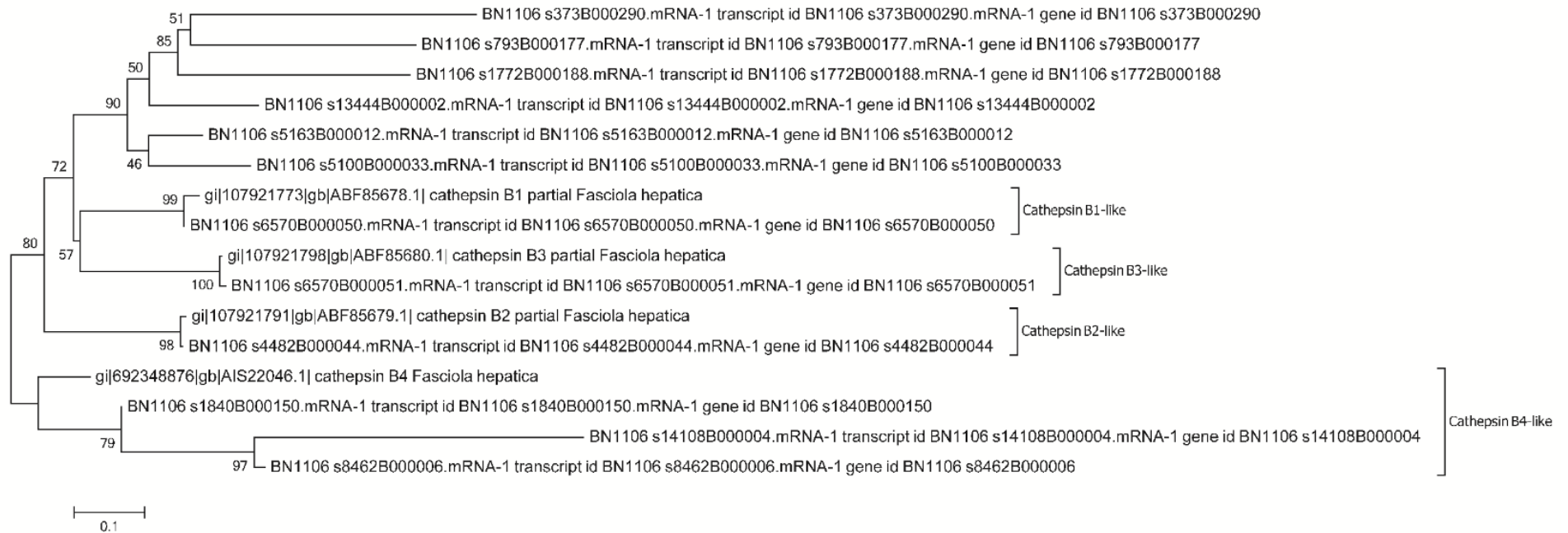


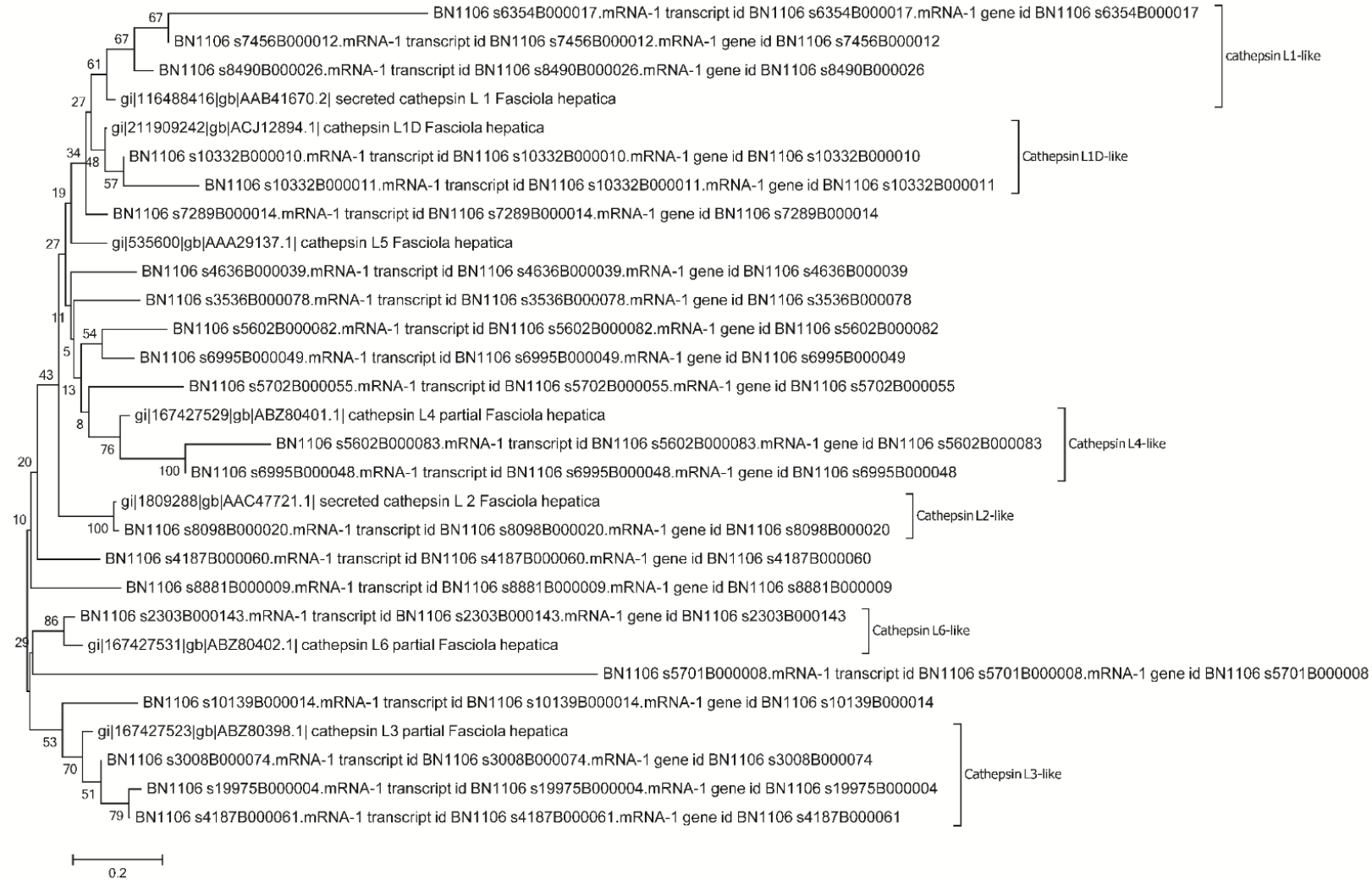
Across intra-mammalian stages of the liver fluke *Fasciola hepatica*: a proteomic study

Sánchez Di Maggio, L.; Tirloni, L.; Pinto, A.F.M.; Driedrich, J.K.; Yates III, J.R.; Benavides, U.; Carmona, C.; da Silva Vaz Jr; Berasain, P.

Supplementary Information.



Supplementary Fig. S1. Phylogenetic relationships of the cathepsin B family amino acid sequences presented here is a bootstrapped (1,000 replicates) neighbor-joining phylogenetic unrooted tree. The percentages in the nodes represent bootstrap values and branch lengths are proportional to distances.



Supplementary Fig. S2. Phylogenetic relationships of the cathepsin L family amino acid sequences presented here is a bootstrapped (1,000 replicates) neighbor-joining phylogenetic unrooted tree. The percentages in the nodes represent bootstrap values and branch lengths are proportional to distances.

Supplementary Table S1. Differentially expressed proteins based on t-fold analyses comparing E/S products from NEJ stage with E/S products from the adult stage.

Accession number ^a	Description	Class	Fold Change ^b	p-value ^b	Regulation ^c	
					Adult E/S	NEJ E/S
BN1106_s6635B000017.mRNA-1	Legumain-1	Proteinase	5.78	0.00018		↑
BN1106_s9069B000006.mRNA-1	Legumain-1	Proteinase	7.77	0.01352		↑
BN1106_s5100B000033.mRNA-1	Cathepsin B-like	Proteinase	8.39	0.00645		↑
BN1106_s8462B000006.mRNA-1	Cathepsin B4 -like	Proteinase	8.40	0.01357		↑
BN1106_s6720B000015.mRNA-1	CD59-like protein	Immunity	9.67	0.00357		↑
BN1106_s2087B000065.mRNA-1	Legumain-1	Proteinase	9.88	0.00002		↑
BN1106_s5163B000012.mRNA-1	Cathepsin B-like	Proteinase	11.89	0.00026		↑
BN1106_s373B000290.mRNA-1	Cathepsin B-like	Proteinase	34.31	0.00390		↑
BN1106_s4651B000094.mRNA-1	Stefin-1	Proteinase inhibitor	35.86	0.00367	↑	
BN1106_s8881B000009.mRNA-1	Cathepsin L-like	Proteinase	48.74	0.00017		↑
BN1106_s3173B000376.mRNA-1	Alpha-glucosidase	Metabolism. carbohydrate	49.96	0.00947		↑

BN1106_s3008B000074.mRNA-1	Cathepsin L3-like	Proteinase	103.97	0.00349	↑
BN1106_s6570B000051.mRNA-1	Cathepsin B3-like	Proteinase	130.50	0.00002	↑
BN1106_s7612B000030.mRNA-1	Legumain	Proteinase	283.68	0.00044	↑

^aAccession numbers of *Fasciola hepatica* proteins identified as differentially expressed (blue dots in Fig. 3B) (Cwiklinski et al., 2015a).

^bFold change and p-value of *Fasciola hepatica* proteins identified as differentially expressed (blue dots in Fig. 3B).

^cArrows are representing up-regulation (↑) of proteins identified as differentially in E/S products from NEJ stage or E/S products from the adult stage.

Supplementary Table S2. Differentially expressed proteins based on t-fold analyses comparing E/S products and somatic soluble proteins from NEJ stage.

Accession number ^a	Description	Class	Fold Change ^b	pValue ^b	Regulation ^c	
					NEJ E/S	Somatic NEJ
BN1106_s2907B000134	Actin-2	Cytoskeletal	-27.62	0.01065		↑
BN1106_s2907B000133	Actin-2	Cytoskeletal	-33.58	0.01004		↑
BN1106_s101B000531	Actin-2	Cytoskeletal	-45.75	0.00411		↑
BN1106_s455B000331	Actin-2	Cytoskeletal	-51.43	0.00058		↑
BN1106_s6570B000050	Cathepsin B1-like	Proteinase	4.78	0.00001	↑	
BN1106_s4482B000044	Cathepsin B2-like	Proteinase	5.82	0.00001	↑	
BN1106_s6570B000051	Cathepsin B3-like	Proteinase	6.00	0.00005	↑	
BN1106_s5163B000012	Cathepsin B-like	Proteinase	7.84	0.00023	↑	
BN1106_s5100B000033	Cathepsin B-like	Proteinase	7.40	0.00680	↑	
BN1106_s14108B000004	Cathepsin B-like	Proteinase	-1.68	0.01210		↑
BN1106_s3008B000074	Cathepsin L3-like	Proteinase	8.12	0.00086	↑	
BN1106_s4187B000061	Cathepsin L-like	Proteinase	9.32	0.00102	↑	
BN1106_s6720B000015	CD59-like protein	Immunity	4.56	0.00614	↑	
BN1106_s63B000399	CD59-like protein	Immunity	-10.06	0.00448		↑

BN1106_s7307B000022	Cubilin-like	Transport/storage	4.81	0.00001	↑	
BN1106_s17622B000002	Cubilin-like	Transport/storage	8.66	0.00057	↑	
BN1106_s1444B000095	Dynein	Cytoskeletal	-9.17	0.00271		↑
BN1106_s3227B000227	Enolase	Metabolism. carbohydrate	-10.22	0.00016		↑
tr F2Z4I6 F2Z4I6_BOVIN	Histone H2A	Nuclear regulation	-3.90	0.01352		↑
tr Q17QG8 Q17QG8_BOVIN	Histone H2A	Nuclear regulation	-7.21	0.00003		↑
BN1106_s7612B000030	Legumain	Proteinase	7.57	0.00007	↑	
BN1106_s7612B000031	Legumain	Proteinase	3.12	0.00075	↑	
BN1106_s2087B000065	Legumain-1	Proteinase	3.00	0.00001	↑	
BN1106_s6635B000017	Legumain-1	Proteinase	2.62	0.00009	↑	
BN1106_s10890B000012	Peptidase inhibitor 16	Cysteine-rich proteins	2.72	0.00002	↑	
BN1106_s5591B000098	Peptidase inhibitor 16	Cysteine-rich proteins	1.97	0.00401	↑	
BN1106_s246B000252	Phosphoenolpyruvate carboxykinase	Metabolism. carbohydrate	-24.20	0.01114		↑
BN1106_s1614B000280	Thioredoxin peroxidase	Oxidant metabolism/ detoxification	-10.72	0.00143		↑
BN1106_s5172B000090	Unknown product	Unknown	5.47	0.00238	↑	

Supplementary Table S3. *Fasciola hepatica*-derived proteins identified by LC-MS/MS. Protein functional classification and data generated in Bird's eye view from PatternLab for Proteomics platform (Carvalho et al., 2012a; Carvalho et al., 2012b) are provided in the accompanying spreadsheet (Hyperlinked Excel spreadsheet, zipped). Protein functional classification was manually curated using BLASTP searches against several databases. Accession number of *F. hepatica*-identified proteins, classification based in function and/or protein family, and accession numbers in addition to other parameters of best match identities obtained using BLASTP are provided ("Annotation" sheet). Data generated in the LC-MS/MS analyzes such as unique peptide, peptide count, spectral count, NSAF, and coverage are also provided for all triplicates from all three samples (in separated sheets).

