

TABLES

Table I. Proteins and peptides identified in human plasma with false glycosylation assignment.

| Accession | Protein Description | Peptide Sequence | Peptide Score | N-X-S/T/C Position |
|-----------|--|--|---------------|--------------------|
| P01616 | Ig kappa chain V-II region MIL | RFSGSGSGT <u>N</u> FTLKI | 95.68 | N74 |
| A6NNI4 | CD9 antigen | KAIHYAL <u>NCC</u> GLAGGVEQFISDICKK | 41.73 | N82 |
| U3KQ34 | Interleukin-1 receptor-associated kinase 1-binding protein 1 | KMQ <u>NIC</u> NFLVEKL | 50.55 | N53 |
| P08603 | Complement factor H | KSPDV <u>NGS</u> PISQKI | 57.14 | N217 |

Deamidated sites that match the consensus N-X-S/T/C glycosylation motifs are underlined and bold.

Table II. Extracellular vesicle-associated glycoproteins as cataloged in Exocarta.

| No. | UniProt ID | Gene Symbol | Protein Score | Protein Description | Extracellular vesicle proteins | Ref |
|-----|------------|-------------|---------------|---|--------------------------------|------|
| 1 | P04217 | A1BG | 5598 | Alpha-1B-glycoprotein | Y | (59) |
| 2 | P01023 | A2M | 8107 | Alpha-2-macroglobulin | Y | (59) |
| 3 | P43652 | AFM | 3787 | Afamin | Y | (59) |
| 4 | C9JV77 | AHSG | 81282 | Alpha-2-HS-glycoprotein | Y | (59) |
| 5 | P02768 | ALB | 285547 | Serum albumin | Y | (59) |
| 6 | P02760 | AMBP | 11966 | Protein AMBP | Y | (59) |
| 7 | P04114 | APOB | 1640 | Apolipoprotein B-100 | Y | (60) |
| 8 | C9JF17 | APOD | 5406 | Apolipoprotein D | Y | (60) |
| 9 | F8WF14 | BCHE | 901 | Cholinesterase | Y | (59) |
| 10 | H0YFH3 | C1R | 1036 | Complement C1r subcomponent | Y | (59) |
| 11 | F8WCZ6 | C1S | 381 | Complement C1s subcomponent | Y | (59) |
| 12 | P01024 | C3 | 6503 | Complement C3 | Y | (59) |
| 13 | P0C0L5 | C4B | 52520 | Complement C4-B | Y | (59) |
| 14 | P04003 | C4BPA | 2570 | C4b-binding protein alpha chain | Y | (59) |
| 15 | Q5VVQ7 | C4BPB | 5187 | C4b-binding protein beta chain | Y | (60) |
