

## **GRP78 Overexpression Triggers PINK1/IP<sub>3</sub>R-Mediated Neuroprotective Mitophagy**

Tatiana Leiva-Rodríguez<sup>1,2\*</sup>, David Romeo-Guitart<sup>1,2,8 \*,#</sup>, Pau Muñoz-Guardiola<sup>3</sup>, Miriam Polo<sup>4</sup>, Celia Bañuls<sup>4</sup>, Mireia Herrando-Grabulosa<sup>1,2</sup>, Valerie Petegnief<sup>5</sup>, Assumpció Bosch<sup>2,3</sup>, Jose Miguel Lizcano<sup>3</sup>, Nadezda Apostolova<sup>6</sup>, Joaquim Forés<sup>7</sup>, Caty Casas<sup>1,2,9 \*</sup>

### **Affiliations**

<sup>1</sup> Institut de Neurociències (INc) and Department of Cell Biology, Physiology and Immunology, Universitat Autònoma de Barcelona (UAB)

<sup>2</sup> Centro de Investigación Biomédica en Red sobre Enfermedades Neurodegenerativas (CIBERNED), Bellaterra, Barcelona, Spain

<sup>3</sup> INc and Department of Biochemistry and Molecular Biology, UAB, Bellaterra, Barcelona, Spain

<sup>4</sup> Service of Endocrinology. University Hospital Dr. Peset, Foundation for the Promotion of Health and Biomedical Research in the Valencian Region (FISABIO), Valencia, Spain

<sup>5</sup> Department of Brain Ischemia and Neurodegeneration, Institute for Biomedical Research of Barcelona (IIBB), Spanish Research Council (CSIC), Institut d'Investigacions Biomèdiques August Pi Sunyer (IDIBAPS), Barcelona, Spain

<sup>6</sup> Department de Farmacologia, Facultat de Medicina, Universitat de Valencia; CIBERehd, Valencia, Spain

<sup>7</sup> Hand and Peripheral Nerve Unit, Hospital Clínic i Provincial, Universitat de Barcelona, Barcelona, Spain Biotech, S.L, Barcelona, Spain

<sup>8</sup> Present address: Institut Necker Enfants-Malades (INEM), INSERM U1151, Laboratory "Hormonal regulation of brain development and functions"—Team 8, Université Paris Descartes, Sorbonne Paris Cité, 75015 Paris, France.

<sup>9</sup> Died June 29, 2020.

\* These authors contributed equally.

# Correspondence should be addressed to:

David Romeo-Guitart, david.romeo-guitart@inserm.fr; Tel: +33-01 40 61 53 57

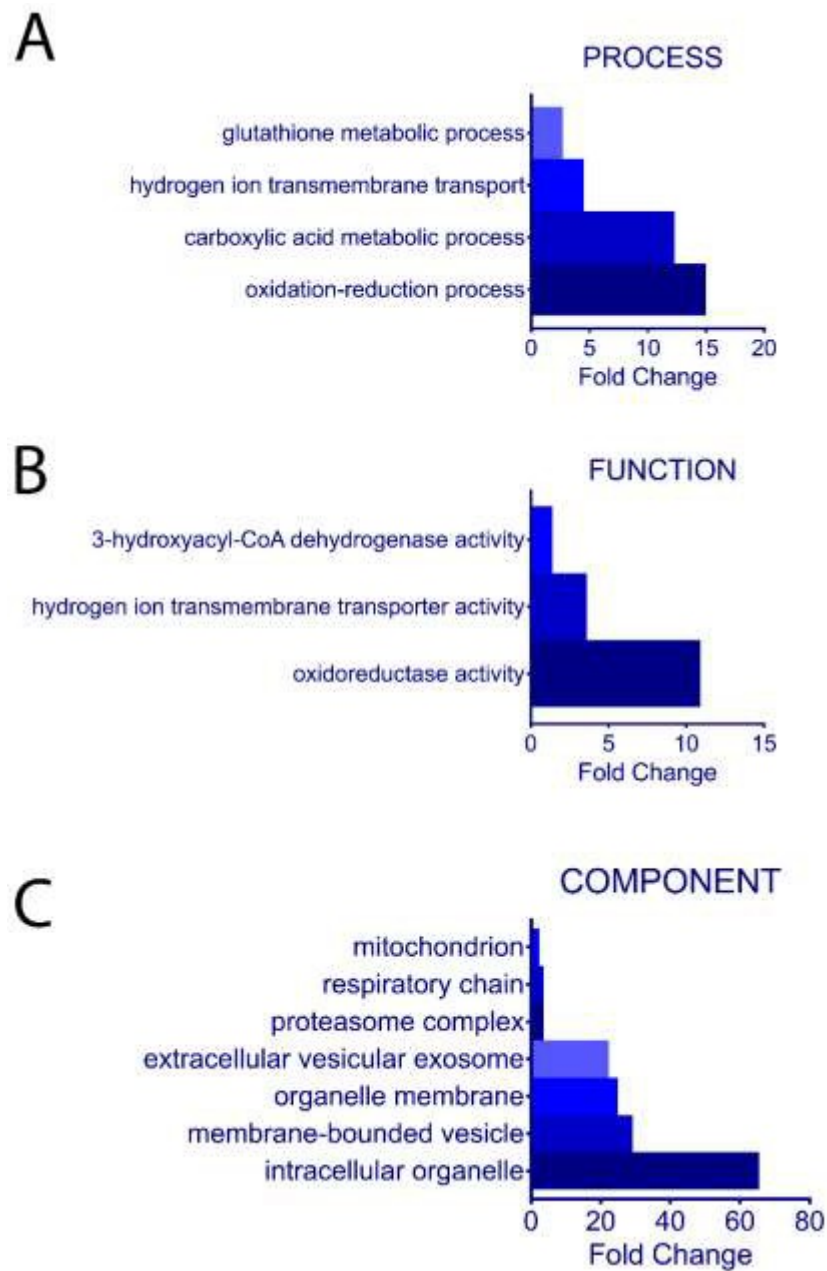
Caty Casas Louzao, [Caty.Casas@uab.es](mailto:Caty.Casas@uab.es), Tel: +34-935811324

