

10.1071/RD15481_AC

© CSIRO 2017

Supplementary Material: *Reproduction, Fertility and Development*, 2017, 29(6), 1085–1095.

Supplementary Material

Proteome of equine oviducal fluid: effects of ovulation and pregnancy

Katrien Smits^{A,C}, Hilde Nelis^A, Katleen Van Steendam^B, Jan Govaere^A, Kim Roels^A, Cyrillus Ververs^A, Bart Leemans^A, Eline Wydooghe^A, Dieter Deforce^B and Ann Van Soom^A

^ADepartment of Reproduction, Obstetrics and Herd Health, Faculty of Veterinary Medicine, Ghent University, Salisburylaan 133, 9820 Merelbeke, Belgium.

^BLaboratory of Pharmaceutical Biotechnology, Faculty of Pharmaceutical Sciences, Ghent University, Ottergemsesteenweg 460, 9000 Gent, Belgium.

^CCorresponding author. Email: katrien.smits@ugent.be

Table S1. Total list of proteins detected with iTRAQ-HPLC-MS/MS in oviducal fluid of 4 days pregnant and non-pregnant mares

The protein name and the gene name or locus are tabulated.

Protein	Gene/Locus	Protein	Gene/Locus
14-3-3 protein epsilon	YWHAE	Leucine zipper transcription factor-like protein 1	LZTFL1
26S protease regulatory subunit 6A	PSMC3	Leucine-rich repeat and guanlylate kinase domain-containing protein	LRGUK
28S ribosomal protein S7, mitochondrial	MRP57	Leucine-rich repeat serine/threonine-protein kinase 1	LRRK1
2-amino-3-ketobutyrate coenzyme A ligase, mitochondrial	GCAT	LIM and SH3 protein 1	LASP1
39S ribosomal protein L3, mitochondrial	MRPL3	LIM domain only protein 7	LMO7
40S ribosomal protein S12-like	LOC10063804	liver carboxylesterase-like	LOC100050992
40S ribosomal protein S13	RPS13	liver carboxylesterase-like	LOC100051065
40S ribosomal protein S18	RPS18	L-lactate dehydrogenase A chain	LDHA
40S ribosomal protein S19	RPS19	L-lactate dehydrogenase B chain	LDHB
40S ribosomal protein S28	RPS28	Lymphatic vessel endothelial hyaluronin acid receptor 1	LYVE1
60S acidic ribosomal protein P2	RPLP2	Macrophage migration inhibitory factor	MIF
60S ribosomal protein L10a	RPL10A	malate dehydrogenase 1, NAD (soluble)	MDH1
60S ribosomal protein L11	RPL11	Male-specific lethal 3 homolog	MIS13
60S ribosomal protein L21-like	LOC100061551	MAP kinase-activated protein kinase 5	MAPKAPK5
60S ribosomal protein L27	RPL27	MAP/microtubule affinity-regulating kinase 4	MARK4
60S ribosomal protein L5	RPL5	megakaryocyte-associated tyrosine kinase	MATK
60S ribosomal protein L7-like	LOC100146711	melanoma-associated antigen B1-like	LOC100051728
6-phosphofructokinase, liver type	PFKL	melanoma-associated antigen F1-like	LOC100067405
Abhydrolase domain-containing protein 14B	ABHD14B	Metabotropic glutamate receptor 6	GRM6
Acidic leucine-rich nuclear phosphoprotein 32 family member A	ANP32A	Metal-response element-binding transcription factor 2	MTF2
Actin, cytoplasmic 1	ACTB	Methylenetetrahydrofolate dehydrogenase	MTHFD1
Actin-related protein 2/3 complex subunit 3	ARPC3	Microtubule-associated protein 4	MAP4
Actin-related protein 2/3 complex subunit 5	ARPC5	Mismatch repair endonuclease PMS2	PMS2
Activation peptide fragment 1	F2	myeloid cell nuclear differentiation antigen-like protein-like	LOC100056988
Acylamino-acid-releasing enzyme	APEH	Myoferlin	MYOF
Acyl-CoA-binding protein	DBI	Myomegalin	PDE4DIP
Adenosine kinase	ADK	Myosin light polypeptide 6	ADL6