| 16 | P07357 | C8A | 1189 | Complement component C8 alpha chain | Y | (59) |
| 17 | P02748 | C9 | 7324 | Complement component C9 | Y | (59) |
| 18 | B4E1Z4 | CFB | 6621 | Complement factor B | Y | (59) |
| 19 | P08603 | CFH | 35443 | Complement factor H | Y | (59) |
| 20 | Q03591 | CFHR1 | 2208 | Complement factor H-related protein 1 | Y | (59) |
| 21 | Q02985 | CFHR3 | 791 | Complement factor H-related protein 3 | Y | (59) |
| 22 | P10909 | CLU | 8364 | Clusterin | Y | (60) |
| 23 | P00450 | CP | 50977 | Ceruloplasmin | Y | (59) |
| 24 | P22792 | CPN2 | 417 | Carboxypeptidase N subunit 2 | Y | (59) |
| 25 | E9PIT3 | F2 | 2800 | Thrombin light chain | Y | (59) |
| 26 | Q9Y6R7 | FCGBP | 980 | IgGfc-binding protein | Y | (60) |
| 27 | P02671 | FGA | 1132 | Fibrinogen alpha chain | Y | (59) |
| 28 | P02675 | FGB | 14861 | Fibrinogen beta chain | Y | (59) |
| 29 | C9JC84 | FGG | 10296 | Fibrinogen gamma chain | Y | (59) |
| 30 | F8W7G7 | FN1 | 259 | Fibronectin | Y | (59) |
| 31 | P00738 | HP | 166762 | Haptoglobin | Y | (59) |
| 32 | P00739 | HPR | 136434 | Haptoglobin-related protein | Y | (59) |
| 33 | P02790 | HPX | 32600 | Hemopexin | Y | (59) |
| 34 | P04196 | HRG | 17014 | Histidine-rich glycoprotein | Y | (59) |
| 35 | P01591 | IGJ | 1829 | Immunoglobulin J chain | Y | (60) |
| 36 | H7C4N8 | ITGB1 | 105 | Integrin beta-1 | Y | (59) |
| 37 | F5H7E1 | ITIH1 | 1655 | Inter-alpha-trypsin inhibitor heavy chain H1 | Y | (59) |
| 38 | Q5T985 | ITIH2 | 15178 | Inter-alpha-trypsin inhibitor heavy chain H2 | Y | (59) |
| 39 | Q14624-2 | ITIH4 | 5879 | Isoform 2 of Inter-alpha-trypsin inhibitor heavy chain H4 | Y | (59) |
| 40 | P01042-2 | KNG1 | 47217 | Isoform LMW of Kininogen-1 | Y | (59) |
| 41 | H0YCG2 | LAMP2 | 242 | Lysosome-associated membrane glycoprotein 2 | Y | (61) |
| 42 | Q08380 | LGALS3BP | 3599 | Galectin-3-binding protein | Y | (59) |