**Running title:** GRP78 triggers mitophagy

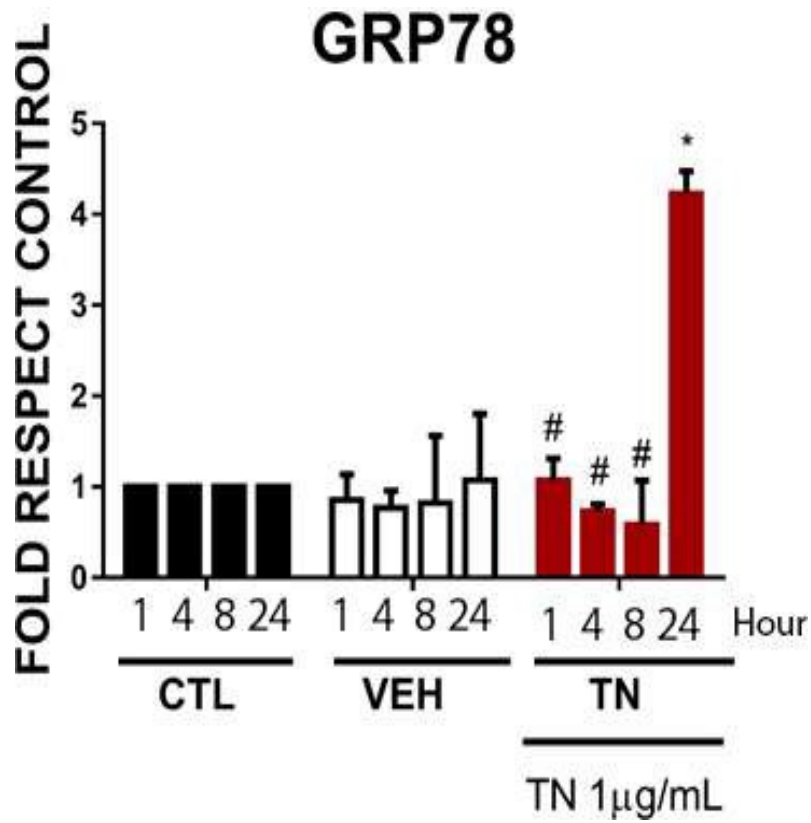
## **SUPPLEMENTARY INFORMATION**

- **[Supplementary Figures and Legends](#)**
- **[Supplementary Tables and Headings](#)**

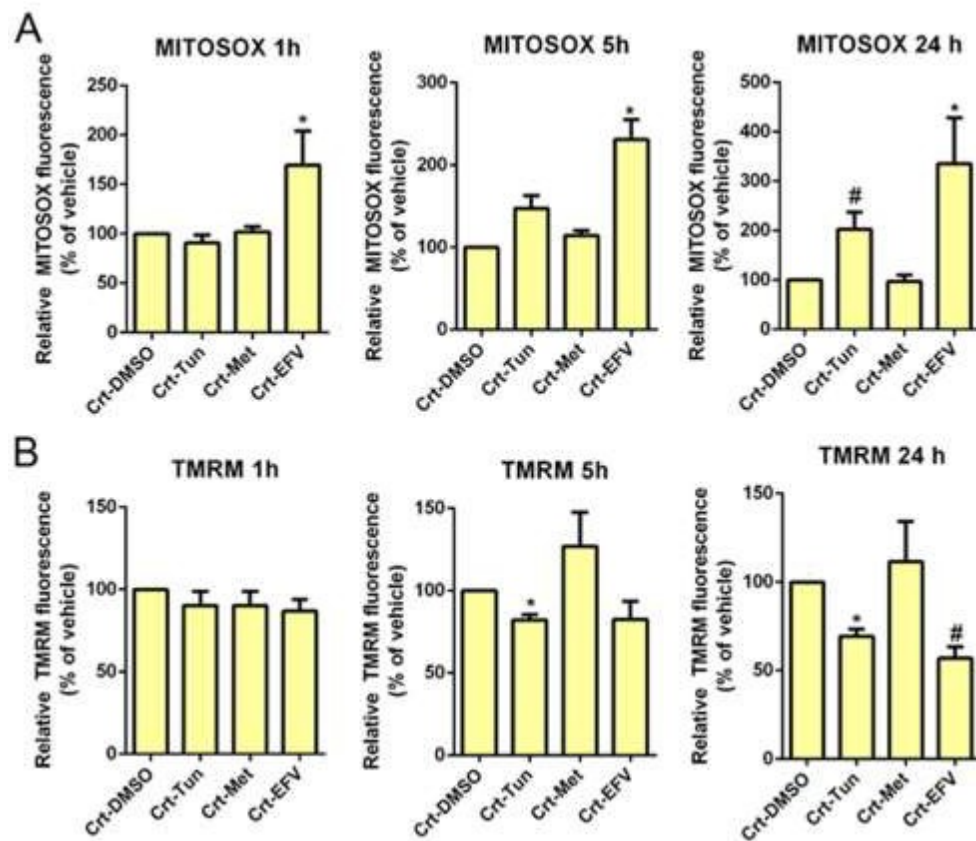
## SUPPLEMENTARY FIGURES AND LEGENDS



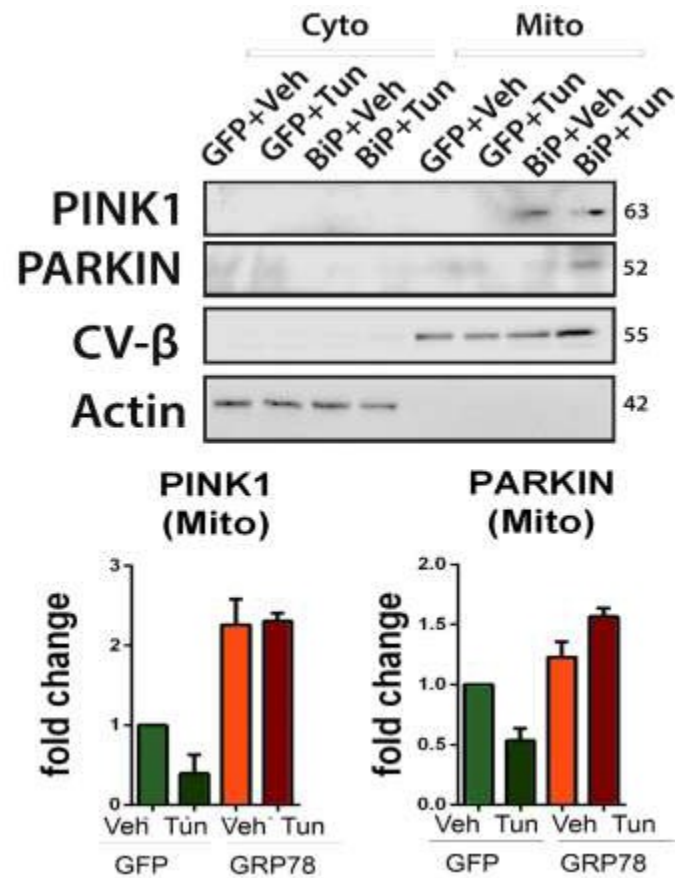
**Supplemental Figure 1. Bioinformatic analysis.** DAVID bioinformatic analysis of comparative proteomic data from signature proteins specifically modulated by GRP78 overexpression in L4-L5 spinal cord segments from RA-injured model revealed enrichment in mitochondrial processes (**A**), function (**B**), and components (**C**) at 7dpi.