adenosylhomocysteinease-like	LOC100054381	myosin regulatory light polypeptide 9-like	LOC100051370
adenylate kinase 1	AK1	myosin VA (heavy chain 12, myosin)	MYOSA
Adenylyl cyclase-associated protein 1	CAP1	Myosin-9	MYH9
Alcohol dehydrogenase [NADP(+)]	AKR1A1	Myotrophin	MTPN
alcohol dehydrogenase-E isoenzyme	LOC100034242	NAD(P)H-hydrate epimerase	AP0A18P
alkaline phosphatase, liver/bone/kidney	ALPL	Nck-associated protein 1	NCKAP1
alpha-1-acid glycoprotein 2-like	LOC100051562	Nebulette	NEBL
alpha-1-antitrypsinase 2-like	LOC100065191	Nebulin	NEB
alpha-1-B glycoprotein	A1BG	Nesprin-1	SYNE1
Alpha-1-microglobulin	AMBP	Neuroblast differentiation-associated protein AHNAK	AHNAK
alpha-2-HS-glycoprotein	AHSG	Neuron navigator 3	NAV3
alpha-2-macroglobulin-like	LOC100061692	neuronal tyrosine-phosphorylated phosphoinositide-3-kinase adaptor 2	NIYAP2
Alpha-actinin-1	ACTN1	Neuropilin-2	NRP2
Alpha-adducin	ADD1	Neutrophil gelatinase-associated lipocalin	LCN2
Alpha-catulin	CTNNA1	Nitric oxide synthase, brain	NOS1
Alpha-crystallin B chain	CRYAB	Nogo-B receptor	NU51
Alpha-enolase	ENO1	NRDE-2, necessary for RNA interference, domain containing	NRDE2
ALX homeobox protein 1	ALX1	NSFL1 (p97) cofactor (p47)	NSFL1C
Aminoacylase-1	ACY1	Nuclear migration protein nudC	NUDC
Amyloid beta A4 precursor protein-binding family A member 2	APBA2	Nuclear receptor corepressor 1	NCOR1
Angiopoietin-related protein 2	ANGPTL2	Nuclear receptor subfamily 2 group E member 1	NR2E1
Ankyrin repeat and SOCS box protein 2	ASB2	Nuclear receptor subfamily 5 group A member 2	NRS2A2
Annexin A1	ANXA1	Nuclear transport factor 2	NUTF2
Annexin A11	ANXA11	Nucleolar protein 4	NOLA4
Annexin A2	ANXA2	Nucleolin	NCL
annexin A4	ANXA4	nucleophosmin (nucleolar phosphoprotein B23, numatrin)	NPM1
Annexin A5	ANXA5	Nucleoside diphosphate kinase B	NME2
Annexin A8	ANXA8	olfactory receptor 12D2-like	LOC100057387
Anoctamin-2	ANO2	olfactory receptor 49I-like	LOC100070697
Antithrombin-III	SERPINC1	olfactory receptor 49J-like	LOC100056576
AP-2 complex subunit alpha-1	AP2A1	Orexin receptor type 2	HCRTR2
apolipoprotein A-I	APOA1	Otoancorin	OTOA
Apolipoprotein A-II	APOA2	Pantetheinase	VNN1
Arf-GAP with Rho-GAP domain, ANK repeat and PH domain-containing protein 2	ARAP2	peptidyl-prolyl cis-trans isomerase A-like	LOC100052020
Arf-GAP with SH3 domain, ANK repeat and PH domain-containing protein 3	ASAP3	Peptidyl-prolyl cis-trans isomerase D	PPID
Arginine--tRNA ligase, cytoplasmic	RARS	peroxiredoxin 5	PRDX5
Armadillo repeat-containing protein 4	ARM4C4	Peroxiredoxin-1	PRDX1
asparagine synthetase (glutamine-hydrolyzing)	ASNS	Peroxiredoxin-6	PRDX6
ATP-binding cassette sub-family B member 7, mitochondrial	ABCB7	PH domain leucine-rich repeat-containing protein phosphatase 2	PHLPP2
AT-rich interactive domain-containing protein 1B	ARID1B	Phenylalanine-4-hydroxylase	PAH
Bardet-Biedl syndrome 10 protein	BBS10	Phosphatidylinositol 3-kinase catalytic subunit type 3	PIK3C3
Basic helix-loop-helix domain-containing protein KIAA2018	KIAA2018	Phosphatidylinositol 4-kinase alpha	PI4KA
Basic leucine zipper and W2 domain-containing protein 1	BZW1	phosphatidylinositol transfer protein, alpha	PITPNA
Beta-2-glycoprotein 1	APOH	Phosphoglucomutase-1	PGM1