Supplementary Table S4. *Bos taurus*-derived proteins identified by LC-MS/MS. Protein functional classification and data generated in Bird's eye view from PatternLab for Proteomics platform (Carvalho et al., 2012a; Carvalho et al., 2012b) are provided in the accompanying spreadsheet (Hyperlinked Excel spreadsheet, zipped). Protein functional classification was manually curated using BLASTP searches against several databases. Accession number of *F. hepatica*-identified proteins, classification based in function and/or protein family, and accession numbers in addition to other parameters of best match identities obtained using BLASTP are provided ("Annotation" sheet). Data generated in the LC-MS/MS analyzes such as unique peptide, peptide count, spectral count, NSAF, and coverage are also provided for all triplicates from all three samples (in separated sheets).

Supplementary Table S5. Differentially expressed proteins based on t-fold analyses comparing E/S products from NEJ stage with E/S products from the adult stage.

Accession number	Description	Class	Fold Change	pValue
BN1106_s2087B000065	Legumain-1	Secreted proteinase	-9.87	2.20E-05
BN1106_s3008B000074	Cathepsin L3-like	Secreted proteinase	-103.97	0.003495
BN1106_s3173B000376	Alpha-glucosidase	Carbohydrate metabolism	-49.96	0.009465
BN1106_s373B000290	Cathepsin B-like	Secreted proteinase	-34.31	0.003897
BN1106_s4651B000094	Stefin-1	Secreted proteinase inhibitor	35.86	0.003671
BN1106_s5100B000033	Cathepsin B-like	Secreted proteinase	-8.39	0.006446
BN1106_s5163B000012	Cathepsin B-like	Secreted proteinase	-11.88	0.000255
BN1106_s6570B000051	Cathepsin B3-like	Secreted proteinase	-130.49	2.49E-05
BN1106_s6635B000017	Legumain-1	Secreted proteinase	-5.78	0.000183
BN1106_s6720B000015	CD59-like protein	Immunity	-9.66	0.003575
BN1106_s7612B000030	Legumain	Secreted proteinase	-283.67	0.000443
BN1106_s8462B000006	Cathepsin B4 -like	Secreted proteinase	-8.40	0.013572
BN1106_s8881B000009	Cathepsin L-like	Secreted proteinase	-48.74	0.000167
BN1106_s9069B000006	Legumain-1	Secreted proteinase	-7.76	0.013517
tr G3N0V2 G3N0V2_BOVIN	Keratin	Cytoskeletal	-20.71	0.017377
sp P0CH28 UBC_BOVIN	Polyubiquitin-C	Proteasome machinery	7.98	0.021241
tr Q17QG8 Q17QG8_BOVIN	Histone H2A	Nuclear regulation	-10.36	0.024623
BN1106_s8098B000020	Cathepsin L2-like	Secreted proteinase	34.91	0.026001
BN1106_s3227B000227	Enolase	Carbohydrate metabolism	-4.62	0.033486
BN1106_s7353B000023	Niemann-Pick protein	Lipid metabolism	6.84	0.037116
BN1106_s4026B000080	Thioredoxin	Oxidant metabolismo / detoxification	4.40	0.038137
BN1106_s4187B000060	Cathepsin L3-like	Secreted proteinase	-19.85	0.040523
tr M0QVY0 M0QVY0_BOVIN	Keratin	Cytoskeletal	-14.63	0.042002
tr F1MUY2 F1MUY2_BOVIN	Keratin	Cytoskeletal	-14.63	0.042002
BN1106_s6840B000044	Polyubiquitin-A	Proteasome machinery	16.76	0.045865
BN1106_s1110B000106	Cubilin	Transport/Storage	-7.22	0.058307

BN1106_s101B000531	Actin-2	Cytoskeletal	1.32	0.278262
BN1106_s114B000615	Cubilin-like	Transport/Storage	-1.91	0.080549
BN1106_s1444B000095	Dynein	Cytoskeletal	-1.35	0.277081
BN1106_s1614B000280	Thioredoxin peroxidase	Oxidant metabolismo/detoxification	4.13	0.031541
BN1106_s1657B000161	Tetraspanin-CD63 receptor	Signal transduction	-1.35	0.247136
BN1106_s1840B000150	Cathepsin B4-like Ectonucleotide	Secreted proteinase	-3.04	0.042116
BN1106_s1985B000403	pyrophosphatase / phosphodiesterase	Nuclear regulation	-4.62	0.058664
BN1106_s246B000252	Phosphoenolpyruvate carboxykinase (GTP)	Carbohydrate metabolism	-2.40	0.083656
BN1106_s2907B000133	Actin-2	Cytoskeletal	1.32	0.31012
BN1106_s3001B000132	Cubilin-like	Transport/Storage	-1.65	0.071483
BN1106_s3001B000132	Cubilin-like	Transport/Storage	-3.82	0.043215
BN1106_s3009B000044	Carbonic anhydrase 5B	Oxidant metabolismo/detoxification	1.68	0.259563
BN1106_s318B000274	Kunitz-type proteinase inhibitor	Secreted proteinase inhibitor	1.85	0.053469
BN1106_s4223B000091	Legumain-1	Secreted proteinase	1.24	0.301441
BN1106_s455B000331	Actin-2	Cytoskeletal	1.32	0.278262
BN1106_s4986B000028	SAP-1	Lipid metabolism	-2.68	0.053645
BN1106_s5246B000010	CD59-like protein	Immunity	-2.12	0.051046
BN1106_s5602B000082	Cathepsin L-like	Secreted proteinase	3.52	0.028177
BN1106_s5689B000026	Natterin-4	Lipid metabolism	-3.91	0.053573
BN1106_s584B000346	Glucose transporter-2 protein	Transport/Storage	3.02	0.231718
BN1106_s584B000350	Glucose transporter-2 protein	Transport/Storage	4.84	0.119918
BN1106_s617B000566	Leucine amino peptidase 1 C-terminal fragment	Secreted proteinase	1.35	0.217515
BN1106_s63B000399	CD59-like protein	Immunity	-1.06	4.19E-05
BN1106_s6995B000048	Cathepsin L4-like	Secreted proteinase	-2.89	0.117231

BN1106_s6995B000049	Cathepsin L-like	Secreted proteinase	-1.83	0.09822
BN1106_s7443B000031	Unknown product	Unknown	-2.47	0.064674
BN1106_s8038B000016	Unknown product	Unknown	3.04	0.092148
BN1106_s8826B000029	Kunitz-type proteinase inhibitor	Secreted proteinase inhibitor	1.98	0.060199
BN1106_s945B000218	Annexin A11	Cytoskeletal	2.64	0.050399
BN1106_s9797B000034	Leukotriene-A4 hydrolase	Transport/Storage	-2.77	0.015177
sp P00760 TRY1_BOVIN	Cationic trypsin	Secreted proteinase	-2.21	0.037756
BN1106_s3001B000131	Cubilin-like	Transport/Storage	-3.41	0.001893

Each differently expressed protein is mapped according to its fold change and t-test p-value. Proteins are represented by: (blue shading) if had an identification that satisfied both fold and statistical criteria; (yellow shading) had an identifications that was filtered out by the L-stringency; (green shading) had an identification satisfied the fold criteria but, most likely, this happened by chance; and (red shading) had identification did not meet the fold and p-value criteria.

Supplementary Table S6. Differentially expressed proteins based on t-fold analyses comparing E/S products and somatic soluble NEJ.

Accession number	Description	Class	Fold Change	pValue
BN1106_s101B000531	actin-2	Cytoskeletal	-45.76	0.004111344
BN1106_s10890B000012	Cysteine-rich secretory protein family (GLIPR1)	Cysteine-rich proteins	2.73	1.71E-05
BN1106_s14108B000004	Cathepsin B-like	Secreted proteinase	-1.68	0.01209948
BN1106_s1444B000095	dynein	Cytoskeletal	-9.18	0.002711112
BN1106_s1614B000280	Thioredoxin peroxidase	Oxidant		
BN1106_s17622B000002	cubilin-like isoform 1	metabolismo/detoxification	-10.72	0.001428203
BN1106_s2087B000065	Legumain-1	Transport/Storage	8.66	0.000574028
BN1106_s246B000252	Phosphoenolpyruvate carboxykinase (GTP)	Secreted proteinase	3.00	1.17E-05
BN1106_s2907B000133	actin-2	Carbohydrate metabolism	-24.21	0.01114098
BN1106_s2907B000134	actin-2	Cytoskeletal	-33.58	0.010035332
BN1106_s3008B000074	s/protease	Cytoskeletal	-27.63	0.010648377
BN1106_s3227B000227	enolase	Secreted proteinase	8.13	0.000863597
BN1106_s4187B000061	Cathepsin L-like	Carbohydrate metabolism	-10.22	0.000162913
BN1106_s4482B000044	Cathepsin B2-like	Secreted proteinase	9.33	0.00101565
BN1106_s455B000331	actin-2	Secreted proteinase	5.82	1.13E-05
BN1106_s5100B000033	Cathepsin B-like	Cytoskeletal	-51.43	0.000582962
BN1106_s5163B000012	Cathepsin B-like	Secreted proteinase	7.41	0.006798594
BN1106_s5172B000090	Unknown product	Secreted proteinase	7.85	0.000226302
BN1106_s5591B000098	CRISP3: cysteine-rich secretory protein	Unknown	5.48	0.002381086
BN1106_s63B000399	CD59-like protein	Cysteine-rich proteins	1.97	0.004006453
BN1106_s6570B000050	Cathepsin B1-like	Immunity	-10.06	0.004475068
BN1106_s6570B000051	Cathepsin B3-like	Secreted proteinase	4.78	1.00E-05
BN1106_s6635B000017	Legumain-1	Secreted proteinase	6.00	5.19E-05
BN1106_s6720B000015	CD59-like protein	Secreted proteinase	2.63	9.30E-05
		Immunity	4.56	0.006139616

BN1106_s7307B000022	cubilin	Transport/Storage	4.81	1.00E-05
BN1106_s7612B000030	Legumain	Secreted proteinase	7.58	7.01E-05
BN1106_s7612B000031	Legumain	Secreted proteinase	3.12	0.000752774
tr F2Z4I6 F2Z4I6_BOVIN	Histone H2A	Nuclear regulation	-3.90	0.013522408
tr Q17QG8 Q17QG8_BOVIN	Histone H2A	Nuclear regulation	-7.21	3.25E-05

