Supplementary Materials

Table S1. Details of proteins reported in Figure 2 panel A. List of proteins up- and down-regulated in samples with medium progressive motility with respect to high progressive motility group identified by LC-MS/MS analysis. Results are expressed as ratios of protein levels of asthenozoospermics to normozoospermics.

UniProt ID	Gene Name	Protein Name	Medium/High
P20273	*CD22*	B-cell receptor CD22	0.14
Q8IYQ7	*THNS1*	Threonine synthase-like 1	0.19
Q99523	*SORT*	Sortilin	0.22
P82933	*RT09*	28S ribosomal protein S9	0.26
Q14156	*EFR3A*	Protein EFR3 homolog A	0.27
Q9BWH2	*FUND2*	FUN14 domain-containing protein 2	0.28
Q5RI15	*COX20*	Cytochrome c oxidase assembly protein COX20	0.31
P53597	*SUCA*	Succinate-CoA ligase	0.31
Q9BTX1	*NDC1*	Nucleoporin NDC1	0.33
P15529	*MCP*	Membrane cofactor protein (TLX)	0.35
Q8TEM1	*PO210*	Nuclear pore membrane glycoprotein 210	0.36
Q8NBX0	*SCPDL*	Saccharopine dehydrogenase-like oxidoreductase	0.37
Q9P2R7	*SUCB1*	Succinate-CoA ligase [ADP-forming] subunit beta	0.37
Q99661	*KIF2C*	Kinesin-like protein KIF2C	0.38
P02750	*A2GL*	Leucine-rich alpha-2-glycoprotein	0.39
Q6UN15	*FIP1*	Pre-mRNA 3'-end-processing factor FIP1	0.40
P11310	*ACADM*	Medium-chain specific acyl-CoA dehydrogenase	0.41
Q99798	*ACON*	Aconitate hydratase	0.42
P55809	*SCOT1*	Succinyl-CoA:3-ketoacid coenzyme A transferase 1	0.43
P08574	*CY1*	Cytochrome c1	0.44
O14672	*ADA10*	Disintegrin and metalloproteinase domain-containing protein 10	0.46
Q13438	*OS9*	Protein OS-9	0.46
Q16698	*DECR*	2,4-dienoyl-CoA reductase	0.48
Q92820	*GGH*	Gamma-glutamyl hydrolase	0.48
O75521	*ECI2*	Enoyl-CoA delta isomerase 2	0.50
Q9BV68	*RN126*	E3 ubiquitin-protein ligase RNF126	0.50
O75882	*ATRN*	Attractin	0.51
P11310	*CLMN*	Calmin	0.52
P11047	*LAMC1*	Laminin subunit gamma-1	0.54
P00568	*KAD1*	Adenylate kinase isoenzyme 1	0.54
P11177	*ODPB*	Pyruvate dehydrogenase E1 component subunit beta	0.55
O60502	*OGA*	Protein O-GlcNAcase	0.55
Q9NZ45	*CISD1*	CDGSH iron-sulfur domain-containing protein 1	0.56
O00483	*NDUA4*	Cytochrome c oxidase subunit NDUFA4	0.56
P06744	*G6PI*	Saccharopine dehydrogenase-like oxidoreductase	0.57
Q9H3G5	*CPVL*	Probable serine carboxypeptidase CPVL	0.58
P29218	*IMPA1*	Inositol monophosphatase 1	0.58
P17174	*AATC*	Aspartate aminotransferase	0.59
P28070	*PSB4*	Proteasome subunit beta type-4	0.60
P13987	*CD59*	CD59 glycoprotein	0.60
P25705	*ATPA*	ATP synthase subunit alpha	0.60
P57105	*SYJ2B*	Synaptojanin-2-binding protein	0.61
Q00765	*REEP5*	Receptor expression-enhancing protein 5	0.61
P07686	*HEXB*	Beta-hexosaminidase subunit beta	0.63
P0C7H8	*KAP2*	Keratin-associated protein 2-3	0.63
P0CO20	*PSA1*	Mannose-1-phosphate guanyltransferase	0.64
P13073	*COX41*	Cytochrome c oxidase subunit 4 isoform 1	0.67
Q96HR9	*REEP6*	Receptor expression-enhancing protein 6	0.68
Q12805	*FBLN3*	EGF-containing fibulin-like extracellular matrix protein 1	0.69
O00330	*ODPX*	Pyruvate dehydrogenase protein X component	0.71
Q86X27	*RGPS2*	Ras-specific guanine nucleotide-releasing factor RalGPS2	0.74
P54920	*SNAA*	Alpha-soluble NSF attachment protein	1.23