Beta-2-microglobulin	B2M	phosphogluconate dehydrogenase	PGD
Beta-galactoside alpha-2,6-sialyltransferase 1	ST6GAL1	phosphoglycerate mutase 1 (brain)	PGAM1
Beta-nerve growth factor	NGF	Phospholipid scramblase 3	PLS3
Bifunctional glutamate/proline--tRNA ligase	EPRS	Phospholipid transfer protein	PLTP
Bifunctional purine biosynthesis protein PURH	ATIC	Plasma protease C1 inhibitor	SERPINC1
Bloom syndrome protein	BLM	Plastin-3	PLS3
brain abundant, membrane attached signal protein 1	BASP1	Platelet-activating factor acetylhydrolase IB subunit gamma	PAFAH1B3
C4A protein	C4A	Plectrostrin homology domain-containing family H member 2	PLEKHH2
Calcyphosin	CAPS	Plectrostrin homology domain-containing family M member 3	PLEKHM3
Calmin	CLMN	plectin	PLEC
calmodulin 1 (phosphorylase kinase, delta)	CALM1	Plexin-A1	PLXNA1
Calpain small subunit 1	CAPNS1	Poly(U)-binding-splicing factor PUF60	PYF60
Calpastatin	CAST	Polyubiquitin-C	UBC
Calreticulin	CALR	Potassium voltage-gated channel subfamily G member 4	KCNMG4
Carbonic anhydrase 1	CA1	PR domain containing 11	PRDM11
Carbonic anhydrase 2	CA2	Probable G-protein coupled receptor 113	GPCR113
Carboxypeptidase A1	CPA1	Probable G-protein coupled receptor 179	GPCR179
Carboxypeptidase A4	CPA4	Probable G-protein coupled receptor 21	GPCR21
Carnitine O-palmitoyltransferase 1, liver isoform	CPT1A	Probable phospholipid-transporting ATPase 1H	ATP11A
Catalase	CAT	profilin-1-like	LOC100060955
CD109 antigen	CD109	Programmed cell death 6-interacting protein	PDC6IP
cDNA FLJ58172, highly similar to Zinc finger protein 238	PSMA1	Proliferation-associated protein 2G4	PA2G4
cDNA FLJ60450, highly similar to OTU domain-containing protein 6B	PSMA1	proteasome (prosome, macropain) 26S subunit, ATPase, 6	PSMC6
cDNA FLJ61231, highly similar to Apoptosis-stimulating of p53 protein 2	PSMA1	proteasome (prosome, macropain) subunit, alpha type, 6	PSMA6
cell division cycle 42	CDC42	proteasome (prosome, macropain) subunit, alpha type, 7	PSMA7
Centriolar coiled-coil protein of 110 kDa	CCP110	Proteasome activator complex subunit 1	PSME1
Centriolin	CNTRL	Proteasome subunit alpha type	PSMA1
Centromere/kinetochore protein zw10 homolog	ZW10	Proteasome subunit alpha type-1	PSMA1
Centrosomal protein of 112 kDa	CEP112	Proteasome subunit alpha type-3	PSMA3
Centrosomal protein of 70 kDa	CEP70	Proteasome subunit beta type-2	PSMB2
Ceruloplasmin	CP	Protein atonal homolog 8	ATOH8
chaperonin containing TCP1, subunit 8 (theta)	CCT8	Protein CuiA	CUTA
Chloride intracellular channel protein 1	CLIC1	Protein disulfide-isomerase A3	PDIA3
chromosome 11 open reading frame, human C17orf59	C11H17orf59	Protein DJ-1	PARK7
Cingulin-like protein 1	CNGL1	Protein FAM162A	FAM162A
Clathrin heavy chain 1	CLTC	Protein FAM3C	FAM3C
Cleavage and polyadenylation specificity factor subunit 3	CPSF3	Protein KIAA1199	KIAA1199
Clusterin	CLU	Protein mab-21-like 1	MAB21L1
Coactosin-like protein	COTL1	protein phosphatase 2A activator, regulatory subunit 4	PPP2R4
Coatmer subunit gamma-1	COPG1	Protein PRRC2B	PRRC2B
Cofilin-1	CFIL1	Protein SET	SET
coiled-coil domain containing 178	CCDC178	Protein tyrosine phosphatase domain-containing protein 1	PTPDC1
Coiled-coil domain-containing protein 22	CCDC22	Protein YIPF3	YIPF3

