850413 | Pgap1 Isoform 1 of GPI inositol-deacylase | K.LHVAQPEN*DSHVALLK.M |
| 346 | IPI00874741 | H2-K1 H-2 class I histocompatibility antigen, K-B alpha chain | K.NGN*ATLLR.T<br>R.TLLGYYN*QSK.G |
| 347 | IPI00876028 | Steap4 Metalloreductase STEAP4 | R.N*ATITQALTNK.D |
| 348 | IPI00896605 | Cfi complement factor I precursor | K.FN*VSLIYGR.T<br>K.FSHN*GTCAAEGK.F<br>R.GN*ASLCK.S<br>R.WGEVDLIGN*CSQFYPDR.Y |
| 349 | IPI00896736 | Apc adenomatosis polyposis coli | R.SDNFNTGN*MTVLSPYLNTTVLPS<br>SSSSRGSLDSSR.S |
| 350 | IPI00914720 | Bscl2 seipin | R.TDCDSSTASLCSFPVAN*VSLAK.S |