P07737	*PROF1*	Profilin-1	1.30
Q8WU68	*RS3*	Splicing factor U2AF 26 kDa subunit	1.32
O00231	*PSD11*	26S proteasome non-ATPase regulatory subunit 11	1.34
Q9H4A4	*AMPB*	Aminopeptidase B	1.35
P13639	*EF2*	Elongation factor 2	1.36
P62333	*PRS10*	26S proteasome regulatory subunit 10B	1.37
P14868	*SYDC*	Aspartate-tRNA ligase	1.47
Q02790	*FKBP4*	Peptidyl-prolyl cis-trans isomerase FKBP4	1.50
Q14204	*2AAA*	Cytoplasmic dynein 1 heavy chain 1	1.55
O75083	*WDR1*	WD repeat-containing protein 1	1.55
P15144	*RINI*	Aminopeptidase N	1.56
I3B4L0	*THIC*	Multifunctional fusion protein	1.57
P60228	*EIF3E*	Eukaryotic translation initiation factor 3 subunit E	1.57
Q8WZ82	*OVCA2*	Esterase OVCA2	1.61
P11413	*G6PD*	Glucose-6-phosphate isomerase	1.69
O43414	*ERI3*	ERI1 exoribonuclease 3	1.75
P49773	*HINT1*	Histidine triad nucleotide-binding protein 1	1.76
P60981	*DEST*	Destrin	1.77
Q96FW1	*OTUB1*	Ubiquitin thioesterase OTUB1	1.78
Q14247	*SRC8*	Src substrate cortactin	1.90
O95373	*IPO7*	Importin-7	1.94
Q7L1Q6	*BZW1*	Basic leucine zipper and W2 domain-containing protein 1	1.96
P50914	*RL14*	60S ribosomal protein L14	1.97
P47755	*CAZA2*	F-actin-capping protein subunit alpha-2	2.06
Q96RI0	*RL3*	Proteinase-activated receptor 4	2.12
P04839	*CY24B*	Cytochrome b-245 heavy chain	2.27
Q86V21	*AACS*	Acetoacetyl-CoA synthetase	2.28
Q0Q8R6	*CA123*	Capsid scaffolding protein	2.38
Q9NPQ8	*RIC8A*	Synembryn-A	2.44
O14880	*MGST3*	Microsomal glutathione S-transferase 3	2.91
Q7L1Q6	*TCAF1*	TRPM8 channel-associated factor 1	3.01
Q6P9B6	*TLDC1*	TLD domain-containing protein 1	3.14
Q8NBF2	*NHLC2*	NHL repeat-containing protein 2	3.14
P30626	*SORCN*	Sorcin	4.81

Table S2. Details of proteins reported in Figure 3 panel A. List of proteins up- and down-regulated in samples with low progressive motility with respect to high progressive motility group identified by LC-MS/MS analysis. Results are expressed as ratios of protein levels of severe asthenozoospermics to normozoospermics.

UniProt ID	Gene Name	Protein Name	Low/High
P04279	*SEMG1*	Semenogelin-1	0.00
P19801	*AOC1*	Amiloride-sensitive amine oxidase	0.10
Q9NW82	*WDR70*	WD repeat-containing protein 70	0.14
Q9H7C9	*AAMDC*	Mth938 domain-containing protein	0.16
P15529	*MCP*	Membrane cofactor protein	0.17
P82933	*RT09*	28S ribosomal protein S9	0.18
Q5RI15	*COX20*	Cytochrome c oxidase assembly protein COX20	0.22
P48509	*CD151*	CD151 antigen	0.24
Q12805	*FBLN3*	EGF-containing fibulin-like extracellular matrix protein 1	0.27
Q96S97	*MYADM*	Myeloid-associated differentiation marker	0.29
P21397	*AOFA*	Amine oxidase [flavin-containing] A	0.32
Q9ULC5	*ACSL5*	Long-chain-fatty-acid-CoA ligase 5	0.32
Q07954	*LRP1*	Prolow-density lipoprotein receptor-related protein 1	0.33