Protein	Gene/Locus	Protein	Gene/Locus
Coiled-coil-helix-coiled-coil-helix domain-containing protein 1	CHCHD1	prothymosin alpha-like	LOC100054201
Complement C1q tumor necrosis factor-related protein 5	C1QTNF5	Pseudouridylate synthase 7 homolog	PUS7
Complement C4 gamma chain	C4A	purine nucleoside phosphorylase-like	LOC100058767
Complement C4 gamma chain	C4A	Putative ATP-dependent RNA helicase TDRD9	TDRD9
Complement C4 gamma chain	C4A	Putative Polycomb group protein ASXL3	ASXL3
Complement factor B	CFB	PWWP domain-containing protein 2B	PWWP2B
Complement factor B	CFB	Pyruvate carboxylase, mitochondrial	PC
Complement factor B	CFB	RaIA-binding protein 1	RBP1
Creatine kinase B-type	CKB	RANBP1	RANBP1
Cullin-associated NEDD8-dissociated protein 1	CAND1	Ras GTPase-activating-like protein IQGAP1	IQGAP1
CWF19-like protein 2	CWF19L2	ras-related protein Rap-1A-like	LOC100049912
Cystatin-B	CSTB	renin binding protein	RENBP
cystatin-B-like	LOC100050835	Retinal dehydrogenase 1	ALDH1A1
cysteine and glycine-rich protein 1	CSRP1	Retinal dehydrogenase 2	ALDH1A2
cysteine-rich protein 2	CRIP2	Retinol-binding protein 1	RBP1
cytidine monophosphate (UMP-CMP) kinase 1, cytosolic	CMPK1	Rho GDP-dissociation inhibitor 1	ARHGDIAB
Cytokine receptor common subunit beta	CSF2RB	Rho GDP-dissociation inhibitor 2	ARHGDI8
Cytosolic carboxypeptidase-like protein 5	AGBL5	Rho GTPase-activating protein 18	ARHGAP27
Cytosolic non-specific dipeptidase	CNDP2	Rho GTPase-activating protein 27	ARHGAP18
D-3-phosphoglycerate dehydrogenase	PHGDH	Rho GTPase-activating protein 30	ARHGAP30
Dedicator of cytokinesis protein 6	DOCK6	ribosomal protein S17-like	RPS17L
Dedicator of cytokinesis protein 9	DOCK9	ribosomal protein S3A	RPS3A
desumoylating isopeptidase 2	DES12	RuvB-like 2	RUVBL2
dihydroorotate dehydrogenase (quinone)	DHODH	Selenium-binding protein 1	SELENBP1
Dihydropyrimidinase-related protein 2	DPYSL2	Septin-2	SEPT2
DNA helicase INO80	INO80	Serine palmitoyltransferase 2	SPTLC2
Dynein heavy chain 5, axonemal	DNAH5	Serine/threonine-protein kinase 10	STK10
Dynein heavy chain 8, axonemal	DNAH8	Serine/threonine-protein kinase 32C	STK32C
Dynein heavy chain 9, axonemal	DNAH9	Serine/threonine-protein kinase ATR	ATR
dynein, axonemal, heavy chain 7	DNAH7	Serine/threonine-protein kinase Nek2	NEK2
dynein, cytoplasmic 1, intermediate chain 2	DYNC1I2	Serine/threonine-protein kinase RIO2	RIO2
E3 ubiquitin-protein ligase BRE1A	RNF20	serine/threonine-protein phosphatase 2A 65 kDa regulatory subunit A alpha isoform-1	LOC100062627
E3 ubiquitin-protein ligase HUWE1	HUWE1	Serotonin	TF
E3 ubiquitin-protein ligase rifyflin	RFFL	serpin A3-B8-like	LOC100053600
EF-hand domain family, member D2	EFHD2	Serpin B9	SERPINB9
ELAV-like protein 2	ELAVL2	Serpin I2	SP12
ELL associated factor 2	EAF2	Serum albumin	ALB
Elongation factor 1-alpha 1	EEF1A1	S-formylglutathione hydrolase	ESD