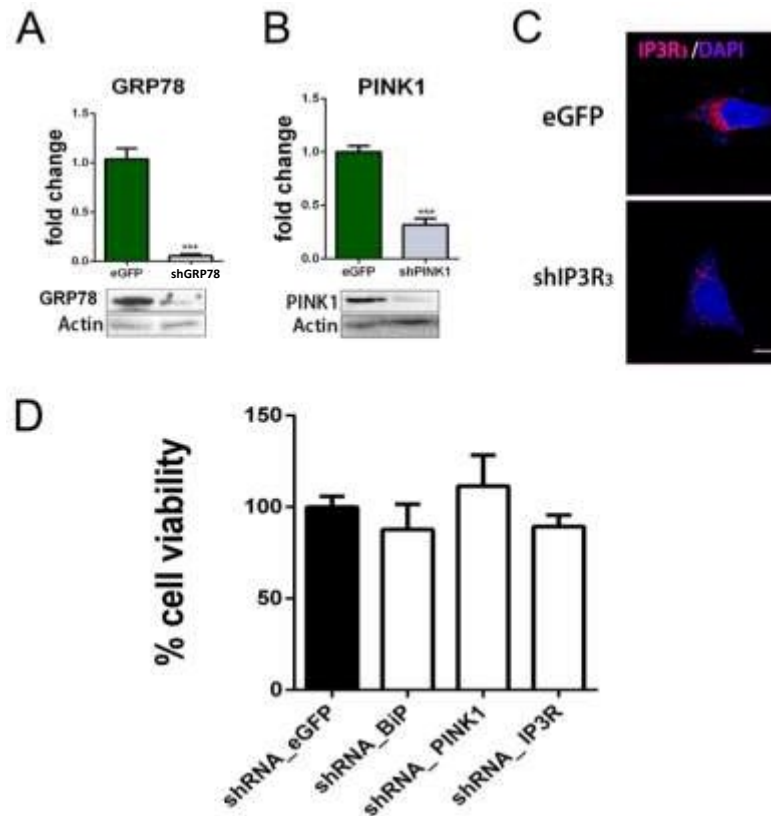
**Supplemental Figure S2.** Endogenous GRP78 levels after Tun treatment. Bar graft representing average fold change ( $\pm$  SEM) of GRP78 level in NSC-34 cells after 1, 4, 8 and 24 h of Tun treatment by immunoblotting (\* $p < 0.05$ , Student's t-test vs Veh; # $p < 0.05$ , Student's t-test vs TN 24h).



**Supplemental Figure S3. Tun and EFV cause mitochondrial dysfunction in NSC34 cells. (A)** Quantitative analysis of mitochondrial superoxide production (MitoSOX fluorescence) by NSC34 cells after 1, 5, and 24 h in the presence of 1  $\mu\text{g/mL}$  Tun or 10  $\mu\text{M}$  EFV. (**n**=4; \* $p$  < 0.05, Student's t-test vs Control-Methanol, # $p$  < 0.05, Student's t-test vs Control-DMSO) **(B)** Quantitative analysis of  $\Delta\psi\text{m}$  (TMRM fluorescence) in NSC34 cells after 1, 5, and 24 h in the presence of 1  $\mu\text{g/mL}$  Tun or 10  $\mu\text{M}$  EFV (**n**=4; # $p$  < 0.05, Student's t-test vs Control-Methanol, \* $p$  < 0.05, Student's t-test vs Control-DMSO)



**Supplemental Figure S4.** *Top*, Western blots for indicated proteins in the mitochondrial (mito) and cytosolic (cyto) pooled fractions from GFP- or GRP78-overexpressing cells treated with vehicle or Tun for 5 hours. *Bottom*, Bar graphs of the average fold change of PINK1 and PARKIN, in both pooled fractions relative to actin (cytosol) or the beta subunit of the complex V (CV-β) (mitochondria) in GFP group.



**Supplemental Figure S5. Cell viability analysis after shRNA nucleofection.** (A) Western blot and quantitation of GRP78 levels in cells nucleofected with sh-GRP78 compared to sh-eGFP cells (n =3; \*p < 0.05, Student's t-test). (B) Western blot and quantitation of PINK1 levels in cells nucleofected with sh-PINK1 cells compared to sh-eGFP cells (n=3; \*p < 0.05, Student's t-test). (C) Representative microphotographs of cells stained for IP<sub>3</sub>R (red) that express sh-IP3R or sh-eGFP. Scale bar = 10 μm. (D) NSC-34 were nucleofected with different shRNA and cell viability was assessed by MTT assay. No significant differences were observed.



## SUPPLEMENTARY TABLES AND HEADINGS

Supplementary Table S1: Altered proteins by Ad-GRP78-dr iven overexpression after RA