BN1106_s4026B000080	Thioredoxin	Oxidant metabolismo/detoxification	-2.80	0.014941729
BN1106_s9797B000034	Leukotriene-A4 hydrolase - M1	Transport/Storage	3.79	0.016747702
BN1106_s4651B000094	Stefin-1	Secreted proteinase inhibitor	-3.39	0.017454129
BN1106_s26B000447	Collagen alpha-1(XV) chain	Extracellular matrix	-1.80	0.019348208
BN1106_s4187B000060	Cathepsin L3-like	Secreted proteinase	6.09	0.021285821
BN1106_s8462B000006	Cathepsin B4 -like	Secreted proteinase	3.34	0.026458637
sp Q29S21 K2C7_BOVIN	Keratin type II cytoskeletal 7	Cytoskeletal	2.80	0.028125793
BN1106_s1840B000150	Cathepsin B4-like	Secreted proteinase	4.08	0.028955455
BN1106_s9069B000006	legumain-1	Secreted proteinase	1.91	0.029073677
BN1106_s9189B000015	peptidyl-prolyl cis-trans isomerase	Protein modification machinery	-1.58	0.030818119
sp P0CH28 UBC_BOVIN	Polyubiquitin-C - cytoplasm - nucleus	Proteasome machinery	-1.65	0.032702869
BN1106_s3173B000376	alpha-glucosidase	Carbohydrate metabolism	11.48	0.035348373
BN1106_s10139B000014	Cathepsin L-like	Secreted proteinase	2.86	0.036243144
BN1106_s5602B000083	Cathepsin L4-like	Secreted proteinase	2.91	0.038707409
BN1106_s1985B000403	Ectonucleotide pyrophosphatase/phosphodiesterase	Nuclear regulation	10.49	0.043132688
BN1106_s114B000615	Cubilin-like	Transport/Storage	2.73	0.0433593
BN1106_s666B000200	mannosidase, alpha, class 2B	Carbohydrate metabolism	2.94	0.043498134
BN1106_s6995B000049	Cathepsin L-like	Secreted proteinase	7.03	0.043554602
BN1106_s6995B000048	Cathepsin L4-like	Secreted proteinase	4.14	0.045332674
BN1106_s373B000290	Cathepsin B-like	Secreted proteinase	1.60	0.056035137
BN1106_s4B000834	calcium-binding protein	Signal transduction	-2.20	0.063554229
BN1106_s4986B000028	SAP-1	Nuclear regulation	2.28	0.067300282
BN1106_s7443B000031	Unknown product	Unknown	2.32	0.071044603

BN1106_s2303B000143	Cathepsin L6-like	Secreted proteinase	4.83	0.098811878
BN1106_s7353B000023	Niemann-Pick protein	Lipid metabolism	-1.66	0.127000635
tr F1MUY2 F1MUY2_BOVIN	keratin	Cytoskeletal	1.69	0.183014303

BN1106_s8038B000016	Unknown product	Unknown	1.38	0.053544143
BN1106_s3001B000132	cubilin-like	Transport/Storage	-1.22	0.069693987
BN1106_s3001B000132	cubilin-like	Transport/Storage	1.38	0.121027116
BN1106_s584B000346	Glucose transporter-2 protein	Transport/Storage	1.46	0.154081202
BN1106_s584B000350	Glucose transporter-2 protein	Transport/Storage	1.46	0.154081202
tr F1MC11 F1MC11_BOVIN	keratin	Cytoskeletal	-1.41	0.163372128
tr G3N0V2 G3N0V2_BOVIN	keratin	Cytoskeletal	1.32	0.167958883
sp P00760 TRY1_BOVIN	Cationic trypsin	Secreted proteinase	1.27	0.172745702
BN1106_s6840B000044	Polyubiquitin-A	Proteasome machinery	-1.19	0.179563896
BN1106_s5689B000026	Natterin-4	Lipid metabolism	1.54	0.193585128
BN1106_s925B000547	Tubulin alpha-3	Cytoskeletal	-1.25	0.199430341
BN1106_s1110B000106	cubilin-like	Transport/Storage	1.39	0.20574462
BN1106_s318B000274	kunitz-type proteinase inhibitor	Secreted proteinase inhibitor	1.58	0.207665857
tr M0QVY0 M0QVY0_BOVIN	keratin	Cytoskeletal	1.32	0.236544944

BN1106_s7273B000042	Major vault protein	Signal transduction	-7.10	8.72E-05
BN1106_s1200B000196	Unknown product	Unknown	2.11	0.000726494
BN1106_s617B000566	Leucine amino peptidase 1 fragment C-terminal - M17	Secreted proteinase	-6.77	0.001202213
BN1106_s1657B000161	Tetraspanin-CD63 receptor	Signal transduction	6.64	0.002766104
tr F1MFW9 F1MFW9_BOVIN	keratin	Cytoskeletal	1.85	0.002858627
BN1106_s945B000218	Annexin A11	Cytoskeletal	-7.65	0.003350674
BN1106_s3001B000131	cubilin-like	Transport/Storage	-2.70	0.003584895
tr E1BJB1 E1BJB1_BOVIN	The tubulin superfamily includes five distinct families	Cytoskeletal	-6.40	0.00531316
sp P06394 K1C10_BOVIN	keratin	Cytoskeletal	-2.06	0.005752445
BN1106_s2275B000114	Uncharacterized protein	Unknown	1.82	0.009403358
BN1106_s114B000614	Cubilin	Transport/Storage	-3.86	0.010447237

Supplementary Table S7. Total protein comparison between Fh E/S products studies. ^aRobinson, M.W., Menon, R., Donnelly, S.M., Dalton, J.P., Ranganathan, S., 2009. An integrated transcriptomics and proteomics analysis of the secretome of the helminth pathogen *Fasciola hepatica*: proteins associated with invasion and infection of the mammalian host. *Molecular & cellular proteomics* : MCP 8, 1891-1907. ^bHernandez-Gonzalez, A., Valero, M.L., del Pino, M.S., Oleaga, A., Siles-Lucas, M., 2010. Proteomic analysis of in vitro newly excysted juveniles from *Fasciola hepatica*. *Molecular and biochemical parasitology* 172, 121-128. ^cWilson, R.A., Wright, J.M., de Castro-Borges, W., Parker-Manuel, S.J., Dowle, A.A., Ashton, P.D., Young, N.D., Gasser, R.B., Spithill, T.W., 2011. Exploring the *Fasciola hepatica* tegument proteome. *International journal for parasitology* 41, 1347-1359. ^dCwiklinski, K., de la Torre Escudero, E., Trelis, M., Bernal, D., Dufresne, P.J., Brennan, G.P., O'Neill, S., Tort, J., Paterson, S., Marcilla, A., Dalton, J.P., Robinson, M.W., 2015b. The extracellular vesicles of the helminth pathogen, *Fasciola hepatica*: biogenesis pathways and cargo molecules involved in parasite pathogenesis. *Molecular & cellular proteomics* : MCP

Accession number	Seq name	Description	Class	This study			Robinson et al. 2008 ^a		Hernández-González et al. 2010 ^b Somatic NEJ	Wilson et al. 2011 ^c Adult E/S products	Cwiklinski et al. 2015 ^d Adult E/S products	Cwiklinski et al. 2015 ^d Adult exosome proteins
				E/S products NEJ	E/S products adult	Somatic soluble NEJ proteins	NEJ E/S products	Adult E/S products				
BN1106_s709B000627	114	ferritin	heme/iron related proteins		*						*	*
BN1106_s1002B000239	130	ferritin	heme/iron related proteins			*						
BN1106_s2101B000084	342	MF6p/FhH DM-1 protein	heme/iron related proteins		*	*	HAN4019c1 2.q1kT3				*	
BN1106_s284B000287	439	myoglobin 1	heme/iron related proteins		*					FhC00255		*
BN1106_s284B000288	440	myoglobin 1	heme/iron related proteins			*				FhB00042	*	
BN1106_s3950B000041	564	ferritin	heme/iron related proteins		*	*					*	*

BN1106_s917B000270	876	ferritin	heme/iron related proteins			*	
BN1106_s92B000564	879	ferritin	heme/iron related proteins		*		
BN1106_s101B000531	2	Actin-2	Cytoskeletal	*	*	*	gi 1703101
BN1106_s103B000718	5	Ankyrin 2b	Cytoskeletal			*	
BN1106_s2349B000188	48	Severin	Cytoskeletal			*	*
BN1106_s2374B000246	49	PDZ and LIM domain protein	Cytoskeletal			*	
BN1106_s2906B000293	60	lamin-C	Cytoskeletal			*	
BN1106_s3147B000076	66	dynein	Cytoskeletal			*	
BN1106_s3353B000056	69	synaptotagmin	Cytoskeletal		*		
BN1106_s551B000321	99	myosin	Cytoskeletal		*	*	*
BN1106_s71B000363	115	Ankyrin-2	Cytoskeletal			*	
BN1106_s98B000745	129	Titin	Cytoskeletal			*	
BN1106_s103B000723	138	Ankyrin	Cytoskeletal			*	
BN1106_s1037B000175	144	Na(+)/H(+) exchange regulatory cofactor NHE-RF1-like	Cytoskeletal			*	
BN1106_s1042B000321	145	thymosin	Cytoskeletal			*	

BN1106_s1582 B000149	255	Dynein	Cytoskeletal	*	
BN1106_s19B0 00337	311	Tropomodulin	Cytoskeletal	*	
BN1106_s1922 B000122	315	paramyosin	Cytoskeletal	*	gi 126116628
BN1106_s1972 B000196	321	Tropomyosin	Cytoskeletal	*	
BN1106_s2003 B000172	328	Cofilin	Cytoskeletal	*	
BN1106_s2014 B000189	329	Nascent polypeptide-associated complex subunit alpha	Cytoskeletal	*	
BN1106_s2018 B000301	330	Myosin-2	Cytoskeletal	*	FhC00899
BN1106_s2132 B000163	347	adducin	Cytoskeletal	*	
BN1106_s214B 000743	351	6 kDa tegumental protein	Cytoskeletal	*	
BN1106_s2153 B000115	357	cofilin/tropomyosin type actin binding domain-containing protein	Cytoskeletal	*	
BN1106_s227B 000509	370	Protein hu-litai	Cytoskeletal	*	
BN1106_s2291 B000314	376	Dynein	Cytoskeletal	*	
BN1106_s2329 B000134	382	Actin related protein	Cytoskeletal	*	
BN1106_s2333 B000156	384	Troponin I 4	Cytoskeletal	*	

BN1106_s2349 B000191	385	Severin	Cytoskeletal			*		
BN1106_s2434 B000197	397	Actin-interacting protein 1	Cytoskeletal			*		
BN1106_s2590 B000129	412	PDZ and LIM domain protein Zasp	Cytoskeletal			*		
BN1106_s2864 B000144	445	Dynein	Cytoskeletal			*		
BN1106_s2907 B000132	451	actin-2	Cytoskeletal			*		
BN1106_s2907 B000133	452	actin-2	Cytoskeletal	*	*	*		*
BN1106_s2907 B000134	453	actin-2	Cytoskeletal	*		*		
BN1106_s2949 B000195	457	Microtubule-associated protein RP/EB family member 1	Cytoskeletal			*		
BN1106_s296B 000186	458	Filamin	Cytoskeletal			*		*
BN1106_s3045 B000180	470	Troponin T	Cytoskeletal			*		
BN1106_s3182 B000117	488	Myosin motor domain	Cytoskeletal			*		
BN1106_s322B 000089	491	Titin	Cytoskeletal			*		
BN1106_s3225 B000128	492	coronin	Cytoskeletal			*		
BN1106_s323B 000257	495	Myosin motor domain	Cytoskeletal			*		
BN1106_s323B 000258	496	Myosin tail	Cytoskeletal			*	gi 161044/gi 76154815	

BN1106_s3266 B000046	499	Annexin	Cytoskeletal	*						*
BN1106_s3478 B000064	523	alpha-actinin	Cytoskeletal					*		
BN1106_s3509 B000140	524	Microtubule-associated protein 1	Cytoskeletal					*		
BN1106_s392B 000871	558	Tubulin beta-2C chain	Cytoskeletal					*		
BN1106_s4069 B000247	578	alpha actinin	Cytoskeletal					*		*
BN1106_s410B 000441	582	Titin	Cytoskeletal					*		
BN1106_s410B 000444	583	Titin	Cytoskeletal					*		
BN1106_s410B 000448	585	Titin	Cytoskeletal					*		
BN1106_s4130 B000080	587	Tropomyosin-2	Cytoskeletal					*		
BN1106_s4255 B000066	600	spectrin alpha	Cytoskeletal					*		
BN1106_s455B 000331	632	actin-2	Cytoskeletal	*	*		*		gi 1703114	FhB00085
BN1106_s476B 000184	650	adducin	Cytoskeletal					*		
BN1106_s500B 000161	668	Annexin A6	Cytoskeletal		*		*			*
BN1106_s502B 000344	671	CG34417 - actin binding	Cytoskeletal					*		
BN1106_s5179 B000059	682	Tubulin-specific chaperone A	Cytoskeletal					*		
BN1106_s527B 000393	689	Myosin	Cytoskeletal					*	gi 262213552	
BN1106_s5331 B000045	694	LIM and SH3 domain protein	Cytoskeletal					*		

