

**Supplementary Table SII** Proteins that were significantly differentially expressed in the evaluation cohort with more than a 1.5 fold-change.

Overexpressed Proteins in Semen Exosomes from Normozoospermic Men		
Gene Name	Protein	fold change
HSPA1L	Heat shock 70 kDa protein 1-like	4,1
SLC2A14	Solute carrier family 2, facilitated glucose transporter member 14	3,3
KIAA1012;TRAPPC8	Trafficking protein particle complex subunit 8	2,3
PGK2	Phosphoglycerate kinase 2;Phosphoglycerate kinase	2,3
EDARADD	EDAR-associated death domain	3,5
DPEP3	Dipeptidase 3	4,9
HK1	Hexokinase-1	3,9
CUTA	Protein CutA	2,7
HEL-S-292	Epididymis secretory protein Li 292	3,0
DYSF	Dysferlin	2,0
OVCH2	Ovochymase-2	4,0
SPAG11B	Sperm-associated antigen 11B	3,0
N/A	Uncharacterized protein	3,0
HP;HPR	Haptoglobin	1,9
ACTG1	Actin, cytoplasmic 2;Actin, cytoplasmic 2. N-terminally processed	1,7
THBS2	Thrombospondin-2	3,0
COL6A2	Collagen alpha-2(VI) chain	2,9
A2M	Alpha-2-macroglobulin	1,6
CRISP1	Cysteine-rich secretory protein 1	3,3
DEFB126	Beta-defensin 126	3,0
COMP	Cartilage oligomeric matrix protein	2,2
HEL-S-163pA;A1BG	Alpha-1B-glycoprotein	2,0
CYB5R2	NADH-cytochrome b5 reductase 2	2,5
LIPI	Lipase member 1	2,8
PTGDS	Prostaglandin-H2 D-isomerase	2,2
LZTFL1	Leucine zipper transcription factor-like protein 1	2,1
FGG;DKFZp779N0926	Fibrinogen gamma chain	2,1
DPCD	Protein DPCD	2,7
ACSBG2	Long-chain-fatty-acid-CoA ligase ACSBG2	3,1
VCP	Transitional endoplasmic reticulum ATPase	2,6
HEL-117;UCHL1	Ubiquitin carboxyl-terminal hydrolase isozyme L1	2,1
REG3G	Regenerating islet-derived protein 3-gamma	3,2
N/A	cDNA FLJ53691. highly similar to Serotransferrin	5,0
AQP5	Aquaporin-5	4,4

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**Supplementary Table SII** *Continued*

<b>Overexpressed Proteins in Semen Exosomes from Normozoospermic Men</b>		
<b>Gene Name</b>	<b>Protein</b>	<b>fold change</b>
PAM	Peptidyl-glycine alpha-amidating monooxygenase	3,2
CFI	Complement factor I	4,5
NEDD8-MDPI;NEDD8;MDPI	Magnesium-dependent phosphatase I	3,8
<b>Overexpressed Protein in SEs from Severe Asthenozoospermic men</b>		
<b>Gene Name</b>	<b>Protein</b>	<b>fold change</b>
PGC	Gastricsin	3,3
N/A	Uncharacterized protein	3,0
WBP2	WW domain-binding protein 2	4,1
OAF	Out at first protein homolog	3,3
UBE2Z	Ubiquitin-conjugating enzyme E2 Z	3,1
OSTFI	Osteoclast-stimulating factor I	3,2
NEDD4L;ZNF227	E3 ubiquitin-protein ligase NEDD4-like;E3 ubiquitin-protein ligase	2,6
AQP2	Aquaporin-2	4,2
SFRP5	Secreted frizzled-related protein 5	4,8
RHEB	GTP-binding protein Rheb	2,4
ABII	Abl interactor I	2,7
CLN5	Ceroid-lipofuscinosis neuronal protein 5	2,2
APOD	Apolipoprotein D	2,2
PSMB8;PSM8	Proteasome subunit beta type;Proteasome subunit beta type-8	2,1
SLC9A3R2	Na(+)/H(+) exchange regulatory cofactor NHE-RF2	2,2
GBA	Glucosylceramidase	2,8
MXRA5	Matrix-remodeling-associated protein 5	3,6
LYPLAL1	Lysophospholipase-like protein I	2,2
RALB	V-ral simian leukemia viral oncogene homolog B (Ras related GTP binding protein)	3,7
RPL18	60S ribosomal protein L18	2,8
SLC26A3;DKFZp686P10213	Chloride anion exchanger	3,0
PCBD;PCBD1	Pterin-4-alpha-carbinolamine dehydratase	3,0
TMCS	Transmembrane channel-like protein	2,9
VPS25	Vacuolar protein-sorting-associated protein 25	4,0
CHMP1B	Charged multivesicular body protein 1b	3,2
PPP6C	Serine/threonine-protein phosphatase	3,7
SYTI	Synaptotagmin-1	3,6
AKAP7	A-kinase anchor protein 7 isoforms alpha and beta	2,7
GNB2	guanine nucleotide binding protein (G protein). beta polypeptide 2	2,8
NT5E	5-nucleotidase	2,7
MSLN	Mesothelin;Megakaryocyte-potentiating factor	1,6
SRPR	Signal recognition particle receptor subunit alpha	4,2
SPINT2	Kunitz-type protease inhibitor 2	3,1
GSTM1;GSTM4	Glutathione S-transferase Mu 1;Glutathione S-transferase Mu 4	1,8
DKFZp779K0533;GP2	Pancreatic secretory granule membrane major glycoprotein GP2	2,4

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**Supplementary Table SII** *Continued*

<b>Overexpressed Protein in SEs from Severe Asthenozoospermic men</b>		
<b>Gene Name</b>	<b>Protein</b>	<b>fold change</b>
SI	Sucrase-isomaltase. intestinal;Sucrase;Isomaltase; $\alpha$ -glucosidase	1,8
RAB6A;RAB6B	Ras-related protein Rab-6A	1,7
CD63	CD63 antigen	2,1
TSPAN8	Tetraspanin-8	3,1
PDCD6;hCG_1985580	Programmed cell death protein 6	2,6
CIQTNF1	Complement C1q tumor necrosis factor-related protein 1	2,8
THADA	Thyroid adenoma-associated protein	4,2
DAG1	Dystroglycan;Alpha-dystroglycan;Beta-dystroglycan	4,2
RARRES1	Retinoic acid receptor responder protein 1	3,5
ENTPD2	Ectonucleoside triphosphate diphosphohydrolase 2	4,2
MATN4	Matrilin-4	3,3
TGM4	Protein-glutamine gamma-glutamyltransferase 4	2,0
CDC42BPA	CDC42 binding protein kinase alpha (DMPK-like)	2,1
DEFA3;DEFA1	Neutrophil defensin	2,3
PAEP	Glycodelin	5,6
PSCA	Prostate stem cell antigen	3,9