Elongation factor 1-gamma	EEF1G	SH2 domain-containing protein 7	SH2D7
Elongation factor 2	EEF2	short transient receptor potential channel 2-like	LOC100066249
Endophilin-A3	SH3GL3	Signal peptidase complex subunit 3	SPCS3
Endothelial differentiation-related factor 1	EDF1	signal transducer and activator of transcription 1-like	LOC100069633
ERI1 exonuclease 3	ER13	similar to FLJ44048 protein	LOC100068571
Eukaryotic initiation factor 4A-I	EIF4A1	similar to histone H4	LOC100053083
Eukaryotic initiation factor 4A-II	EIF4A2	similar to Histone H4 replacement CG3379-PC	LOC100053130
Eukaryotic translation initiation factor 2-alpha kinase 4	EIF2AK4	similar to interferon activated gene 203	LOC100057060
Eukaryotic translation initiation factor 5A-1	EIF5A	similar to MAGE-B1	LOC100051788
Exportin-5	XPO5	similar to ubiquitin-conjugating enzyme Ubch7	LOC100057218
Extracellular matrix protein 1	ECM1	SLIT and NTRK-like protein 4	SLITRK4
Ezrin	EZR	snRNA-activating protein complex subunit 4	SNAPC4
F-actin-capping protein subunit alpha-2	CAPZA2	solute carrier family 15 member 2	SLC15A2
family with sequence similarity 134, member C	FAM134C	solute carrier family 25 (mitochondrial carrier, brain), member 14	SLC25A14
family with sequence similarity 198, member A	FAM198A	solute carrier family 43 (amino acid system L transporter), member 2	SLC43A2
family with sequence similarity 35, member A	FAM35A	solute carrier family 51, alpha subunit	SLCS1A
F-box protein 16	FBXO16	Somatostatin	VTN
ferritin H subunit	FT	Somatostatin	SMS
ferritin, heavy polypeptide 1-like	LOC100051036	Sorting nexin-2	SNX2
Fetuin-B	FETUB	SPARC-like protein 1	SPARCL1
FGFR1 oncogene partner	FGFR1OP	sperm associated antigen 7	SPAG7
Fibrinogen alpha chain	FGA	Spermine synthase	SMS
Fibrinogen beta chain	FGB	Spliceosome RNA helicase DDX39B	DDX39B
Fibrinogen gamma chain	FGG	Spliceosome RNA helicase DDX39B	DDX39B
Fibrocystin-L	PKHD1L1	Squalene monooxygenase	SQLE
fibrous sheath interacting protein 2	FSIP2	Starch-binding domain-containing protein 1	STBD1
Filamin-A	FLNA	stress-induced-phosphoprotein 1	STIP1
FK506 binding protein 4, 59kDa	FKBP4	SUMO1 activating enzyme subunit 1	SAE1
Formin-like protein 3	FMNL3	Superoxide dismutase [Cu-Zn]	SOD1
Fructose-bisphosphate aldolase A	ALDOA	Supervillin	SVIL
G patch domain containing 8	GPATCH8	Symplekin	SYMPLK
G protein-coupled receptor, family C, group 5, member B	GPRC5B	Synaptotagmin-2	SYNJ2
Galectin-3-binding protein	LGALS3BP	Synaptosomal-associated protein 29	SNAP29
Gamma-synuclein	SNCG	Talin-1	TLN1
GDP dissociation inhibitor 1	GDI1	T-complex protein 1 subunit alpha	TCP1
GDP-L-fucose synthase	TSTA3	T-complex protein 1 subunit beta	CCT2
Gelsolin	GSN	T-complex protein 1 subunit epsilon	CCT5
General transcription factor IIH subunit 1	GTTF2H1	T-complex protein 1 subunit gamma	CCT3
Glutathione peroxidase 1	GPX1	T-complex protein 1 subunit zeta	CCT6A