BN1106_s55B000372	701	tubulin	Cytoskeletal			*				*
BN1106_s567B000346	717	Profilin	Cytoskeletal			*				
BN1106_s586B000372	736	Cofilin	Cytoskeletal			*				
BN1106_s602B000099	744	tubulin polymerization-promoting protein family member	Cytoskeletal			*				
BN1106_s647B000405	767	Tropomyosin	Cytoskeletal			*		gi 29337029		
BN1106_s656B000153	771	Laminin	Cytoskeletal			*				
BN1106_s727B000100	798	LIM domains protein 3	Cytoskeletal			*				
BN1106_s819B000364	848	Annexin A13	Cytoskeletal	*		*		FhB01618/ FhB02550	*	*
BN1106_s819B000365	849	Annexin A3	Cytoskeletal			*				
BN1106_s90B000601	868	LIM domains protein 2	Cytoskeletal			*				
BN1106_s925B000539	881	Tubulin	Cytoskeletal			*				
BN1106_s925B000543	882	Tubulin	Cytoskeletal			*		gi 195157178		
BN1106_s925B000547	883	Tubulin alpha-3	Cytoskeletal	*		*				
BN1106_s937B000520	890	Myosin	Cytoskeletal			*				
BN1106_s945B000218	894	Annexin A11	Cytoskeletal	*	*	*		FhB01398	*	*
BN1106_s949B000142	899	dynein light chain	Cytoskeletal		*	*				

BN1106_s949B000146	900	Dynein light chain LC8	Cytoskeletal		*	*			
BN1106_s10058B000012	1	Hydroxyglutarate dehydrogenase	Oxidant metabolism/detoxification			*			
BN1106_s3005B000095	64	Thioredoxin-glutathione reductase	Oxidant metabolism/detoxification		*	*		gi 157887771	
BN1106_s638B000318	106	glutathione dehydrogenase	Oxidant metabolism/detoxification			*			
BN1106_s1029B000154	137	glutathione S-transferase	Oxidant metabolism/detoxification			*			
BN1106_s10348B000022	143	Glutathione peroxidase	Oxidant metabolism/detoxification		*				
BN1106_s1061B000223	151	glutaredoxin	Oxidant metabolism/detoxification			*			
BN1106_s1081B000242	155	Glutathione S-transferase	Oxidant metabolism/detoxification		*	*		*	*
BN1106_s1459B000183	236	Malate dehydrogenase	Oxidant metabolism/detoxification		*	*			*
BN1106_s1614B000280	261	Thioredoxin peroxidase	Oxidant metabolism/detoxification	*	*	*		FhB00158	*

BN1106_s2277 B000049	374	Retinol dehydrogen ase 12	Oxidant metabolis mo/detoxi fication		*	*			*
BN1106_s2507 B000140	407	Retinol dehydrogen ase 12	Oxidant metabolis mo/detoxi fication		*				
BN1106_s2745 B000189	429	Glyoxalase domain- containing protein	Oxidant metabolis mo/detoxi fication			*			
BN1106_s2937 B000224.mRN A-1 transcript_id=B N1106_s2937B0 00224.mRNA-1 gene_id=BN110 6_s2937B00022 4	456	Transketolas e	Oxidant metabolis mo/detoxi fication			*			
BN1106_s3009 B000044	465	Carbonic anhydrase 5B	Oxidant metabolis mo/detoxi fication	*	*			FhB00925	*
BN1106_s3189 B000243	489	Superoxide dismutase Cu-Zn	Oxidant metabolis mo/detoxi fication		*	*			
BN1106_s3595 B000059	536	Glutathione S- transferase class-mu 26 kDa isozyme 1	Oxidant metabolis mo/detoxi fication			*		*	

BN1106_s3715 B000086	546	carbonyl reductase	Oxidant metabolis mo/detoxi fication			*							
BN1106_s3834 B000075	552	isocitrate dehydrogen ase 2 (NADP+)	Oxidant metabolis mo/detoxi fication			*							
BN1106_s3875 B000041	555	carbonic anhydrase II	Oxidant metabolis mo/detoxi fication			*							
BN1106_s4026 B000080	574	Thioredoxin	Oxidant metabolis mo/detoxi fication	*	*	*	HAN4018d0 9.q1kT3	Q9U1G7			*		*
BN1106_s4027 B000177	575	alcohol dehydrogen ase	Oxidant metabolis mo/detoxi fication			*							
BN1106_s4097 B000030	580	Malate dehydrogen ase	Oxidant metabolis mo/detoxi fication			*							
BN1106_s4370 B000168	613	Glutathione S- transferase	Oxidant metabolis mo/detoxi fication		*								
BN1106_s444B 000267	618	Peroxi-redox in 3	Oxidant metabolis mo/detoxi fication			*	P91883/ HAN4004e0 1.q1kT3/HA N4005g04.q 1kT3		gi 166235906				
BN1106_s4479 B000057	623	Glutathione S- transferase	Oxidant metabolis mo/detoxi fication		*	*				FhB00340	*		

BN1106_s5500 B000138	703	Superoxide dismutase	Oxidant metabolis mo/detoxi fication		*		
BN1106_s5504 B000045	704	glutathione S- transferase	Oxidant metabolis mo/detoxi fication		*		
BN1106_s567B 000345	716	L-lactate dehydrogen ase - it is released during tissue damage	Oxidant metabolis mo/detoxi fication		*		
BN1106_s645B 000322	765	Aldehyde dehydrogen ase	Oxidant metabolis mo/detoxi fication		*		
BN1106_s7830 B000018	836	Glutathione S- transferase	Oxidant metabolis mo/detoxi fication	*		gi 452903	*
BN1106_s9130 B000051	872	hydroxyacyl glutathione hydrolase	Oxidant metabolis mo/detoxi fication		*		
BN1106_s9271 B000022	884	Thioredoxin -glutathione reductase	Oxidant metabolis mo/detoxi fication	*	*		*
BN1106_s1191 B000313	12	Von Willebrand factor A domain- containing protein / Vacuolar	Oxidant metabolis mo/detoxi fication	*			*

protein sorting 26						
BN1106_s115B 000510	180	Tenascin	Oxidant metabolis mo/detoxi fication	*		
BN1106_s1246 B000440	201	CRE-LEC-2 protein	Oxidant metabolis mo/detoxi fication	*		
BN1106_s176B 000277	286	Collagen alpha-1(IV) chain	Oxidant metabolis mo/detoxi fication	*		
BN1106_s176B 000279	287	Collagen alpha-1(IV) chain	Oxidant metabolis mo/detoxi fication	*		*
BN1106_s1922 B000120	314	Periostin	Oxidant metabolis mo/detoxi fication	*		*
BN1106_s2057 B000129	336	spectrin	Oxidant metabolis mo/detoxi fication	*		
BN1106_s2351 B000181	386	spectrin beta chain	Oxidant metabolis mo/detoxi fication	*		

BN1106_s2354 B000024	387	Basement membrane- specific heparan sulfate proteoglyca n core protein	Oxidant metabolis mo/detoxi fication		*		*
BN1106_s25B0 00189	405	Basement membrane- specific heparan sulfate proteoglyca n core protein	Oxidant metabolis mo/detoxi fication		*		*
BN1106_s26B0 00447	414	Collagen alpha-1(XV) chain	Oxidant metabolis mo/detoxi fication	*	*		
BN1106_s392B 000875	559	ARM-1 protein	Oxidant metabolis mo/detoxi fication		*		
BN1106_s462B 000766	635	Fibropellin- 1	Oxidant metabolis mo/detoxi fication		*		*
BN1106_s503B 000225	672	Innexin	Oxidant metabolis mo/detoxi fication		*		
BN1106_s6025 B000064	745	Von Willebrand factor A domain- containing protein	Oxidant metabolis mo/detoxi fication	*		FhC01779	

BN1106_s1442 B000167	234	CD59-like protein	Immunity		*		
BN1106_s243B 000419	395	CD59-like protein	Immunity			*	
BN1106_s5246 B000010	688	CD59-like protein	Immunity	*	*		
BN1106_s63B0 00399	760	CD59-like protein	Immunity	*	*	*	
BN1106_s6720 B000015	778	CD59-like protein	Immunity	*	*	*	
BN1106_s92B0 00559	878	T-cell immunomod ulatory protein	Immunity	*			
BN1106_s2898 B000141	59	Cysteine synthase	Amino acid metabolis m			*	
BN1106_s1098 B000219	161	Pyrroline-5- carboxylate reductase	Amino acid metabolis m			*	
BN1106_s232B 000326	381	TyrA protein	Amino acid metabolis m			*	
BN1106_s2400 B000186	391	Glutamine synthase	Amino acid metabolis m			*	*
BN1106_s2851 B000085	443	Aspartate aminotransf erase	Amino acid metabolis m		*		
BN1106_s398B 000241	567	Ornithine aminotransf erase	Amino acid metabolis m			*	*

BN1106_s4261 B000116	602	Taurocyami ne kinase	Amino acid metabolis m	*	
BN1106_s436B 000498	610	Fumarate hydratase class I	Amino acid metabolis m	*	
BN1106_s4661 B000179	639	Glutamine synthetase	Amino acid metabolis m	*	
BN1106_s4661 B000180	640	Glutamine synthetase	Amino acid metabolis m	*	
BN1106_s5767 B000030	726	Glutamate dehydrogen ase	Amino acid metabolis m	*	*
BN1106_s771B 000469	828	Alpha- aminoadipic semialdehyd e synthase	Amino acid metabolis m	*	
BN1106_s1241 B000260	17	N-acetyl galactosami nidase	Carbohyd rate metabolis m	*	
BN1106_s1959 B000206	35	Glucose-6- phosphate isomerase	Carbohyd rate metabolis m	*	
BN1106_s2385 B000108	50	Lysosomal alpha- glucosidase	Carbohyd rate metabolis m	*	*

BN1106_s244B 000349	52	UTP- glucose-1- phosphate uridylyltrans ferase	Carbohyd rate metabolis m			*	
BN1106_s3173 B000376	67	alpha- glucosidase	Carbohyd rate metabolis m	*	*	*	*
BN1106_s3375 B000064	70	Fructose- 1,6- bisphosphat ase 1	Carbohyd rate metabolis m			*	
BN1106_s531B 000172	97	dihydrolipoa mide acetyltransfe rase component of pyruvate dehydrogen ase	Carbohyd rate metabolis m			*	
BN1106_s7879 B000034	120	Glucose-6- phosphate isomerase	Carbohyd rate metabolis m			*	
BN1106_s8157 B000032	121	Dihydrolipo amide dehydrogen ase	Carbohyd rate metabolis m			*	*
BN1106_s1026 B000549	135	Aldose reductase	Carbohyd rate metabolis m			*	
BN1106_s1298 B000178	212	Galactokina se-like protein	Carbohyd rate metabolis m			*	

BN1106_s1518 B000071	245	Fructose- bisphosphat e aldolase	Carbohyd rate metabolis m				*							
BN1106_s1551 B000468	248	Propionyl- CoA carboxylase beta chain	Carbohyd rate metabolis m				*							*
BN1106_s1672 B000086	271	Pyruvate kinase	Carbohyd rate metabolis m				*							
BN1106_s175B 000200	283	Hexokinase	Carbohyd rate metabolis m			*	*				FhB00376	*		*
BN1106_s219B 000273	363	1,4-alpha- glucan- branching enzyme	Carbohyd rate metabolis m				*							
BN1106_s246B 000252	399	Phosphoenol- pyruvate carboxykinase (GTP)	Carbohyd rate metabolis m	*		*	*	Fhep07g02.q 1k		gi 167541044	FhB01525			
BN1106_s269B 000233	422	Phosphoglu comutase-1	Carbohyd rate metabolis m				*							
BN1106_s3213 B000041	490	Triosephosp hate isomerase	Carbohyd rate metabolis m			*	*				FhB00282	*		
BN1106_s3227 B000227	494	enolase	Carbohyd rate metabolis m	*		*	*	Q27655.1/H AN4009g10. q1kT3		gi 3023708	FhB00588	*		*
BN1106_s393B 000274	560	Phosphoglu comutase	Carbohyd rate				*							

			metabolism				
BN1106_s85B000787	856	Transaldolase	Carbohydrate metabolism	*			
BN1106_s916B000192	875	Alpha-1,4 glucan phosphorylase	Carbohydrate metabolism	*			
BN1106_s233B000262	47	NADP-dependent malic enzyme	Energy metabolism	*		FhB01995	*
BN1106_s11911B000016	191	Mitochondrial acetate:succinate	Energy metabolism	*			
BN1106_s1501B000239	241	Succinate dehydrogenase ubiquinone flavoprotein subunit	Energy metabolism	*		gi 195436412	
BN1106_s1848B000328	302	inorganic pyrophosphatase 1	Energy metabolism	*			
BN1106_s1866B000129	306	ATP synthase	Energy metabolism	*	HAN3004-1a05.q1k	gi 56758584	
BN1106_s2001B000142	326	Cytochrome c proximal	Energy metabolism	*			
BN1106_s2574B000116	410	acyl-CoA-binding protein (ACBP)/diazepam	Energy metabolism	*			

binding
inhibitor
(DBI).

