

Proteomic profile of maternal aged blastocoel fluid suggests a novel role for ubiquitin system in blastocyst quality

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Table S3: List of proteins identified in group B by a shotgun approach. Previous identification: in the Table the proteins previously identified in human blastocoel fluid (16, 17) are indicated with a capital X, while x indicates gene products previously experimentally detected at the protein level as secreted and/or present in extracellular region and/or in exosome and/or in microvesicles according to public available databases and dataset (www.neXtProt.org, www.exocarta.org, microvesicle.org, geneontology.org, www.proteinatlas.org, 29) or at the gene expression level from microarray data (16, 30) or at the transcription level in blastocystis or embryonic tissue according to <http://genomewidepdb.proteomix.org> or <https://www.ncbi.nlm.nih.gov/geoprofiles> databases. The table lists only the proteins present and quantified in at least 3 out of 5 technical repeats using a false positive rate of 0.05 and minimum peptide length 9 amino acids, reporting in a column the proteins identified with FDR 0.01.

Protein IDs	Protein names	Gene names	PEP	Razor + unique peptides	FDR 1%	Previous identification
P12273	Prolactin-inducible protein	PIP	5.24E-06	2	X	X
Q8NBJ4	Golgi membrane protein 1	GOLM1	0.018711	1	X	x
P01040	Cystatin-A	CSTA	1.22E-08	2	X	X
P20382	Pro-MCH;Neuropeptide-glycine-glutamic acid	PMCH	0.002462	1	X	x
Q8TE76	MORC family CW-type zinc finger protein 4	MORC4	0.018241	1	X	x
Q8TE56	A disintegrin and metalloproteinase with thrombospondin motifs 17	ADAMTS17	0.022011	1	X	x
D6R956	Ubiquitin carboxyl-terminal hydrolase isozyme L1	UCHL1	0.004585	1		X
O95202	LETM1 and EF-hand domain-containing protein 1, mitochondrial	LETM1	0.028673	1		x
Q9UGM3	Deleted in malignant brain tumors 1 protein	DMBT1	0.006933	1	X	X
P31025	Lipocalin-1;Putative lipocalin 1-like protein 1	LCN1;LCN1P1	1.85E-55	2	X	X
Q6UWP8	Suprabasin	SBSN	0.000208	1	X	X
Q9BR77	Coiled-coil domain-containing protein 77	CCDC77	0.009722	1	X	x
Q96RW7	Hemicentin-1	HMCN1	0.024825	1	X	x
P31151	Protein S100-A7;Protein S100-A7A	S100A7;S100A7A	3.14E-51	4	X	X
H0Y7A7	Calmodulin	CALM2;CALM1	0.005618	1	X	x
Q6GMR7	Fatty-acid amide hydrolase 2	FAAH2	0.02707	1	X	x
P19021	Peptidyl-glycine alpha-amidating monooxygenase	PAM	0.029696	1		x
O94788-3	Isoform 3 of Retinal dehydrogenase 2	ALDH1A2	0.026311	1	X	x
Q5VW26	Nuclear factor 1;Nuclear factor 1 B-type	NFIB	0.01383	1		x
Q9BV73	Centrosome-associated protein CEP250	CEP250	0.025154	1		X
Q9NZT1	Calmodulin-like protein 5	CALML5	8E-153	4	X	X
P81605	Dermcidin;Survival-promoting peptide;DCD-1	DCD	4.24E-08	2	X	X