Glutathione S-transferase A1	GSTA1	Terminal uridylyltransferase 4	ZCCHC11
glutathione S-transferase A2-like	LOC100056506	Testis-specific serine/threonine-protein kinase 4	TSSK4
Glutathione S-transferase A4	GSTA4	Tetratricopeptide repeat protein 25	TTC25
glutathione S-transferase Mu 1-like	LOC100058290	Tetratricopeptide repeat protein 37	TTC37
glutathione S-transferase mu 3 (brain)	GSTM3	Tetratricopeptide repeat protein 39C	TTC39C
glutathione S-transferase Mu 4-like	LOC100058329	Thioredoxin	TXN
Glutathione S-transferase omega-1	GSTO1	Thioredoxin domain-containing protein 17	TXNDC17
glutathione S-transferase P-like	LOC100053249	Thioredoxin-dependent peroxide reductase, mitochondrial	PRDX3
glyceraldehyde-3-phosphate dehydrogenase-like	LOC100050395	THO complex subunit 5 homolog	THOCS
glyceraldehyde-3-phosphate dehydrogenase-like	LOC100054877	Tissue factor	TF
Glycerol-3-phosphate acyltransferase 4	AGPAT5	TNF receptor-associated protein 1	TRAP1
Glyoxalase domain-containing protein 4	GLOD4	toll interacting protein	TOLLIP
Growth arrest-specific protein 6	GAS6	transaldolase 1	TALDO1
Haptoglobin	HP	Transcription factor SOX-13	SOX13
Headcase protein homolog	HDC	transcription factor SPT20 homolog	LOC100060756
Heat shock cognate 71 kDa protein	HSPA8	transcription initiation factor TFIIID subunit 1	TAF1
Heat shock protein 105 kDa	HSPH1	transcription initiation factor TFIIID subunit 11-like	LOC100069869
Heat shock protein beta-1	HSPB1	Transcriptional adapter 2-alpha	TADA2A
Heat shock protein HSP 90-alpha	HSP90AA1	Transcriptional repressor CTCF	CTCF
helt bHLH transcription factor	HELT	Transgelin	TAGLN
Hematopoietic system regulatory peptide	TMSB4X	transgelin 2	TAGLN2
Hemoglobin subunit alpha	HBA	transglutaminase 2	TGM2
Hemoglobin subunit beta	HBB	Transient receptor potential cation channel subfamily V member 5	TRPV5
Hemopexin	HPX	Transketolase	TKT
Heparin cofactor 2	SERPIND1	Translationally-controlled tumor protein	TTP1
Hepatocyte cell adhesion molecule	HEPACAM	Transmembrane protein 63A	TMEM63A
Hephaestin-like protein 1	HEPHL1	Triosephosphate isomerase	TP1
Heterogeneous nuclear ribonucleoprotein A1	HNRNPA1	tripeptidyl peptidase I	TPP1
Heterogeneous nuclear ribonucleoprotein K	HNRNPK	tripeptidyl-peptidase 2	TPP2
heterogeneous nuclear ribonucleoprotein M	HNRNPM	trophinin	TRO
Heterogeneous nuclear ribonucleoprotein U	HNRNPU	Tropomyosin alpha-3 chain	TPM3
Heterogeneous nuclear ribonucleoproteins A2/B1	HNRNPA2B1	Tropomyosin alpha-4 chain	TPM4
High mobility group protein B1	HMGB1	tubulin alpha-1A chain-like	LOC100059091
High mobility group protein B2	HMGB2	Tubulin beta chain	TUBB
Hippocampal cholinergic neurostimulating peptide	PEBP1	tubulin beta-5 chain-like	LOC100058421
Histidine decarboxylase	HDC	Tubulin polymerization-promoting protein family member 3	TPP3
histone H1.2-like	LOC100053307	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein, zeta pol	VWHAZ