BN1106_s2896 B000173	449	NADH-cytochrome b5 reductase	Energy metabolism	*				
BN1106_s3430 B000064	518	Succinate dehydrogenase	Energy metabolism	*				
BN1106_s3452 B000178	520	methylmalonyl-CoA mutase - involved in key metabolic pathways	Energy metabolism	*				
BN1106_s4332 B000087	608	FOF1 ATP synthase subunit alpha	Energy metabolism	*				*
BN1106_s444B 000268	619	Citrate synthase	Energy metabolism	*				
BN1106_s5004 B000026	669	succinyl-CoA ligase	Energy metabolism	*				
BN1106_s5174 B000030	681	Glyceraldehyde-3-phosphate dehydrogenase - GAIT complex	Energy metabolism	*	*	Fhep15c10.q1k	gi 16406594	*
BN1106_s6083 B000078	753	Succinyl-CoA ligase subunit beta	Energy metabolism	*				

BN1106_s6797 B000034	781	Malate dehydrogenase	Energy metabolism			*			
BN1106_s2194 B000230	364	Succinyl-CoA synthetase alpha subunit	Intermediate metabolism			*			
BN1106_s1285 B000159	18	Acid sphingomyelinase-like phosphodiesterase	Lipid metabolism		*			*	*
BN1106_s1498 B000257	26	Niemann-Pick C1	Lipid metabolism		*				*
BN1106_s771B 000467	118	Fatty-acid amide hydrolase	Lipid metabolism		*				
BN1106_s10326 B000017.	141	saposin-like (FhSAP-3)	Lipid metabolism		*			*	*
BN1106_s1228 B000120	196	Fatty acid-binding protein type 2	Lipid metabolism		*	*	Q7M4G1/Fh ep46d02.q1k /Fhep20f11.q1k	Q7M4G1	*
BN1106_s1252 B000359	203	Propionyl-CoA carboxylase	Lipid metabolism			*			*
BN1106_s1597 B000141	258	LAMA-like protein 2	Lipid metabolism		*			FhB00284	
BN1106_s1639 B000396	267	Prostamide/prostaglandin F synthase	Lipid metabolism			*			
BN1106_s20469 B000004	334	Niemann-Pick type C2	Lipid metabolism		*				*

BN1106_s2223 B000190	366	Threonyl- tRNA synthetase	Lipid metabolis m				*		
BN1106_s2258 B000081	369	Niemann- Pick protein	Lipid metabolis m	*					
BN1106_s2495 B000112	404	Niemann- Pick type C2	Lipid metabolis m			*			
BN1106_s3703 B000103	545	acetate:succi nate CoA- transferase	Lipid metabolis m				*		
BN1106_s4047 B000060	577	Glycerol-3- phosphate dehydrogen ase	Lipid metabolis m				*		
BN1106_s4759 B000058	649	Natterin-4	Lipid metabolis m				*		
BN1106_s4986 B000028	665	saposin-like protein 1 (FhSAP1)	Lipid metabolis m	*		*	*		
BN1106_s4998 B000033	666	Group XV phospholipa se A2	Lipid metabolis m			*		FhB00083	*
BN1106_s5103 B000076	678	acetyl-CoA acetyltransfe rase 2	Lipid metabolis m				*		
BN1106_s5689 B000026	721	Natterin-4	Lipid metabolis m	*		*	*		*
BN1106_s6908 B000039	786	Niemann- Pick protein	Lipid metabolis m			*			
BN1106_s706B 000207	792	methylmalo nyl-CoA epimerase	Lipid metabolis m				*		

BN1106_s7353 B000023	803	Niemann-Pick protein	Lipid metabolism	*	*	*	*
BN1106_s7521 B000031	821	Saposin-like protein 2 (FhSAP2)	Lipid metabolism		*		
BN1106_s2044 B000106	333	purine nucleoside phosphorylase 5a - transferase	Nuclear metabolism			*	
BN1106_s2970 B000126	460	Deoxyribonuclease	Nuclear metabolism			*	
BN1106_s3026 B000095	466	5'-bisphosphate nucleotidase	Nuclear metabolism			*	
BN1106_s375B 000232	550	Staphylococcal nuclease domain-containing protein 1	Nuclear metabolism			*	
BN1106_s754B 000176	822	Adenosine deaminase - Cat eye syndrome critical region protein 5	Nuclear metabolism			*	
BN1106_s780B 000236	834	adenylate kinase	Nuclear metabolism			*	
BN1106_s992B 000187	905	APEX nuclease	Nuclear metabolism			*	
BN1106_s6B00 0373	741	arginine/serine-rich	ne			*	

BN1106_s2003 B000165	327	Histone H2A	Nuclear regulation	*	
BN1106_s2127 B000101	346	DEK protein	Nuclear regulation	*	
BN1106_s2195 B000129	365	Zinc finger RNA- binding protein	Nuclear regulation	*	
BN1106_s2761 B000168	433	Uracil-DNA glycosylase	Nuclear regulation	*	
BN1106_s306B 000267	471	Telomerase protein component 1	Nuclear regulation	*	FhC05121
BN1106_s41B0 00298	581	High mobility group protein	Nuclear regulation	*	
BN1106_s5595 B000080	710	chromobox homolog 1 - histone methyltransf erase binding	Nuclear regulation	*	
BN1106_s596B 000431	740	UV excision repair protein RAD23	Nuclear regulation	*	
BN1106_s8B00 0460	843	Histone H1/5	Nuclear regulation	*	
BN1106_s8822 B000019	863	Histone H2B	Nuclear regulation	*	HAN5013f0 6.q1kT3
BN1106_s107B 000175	7	fasciclin-2- like	Protein export machiner y	*	

BN1106_s418B 000293	85	Golgi-associated plant pathogenesis-related protein 1	Protein export machinery	*
BN1106_s103B 000726	139	Synaptic vesicle membrane protein VAT-1	Protein export machinery	*
BN1106_s103B 000727	140	Synaptic vesicle membrane protein VAT-1	Protein export machinery	*
BN1106_s10435 B000022	147	Phosphoglucose mutase-1	Protein export machinery	*
BN1106_s1094 B000139	158	Stress-induced-phosphoprotein 1	Protein export machinery	*
BN1106_s10981 B000052	162	NSF attachment protein SNAP	Protein export machinery	*
BN1106_s1142 B000130	176	Syntaxin 1A	Protein export machinery	*
BN1106_s1956 B000118	318	Golgi-associated plant pathogenesis-related protein 1	Protein export machinery	*

BN1106_s1995 B000318	323	Fasciclin I-like protein	Protein export machinery	*			*
BN1106_s2505 B000147	406	phosphogluc onate dehydrogen ase	Protein export machinery			*	
BN1106_s3033 B000087	468	phosphoglyc erate kinase	Protein export machinery			*	
BN1106_s3747 B000112	549	ST1 homolog	Protein export machinery		*	*	*
BN1106_s390B 000196	556	Syntenin-1	Protein export machinery		*		
BN1106_s449B 000179	625	clathrin complex	Protein export machinery			*	
BN1106_s5131 B000049	679	coatomer protein complex	Protein export machinery			*	
BN1106_s5333 B000045	695	Lethal(2) giant larvae protein homolog 1	Protein export machinery			*	
BN1106_s5369 B000082	699	Transitional endoplasmic reticulum ATPase	Protein export machinery			*	
BN1106_s7866 B000032	837	phosphoglyc erate mutase	Protein export			*	

BN1106_s9461 B000006	128	heat shock 70 kDa	Protein modificati on machiner y		*	
BN1106_s1057 B000126	149	DnaJ homolog subfamily A member 1	Protein modificati on machiner y	*	*	
BN1106_s1147 B000259	179	heat shock protein 70	Protein modificati on machiner y		*	
BN1106_s1242 B000159	200	DNAJ homolog subfamily C member 11	Protein modificati on machiner y		*	*
BN1106_s1396 B000332	224	Methyltrans ferase	Protein modificati on machiner y		*	
BN1106_s14B0 00365	227	Protein archease - extracellular vesicular exosome	Protein modificati on machiner y	*		
BN1106_s1793 B000159	293	chaperonin containing t- complex	Protein modificati on machiner y		*	
BN1106_s2018 B000302	331	chaperonin containing Tcp1	Protein modificati on		*	

			machinery		
BN1106_s2179 B000235	362	heat shock factor-binding protein 1-like	Protein modification machinery	*	
BN1106_s2415 B000155	393	Acidic leucine-rich nuclear phosphoprotein 32 family member B	Protein modification machinery	*	
BN1106_s2487 B000188	403	DnaK-type molecular chaperone	Protein modification machinery	*	
BN1106_s2641 B000139	417	Aconitate hydratase 1	Protein modification machinery	*	
BN1106_s2740 B000079	427	HSP90	Protein modification machinery	*	
BN1106_s2763 B000063	434	Protein disulfide-isomerase	Protein modification machinery	*	*
BN1106_s2909 B000085	454	10 kDa heat shock protein	Protein modification	*	

			machinery	
BN1106_s332B000232	505	Adenosylhomocysteine	Protein modification machinery	*
BN1106_s3324B000219	507	chaperonin family - cpn60	Protein modification machinery	*
BN1106_s3592B000072	535	DnaJ (Hsp40) homolog	Protein modification machinery	*
BN1106_s369B000200	543	heat shock protein	Protein modification machinery	*
BN1106_s3867B000081	553	T-complex protein 1 subunit zeta - chaperonin containing Tcp1	Protein modification machinery	*
BN1106_s4119B000141	586	T-complex protein 1 subunit alpha	Protein modification machinery	*
BN1106_s470B000292	643	heat shock protein p36-like	Protein modification machinery	*

BN1106_s4703 B000071	644	Chaperonin GroEL	Protein modificati on machiner y	*
BN1106_s4999 B000041	667	protein disulfide- isomerase A3-like	Protein modificati on machiner y	*
BN1106_s5284 B000043	691	Peptidyl- prolyl cis- trans isomerase B - therefore function as protein folding chaperones	Protein modificati on machiner y	*
BN1106_s5514 B000140	705	Chaperonin containing TCP1	Protein modificati on machiner y	*
BN1106_s553B 000158	706	Calnexin	Protein modificati on machiner y	*
BN1106_s5618 B000057	714	protein disulfide- isomerase A6-like	Protein modificati on machiner y	*
BN1106_s58B0 00487	729	Degradation arginine- rich protein for mis- folding	Protein modificati on machiner y	*

BN1106_s6031 B000032	746	Alpha crystallin- containing small heat shock protein variant	Protein modificati on machiner y		*	
BN1106_s6241 B000014	757	Peptidyl- prolyl cis- trans isomerase	Protein modificati on machiner y		*	
BN1106_s639B 000754	764	isochorismat ase domain containing 1	Protein modificati on machiner y		*	
BN1106_s6573 B000067	773	Peptidyl- prolyl cis- trans isomerase FKBP5	Protein modificati on machiner y		*	
BN1106_s746B 000284	819	Chaperonin containing TCP1, subunit 3	Protein modificati on machiner y		*	
BN1106_s7787 B000022	833	T-complex protein 1 subunit delta	Protein modificati on machiner y		*	
BN1106_s9189 B000015	877	peptidyl- prolyl cis- trans isomerase	Protein modificati on machiner y	*	*	FhB03741

BN1106_s208B 000185	39	ubiquitin- protein ligase BRE1	Proteoso me machiner y		*	
BN1106_s2242 B000188	43	Proteasome subunit beta 2	Proteoso me machiner y		*	*
BN1106_s1043 B000210	146	ubiquitin- protein ligase UBR4	Proteoso me machiner y	*		
BN1106_s1639 B000395	266	20S proteasome subunit alpha 3	Proteoso me machiner y		*	*
BN1106_s325B 000622	498	20S proteasome subunit alpha 3	Proteoso me machiner y			
BN1106_s4335 B000092	609	UDP-N- acteylglucos amine pyrophosph orylase 1	Proteoso me machiner y		*	
BN1106_s452B 000151	629	UDP- glucose 4- epimerase	Proteoso me machiner y		*	
BN1106_s452B 000152	630	UDP- glucose 4- epimerase	Proteoso me machiner y		*	