Protein	Description	Gene Name	Entry Name	late Fold Ch	Std. Error	t value	DF	p value	adj. p val
B2RYV9	Fumarylacetoacetate hydrolase domain-containing protein 2	Fahd2Fahd2a	FAHD2_RA T	-2,1812718	0,118700273	-18,376299	94	0	
035095	Neurochondrin (Neurite outgrowth-related protein from the rat brain) (Norbin)	Nodn	NCDN_RAT	-1,0528397	0,110281922	-9,5468018	326		
035112	CD166 antigen (Activated leukocyte cell adhesion molecule)	Alcam	CD166_RAT	-4,9319568	0,161832012	-30,47578	36		
035964	Endophilin-A2 (Endophilin-2)	Sh3gl Sh3p8	SH3GL_RAT	-1,820209	0,082638727	-22,026102	56		
P01026	Complement C3	C3	C03_RAT	0,54585685	0,062336647	8,75659622	328		
P05506	NADH-ubiquinone oxidoreductase chain 3 (EC 1.6.5.3) (NADH dehydrogenase subunit3)	Mtnd3 mt-Nd3 Nd3	NU3M_RAT	-8,5750847	0,057716091	-148,57355	11		
P05545	Serine protease inhibitor A3K (Serpin A3K)	Serpina3k Spin2b	SPA3K_RA T	3,4323342	0,10775417	31,8533771	116		
P09812	Glycogen phosphorylase, muscle form (EC 2.4.1.1) (Myophosphorylase)	Pygm	PYGM_RAT	-1,0857768	0,072539943	-14,967986	239		
P11442	Clathrin heavy chain 1	Cite	CLHI_RAT	-0,3627843	0,040986509	-8,8513094	1787		
P13437	3-ketoacyl-CoA thiolase, mitochondrial (EC 2.3.1.16) (Acetyl-CoA acyltransferase) (Beta-ketothiolase) (Mitochondrial 3-oxoacyl-CoA thiolase)	Acaa2	THIM_RA T	-1,1426851	0,070237659	-16,268838	168		
P16036	Phosphate carrier protein, mitochondrial (Phosphate transport protein) (PTP) (Solute carrier family 25 member 3)	Slc2Sa3Phc	MPCP_RAT	-2,6860151	0,230222996	-11,667015	65		
P16086	Spectrin alpha chain, non-erythrocytic 1 (Alpha-II spectrin) (Fodrin alpha chain)	Sptani Sptna2 Spta2	SPTNI_RAT	-1,0248172	0,032157297	-31,868885	1298		
P19527	(Neurofilamenttriplet L-protein)	Nefi Nf68 Nfi	NFL_RAT	-1,4169231	0,060766211	-23,317615	410		
P26284	Pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial (EC 1.2.4.-1) (PDHE1-A type I)	Pdhal	ODPA_RAT	-0,9490399	0,086269588	-11,000863	419		
P34067	Proteasome subunit beta type-4 (EC 3.4.25.1)	Psmb4	PSB4_RAT	1,38238426	0,12870326	10,7408644	137		
P35281	Ras-related protein Rab-10	Rab1O	RABI_O_RA T	-1,7649011	0,115035137	-15,342278	58		
P60901	Proteasome subunit alpha type-6 (EC 3.4.25.1)	Psm6a	PSA6_RAT	-1,0130042	0,079516503	-12,739547	133		
P62762	Visinin-like protein 1 (VILIP) (21 kDa CABP) (Neural visinin-like protein 1) (NVL-1) (NVP-1)	Vsnll Visil	VISLI_RAT	-1,5839876	0,095112227	-16,65388	228		
P62824	Ras-related protein Rab-3C	Rab3c	RAB3C_RAT	-2,8410711	0,112469159	-25,26089	53		
Q3MIE4	Synaptic vesicle membrane protein VAT-1 homolog (Mitofusin-binding protein) (Protein MIB)	Vatl	VATI_RAT	-1,211927	0,099689021	-12,157076	238		
Q63041	Alpha-1-macroglobulin (Alpha-1-M)	Alm Pzp	Al_M_RAT	0,57974211	0,05303946	10,9303925	429		
Q64057	Alpha-aminoadipic semialdehyde dehydrogenase (Alpha-AASA dehydrogenase) (EC 1.2.1.31)	Aldh7a1 Ald7al	AL7AI_RA T	-1,242213	0,048861086	-25,42336	191		
Q641W2	UPF0160 protein MYG1, mitochondrial	Mygl C12orf10	MYGI_RAT	-2,2235785	0,103885872	-21,40405	42		
Q641Y2	NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial (EC 1.6.5.3) (EC 1.6.99.3) (Complex I-49kD) (CI-49kD) (NADH-ubiquinone oxidoreductase 49 kDa subunit)	Ndufs2	NDUS2_RA T	-2,624384	0,11807109	-22,227152	55		
Q64537	Calpain small subunit 1 (CSS1) (Calcium-activated neutral proteinase small subunit)	Capnsl Capn4 Cssl	CPNSI_RAT	-1,0204072	0,106567993	-9,5751749	135		
Q80230	Protein phosphatase 1E (EC 3.1.3.-16) (Ca(2+)/calmodulin-dependent protein kinase phosphataseN)	PpmleCamkn	PPMIE_RAT	2,82690387	0,161772097	17,4746073	31		
Q8VHF5	Citrate synthase, mitochondrial (EC 2.3.3.1)	Cs	CISY_RAT	-1,5929535	0,098764169	-16,128861	162		
Q9QWN8	Spectrin beta chain, non-erythrocytic 2 (Beta Spill sigma 1)	Sptbn2Sptnb3	SPTN2_RA T	-2,0557489	0,098883861	-20,789529	92		
P05708	Hexokinase-1 (EC 2.7.1.1) (Brain form hexokinase)	Hkl	HXKI_RAT	-0,8129915	0,057370355	-14,170934	372		
P11240	Cytochrome c oxidase subunit SA, mitochondrial (Cytochrome c oxidase polypeptide Va)	CoxSa	COXSA_RAT	-3,3731214	0,185112385	-18,222019	104		
P12785	Fatty acid synthase (EC2.3.1.8S)	Fasn	FAS_RAT	0,51732605	0,047031979	10,9994533	1042		
P15589	Steryl-sulfatase (EC3.-1.6.2)	Sts	STS_RAT	-4,6862027	0,117625205	-39,840124	26		
P16884	Neurofilament heavy polypeptide (NF-H) (200 kDa neurofilament protein) (Neurofilament triplet H protein)	Nefh Nfh	NFH_RA T	-2,4832361	0,127072683	-19,541856	251		