Protein	Gene/Locus	Protein	Gene/Locus
histone H2A type 1-like	LOC100147394	Tyrosine-protein kinase Mer	MERTK
histone H2B type 1-like	LOC100630424	U5 small nuclear ribonucleoprotein 200 kDa helicase	SNRNP200
histone H4-like	LOC100630823	Ubiquitin carboxyl-terminal hydrolase 14	USP14
Histone-lysine N-methyltransferase SETD1A	SETD1A	Ubiquitin thioesterase OTUB1	OTUB1
Hsc70-interacting protein	ST13	ubiquitin-conjugating enzyme E2 N-like	LOC100064471
hydroxyacid oxidase 2 (long chain)	HAO2	ubiquitin-conjugating enzyme E2L 3	UBE2L3
hypothetical LOC100053754	LOC100053754	Ubiquitin-like modifier-activating enzyme 1	UBA1
hypothetical LOC100065476	LOC100065476	UBX domain-containing protein 1	UBXN1
hypothetical protein LOC100055531	LOC100055531	UDP-glucuronosyltransferase 1-6-like	LOC100065196
hypothetical protein LOC100059483	LOC100059483	uncharacterized LOC100058563	LOC100058563
hypothetical protein LOC100065799	LOC100065799	uncharacterized LOC100065465	LOC100065465
hypothetical protein[Oscillatoria nigro-viridis PCC 7112]	Osc7112_1658	uncharacterized LOC100629360	LOC100629360
Ig kappa chain V-V region B17-like	LOC100630729	Uncharacterized protein	GC
Immunoglobulin J chain	IGJ	Uncharacterized protein	GC
Inorganic pyrophosphatase	PPA1	Uncharacterized protein	RBP1
inositol 1,4,5-trisphosphate receptor interacting protein-like 1	ITPR1L1	Uteroglobin	SCGB1A1
Inositol 1,4,5-trisphosphate receptor type 2	ITPR2	valosin containing protein	VCP
Integrator complex subunit 2	INTS2	Vascular non-inflammatory molecule 2	VNN2
Integrin alpha-E	ITGAE	Vimentin	VIM
Inter-alpha-trypsin inhibitor heavy chain H1	ITH1	Vitamin D-binding protein	GC
interferon-activable protein 204-like	LOC100057023	WAP four-disulfide core domain protein 2	WFDC2
Interleukin-37	IL37	WD repeat domain 1	WDR1
intestine-specific homeobox	ISX	WD repeat-containing protein 65	WDR65
Janus kinase and microtubule-interacting protein 2	JAKMIP2	Y box binding protein 2	YBX2
keratin 8	KRT8	Zinc finger and BTB domain-containing protein 46	ZBTB46
Keratin, type I cytoskeletal 15	KRT15	Zinc finger CCHC domain-containing protein 2	ZCCHC2
Keratin, type I cytoskeletal 19	KRT19	Zinc finger protein 215	ZNF215
Keratin, type II cytoskeletal 1	KRT1	zinc finger protein 516	ZNF516
Keratin, type II cytoskeletal 1b	KRT77	Zinc finger protein 536	ZNF536
Kinesin-like protein KIF15	KIF15	Zinc finger protein ZFAT	ZFAT
Lactoylglutathione lyase	GLO1	zinc finger, FYVE domain containing 19	ZFYE19
		zinc-alpha-2-glycoprotein-like	LOC100067197