BN1106_s5073 B000167	675	26S proteasome regulatory complex component - Posttranslati onal modification	Proteoso me machiner y			*			
BN1106_s510B 000501	676	26S proteasome non-ATPase regulatory subunit 11	Proteoso me machiner y			*			
BN1106_s5276 B000036	690	ubiquitin- activating enzyme E1	Proteoso me machiner y			*			
BN1106_s5855 B000168	735	Proteasome beta 1 subunit	Proteoso me machiner y			*			*
BN1106_s6576 B000103	774	Ubiquitin	Proteoso me machiner y		*	*		*	*
BN1106_s6840 B000044	784	Polyubiquiti n-A	Proteoso me machiner y	*	*	*			
BN1106_s6922 B000040	788	Proteasome subunit beta type	Proteoso me machiner y			*			
BN1106_s79B0 00381	840	Ubiquitin carboxyl- terminal hydrolase	Proteoso me machiner y			*			

BN1106_s945B 000221	895	ubiquitin- related modifier	Proteoso me machiner y	*
BN1106_s1026 B000539	3	Ribosomal protein S10	Protein synthesis machiner y	*
BN1106_s1079 B000440	8	Eukaryotic translation initiation factor 5A	Protein synthesis machiner y	*
BN1106_s11983 B000006	15	Ribosomal protein S14	Protein synthesis machiner y	*
BN1106_s3754 B000092	77	Large subunit ribosomal protein L21e	Protein synthesis machiner y	*
BN1106_s11425 B000010	177	60S ribosomal protein L3	Protein synthesis machiner y	*
BN1106_s116B 000323	182	40S ribosomal protein S12	Protein synthesis machiner y	*
BN1106_s1164 B000121	184	Elongation factor 1- gamma	Protein synthesis machiner y	*
BN1106_s12813 B000012	209	Small subunit ribosomal protein S6e	Protein synthesis machiner y	*

BN1106_s1385 B000133	223	Small subunit ribosomal protein S18e	Protein synthesis machiner y	*
BN1106_s1628 B000104	264	60s ribosomal protein L27e	Protein synthesis machiner y	*
BN1106_s1661 B000090	270	ribosomal protein S2	Protein synthesis machiner y	*
BN1106_s1739 B000159	282	elongation factor 2	Protein synthesis machiner y	*
BN1106_s1888 B000145	309	Ribosomal protein L19	Protein synthesis machiner y	*
BN1106_s1935 B000255	316	60S ribosomal protein L8	Protein synthesis machiner y	*
BN1106_s2104 B000158	343	60S ribosomal protein L18	Protein synthesis machiner y	*
BN1106_s2398 B000171	390	40S ribosomal protein S21	Protein synthesis machiner y	*
BN1106_s2474 B000182	401	ATP- dependent RNA helicase DDX23	Protein synthesis machiner y	*

BN1106_s2662 B000418	419	60S ribosomal protein L18a	Protein synthesis machiner y	*
BN1106_s2741 B000351	428	ribosomal protein L24e Large subunit	Protein synthesis machiner y	*
BN1106_s2798 B000065	435	Putative 60S ribosomal protein L23a	Protein synthesis machiner y	*
BN1106_s285B 000836	441	Ribosomal protein l7ae	Protein synthesis machiner y	*
BN1106_s3036 B000185	469	Asparagine- -tRNA ligase	Protein synthesis machiner y	*
BN1106_s338B 000296	512	Ribosomal protein L26	Protein synthesis machiner y	*
BN1106_s346B 000282	521	Ribosomal protein L11	Protein synthesis machiner y	*
BN1106_s3540 B000083	528	Ribosomal protein	Protein synthesis machiner y	*
BN1106_s3580 B000148	532	ATP- dependent RNA helicase DDX5/DBP 2	Protein synthesis machiner y	*

BN1106_s3607 B000071	538	40S ribosomal protein SA	Protein synthesis machiner y	*	
BN1106_s401B 000237	573	40s ribosomal protein S5	Protein synthesis machiner y	*	
BN1106_s410B 000447	584	Large subunit ribosomal protein L14e	Protein synthesis machiner y	*	
BN1106_s4248 B000039	597	Ribosomal protein L7a	Protein synthesis machiner y	*	
BN1106_s4252 B000085	599	elongation factor 1- alpha	Protein synthesis machiner y	*	gi 46410394
BN1106_s446B 000198	621	40S ribosomal protein S8	Protein synthesis machiner y	*	
BN1106_s4543 B000079	631	Elongation factor 1-beta	Protein synthesis machiner y	*	
BN1106_s48B0 00386	653	Small subunit ribosomal protein S27e	Protein synthesis machiner y	*	
BN1106_s498B 000146	663	60S ribosomal protein L13	Protein synthesis machiner y	*	

BN1106_s507B 000153	674	40S ribosomal protein S4	Protein synthesis machiner y	*
BN1106_s5230 B000038	687	60S ribosomal protein L12	Protein synthesis machiner y	*
BN1106_s554B 000504	707	Small subunit ribosomal protein S30e	Protein synthesis machiner y	*
BN1106_s5854 B000082	734	60S ribosomal protein L4	Protein synthesis machiner y	*
BN1106_s6136 B000050	754	Ribosomal protein	Protein synthesis machiner y	*
BN1106_s6277 B000067	759	Large subunit ribosomal protein L6e	Protein synthesis machiner y	*
BN1106_s714B 000190	796	Ribosomal protein L30	Protein synthesis machiner y	*
BN1106_s725B 000470	797	Eukaryotic translation initiation factor 3	Protein synthesis machiner y	*
BN1106_s73B0 00493	801	60s ribosomal protein L13a	Protein synthesis machiner y	*
BN1106_s801B 000129	844	60S ribosomal protein L5	Protein synthesis	*

			machiner y						
BN1106_s886B 000188	865	Elongation factor 1-beta	Protein synthesis machiner y			*			
BN1106_s914B 000124	873	40S ribosomal protein S20	Protein synthesis machiner y			*			
BN1106_s9429 B000021	893	Large subunit ribosomal protein LP1	Protein synthesis machiner y			*			
BN1106_s5825 B000038	731	lipocalin	s/lipocali n		*				
BN1106_s10332 B000010	6	Cathepsin L1-like	Secreted proteinase		*				
BN1106_s13444 B000002	20	Cathepsin B-like	Secreted proteinase		*			*	*
BN1106_s1861 B000097	32	Legumain-2	Secreted proteinase		*		gi 40643267	*	*
BN1106_s3518 B000132	71	Lysosomal Pro-X carboxypept idase - s28	Secreted proteinase		*			*	*
BN1106_s468B 000343	88	Xaa-Pro dipeptidase- M24	Secreted proteinase		*			FhB02186	
BN1106_s5163 B000012	95	Cathepsin B-like	Secreted proteinase	*	*	*			
BN1106_s5602 B000082	101	Cathepsin L-like	Secreted proteinase	*	*				
BN1106_s6570 B000050	109	Cathepsin B1-like	Secreted proteinase	*		*		gi 27526823	
BN1106_s6570 B000051	110	Cathepsin B3-like	Secreted proteinase	*	*	*		gi 107921798	

BN1106_s7079 B000034	113	Leucine aminopeptidase 2 - M17	Secreted proteinase			*				*
BN1106_s8177 B000010	122	Cathepsin L-like	Secreted proteinase							
BN1106_s8490 B000026	124	Cathepsin L1-like	Secreted proteinase			*			FhB03790/ FhB03882/ FhB03882/ FhB03693/ FhC11819	* *
BN1106_s10139 B000014	133	Cathepsin L-like	Secreted proteinase	*		*		A5Z1V3		
BN1106_s10332 B000011	142	Cathepsin L1-like	Secreted proteinase			*				*
BN1106_s10947 B000008	159	Legumain-1	Secreted proteinase							
BN1106_s1241 B000264	199	serine carboxypeptidase A - S10	Secreted proteinase			*			FhB02190	* *
BN1106_s1252 B000363	204	Leishmanolysin-like peptidase - M8	Secreted proteinase							
BN1106_s13034 B000002	215	Dipeptidyl-peptidase III - M49	Secreted proteinase			*				*
BN1106_s1407 B000292	230	Prolyl oligopeptidase - S9	Secreted proteinase			*				
BN1106_s14108 B000004	231	Cathepsin B-like	Secreted proteinase	*		*				
BN1106_s1620 B000120	262	Lysosomal Pro-X carboxypeptidase - s28	Secreted proteinase			*			FhB00297	* *
BN1106_s16222 B000004	263	Legumain-1	Secreted proteinase			*				

BN1106_s1772 B000188	290	Cathepsin B-like	Secreted proteinase		*						*
BN1106_s1840 B000150	301	Cathepsin B4-like	Secreted proteinase	*	*	*					
BN1106_s19975 B000004	325	Cathepsin L3-like	Secreted proteinase	*							
BN1106_s2087 B000065	337	Legumain-1	Secreted proteinase	*	*	*	Fhep29h09.q 1k				
BN1106_s2303 B000143	378	Cathepsin L6-like	Secreted proteinase	*		*					
BN1106_s2684 B000094	421	calpain	Secreted proteinase			*					
BN1106_s2882 B000074	447	Legumain-1	Secreted proteinase								
BN1106_s2882 B000077	448	Legumain-1	Secreted proteinase								
BN1106_s3008 B000074	464	Cathepsin L3-like	Secreted proteinase	*	*	*	Q9GRW4/Q 9GRW6/Q9 5VA7	A5X483	gi 161347489/ gi 222820543/ gi 10798509		
BN1106_s3536 B000078	527	Cathepsin L-like	Secreted proteinase		*					*	
BN1106_s373B 000290	547	Cathepsin B-like	Secreted proteinase	*	*	*					
BN1106_s4000 B000155	572	Cathepsin L-like	Secreted proteinase		*						
BN1106_s4187 B000060	591	Cathepsin L3-like	Secreted proteinase	*	*	*					
BN1106_s4187 B000061	592	Cathepsin L-like	Secreted proteinase	*		*					
BN1106_s4223 B000091	594	Legumain 3	Secreted proteinase	*	*				FhB00106	*	
BN1106_s4276 B000065	603	Metalloprot ease ARX1 - without EC number associated	Secreted proteinase			*					
BN1106_s4482 B000044	624	Cathepsin B2-like	Secreted proteinase	*		*					

BN1106_s4511 B000075	627	cytosol alanyl aminopeptid ase - M1	Secreted proteinase			*	
BN1106_s4636 B000039	636	Cathepsin L-like	Secreted proteinase		*		A8W7J0
BN1106_s5100 B000033	677	Cathepsin B-like	Secreted proteinase	*	*	*	
BN1106_s5602 B000083	711	Cathepsin L4-like	Secreted proteinase	*		*	
BN1106_s5701 B000008	722	cathepsin L- like	Secreted proteinase			*	
BN1106_s5702 B000055	723	Cathepsin L-like	Secreted proteinase		*		
BN1106_s5880 B000098	738	Mastin - S1	Secreted proteinase			*	
BN1106_s617B 000566	755	Leucine amino peptidase 1 fragment C- terminal - M17	Secreted proteinase	*	*	*	*
BN1106_s617B 000567	756	Leucine amino peptidase 1 fragment N- terminal - M17	Secreted proteinase			*	
BN1106_s6354 B000017	762	Cathepsin L1-like	Secreted proteinase		*		FhB03910
BN1106_s6635 B000017	775	Legumain-1	Secreted proteinase	*	*	*	
BN1106_s6995 B000048	790	Cathepsin L4-like	Secreted proteinase	*	*	*	
BN1106_s6995 B000049	791	Cathepsin L-like	Secreted proteinase	*	*	*	
BN1106_s7289 B000014	800	Cathepsin L1-like	Secreted proteinase		*		Q7JNQ9/ Q9NB30/ Q9GRW FhB03688 *

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BN1106_s7456 B000012	818	Cathepsin L1-like	Secreted proteinase		*				
BN1106_s7612 B000030	824	Legumain	Secreted proteinase	*	*	*	P80527.1		
BN1106_s7612 B000031	825	Legumain	Secreted proteinase	*		*	Fhep29h09.q 1k		
BN1106_s7612 B000032	826	Legumain	Secreted proteinase			*			
BN1106_s793B 000177	841	Cathepsin B-like	Secreted proteinase		*			*	*
BN1106_s8098 B000020	846	Cathepsin L2-like	Secreted proteinase	*	*			*	
BN1106_s8462 B000006	855	Cathepsin B4 -like	Secreted proteinase	*	*	*			*
BN1106_s8881 B000009	866	Cathepsin L-like	Secreted proteinase	*	*				
BN1106_s9069 B000006	870	legumain-1	Secreted proteinase	*	*	*			
BN1106_s9304 B000006	887	Cathepsin B-like	Secreted proteinase		*		HAN4015b0 5.p1kT7	FhB03844	
BN1106_s98B0 00759	902	cytosol alanyl aminopeptid ase - M1	Secreted proteinase			*			
BN1106_s9961 B000006	907	Puromycin- sensitive aminopeptid ase	Secreted proteinase			*			
BN1106_s3864 B000104	79	Serpin	Secreted proteinase inhibitor		*	*	Fhep20a08.q 1k		
BN1106_s122B 000261	195	Serpin B6	Secreted proteinase inhibitor		*	*		*	