Evidence of cataloged extracellular vesicle proteins obtained from listed references.

Continued on next page

Table II. Extracellular vesicle-associated glycoproteins as cataloged in Exocarta. (Continued)

| No. | UniProt ID | Gene Symbol | Protein Score | Protein Description | Extracellular vesicle proteins | Ref |
|-----|------------|-------------|---------------|---|--------------------------------|------|
| 43 | Q07954 | LRP1 | 562 | Prolow-density lipoprotein receptor-related protein 1 | Y | (60) |
| 44 | F8W876 | MASP1 | 78 | Mannan-binding lectin serine protease 1 heavy chain | Y | (60) |
| 45 | O00187 | MASP2 | 85.18 | Mannan-binding lectin serine protease 2 | Y | (60) |
| 46 | Q13201 | MMRN1 | 272 | Multimerin-1 | Y | (60) |
| 47 | P02763 | ORM1 | 3105 | Alpha-1-acid glycoprotein 1 | Y | (59) |
| 48 | P19652 | ORM2 | 968 | Alpha-1-acid glycoprotein 2 | Y | (59) |
| 49 | P01833 | PIGR | 81 | Polymeric immunoglobulin receptor | Y | (60) |
| 50 | P27169 | PON1 | 15059 | Serum paraoxonase/arylesterase 1 | Y | (59) |
| 51 | P01009 | SERPINA1 | 28362 | Alpha-1-antitrypsin | Y | (60) |
| 52 | G3V5I3 | SERPINA3 | 16582 | Alpha-1-antichymotrypsin | Y | (59) |
| 53 | P01008 | SERPINC1 | 16622 | Antithrombin-III | Y | (59) |
| 54 | B4E1F0 | SERPING1 | 20410 | Plasma protease C1 inhibitor | Y | (59) |
| 55 | P02787 | TF | 27433 | Serotransferrin | Y | (59) |
| 56 | P07996 | THBS1 | 87 | Thrombospondin-1 | Y | (60) |
| 57 | P04004 | VTN | 18138 | Vitronectin | Y | (60) |
| 58 | P04275 | VWF | 281 | Von Willebrand factor | Y | (60) |

Evidence of cataloged extracellular vesicle proteins obtained from listed references.