Q6PGQ7	Protein aurora borealis	BORA;FLJ22624	0.03061	1	X	x
C9K0L2	Maestro heat-like repeat-containing protein family member 7	HEATR8	0.030121	1	X	
P61626	Lysozyme C	LYZ	2.78E-23	1	X	X
Q8N8E3	Centrosomal protein of 112 kDa	CEP112	0.008359	1	X	
Q9BY89	Uncharacterized protein	KIAA1671	0.012704	1		x
Q96F24-2	Nuclear receptor-binding factor 2	NRBF2	0.005732	1	X	x
E7ERA6	RING finger protein 223	RNF223	0.028835	1	X	
F8W8U3	Homeobox protein Meis1	MEIS1	0.031584	1		x
P0CG48	Polyubiquitin-C;Ubiquitin;Polyubiquitin-B	UBC;UBB	0.001463	1	X	X
Q6JVE6	Epididymal-specific lipocalin-10	LCN10	0.027122	1		x
Q9HCJ0	Trinucleotide repeat-containing gene 6C protein	TNRC6C	0.02214	1	X	x
F8W878	Brain-specific angiogenesis inhibitor 1-associated protein 2	BAIAP2	0.018041	1	X	x
P05109	Protein S100-A8	S100A8	3.51E-69	2	X	X
Q13635-4	Isoform S of Protein patched homolog 1	PTCH1	0.0054	1	X	x
Q8NBP5	Major facilitator superfamily domain-containing protein 9	MFSD9	0.024966	1	X	x
F8WCM5	Insulin;Insulin B chain;Insulin A chain	INS-IGF2;INS	6.49E-07	1	X	X
G8JLG2	Corneodesmosin	CDSN	0.018446	1		X
P01566	Interferon alpha-10;Interferon alpha-21	IFNA10;IFNA21	0.03168	1	X	x
P22732	Solute carrier family 2, facilitated glucose transporter member 5	SLC2A5	0.028098	1		x
Q8TAL5	Uncharacterized protein C9orf43	C9orf43	0.028085	1		x
J3KNN1	Polypeptide N-acetylgalactosaminyltransferase 9	GALNT9	0.024813	1	X	
Q02413	Desmoglein-1	DSG1	2.58E-31	2	X	X
Q8NI35-5	Isoform 5 of InaD-like protein	INADL	0.018277	1		x
G3V314	Ena/VASP-like protein	EVL	0.03031	1		x
Q12972-3	Isoform Gamma of Nuclear inhibitor of protein phosphatase 1	PPP1R8	0.031102	1		x
Q9HCE0	Ectopic P granules protein 5 homolog	EPG5	0.030831	1		x
Q76G19	PDZ domain-containing protein 4	PDZD4	5.95E-15	2	X	x
Q5T749	Keratinocyte proline-rich protein	KPRP	5.50E-12	5	X	X
H3BUN7	SH2B adapter protein 1	SH2B1	0.017553	1	X	x
H0YNB0	Unconventional myosin-Ie	MYO1E	0.022468	1		x
J3KMZ5	Serotonin N-acetyltransferase	AANAT	0.014783	1		x
P28290	Sperm-specific antigen 2	SSFA2	0.015064	1	X	x
Q6ZU67	BEN domain-containing protein 4	BEND4	0.029939	1		x
Q9H1N7	Adenosine 3-phospho 5-phosphosulfate transporter 2	SLC35B3	0.023363	1		x
P05060	Secretogranin-1;GAWK peptide;CCB peptide	CHGB	0.023689	1	X	x
Q9NZL9-5	Isoform 5 of Methionine	MAT2B	0.02745	1		x