P19139	Casein kinase II subunit alpha (CK II alpha) (EC 2.7.11.J)	Csnk2al	CSK21_RAT	-1,1041471	0,106336343	-10,383535	134		
P21396	Amine oxidase [flavin-containing] A (EC 1.4.-3.4) (Monoamine oxidase type A) (MAO-A)	Maoa	AOFA_RA T	-3,0188276	0,083800037	-36,02418	35		
P23565	Alpha-internexin (Alpha-Inx)	Inalnexa	AINX_RA T	-1,4622248	0,084515969	-17,301166	189		
P23978	Sodium- and chloride-dependent GABA transporter 1 (GAT-1) (Solute carrier family 6 member 1)	Slc6al Gatbl Gat-1	SC6AI_RAT	-2,6817129	0,123585537	-21,699246	54		
P25093	Fumarylacetoacetase (FAA) (EC 3.7.1.2) (Beta-diketetonase) (Fumarylacetoacetate hydrolase)	Fah	FAAA_RAT	3,48656621	0,076693655	45,4609472	38		
P31016	Disks large homolog 4 (Postsynaptic density protein 95) (PSD-95) (Synapse-associated protein 90) (SAP-90) (SAP90)	Dlg4 Dlg44 Psd95	DLG4_RAT	-3,8855696	0,205595114	-18,899134	26		
P32551	Cytochrome b-c1 complex x subunit 2, mitochondrial (Comple x III subunit 2) (Core protein 11) (Ubiquinol-cytochrome-c reductase complex core protein 2)	Uqcrc2	QCR2_RAT	-1,6429346	0,057175893	-28,734743	151		
P38659	Protein disulfide-isomerase A4 (EC S. 3.4.-1) (CaBP2) (ERp72)	Pdia4 Cabp2 Erp70	PDIA4_RA T	-1,4699363	0,070408879	-20,877144	52		
P46844	Biliverdin reductase A (BVR A) (EC 1.3.1.24) (Biliverdin-IX alpha-reductase)	Bilvra Bilvr	BIEA_RA T	1,2923408	0,112095568	11,5289196	130		
P62243	40S ribosomal protein S8	Rps8	RS8_RAT	-1,7725098	0,059413326	-29,83354	113		
P63047	Sulfotransferase 4Al (ST4Al) (EC 2.8.2.-) (Brain sulfotransferase-like protein) (BR-STL) (Nervous system sulfotransferase) (NST)	Sult4a1 Sultx3	ST4AI_RA T	-1,4767043	0,117738449	-12,542457	97		
P81155	Voltage-dependent anion-selective channel protein 2 (VDAC-2) (B36-VDAC) (Outer mitochondrial membrane protein porin 2)	Vdac2	VDAC2_RAT	-1,6426814	0,065908766	-24,923565	169		
P85969	Beta-soluble NSF attachment protein (SNAP-beta) (N-ethylmaleimide-sensitive factor attachment protein beta)	NapbSnapb	SNAB_RAT	-0,9268229	0,058569202	-15,824407	267		
Q00981	Ubiquitin carboxyl-terminal hydrolase isozyme L1 (UCH-L1) (EC 3.4.19.12) (EC 6.-.-.-) (Neuron cytoplasmic protein 9.5) (PGP 9.5) (PGP9.5) (Ubiquitin thioesterase L1)	Uchll	UCHLI_RA T	-0,9831311	0,107885145	-9,1127569	353		
Q562C6	Leucinezippertranscription factor-like protein 1	Lztfll	LZTLI_RA T	-2,2173938	0,078741878	-28,160286	70		
Q5X172	Eukaryotic translation initiation factor 4H (eIF-4H) (Williams-Beuren syndrome chromosomal region 1 protein homolog)	Eif4h Wbscr1	IF4H_RA T	2,00629568	0,086560472	23,177966	92		
Q63377	Sodium/potassium-transporting ATPase subunit beta-3 (Sodium/potassium-dependent ATPase subunit beta-3) (ATPB-3) (CD antigen CD298)	Atp1b3	AT1B3_RA T	-2,5703051	0,192577582	-13,346855	56		
Q6AYT5	UPF0364 protein C6orf211 homolog	-	CF211_RA T	-1,5743413	0,089358356	-17,618288	55		
Q77P36	Protein Shroom2 (Liver regeneration-related protein LRRG167) (Protein Apxl) Shroom2 Apxd Ab2-404 SHRM_2_RAT	-	-	3,05766396	0,13842498	22,0889608	56		
Q9QUL6	Vesicle-fusing ATPase (EC 3.6.4.6) (N-ethylmaleimide-sensitive fusion	-	-	-	-	-	-	-	-
008618	P63039 P67874 P84092 Q388QO	prote (in)	n prote (in)	d prot ein 2	(41 kDa phosphoribosypyrophosphate synthetase- associated protein) (PAP41)	mitochondrial (EC 2.3.1.9 ) (Acetoacetyl-CoA thiolase) 60S acidic ribosomal protein PO (60S ribosomal protein L1OE) Hemopexin			
P07340	Q4KM49	M-Phos	NSF	(PR	ATP synthase subunit gamma, mitochondrial (F-ATPase gamma subunit) Rabphilin-3A (Exophilin-1)	ATP synthase subunit gamma, mitochondrial (F-ATPase gamma subunit) Rabphilin-3A (Exophilin-1)			
P17764	Q63560Q6P7B0	tive fusio	phori bosyl	synt has	(PAP41) Sodium/potassium-transporting ATPase subunit beta-1	ATP-sensitive inward rectifier potassium channel 10 (BIRIO) (BIRKI) 60S ribosomal protein L7a			
P19945		n prote (in)	pyrop hosp	e- asso	transporting ATPase subunit beta-1	60 kDa heat shock protein, mitochondrial (60 kDa chaperonin) (Chaperonin60) (CPN60) (HSP-6S) (HSP-60) (Hsp60) (Mitochondrial matrix protein Pi)			
P20059		(Vesi	synth	d	(Sodium/potassium-dependent ATPase subunit beta-1)	Casein kinase II subunit beta (CK II beta) (Phosvitin)			
P35435		cular	ase- asso	prot ein	subunit beta-1) Acetyl-CoA	AP-2 complex subunit mu (AP-2 mu chain)			
P47709		-	asso	prot ein	acetyltransferase,	Microtubule-associated protein RP/EB family member 2 Tyrosine-tRNA ligase, cytoplasmic (EC 6.1.1.1 ) (Tyrosine-tRNA synthetase)			
P49655		fusio	ciate	2)	-	-			
P62425		-	-	-	-	-			