Table III. Estimated concentrations of the identified plasma glycoproteins (literature survey).

| No | UniProt Accession No. | No. Unique Peptide(s) | Protein Description | Top 150 plasma proteins ^a | Conc. in plasma (mg/mL) ^b | Ref |
|----|-----------------------|-----------------------|--|--------------------------------------|--------------------------------------|------|
| 1 | P04217 | 3 | Alpha-1B-glycoprotein | Y | 0.133 | (71) |
| 2 | P01023 | 6 | Alpha-2-macroglobulin | Y | 1.609 | (64) |
| 3 | P43652 | 4 | Afamin | Y | 0.035 | (71) |
| 4 | C9JV77 | 10 | Alpha-2-HS-glycoprotein | Y | 0.082 | (72) |
| 5 | P02768 | 2 | Serum albumin | Y | 33.3 | (64) |
| 6 | P02760 | 19 | Protein AMBP | Y | 0.048 | (72) |
| 7 | K7EKF6 | 2 | Angiopoietin-related protein 6 | N | *NA | *NA |
| 8 | H0Y512 | 2 | Adipocyte plasma membrane-associated protein | N | 0.000029 | (72) |
| 9 | P04114 | 5 | Apolipoprotein B-100 | Y | 0.2989 | (71) |
| 10 | K7EMC3 | 1 | Apolipoprotein C-IV | Y | 4.6 | (72) |
| 11 | C9JF17 | 9 | Apolipoprotein D | Y | 0.082 | (72) |
| 12 | P02749 | 12 | Beta-2-glycoprotein 1 | Y | 0.0725 | (71) |
| 13 | Q5SRP5 | 3 | Apolipoprotein M | Y | 0.0015 | (72) |
| 14 | O75882 | 9 | Attractin | Y | 0.00066 | (72) |
| 15 | F8WF14 | 10 | Cholinesterase | Y | 0.00017 | (72) |
| 16 | B4DLJ9 | 7 | Biotinidase | Y | 0.00049 | (72) |
| 17 | P02745 | 3 | Complement C1q subcomponent subunit A | Y | 0.0012 | (72) |
| 18 | H0YFH3 | 3 | Complement C1r subcomponent | Y | 0.0043 | (72) |
| 19 | Q9NZP8 | 2 | Complement C1r subcomponent-like protein | N | 0.00026 | (72) |
| 20 | F8WCZ6 | 2 | Complement C1s subcomponent | Y | 0.0052 | (72) |
| 21 | P01024 | 1 | Complement C3 | Y | 1.73 | (65) |
| 22 | P0C0L5 | 3 | Complement C4-B | Y | 0.104 | (71) |
| 23 | P04003 | 12 | C4b-binding protein alpha chain | Y | 0.011 | (72) |
| 24 | Q5VVQ7 | 8 | C4b-binding protein beta chain | Y | 0.00053 | (72) |
| 25 | P13671 | 1 | Complement component C6 | Y | 0.0037 | (72) |
| 26 | P07357 | 4 | Complement component C8 alpha chain | Y | 0.0024 | (72) |
| 27 | F5GY80 | 1 | Complement component C8 beta chain | Y | 0.0028 | (72) |
| 28 | P02748 | 3 | Complement component C9 | Y | 0.01393 | (71) |
| 29 | H0Y2P0 | 1 | CD44 antigen | N | 0.000035 | (72) |
| 30 | P33151 | 1 | Cadherin-5 | N | 0.00011 | (72) |
| 31 | E9PPW2 | 1 | Cadherin-related family member 5 | N | 0.0000044 | (72) |
| 32 | B4E1Z4 | 16 | Complement factor B | Y | 0.00126 | (71) |
| 33 | P08603 | 25 | Complement factor H | Y | 0.0287 | (71) |
| 34 | Q03591 | 2 | Complement factor H-related protein 1 | Y | 0.057 | (72) |
| 35 | Q02985 | 1 | Complement factor H-related protein 3 | Y | 0.00014 | (72) |
| 36 | B1ALQ8 | 1 | Complement factor H-related protein 4 | Y | 0.000059 | (72) |
| 37 | Q5VYL6 | 1 | Complement factor H-related protein 5 | Y | 0.000011 | (72) |
| 38 | G3XAM2 | 7 | Complement factor I light chain | Y | 0.0000057 | (72) |
| 39 | P10909 | 9 | Clusterin | Y | 0.0914 | (71) |
| 40 | J3KRP0 | 2 | Beta-Ala-His dipeptidase | Y | 0.00023 | (72) |
| 41 | P00450 | 12 | Ceruloplasmin | Y | 0.0649 | (71) |
| 42 | Q96IY4 | 4 | Carboxypeptidase B2 | Y | 0.0007 | (72) |
| 43 | P22792 | 3 | Carboxypeptidase N subunit 2 | Y | 0.002 | (72) |