	adenosyltransferase 2 subunit beta					
Q9UHD9	Ubiquilin-2	UBQLN2	0.02898	1	X	x
Q96NH3	Protein broad-minded	BROMI;C6orf170	0.011429	1	X	x
A6NKX1	Putative uncharacterized protein CXorf52B	NCRNA00204	0.028229	1	X	
B4DR52	Histone H2B;Histone H2B type 1-K	HIST2H2BF;HIST1H2BK	4.95E-25	1	X	X
B4DYB5	cDNA FLJ53372	SPAG16	0.025535	1		
B7Z8Z7	RNA-binding protein 47	RBM47	0.02829	1		x
P06454	Prothymosin alpha;Thymosin alpha-1	PTMA	0.001343	1	X	X
Q9UJ42	Probable G-protein coupled receptor 160	GPR160	0.009327	1	X	x
C9JH18	PERQ amino acid-rich with GYF domain-containing protein 2	GIGYF2	0.000158	2		x
C9JSC0	POU domain, class 6, transcription factor 2	POU6F2	0.029639	1		x
Q96BQ5	Coiled-coil domain-containing protein 127	CCDC127	0.031674	1	X	x
E7ENK3	Glutamate receptor, ionotropic kainate 1	GRIK1	0.027858	1		x
Q13201	Multimerin-1;Platelet glycoprotein Ia*;155 kDa platelet multimerin	MMRN1	0.024454	1	X	x
P04406	Glyceraldehyde-3-phosphate dehydrogenase	GAPDH	2.45E-07	3	X	X
P11532	Dystrophin	DMD	0.015725	1		x
E9PQB1	Serine/arginine repetitive matrix protein 5	SRRM5	0.015627	1	X	x
Q96DR8	Mucin-like protein 1	MUCL1	0.010421	1	X	X
F8WAU4	Elongation factor G, mitochondrial	GFM1	0.014496	1	X	x
Q9P0W5-4	Schwannomin-interacting protein 1	SCHIP1	0.028326	1		x
H0Y3T1	Protein CROC-4	C1orf61	0.031572	1		x
P14618	Pyruvate kinase isozymes M1/M2;Pyruvate kinase	PKM2	0.000118	2	X	X
Q96ST8	Centrosomal protein of 89 kDa	CEP89	0.03077	1		x
K7EKM7	Small integral membrane protein 24	SMIM24	0.009651	1	X	x
M0QXR7	Leucine-rich repeat-containing protein 63	LRRC63	0.020219	1		
O00555	Voltage-dependent P/Q-type calcium channel subunit alpha- 1A	CACNA1A	0.000283	2	X	
O75553-5	Disabled homolog 1	DAB1	0.029822	1		x
O75665	Oral-facial-digital syndrome 1 protein	OFD1	0.000409	2		x
P16104	Histone H2A.x;Histone H2A type 1-A	H2AFX;HIST1H2AA	1.95E-29	2	X	X
P05089	Arginase-1	ARG1	0.000272	2	X	X
P06702	Protein S100-A9	S100A9	8.91E-09	3	X	X
P06733	Alpha-enolase	ENO1	2.54E-06	2	X	X

P14923	Junction plakoglobin	JUP	5.14E-15	2	X	X
P15924	Desmoplakin	DSP	3.07E-21	7	X	X
P31944	Caspase-14;Caspase-14 subunit p19;Caspase-14 subunit p10	CASP14	3.99E-26	4	X	X
P48431	Transcription factor SOX-2	SOX2	0.027433	1	X	x
P51654	Glypican-3;Secreted glypican-3	GPC3	0.031467	1		x
P52740	Zinc finger protein 132	ZNF132	0.002584	1	X	x
P62805	Histone H4	HIST1H4A	0.006819	1	X	X
Q05639	Elongation factor 1-alpha 2;Elongation factor 1-alpha 1;	EEF1A2;EEF1A1	0.000444	1	X	X
Q01469	Fatty acid-binding protein, epidermal	FABP5	1.08E-24	2	X	X
Q08188	Protein-glutamine gamma-glutamyltransferase E;	TGM3	0.011907	1		X
Q08554	Desmocollin-1	DSC1	2.80E-06	3	X	X
Q12778	Forkhead box protein O1	FOXO1	0.007693	1		x
Q13164-4	Mitogen-activated protein kinase 7	MAPK7	0.027772	1	X	x
Q13422-4	DNA-binding protein Ikaros	IKZF1	0.021892	1		
Q14764	Major vault protein	MVP	1.25E-07	4	X	X
Q15147	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase beta-4	PLCB4	1.58E-19	2		x
Q5D862	Filaggrin-2	FLG2	0.000426	2		X
Q5HYA8	Meckelin	TMEM67	0.010896	1		x
Q5HYK7	SH3 domain-containing protein 19	SH3D19	0.012887	1	X	x
Q5J5C9	Beta-defensin 121	DEFB121	0.031279	1		x
Q5T750	Skin-specific protein 32	XP32	0.016572	1		X
Q5TA76	Late cornified envelope protein 3A	LCE3A	0.024214	1		
Q9UJQ4	Sal-like protein 4	SALL4	0.024516	1		x
Q86YZ3	Hornerin	HRNR	3.22E-10	2	X	X
Q8N139	ATP-binding cassette sub-family A member 6	ABCA6	0.014869	1	X	x
Q9BTT4	Mediator of RNA polymerase II transcription subunit 10	MED10	0.003212	1	X	x
Q9H6A9	Pecanex-like protein 3	PCNXL3	0.018665	1		x