BN1106_s1612 B000138	259	Multi-domain cystatin	Secreted proteinase inhibitor		*	*		*
BN1106_s1727 B000096	279	Serpin	Secreted proteinase inhibitor		*	*		
BN1106_s2757 B000215	431	Cystatin	Secreted proteinase inhibitor		*	*		
BN1106_s318B 000274	487	kunitz-type proteinase inhibitor (Fh-KTM)	Secreted proteinase inhibitor	*	*	*	FhC02704	*
BN1106_s3226 B000049	493	serpin	Secreted proteinase inhibitor		*	*		
BN1106_s3911 B000104	557	kunitz-type proteinase inhibitor (Fh-KTM2)	Secreted proteinase inhibitor					
BN1106_s4618 B000050	634	Serpin B	Secreted proteinase inhibitor		*	*		
BN1106_s4651 B000094	638	Stefin-1	Secreted proteinase inhibitor	*	*	*		*
BN1106_s5476 B000058	700	inhibidor proteases	Secreted proteinase inhibitor	*				
BN1106_s8826 B000029	864	kunitz-type proteinase inhibitor	Secreted proteinase inhibitor	*	*		FhC02704	
BN1106_s1026 B000543	4	Universal stress protein UspA	Signal transducti on			*		

BN1106_s1551 B000464	27	KH domain- containing, RNA- binding, signal transduction -associated protein 1	Signal transducti on		*			
BN1106_s1971 B000297	37	Protein DJ-1	Signal transducti on	*	*			
BN1106_s2316 B000078	46	cAMP- dependent protein kinase type II-alpha regulatory subunit	Signal transducti on		*			
BN1106_s2848 B000228	56	SLIT and NTRK-like protein	Signal transducti on		*		*	
BN1106_s3261 B000048	68	otoferlin a	Signal transducti on	*				*
BN1106_s366B 000435	74	calumenin- B	Signal transducti on		*			
BN1106_s3904 B000042	81	14-3-3 protein	Signal transducti on	*	*	gi 58263527	*	*
BN1106_s397B 000170	83	Tensin	Signal transducti on		*			
BN1106_s4074 B000042	84	14-3-3 protein	Signal transducti on		*			
BN1106_s4999 B000040	92	Integrin- linked	Signal transducti on		*			

		protein kinase		
BN1106_s5073 B000165	93	major vault protein	Signal transduction	*
BN1106_s538B 000488	98	Galectin domain protein	Signal transduction	*
BN1106_s596B 000423	105	Universal stress protein UspA	Signal transduction	*
BN1106_s828B 000244	123	Sarcoplasmic calcium-binding protein	Signal transduction	*
BN1106_s101B 000544	132	Dickkopf-related protein 3	Signal transduction	*
BN1106_s1139 B000359	170	cell division cycle and apoptosis regulator protein 1-like	Signal transduction	*
BN1106_s11465 B000018	178	Ras-related protein Rab-14	Signal transduction	*
BN1106_s1277 B000102	208	Calcium binding protein	Signal transduction	*
BN1106_s1419 B000169	232	Serine/threonine-protein phosphatase	Signal transduction	*
BN1106_s1441 B000250	233	Guanine nucleotide-binding protein	Signal transduction	*

subunit beta-1 (G- prot)									
BN1106_s1506 B000116	243	Guanine nucleotide- binding protein	Signal transducti on				*		
BN1106_s1560 B000153	250	Calmodulin- like protein 3 (CaM3)	Signal transducti on				*		
BN1106_s1657 B000161	269	Tetraspanin- CD63 receptor	Signal transducti on	*	*		*	FhB00703	*
BN1106_s168B 000273	272	Rab11 family- interacting protein	Signal transducti on				*		
BN1106_s17035 B000006	276	Translationa lly controlled tumor protein	Signal transducti on		*		*		
BN1106_s1806 B000287	295	Calcium- binding protein	Signal transducti on				*		
BN1106_s1806 B000294	296	Calcium binding protein	Signal transducti on		*		*	FhB02185	
BN1106_s1819 B000120	297	serine/threo nine protein kinase	Signal transducti on		*				
BN1106_s1823 B000148	298	Lysosome- associated membrane glycoprotein	Signal transducti on		*		*		*
BN1106_s1855 B000093	305	adenylate kinase	Signal transducti on				*		

BN1106_s1908 B000177	313	RAS-like GTP- binding protein	Signal transducti on	*	*		*
BN1106_s204B 000249	332	Calpain-B	Signal transducti on	*	*		
BN1106_s2053 B000154	335	mucin	Signal transducti on		*		
BN1106_s2096 B000232	339	14-3-3 family	Signal transducti on		*		
BN1106_s210B 000998	340	Calmodulin- like protein 1 (CaM1)	Signal transducti on	*	*		
BN1106_s2124 B000372	345	Ras-related protein Ral- A	Signal transducti on	*			
BN1106_s214B 000741	349	Calcium- binding protein	Signal transducti on		*	gi 2764758	
BN1106_s214B 000742	350	Calcium- binding protein CaBP4	Signal transducti on	*	*		FhB01383
BN1106_s214B 000744	352	(calcium- binding EF- hand protein 4)	Signal transducti on		*		
BN1106_s214B 000747	354	CaBP3 (calcium- binding EF- hand protein 3)	Signal transducti on		*		
BN1106_s2140 B000163	356	Calponin	Signal transducti on		*		

BN1106_s2277 B000048	373	Calmodulin- like protein 2 (CaM2)	Signal transducti on	*	*	FhB00790
BN1106_s2409 B000122	392	Calbindin- 32	Signal transducti on		*	
BN1106_s2438 B000175	398	guanine nucleotide- binding protein subunit beta-2-like	Signal transducti on		*	
BN1106_s2487 B000187	402	Protein NDRG1	Signal transducti on		*	
BN1106_s258B 000276	411	ras-related protein Rab- 8A,	Signal transducti on	*		*
BN1106_s2615 B000090	415	Myoferlin or Dysferlin	Signal transducti on	*	*	
BN1106_s2673 B000071	420	Calreticulin	Signal transducti on		*	
BN1106_s2716 B000103	424	dehydrogen ase/reductas e SDR family member 1-li	Signal transducti on		*	
BN1106_s280B 000159	436	Calcium- binding protein	Signal transducti on		*	
BN1106_s2898 B000145	450	Cystathionin e beta- synthase	Signal transducti on		*	
BN1106_s3172 B000053	477	14-3-3	Signal transducti on	*	*	

BN1106_s318B 000272	480	Calcium-binding EF-hand	Signal transduction			*	
BN1106_s344B 000191	519	Nucleoside diphosphate kinase - functions of the NDP kinases in the processes of signal transduction in various organisms	Signal transduction		*	*	
BN1106_s3585 B000136	533	Myoferlin or Dysferlin	Signal transduction		*	*	*
BN1106_s3590 B000078	534	FERM domain-containing protein	Signal transduction			*	
BN1106_s4B00 0834	569	calcium-binding protein	Signal transduction	*		*	
BN1106_s4B00 0836	570	calcium-binding protein	Signal transduction		*	*	
BN1106_s417B 000229	590	cAMP-dependent protein kinase type II regulatory subunit	Signal transduction			*	
BN1106_s4290 B000110	604	Adenylyl cyclase-associated protein 1	Signal transduction			*	

BN1106_s4512 B000085	628	ADP- ribosylation factor	Signal transducti on		*				
BN1106_s4560 B000072	633	Tetraspanin	Signal transducti on		*			*	*
BN1106_s4672 B000098	641	Rho GDP- dissociation inhibitor	Signal transducti on		*	*			
BN1106_s468B 000347	642	SPARC protein	Signal transducti on			*			
BN1106_s483B 000264	657	Receptor expression- enhancing protein	Signal transducti on			*			
BN1106_s4840 B000058	658	Otoferlin	Signal transducti on		*			*	
BN1106_s519B 000125	684	SWI/SNF- related matrix- associated actin- dependent regulator of chromatin subfamily A-like protein 1	Signal transducti on			*			
BN1106_s605B 000204	749	Rab GDP dissociation inhibitor alpha	Signal transducti on			*			
BN1106_s6059 B000016	750	Calcium- binding protein	Signal transducti on		*				

BN1106_s652B 000433	768	Zinc binding protein	Signal transducti on		*			
BN1106_s678B 000118	780	Calmodulin- like protein 4 (CaM4)	Signal transducti on		*	*		*
BN1106_s686B 000273	785	14-3-3 protein gamma	Signal transducti on			*	FhB00240	
BN1106_s7273 B000042	799	Major vault protein	Signal transducti on	*		*		*
BN1106_s736B 000233	804	Dihydropyri midinase- like 2	Signal transducti on			*		
BN1106_s773B 000382	832	Calponin	Signal transducti on			*		
BN1106_s7814 B000036	835	Integrin- linked protein kinase	Signal transducti on			*		
BN1106_s844B 000259	853	Rab-protein 11	Signal transducti on		*	*		*
BN1106_s8501 B000034	857	Ras-related protein Rab- 5B	Signal transducti on			*		
BN1106_s915B 000136	874	Tetraspanin- 1	Signal transducti on		*	*		*
BN1106_s995B 000144	906	protein MEMO1	Signal transducti on			*		
BN1106_s1871 B000313	307	Programme d cell death 6-interacting protein	Signal transducti on apoptosis		*		FhC01381	*

BN1106_s347B 000346	522	programmed cell death- involved protein	Signal transducti on apoptosis	*
BN1106_s3654 B000233	540	programmed cell death protein 6- like isoform X1	Signal transducti on apoptosis	*
BN1106_s1922 B000117.	34	Small nuclear ribonucleopr oteins G	Transcript ion machiner y	*
BN1106_s2871 B000068	57	poly(A) binding protein	Transcript ion machiner y	*
BN1106_s2945 B000112	61	seryl- aminoacyl- tRNA synthetase	Transcript ion machiner y	*
BN1106_s3553 B000143	72	Heterogeneo us nuclear ribonucleopr oteins A2/B1	Transcript ion machiner y	*
BN1106_s4644 B000085	87	Heterogeneo us nuclear ribonucleopr oteins F/H	Transcript ion machiner y	*
BN1106_s1270 B000089	207	Heterogeneo us nuclear ribonucleopr oteins	Transcript ion machiner y	*
BN1106_s135B 000521	220	Template- activating factor I	Transcript ion machiner y	*

BN1106_s1521 B000163	246	Tar DNA-binding protein	Transcription machinery	*
BN1106_s1560 B000152	249	RNA-binding region RNP-1 (RNA recognition motif)	Transcription machinery	*
BN1106_s1575 B000264	251	Transcriptional coactivator	Transcription machinery	*
BN1106_s1714 B000259	278	SAFB Scaffold attachment factor B2	Transcription machinery	*
BN1106_s1945 B000138	317	Splicing factor, arginine/serine-rich 7	Transcription machinery	*
BN1106_s1960 B000081	320	RNA-binding protein 4.1	Transcription machinery	*
BN1106_s2169 B000110	361	Splicing factor arginine/serine-rich 1/9	Transcription machinery	*
BN1106_s2968 B000206	459	serine/arginine-rich splicing factor 7-like	Transcription machinery	*
BN1106_s303B 000438	467	Regulator of differentiation 1	Transcription machinery	*

BN1106_s3074 B000155	473	transformer- 2 protein homolog beta-like	Transcript ion machiner y		*
BN1106_s310B 000140	474	Heterogeneo us nuclear ribonucleopr oteins U-like	Transcript ion machiner y		*
BN1106_s3171 B000156	476	Heterogeneo us nuclear ribonucleopr oteins K	Transcript ion machiner y		*
BN1106_s3948 B000057	562	splicing regulatory protein (FUSE binding protein 2)	Transcript ion machiner y		*
BN1106_s397B 000172	566	Heterogeneo us nuclear ribonucleopr oteins K	Transcript ion machiner y		*
BN1106_s5603 B000136	712	Activated RNA polymerase II transcription al coactivator p15	Transcript ion machiner y		*
BN1106_s607B 000421	752	Transcriptio n elongation factor B polypeptide 1	Transcript ion machiner y	*	*
BN1106_s698B 000162	789	small nuclear ribonucleopr oteins D1	Transcript ion machiner y		*