*NA, data not available; a, Top 150 plasma protein annotation obtained from Hortin et al(62); b, Approximate plasma concentration in mg/mL (obtained from listed references).

Continued on next page

Table III. Estimated concentrations of the identified plasma glycoproteins (literature survey). (Continued)

| No | UniProt Accession No. | No. Unique Peptide(s) | Protein Description | Top 150 plasma proteins ^a | Conc. in plasma (mg/mL) ^b | Ref |
|----|-----------------------|-----------------------|--|--------------------------------------|--------------------------------------|------|
| 44 | J3KPA1 | 1 | Cysteine-rich secretory protein 3 | N | 6.30E-09 | (73) |
| 45 | Q5T382 | 2 | Dopamine beta-hydroxylase | N | 0.00011 | (72) |
| 46 | P03951 | 5 | Coagulation factor XI | N | 0.000063 | (72) |
| 47 | P00748 | 2 | Coagulation factor XII | N | 0.0143 | (65) |
| 48 | P05160 | 1 | Coagulation factor XIII B chain | Y | 0.00096 | (72) |
| 49 | E9PIT3 | 6 | Thrombin light chain | N | 0.00941 | (71) |
| 50 | P12259 | 5 | Coagulation factor V | Y | 0.006417 | (65) |
| 51 | B1AHL2 | 3 | Fibulin-1 | Y | 0.00062 | (72) |
| 52 | Q9Y6R7 | 3 | IgGfc-binding protein | N | 0.0003 | (72) |
| 53 | P02671 | 1 | Fibrinogen alpha chain | Y | 1.5 | (71) |
| 54 | P02675 | 7 | Fibrinogen beta chain | Y | 0.706 | (71) |
| 55 | C9JC84 | 8 | Fibrinogen gamma chain | Y | 0.0233 | (71) |
| 56 | E9PD35 | 1 | Vascular endothelial growth factor receptor 3 | N | 0.0000041 | (72) |
| 57 | F8W7G7 | 2 | Fibronectin | Y | 0.02 | (72) |
| 58 | Q8NBJ4 | 1 | Golgi membrane protein 1 | N | 0.0000092 | (72) |
| 59 | P80108 | 8 | Phosphatidylinositol-glycan-specific phospholipase D | Y | 0.00046 | (72) |
| 60 | Q8IZF2 | 1 | Probable G-protein coupled receptor 116 | N | 0.000012 | (72) |
| 61 | Q9ULI3 | 1 | Protein HEG homolog 1 | N | 0.0000066 | (72) |
| 62 | D6RAR4 | 1 | Hepatocyte growth factor activator | N | 0.00024 | (72) |
| 63 | P00738 | 69 | Haptoglobin | Y | 1.1 | (71) |
| 64 | P00739 | 1 | Haptoglobin-related protein | Y | 0.0407 | (74) |
| 65 | P02790 | 8 | Hemopexin | Y | 0.4762 | (71) |
| 66 | P04196 | 2 | Histidine-rich glycoprotein | Y | 0.035 | (72) |
| 67 | P05362 | 2 | Intercellular adhesion molecule 1 | N | 0.000071 | (72) |
| 68 | J3QQX6 | 1 | Intercellular adhesion molecule 2 | N | 0.000037 | (72) |
| 69 | P35858 | 2 | Insulin-like growth factor-binding protein complex acid labile subunit | N | 0.0015 | (72) |
| 70 | B3KWK7 | 3 | Insulin-like growth factor binding protein 3, isoform CRA | Y | 0.0057 | (72) |
| 71 | P01876 | 6 | Ig alpha-1 chain C region | Y | *NA | *NA |
| 72 | P01877 | 1 | Ig alpha-2 chain C region | Y | *NA | *NA |
| 73 | P01857 | 1 | Ig gamma-1 chain C region | Y | *NA | *NA |
| 74 | P01859 | 1 | Ig gamma-2 chain C region | Y | *NA | *NA |
| 75 | P01860 | 1 | Ig gamma-3 chain C region | Y | *NA | *NA |
| 76 | P01861 | 1 | Ig gamma-4 chain C region | Y | 0.32 | (72) |
| 77 | P01871 | 9 | Ig mu chain C region | Y | 0.32 | (72) |
| 78 | P01591 | 3 | Immunoglobulin J chain | Y | 0.0056 | (72) |
| 79 | H7C4N8 | 1 | Integrin beta-1 | N | 0.000011 | (72) |
| 80 | F5H7E1 | 6 | Inter-alpha-trypsin inhibitor heavy chain H1 | Y | 0.024 | (72) |
| 81 | Q5T985 | 3 | Inter-alpha-trypsin inhibitor heavy chain H2 | Y | 0.021 | (72) |
| 82 | Q06033 | 2 | Inter-alpha-trypsin inhibitor heavy chain H3 | Y | 0.002 | (72) |
| 83 | Q14624-2 | 6 | Isoform 2 of Inter-alpha-trypsin inhibitor heavy chain H4 | Y | 0.042 | (72) |
| 84 | H0YAC1 | 8 | Plasma kallikrein heavy chain | Y | 0.0026 | (72) |