(TyrRS ) Microtu bule- associa ted protein 6 (MAP- 6) (14S- kDa STOP) (STOP1 45) (Stable tubule- only polype ptide) (STOP) Trypt phan- tRNA ligase, cytopla smic (EC 6.1.1. 2) (Trypt phan- tRNA synthe tase)(T rpRS)	NsfErgI  Prpsap2  AtpIbl  AcatI RplpO Artp Hp, AtpScl Atp5cRph3a Kcnj1OKab-2 Rpl7a  Hspdl Hsp60  Csnk.2bCk2nAp2m1 Mapre2  Yars  Map6Mtap6 Wars   <
---	---

P08461	Dihydropolypyllysine-residue acetyltransferase component of pyruvate dehydrogenase complex, mitochondrial (EC 2.3.1.12) (PDC-E2) (PDCE2)	Dlat	ODP2_RAT	-1,1032801	0,072612382	-15,194104	256	
P17425	Hydroxymethylglutaryl-CoA synthase, cytoplasmic (HMG-CoA synthase) (EC 2.3.3.10)	Hmgcs1Hmgcs	HMCS1_RAT	-1,46S136	0,110540937	-13,254239	212	
Q01205	Dihydropolypyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondrial (EC 2.3.1.61) (E2K)	Dlat	0D02_RA T	1,346927S6	0,062837025	21,4352534	133	
	ADP/ATP translocase 1 (ADP,ATP carrier protein 1) (Adenine nucleotide							
Q05962	translocator 1) (ANT 1) (Solute carrier family 25 member 4)		ADT1_RAT	-0,868180S	0,074579109	-11,641069	87	
Q499N5	Acyl-CoA synthetase family member 2, mitochondrial (EC 6.2.1.-)	Acsf2	ACSF2_RAT	-1,0240636	0,063991128	-16,003212	224	
	Membrane-associated phosphatidylinositol transfer protein 1							
Q5U2N3	(Phosphatidylinositol transfer protein, membrane-associated 1) (PITPnm 1) (Pyk2N-terminal domain-interacting receptor 2) (NIR-2)	Pitpnm1Nir2Pitpnm	PITM1_RAT	-1,1390133	0,0741904	-15,35257	58	
035458	Vesicular inhibitory amino acid transporter (GABA and glycine transporter) (Solute carrier family 32 member 1) (Vesicular GABA transporter) (rGVAT)	Slc32a1 VgatVlaat	VIAAT_RAT	-1,6727S28	0,125831851	-13,293556	156	
P13383	Nucleolin (ProteinC23)	Ncl Nuc	NUCL_RAT	-1,096616S	0,078239447	-14,016159	192	
Q63692	Hsp90 co-chaperone Cdc37 (Hsp90 chaperone protein kinase-targeting subunit) (p50Cdc37)	Cdc37	COC37_RA T	0,84931826	0,07230529	11,746281	246	
Q99N27	Sortiginexin-1	Snx1	SNX1_RAT	-1,7030S62	0,056556334	-30,112564	88	
Q09073	ADP/ATP translocase 2 (ADP,ATP carrier protein 2) (ANT 2)	Slc25a5Ant2	ADT2_RAT	-0,844889S	0,069173475	-12,214068	110	
	Cytochrome b-c1 complex subunit 1, mitochondrial (Complex III subunit 1) (Core protein I) (Ubiquinol-cytochrome-c reductase complex core protein I)	Uqcrc1						
Q68FY0			QCR1_RAT	-1,3491084	0,135806814	-9,9340262	174	
P07895	Superoxide dismutase [Mn], mitochondrial (EC 1.15.1.1)	Sod2	SODM_RAT	-2,1440308	0,104980626	-20,423109	103	
P18445	60S ribosomal protein L27a	Rpl27a	RL27A_RAT	-4,3S98299	0,097389886	-44,766762	30	
	Methionine adenosyltransferase 2 subunit beta (Methionine							
Q5U2R0	adenosyltransferase II beta) (MAT II beta)	Mat2b	MAT2B_RAT	-3,6477744	0,156321179	-23,335126	28	
P24268	Cathepsin D (EC3.4.23.5)	Ctsd	CATD_RAT	0,68347913	0,068775236	9,93786662	145	
	Voltage-dependent anion-selective channel protein 1 (VDAC-1) (rVDAC1)							
Q922L0	(Outer mitochondrial membrane protein porin 1)	Vdac1	VDAC1_RAT	-0,628027S	0,040551389	-15,487201	191	
	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11 (Complex I- B14.7) (CI-B14.7) (NADH-ubiquinone oxidoreductase subunit B14.7)	Ndufa11						
Q80W89			NDUAB_RAT	-0,9288S99	0,058117741	-15,982381	65	
035509	Ras-related protein Rab-11B	Rab11b	RB11B_RAT	-0,7638187	0,056453291	-13,5301	43	
P14841	Cystatin-C(Cystatin-3)	Cst3	CYTC_RAT	0,8346S6S	0,036527762	15,9732111	43	
Q62667	Major vault protein (MVP)	Msp	MVP_RAT	0,546498S	0,058925174	9,27444871	152	2,22E-16 3,48E-15
P29266	3-hydroxyisobutyrate dehydrogenase, mitochondrial (HIBADH) (EC 1.1.1.31)	Hibadh	3HIDH_RAT	-1,242493	0,13406841	-9,2676048	142	4,44E-16 6,61E-15
Q4KMA2	UV excision repair protein RAD23 homolog B	Rad23b	RD23B_RAT	1,731S53S7	0,158908155	10,8965683	63	4,44E-16 6,61E-15
	Kynurenine-oxoglutarate transaminase 3 (EC 2.6.1.7) (Cysteine-S-conjugate beta-lyase 2) (EC 4.4.1.13) (KATIII) (Kynurenine-glyoxylate transaminase) (EC 2.6.1.63)	Cbcl2Kat3	KAT3_RAT	-7,4696132	0,01035854	-721,10679		4,44E-16 6,61E-15
Q58FK9								
	N-terminal EF-hand calcium-binding protein 1 (EF-hand calcium-binding protein 1) (Neuronal calcium-binding protein 1) (Synaptotagmin-interacting protein 1) (Stip-1)	Necab1 Efcyb1 Stip	NECA1_RAT	4,872901S7	0,068260497	71,3868459	11	4,44E-16 6,61E-15
Q9ESB5								
	Glutamate decarboxylase 1 (EC 4.1.1.15) (67 kDa glutamic acid decarboxylase) (GAD-67) (Glutamate decarboxylase 67 kDa isoform)	Gad1 Gad67	DCE1_RAT	-1,6270022	0,168265692	-9,669245	101	4,44E-16 6,61E-15
P18088								
Q5B1J7	Colled-coil domain-containing protein 93	Ccdc93	CCD93_RAT	-3,6337384	0,194796264	-18,654045	24	8,88E-16 1,31E-14
Q6P7A9	Lysosomal alpha-glucosidase (EC 3.2.1.20) (Acid maltase)	Gaa	LYAG_RAT	1,87811S6	0,158141485	11,8761728	45	1,78E-15 2,59E-14
	Enoyl-CoA delta isomerase 2, mitochondrial (EC 5.3.3.8) (Delta(3)-delta(2)- enoyl-CoA isomerase) (D3,D2-enoil-CoA isomerase) (Dodecenoyl-CoA isomerase) (Peroxisomal 3,2-trans-enoil-CoA isomerase) (pECI)	Eci2Peci	ECI2_RAT	-3,34188S2	0,092471561	-36,1396	14	3,11E-15 4,44E-14
Q5XIC0								
Q5U2P0	DIS3-like exonuclease 1 (EC 3.1.13.-)	Dis3l	DISL1_RAT	-1,31073S1	0,045417834	-26,859481	16	3,11E-15 4,44E-14