BN1106_s947B 000845	896	RNA-binding protein	Transcription machinery			*		
BN1106_s986B 000164	903	RNA polymerase II transcription elongation factor,	Transcription machinery		*	*		
BN1106_s1437 B000141	21	vacuolar protein sorting 4b	Transport /Storage		*			*
BN1106_s1966 B000132	36	Calponin/Transgelin	Transport /Storage			*		
BN1106_s2298 B000195	44	Vesicle-associated membrane protein-associated protein A	Transport /Storage			*		
BN1106_s2471 B000098	53	ATP binding cassette	Transport /Storage		*		*	*
BN1106_s274B 000296	55	ATP-binding cassette	Transport /Storage		*		*	*
BN1106_s584B 000346	102	Glucose transporter-2 protein	Transport /Storage	*	*	*		
BN1106_s584B 000348	103	Solute carrier family 2 facilitated glucose transporter member 3	Transport /Storage			*		

BN1106_s1061 B000222	150	Alpha/beta hydrolase domain- containing protein	Transport /Storage			*			
BN1106_s1110 B000106	165	cubilin-like	Transport /Storage	*	*	*		*	*
BN1106_s114B 000614	171	Cubilin	Transport /Storage	*		*			
BN1106_s114B 000615	172	Cubilin-like	Transport /Storage	*	*	*			*
BN1106_s1326 B000426	216	retinitis pigmentosa 1-like 1 protein-like - function not known, probably transport sodium- coupled	Transport /Storage			*			
BN1106_s1326 B000429	217	monocarbox ylate transporter 1-like	Transport /Storage		*				
BN1106_s1581 B000120	253	Anoctamin	Transport /Storage		*				
BN1106_s1633 B000182	265	H ⁺ -ATPase subunit B	Transport /Storage			*			
BN1106_s168B 000275	273	GPI- anchored surface glycoprotein	Transport /Storage			*			
BN1106_s168B 000276	274	GPI- anchored surface glycoprotein	Transport /Storage						

BN1106_s2655 B000264	418	Charged multivesicul ar body protein	Transport /Storage		*				*
BN1106_s2858 B000111	444	Vacuolar protein sorting- associated protein VTA1	Transport /Storage		*				*
BN1106_s2916 B000225	455	Transmembr ane protein C2orf18	Transport /Storage		*				
BN1106_s3001 B000131	461	cubilin-like	Transport /Storage	*	*	*		*	
BN1106_s3001 B000132	462	cubilin-like	Transport /Storage	*	*	*	HAN4005a0 7.q1kT3		*
BN1106_s3001 B000132	463	cubilin-like	Transport /Storage	*	*	*			
BN1106_s3067 B000141	472	transporter SVOPL	Transport /Storage			*			
BN1106_s3313 B000078	504	ATP:ADP antiporter	Transport /Storage			*			
BN1106_s3321 B000106	506	ATPase, H+ transporting, lysosomal accessory protein 1	Transport /Storage		*				
BN1106_s335B 000427	511	Endophilin- B1	Transport /Storage			*			
BN1106_s3396 B000086	515	ATP- binding cassette subfamily D (ALD) - ABC transporter	Transport /Storage		*		FhC06858		

BN1106_s3396 B000087	516	ATP-binding cassette subfamily D (ALD) - ABC transporter sodium/potassium-transporting ATPase subunit beta-3	Transport /Storage	*	
BN1106_s3547 B000116	529	Voltage-dependent anion channel protein 2	Transport /Storage	*	
BN1106_s3549 B000112	530	calponin/tra ns gelin	Transport /Storage	*	gi 29841466
BN1106_s3747 B000111	548	importin-beta 3	Transport /Storage	*	
BN1106_s420B 000182	593	Mitochondrial import receptor subunit TOM34 - cytosolic cochaperone of the Hsp90/Hsp70 protein complex	Transport /Storage	*	
BN1106_s4802 B000087	654	V-type proton ATPase 116 kDa subunit a isoform 1	Transport /Storage	*	

BN1106_s521B 000167	686	SNaK1	Transport /Storage				*		*
BN1106_s5340 B000050	696	GTP- binding nuclear protein Ran	Transport /Storage				*		
BN1106_s5369 B000081	698	Transitional endoplasmic reticulum ATPase	Transport /Storage				*		
BN1106_s577B 000267	727	Calcium- transporting ATPase	Transport /Storage				*		
BN1106_s577B 000269	728	Calcium- transporting ATPase	Transport /Storage				*		
BN1106_s584B 000350	733	Glucose transporter- 2 protein	Transport /Storage	*	*		*		*
BN1106_s6006 B000040	743	cubilin-like	Transport /Storage			*			
BN1106_s605B 000203	748	Putative rab GDP- dissociation inhibitor	Transport /Storage			*	*		
BN1106_s7307 B000022	802	cubilin	Transport /Storage	*			*		
BN1106_s795B 000311	842	Nuclear transport factor-2	Transport /Storage				*		
BN1106_s823B 000216	851	CRAL- TRIO domain- containing protein - sec14 cytosolic factor family	Transport /Storage			*			

BN1106_s871B 000120	862	B-cell receptor- associated protein	Transport /Storage			*	
BN1106_s912B 000169	871	Charged multivesicul ar body protein 2a	Transport /Storage		*		
BN1106_s9797 B000034	901	cubilin-like protein	Transport /Storage	*	*	*	
BN1106_s2196 B000154	40	hypothetical protein T265_12952 , partial	Unknown conserved			*	
BN1106_s4413 B000122	86	hypothetical protein	Unknown conserved		*		*
BN1106_s487B 000135	90	uncharacteri zed protein	Unknown conserved		*	*	
BN1106_s1251 B000326	202	tr-G7YKJ4- G7YKJ4_C LOSI OS=Clonorc his sinensis GN=CLF_1 10325 PE=4 SV=1 - probable fragment	Unknown conserved			*	
BN1106_s1287 B000157	210	Uncharacter ized protein	Unknown conserved		*		
BN1106_s173B 000867	280	Protein FAM79A - uk function	Unknown conserved			*	
BN1106_s214B 000745	353	Tegument antigen	Unknown conserved			*	

BN1106_s214B 000748	355	Tegument antigen	Unknown conserved			*		
BN1106_s37B0 00343	544	conserved hypothetical protein	Unknown conserved			*		
BN1106_s426B 000263	601	Tegumental protein	Unknown conserved			*		
BN1106_s574B 000139	724	Unknown product	Unknown conserved	*				
BN1106_s586B 000374	737	Fasciola/Sch istosoma cross- reactive protein	Unknown conserved		*	*		
BN1106_s606B 000244	751	hypothetical protein T265_05756	Unknown conserved		*			
BN1106_s739B 000131	805	Tegumental protein	Unknown conserved			*		
BN1106_s739B 000132	806	hypothetical protein T265_08040	Unknown conserved		*	*	FhC01433	*
BN1106_s789B 000472	838	hypothetical protein T265_14322 , partial	Unknown conserved			*		
BN1106_s789B 000473	839	protein F37C4.5- like - no known function	Unknown conserved			*		
BN1106_s1074 B000200	153	Uncharacter ized protein	Unknown			*		
BN1106_s1076 B000677	154	Unknown product	Unknown			*		

BN1106_s1200 B000196	193	Unknown product	Unknown	*	*
BN1106_s1200 B000197	194	Unknown product	Unknown		*
BN1106_s1233 B000314	197	Unknown product	Unknown		*
BN1106_s1349 B000189	219	Unknown product	Unknown	*	
BN1106_s136B 000270	221	Unknown product	Unknown		*
BN1106_s13980 B000012	225	Unknown product	Unknown	*	
BN1106_s1536 B000294	247	Unknown product	Unknown		*
BN1106_s1579 B000120	252	Unknown product	Unknown		*
BN1106_s18B0 00411	294	Unknown product	Unknown		*
BN1106_s1830 B000391	299	Unknown product	Unknown		*
BN1106_s19966 B000004	324	Unknown product	Unknown	*	
BN1106_s216B 000184	358	Unknown product	Unknown	*	*
BN1106_s2275 B000114	371	Uncharacter ized protein	Unknown	*	*
BN1106_s263B 000603	416	uncharacteri zed protein	Unknown		*
BN1106_s2751 B000093	430	Unknown product	Unknown		
BN1106_s3270 B000103	500	Unknown product	Unknown		*
BN1106_s3381 B000139.	513	Unknown product	Unknown	*	
BN1106_s3381 B000140	514	Unknown product	Unknown		*
BN1106_s4307 B000027	606	Unknown product	Unknown		

BN1106_s440B000223.	616	Unknown product	Unknown		*				
BN1106_s440B000226.	617	Unknown product	Unknown		*				*
BN1106_s4767B000027	651	Unknown product	Unknown		*				*
BN1106_s4767B000028	652	Unknown product	Unknown		*				*
BN1106_s4811B000069.	656	Unknown product	Unknown		*				
BN1106_s5172B000090.	680	Unknown product	Unknown	*		*			
BN1106_s6032B000034	747	Unknown product	Unknown			*			
BN1106_s6800B000066	782	Unknown product	Unknown			*			
BN1106_s6821B000024	783	Unknown product	Unknown		*			*	*
BN1106_s709B000651	794	unknown	Unknown		*				
BN1106_s7443B000031	808	Unknown product	Unknown	*	*	*			
BN1106_s7704B000009	827	Unknown product	Unknown		*	*			
BN1106_s8038B000016	845	Unknown product	Unknown	*	*	*		*	*
BN1106_s8194B000020	850	Unknown product	Unknown			*			
BN1106_s8592B000014	858	Unknown product	Unknown		*				
BN1106_s8629B000023	859	Unknown product	Unknown			*			
BN1106_s928B000210	885	Unknown product	Unknown			*			
BN1106_s986B000166	904	Unknown product	Unknown			*			
BN1106_s999B000190	908	Unknown product	Unknown			*			

[illegible]

Cathepsin L (A8W638)	FABP Fh15 (Q7M4G0)	Histone H4 (gi 194772468)	Thioredoxin peroxidase (FhB00158)	Acid phosphatase-like protein (BN1106_s1079B000448)	Otoferlin (BN1106_s92B000560)
Histone H4 (Fhep10a01.q1k)	Cathepsin L (Q8T5Z9)	HSP-90 (gi 226479066)	Retinal dehydrogenase (FhB03623)	Branched-chain amino acid aminotransferase (BN1106_s676B000138)	Inositol transporter (BN1106_s3611B000052)
FABP (HAN3004-1f09.q1k)	Fg SAP-3 (HAN5007d12.q1kaT3)		Ferritin (FhB00163)	Aspartate aminotransferase (BN1106_s4453B000140)	Beta-1,4- galactosyltransferase 2 (BN1106_s741B000214)
SjCHGC00176 protein (HAN5016d06.q1kT3)			NPC-2 (FhB03724)	Glutamate dehydrogenase NAD(P)+ (BN1106_s8641B000016)	ALIX (BN1106_s2963B000136)
peptidyl-prolyl cis-trans isomerase (HAN5005h03.q1kaT3)			Ubiquitin L40 precursor (FhB01298)	EH domain-containing protein 1 (BN1106_s2100B000128)	Proteasome subunit alpha 7 (BN1106_s7720B000057)

	ATP sintase alpha subunit mitochondr ial (FhB00596)	Oestrogen- regulated protein EP45 (BN1106_ s4565B00 0032)	Proteasome subunit alpha type (BN1106_s4 981B000066)
	Serine proteinase inhibitor (FhB01959)		Proteasome subunit alpha type (BN1106_s3 658B000104)
	Haemo globin (FhB003 23)		Proteasome subunit alpha 6 (BN1106_s1 259B000205)
	Glutath ione dehydr ogenas e (FhB01 082)		20S proteasome subunit beta 2 (BN1106_s2 284B000154)
	Calpon in (FhB01 516)		Proteasome subunit alpha type (BN1106_s9 050B000016) Phospholipid -translocating ATPase IIB (BN1106_s4 35B000242)
	GST (FhB00 203)		
	Amino acylase		Vacuolar assembly protein

	(lrc449 28)	(BN1106_s2 316B000077)
	Programmed cell death protein (FhC00663)	Syntenin-1 (BN1106_s4740 B000062)
		Charged multivesicular body protein 5 (BN1106_s6543 B000070)
		Ras-related protein (BN1106_s637 B000246)
		Alpha- galactosidase (BN1106_s124 1B000260)
		Uncharacterise d (BN1106_s263 B000609)