*NA, data not available; a, Top 150 plasma protein annotation obtained from Hortin et al(62); b, Approximate plasma concentration in mg/mL (obtained from listed references).

Continued on next page

Table III. Estimated concentrations of the identified plasma glycoproteins (literature survey). (Continued)

| No | UniProt Accession No. | No. Unique Peptide(s) | Protein Description | Top 150 plasma proteins ^a | Conc. in plasma (mg/mL) ^b | Ref |
|-----|-----------------------|-----------------------|---|--------------------------------------|--------------------------------------|------|
| 85 | P01042-2 | 15 | Isoform LMW of Kininogen-1 | Y | 1.085 | (64) |
| 86 | H0YCG2 | 1 | Lysosome-associated membrane glycoprotein 2 | N | 0.0000073 | (72) |
| 87 | P04180 | 1 | Phosphatidylcholine-sterol acyltransferase | N | 0.00022 | (72) |
| 88 | Q08380 | 4 | Galectin-3-binding protein | N | 0.00044 | (72) |
| 89 | Q16609 | 1 | Putative apolipoprotein(a)-like protein 2 | Y | 0.0886 | (71) |
| 90 | P02750 | 4 | Leucine-rich alpha-2-glycoprotein | Y | 0.0027 | (72) |
| 91 | Q07954 | 1 | Prolow-density lipoprotein receptor-related protein 1 | N | 0.00002 | (72) |
| 92 | P51884 | 5 | Lumican | Y | 0.004 | (72) |
| 93 | Q9Y5Y7 | 1 | Lymphatic vessel endothelial hyaluronic acid receptor 1 | N | 0.0000062 | (72) |
| 94 | F8W876 | 2 | Mannan-binding lectin serine protease 1 heavy chain | N | 0.00024 | (72) |
| 95 | O00187 | 1 | Mannan-binding lectin serine protease 2 | N | 0.0028 | (72) |
| 96 | Q7Z7M0 | 1 | Multiple epidermal growth factor-like domains protein 8 | N | 4.30E-09 | (72) |
| 97 | Q13201 | 3 | Multimerin-1 | N | 0.0000072 | (72) |
| 98 | G3XAK1 | 3 | Hepatocyte growth factor-like protein alpha chain | N | 0.00025 | (72) |
| 99 | F8W6L6 | 1 | Myosin-10 | N | *NA | *NA |
| 100 | P02763 | 8 | Alpha-1-acid glycoprotein 1 | Y | 0.000383 | (64) |
| 101 | P19652 | 3 | Alpha-1-acid glycoprotein 2 | Y | 0.22 | (72) |
| 102 | Q96PD5 | 11 | N-acetylmuramoyl-L-alanine amidase | N | 0.014 | (72) |
| 103 | E7ER40 | 1 | PHD finger protein 3 | N | *NA | *NA |
| 104 | Q6UXB8 | 1 | Peptidase inhibitor 16 | N | 0.000041 | (72) |
| 105 | P01833 | 2 | Polymeric immunoglobulin receptor | N | 0.000025 | (72) |
| 106 | B3KUE5 | 3 | Phospholipid transfer protein | N | 0.000064 | (72) |
| 107 | P27169 | 3 | Serum paraoxonase/arylesterase 1 | Y | 0.0077 | (72) |
| 108 | Q15166 | 1 | Serum paraoxonase/lactonase 3 | Y | 0.000011 | (72) |
| 109 | H0Y5A1 | 2 | Prostaglandin-H2 D-isomerase | N | 0.012 | (72) |
| 110 | P35542 | 1 | Serum amyloid A-4 protein | Y | 0.03 | (72) |
| 111 | P14151 | 3 | L-selectin | N | 0.000936 | (64) |
| 112 | D6REX5 | 9 | Selenoprotein P | Y | 0.00051 | (72) |
| 113 | P01009 | 6 | Alpha-1-antitrypsin | Y | 0.1374 | (71) |
| 114 | G3V5I3 | 12 | Alpha-1-antichymotrypsin | Y | 0.11 | (72) |
| 115 | P29622 | 3 | Kallistatin | Y | 0.0011 | (72) |
| 116 | G3V350 | 2 | Corticosteroid-binding globulin | Y | 0.0012 | (72) |
| 117 | P05543 | 2 | Thyroxine-binding globulin | Y | 0.0013 | (72) |
| 118 | P01008 | 9 | Antithrombin-III | Y | 0.058 | (65) |
| 119 | P05546 | 8 | Heparin cofactor 2 | Y | 0.044 | (65) |
| 120 | I3L4N7 | 1 | Pigment epithelium-derived factor | Y | 0.00736 | (71) |
| 121 | B4E1F0 | 8 | Plasma protease C1 inhibitor | Y | 0.012 | (72) |
| 122 | B0FWH6 | 2 | Sex hormone-binding globulin | Y | 0.00026 | (72) |
| 123 | B5MCY1 | 1 | Tudor domain-containing protein 15 | N | *NA | *NA |
| 124 | P02787 | 13 | Serotransferrin | Y | 1.5 | (71) |
| 125 | P07996 | 2 | Thrombospondin-1 | N | 0.00051 | (72) |
| 126 | P04004 | 6 | Vitronectin | Y | 0.0197 | (64) |
| 127 | P04275 | 3 | Von Willebrand factor | Y | 0.007698 | (64) |

*NA, data not available; a, Top 150 plasma protein annotation obtained from Hortin et al(62); b, Approximate plasma concentration in mg/mL (obtained from listed references).