	AP-2 complex subunit alpha-2 (100 kDa coated vesicle protein C) (Adaptor protein complex AP-2 subunit alpha-2) (Adaptor-related protein complex 2 subunit alpha-2) (Alpha-adaptin C) (Alpha2-adaptin) (Clathrin assembly protein complex 2 alpha-C large chain ) (Plasma membrane adaptor HAZ/AP2 adaptin alpha Csubunit)	Ap2a2Adtab	AP2A2_RA T	-0,7083282	0,085977237	-8,2385547	327	4,22E-15 5,97E-14
P18484								
Q8R491	EH domain-containing protein 3	Ehd3Ehd2	EHD3_RAT	-1,8549946	0,176972901	-10,4818	59	4,44E-15 6,22E-14
P37805	Transgelin-3 (Neuronal protein 22) (NP22) (Neuronal protein NP25)	Tagln3Np25	TAGL3_RAT	-1,6S38184	0,182636999	-9,0552208	112	4,88E-15 6,78E-14
	Peripheral plasma membrane protein CASK (EC 2.7.11.1) (Calcium/calmodulin-dependent serine protein kinase)	Cask	CSKP_RAT	-3,3948217	0,123993685	-27,378989	16	7,11E-15 9,76E-14
Q62915								
	Mitochondrial 2-oxoglutarate/malate carrier protein (OGCP) (Solute carrier	Slc25a11 Slc20a4						
	family 25 member 11)		M20M_ RA T	-8,8174964	0,065313001	-135,00369		1,02E-14 1,39E-13
P97700								
	Aconitate hydratase, mitochondrial (Aconitase) (EC 4.2.1.3) (Citrate hydro-lyase)	Aco2	ACON_RAT	-0,S239227	0,067711069	-7,817373	815	1,67E-14 2,25E-13
Q9ER34								
P10719	ATP synthase subunit beta, mitochondrial (EC 3.6.3.14)	Atp5b	ATPB_RAT	-0,7034667	0,090755803	-7,7512038	824	2,66E-14 3,56E-13
	Microtubule-associated protein 1B (MAP-1B) (Neuraxin) (Cleaved into:							
P15205	MAP1B heavy chain; MAP1 light chain LC1)	Map1b	MAP1B_RAT	-0,2S61448	0,033348287	-7,6808991	1309	3,06E-14 4,05E-13
P62832								
P85125	60S ribosomal protein L23	Rpl23	RL23_RAT	-1,2206837	0,048920532	-24,95238	16	3,09E-14 4,05E-13
	Polymerase I and transcript release factor (Cavin-1) (cav-p60)	Ptrf	PTRF_RAT	-1,0026427	0,040282974	-24,889987	16	3,20E-14 4,16E-13
	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial							
CON_007044	(EC 1.3.5.1) (Flavoprotein subunit of complex II) (Fp)	Sdha	SDHA_RAT	0,S9921808	0,047399765	12,6417943	32	5,48E-14 7,07E-13
Q920L2								
	2',3'-cyclic-nucleotide 3'-phosphodiesterase (CNP) (CNPase) (EC 3.1.4.37)	CnpCnp1	CN37_RA T	-1,2033831	0,14609419	-8,2370363	154	7,11E-14 9,07E-13
P13233	NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 24 kDa subunit)	Ndufv2	NDUV2_RAT	-0,S003202	0,065472735	-7,6416567	559	9,37E-14 1,19E-12
P19234	Branched-chain-amino-acid aminotransferase, mitochondrial (BCAT(m)) (EC 2.6.1.42)	Bcat2 Bcatm Eca40	BCAT2_RAT	-0,4S69204	0,047213383	-9,6777725	56	1,48E-13 1,86E-12
	4- aminobutyrate aminotransferase, mitochondrial (EC 2.6.1.19) ((S)-3-amino-2-methylpropionate transaminase) (EC 2.6.1.22) (GABA aminotransferase) (GABA-AT) (Gamma-amino-N-butyrate transaminase) (GABA transaminase) (GABA-T) (L-AIBAT) (Cleaved into : 4-aminobutyrate aminotransferase, brain isoform; 4-aminobutyrate aminotransferase, liver isoform)	AbatGabat	GABT_RAT	-6,2204674	0,146889141	-42,348041	11	1,55E-13 1,93E-12
035854								
	Syntaxin-binding protein 1 (N-Sec1) (Protein unc-18 homolog 1) (Unc18-1)	Stxbp1 Unc18a						
	(P-protein unc-18 homolog A) (UNC-18A) (p67) (rDSEC1)		S1XB1_RA I	-0,9173331	0,126400602	-7,17332412	289	1,80E-13 2,22E-12
P16785-2	Macrophage-capping protein (Actin regulatory protein CAP-G)	Capg	CAPG_RAT	-1,90S1981	0,208272802	-9,1476089	66	2,38E-13 2,91E-12
	Monoglyceride lipase (MGL) (EC 3.1.1.23 ) (Monoacylglycerol lipase) (MAGL)	Mgl1Mgl2	MG LL_RAT	-0,S879888	0,069674521	-8,4390796	101	2,40E-13 2,91E-12
Q6AYC4								
Q8R431	60S ribosomal protein L18	Rpl18	RL18_RAT	-6,4422294	0,074843897	-86,075547		3,70E-13 4,45E-12
P12001	ATP synthase subunit f, mitochondrial	Atp5f2	ATPB_RAT	-0,48S1S17	0,056624127	-8,5679321	82	5,21E-13 6,21E-12
	Serine/threonine-protein phosphatase 28 catalytic subunit alpha isoform (EC 3.1.3.16) (CAM-PRP catalytic subunit) (Calmodulin-dependent calcineurin A subunit alpha isoform)	Ppp3ca Calna	PP2BA_RAT	-1,6630871	0,074740911	-22,251363	15	6,69E-13 7,92E-12
D3ZAF6								
P63329	40S ribosomal protein S30		RS30_RAT	7,73927007	0,065281009	118,553163		8,01E-13 9,40E-12
	Sodium/potassium-transporting ATPase subunit alpha-2 (Na <sup>+</sup> /K <sup>+</sup> ) ATPase alpha-2 subunit) (EC 3.6.3.9) (Na <sup>+</sup> /K <sup>+</sup> ) ATPase alpha <sup>+</sup> ) subunit) (Sodium pumpsubunitalpha-2)	Atp1a2	AT1A2_RAT	-0,8143989	0,043304189	-18,80647	16	2,47E-12 2,87E-11
P62864								
P06886	Tetraspanin-2 (Tspan-2)	Tspan2	TSN2_RAT	-0,54SSS9	0,076635751	-7,1188572	771	2,49E-12 2,88E-11
	2,4-dienoyl-CoA reductase, mitochondrial (EC 1.3.1.34) (2,4-dienoyl-CoA reductase [NADPH]) (4-enoyl-CoA reductase (NADPH))	Decr1 Deer	DECR_RAT	-3,S009969	0,128781438	-27,185571	12	3,78E-12 4,33E-11
Q9JJW1								
	Cytochrome b-c1 complex subunit 8 (Complex III subunit 8) (Complex III subunit VIII) (Low molecular mass ubiquinone-binding protein) (Ubiquinol-cytochrome c reductase complex 9.5 kDa protein) (Ubiquinol-cytochrome c reductase complex ubiquinone-binding protein QP-C)	Uqcrc Qpc	QCR8_RAT	-6,148706S	0,096157582	-63,944063		3,98E-12 4,52E-11
Q64591								
	Alpha-1-antiprotease (Alpha-1-antitrypsin) (Alpha-1-proteinase inhibitor) (Serpina1)	Serpina1	AI AT_RAT	-7,674969S	0,163640945	-46,901278		4,56E-12 5,14E-11
Q77Q16								
	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial (Cytochrome c		COX41_RAT	0,54130201	0,070327327	7,69689447	109	6,73E-12 7,53E-11
P17475								
			QCR6_RAT	-0,S7S26	0,076214726	-7,5478856	122	8,86E-12 9,84E-11