Q92820	*GGH*	Gamma-glutamyl hydrolase	0.33
P41235	*HNF4A*	Hepatocyte nuclear factor 4-alpha	0.35
Q9BTX1	*NDC1*	Nucleoporin NDC1	0.38
Q92621	*NU205*	Nuclear pore complex protein	0.38
Q14156	*EFR3A*	Protein EFR3 homolog A	0.39
Q9Y4F1	*FARP1*	FERM, ARHGEF and pleckstrin domain-containing protein 1	0.42
P36873	*PP1G*	Protein phosphatase 1 regulatory subunit 3A	0.42
O94915	*FRYL*	Protein furry homolog-like	0.44
Q9NRG9	*AAAS*	Aladin	0.44
Q8IYQ7	*THNS1*	Threonine synthase-like 1	0.45
Q96HR9	*REEP6*	Receptor expression-enhancing protein 6	0.48
Q86UP2	*KTN1*	Kinectin	0.48
P17174	*AATC*	Aspartate aminotransferase	0.48
P54709	*AT1B3*	Sodium/potassium-transporting ATPase subunit beta-3	0.49
Q5JRX3	*PREP*	Prolyl endopeptidase	0.50
Q00341	*VIGLN*	Vigilin	0.51
P51452	*DUS3*	tRNA-dihydrouridine(47) synthase	0.53
Q16610	*ECM1*	Extracellular matrix protein 1	0.54
P13861	*KAP2*	Keratin-associated protein 2-3	0.55
O75348	*VATG1*	V-type proton ATPase subunit G 1	0.55
P17612	*KAPCA*	cAMP-dependent protein kinase catalytic subunit alpha	0.58
P38117	*ETFB*	Electron transfer flavoprotein subunit beta	0.62
Q99798	*ACON*	Aconitate hydratase	0.63
P28070	*PSB4*	Proteasome subunit beta type-4	0.63
P10644	*KAP0*	cAMP-dependent protein kinase type I-alpha regulatory subunit	0.63
O14672	*ADA10*	Disintegrin and metalloproteinase domain-containing protein 10	0.63
Q9P2R7	*SUCB1*	Succinate-CoA ligase [ADP-forming] subunit beta	0.64
P11177	*ODPB*	Pyruvate dehydrogenase E1 component subunit beta	0.65
P55809	*SCOT1*	Succinyl-CoA:3-ketoacid coenzyme A transferase 1	0.66
P23786	*CPT2*	Carnitine O-palmitoyltransferase 2	0.67
O43837	*IDH3B*	Isocitrate dehydrogenase [NAD] subunit beta	0.68
P25705	*ATPA*	ATP synthase subunit alpha	0.68
P00492	*HPRT*	Hypoxanthine-guanine phosphoribosyltransferase	0.70
Q13011	*ECH1*	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase	0.85
P61160	*ARP2*	Actin-related protein 2	1.25
P12814	*ACTN1*	Alpha-actinin-1	1.25
O00231	*PSD11*	26S proteasome non-ATPase regulatory subunit 11	1.31
P07602	*SAP*	SH2 domain-containing protein 1A	1.34
Q9BR76	*COR1B*	Coronin-1B	1.35
P62249	*RS16*	40S ribosomal protein S16	1.40
P48723	*HSP13*	Heat shock 70 kDa protein 13	1.42
P18085	*ARF4*	ADP-ribosylation factor 4	1.45
P17980	*PRS6A*	26S proteasome regulatory subunit 6A	1.50

P23528	*COF1*	Cofilin-1	1.50
Q9HB40	*RISC*	Protein argonaute-2	1.52
Q14103	*HNRPD*	Heterogeneous nuclear ribonucleoprotein D0	1.55
P49773	*HINT1*	Histidine triad nucleotide-binding protein 1	1.58
Q96FW1	*OTUB1*	Ubiquitin thioesterase OTUB1	1.60
O60547	*GMDS*	GDP-mannose 4,6 dehydratase	1.62
Q9C037	*TRIM4*	E3 ubiquitin-protein ligase TRIM4	1.63
P30153	*2AAA*	Cytoplasmic dynein 1 heavy chain 1	1.66
O75369	*FLNB*	Protein disulfide-isomerase	1.72
P07237	*PDIA1*	Protein disulfide-isomerase	1.79
Q05655	*KPCD*	Protein kinase C delta type	1.79
P09525	*ANXA4*	Annexin A4	1.83
Q9Y2L1	*RRP44*	Exosome complex exonuclease RRP44	1.85
P60981	*DEST*	Destrin	1.91
P41252	*SYIC*	Isoleucine-tRNA ligase	1.93
Q05519	*SRS11*	Serine/arginine-rich splicing factor 11	1.97
P35625	*TIMP3*	Metalloproteinase inhibitor 3	2.06
Q3ZCQ8	*TIM50*	Mitochondrial import inner membrane translocase subunit TIM50	2.06
O14880	*MGST3*	Microsomal glutathione S-transferase 3	2.14
P54108	*CRIS3*	Cysteine-rich secretory protein 3	2.45
O14657	*TOR1B*	Torsin-1B	2.47
Q08209	*PP2BA*	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform	2.58
Q92905	*CSN5*	COP9 signalosome complex subunit 5	2.98
P09960	*LKHA4*	Leukotriene A-4 hydrolase	3.14
P21980	*TGM2*	Protein-glutamine gamma-glutamyltransferase 2	3.19
O95299	*NDUAA*	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10	3.44
P30626	*SORCN*	Sorcin	3.60
Q8TEK3	*DOT1L*	Histone-lysine N-methyltransferase	3.62
Q05639	*EF1A2*	Metalloproteinase inhibitor 3	3.87
Q9NZN4	*EHD2*	Protein Nef	5.43
O00148	*DX39A*	ATP-dependent RNA helicase DDX39A	5.43
Q9GZZ9	*UBA5*	Ubiquitin-like modifier-activating enzyme 5	5.71