oxidase	se polypeptide IV) (Cytochrome c oxidase subunit IV isoform 1) (COX IV-1)	Cox4i1 Cox4 Cox4a
	Cytochrome b-c1 complex subunit 6, mitochondrial (Complex III subunit 6)	
	(Complex III subunit VIII) (Cytochrome c1 non-heme 11 kDa protein)	
	(Mitochondrial hinge protein) (Ubiquinol-cytochrome c reductase complex 11 kDa protein)	Uqcrlh
P10888	Hippocalcin-like protein 1 (Neural visinin-like protein 3) (NVL-3) (NVP-3)	
Q5M9I5	(Visinin-like protein 3) (VILIP-3)	Hpcal1
P62749	Mitochondrial-processing peptidase subunit beta (EC 3.4.24.64) (Beta-MPP) (P-52)	PmpcbMppb

Q03346	Seel family domain-containing protein 1 (SLY1 homolog) (Slyp) (Syntaxin-binding protein 1-like 2) (Vesicle transport-related protein Ra410)	Scfdl Ra410 Styl	SCFDL_RAT	-6,0308487	0,232954419	-25,888535	11	3,30E-11	3,58E-10
Q62991	Pyridoxal phosphate phosphatase (PLP phosphatase) (EC 3.1.3.3) (EC 3.1.3.74) (Chronophin) (Reg I-binding protein 1)	PdpxCin Pip Pipp	PLPP_RAT	-3,3747946	0,133301782	-25,316951	11	4,21E-11	4,53E-10
Q8VD52	Legumain (EC 3.4.22.34) (Asparaginyl endopeptidase) (Protease, cysteine 1)	Lgmn Prscl	LGMN_RAT	0,68954923	0,098049601	7,03265718	173	4,51E-11	4,82E-10
Q9RQJ8	Maleylacetoacetate isomerase (MAAI) (EC 5.2.1.2) (GSTZ1-) (Glutathione S-transferase zeta I) (EC2.5.1.18)	Gstzi	MAAI_RAT	0,98961054	0,061181241	16,1750648	15	6,66E-11	7,07E-10
	Carbonic anhydrase 1 (EC 4.2.1.1) (Carbonate dehydratase I) (Carbonic								
P57113	anhydrase I) (CA-I)	Cal Carl	CAHI_RAT	-0,9748932	0,056031499	-17,39902	14	7,04E-11	7,42E-10
BOBNN3	Diphosphomevalonate decarboxylase (EC 4.1.1.33) (Mevalonate (diphospho)decarboxylase) (MDDase) (Mevalonate pyrophosphate decarboxylase)	MvdMpd	MVDI_RAT	0,6252686	0,084712849	7,38103616	89	7,93E-11	8,30E-10
Q62967	Trifunctional enzyme subunit alpha, mitochondrial (TP-alpha) (Includes: Long-chain enoyl-CoA hydratase (EC 4.2.1.17); Long chain 3-hydroxyacyl-CoA dehydrogenase (EC 1.1.1.211))	Hadha	ECHA_RAT	0,39284255	0,042414915	9,26189626	34	8,00E-11	8,31E-10
Q64428	Redox-regulatory protein FAM213A (Peroxiredoxin-like 2 activated in M-CSF stimulated monocytes) (Protein PAMMI) (Sperm head protein 1)	213a PammShp I	F213A_RAT	-0,6102212	0,087897281	-6,9424357	163	8,68E-11	8,95E-10
Q6AXX6	Heat shock protein HSP 90-beta (Heat shock 84 kDa) (HSP84)	Hsp90abl Hsp84	HS90B_RA T	-0,2853735	0,032507804	-8,7786156	39	8,94E-11	9,15E-10
P34058	Branched-chain-amino-acid aminotransferase, cytosolic (BCAT(c)) (EC 2.6.1.42)	Bcatl	BCATI_RAT	-0,3904599	0,059108236	-6,6058457	558	9,23E-11	9,38E-10
P54690	Annexin A3 (35-alpha calcimedin) (Annexin III) (Upocortin III) (Placental anticoagulant protein III) (PAPI-II)	Anxa3Anx3	ANXA3_RA T	-0,5800469	0,086657659	-6,6935445	295	1,10E-10	1,11E-09
P14669	Aspartate aminotransferase, mitochondrial (mAspAT) (EC 2.6.1.1) (EC 2.6.1.7) (Fatty acid-binding protein) (FABP-1) (Glutamate oxaloacetate transaminase 2) (Kynurenine aminotransferase 4) (Kynurenine aminotransferase IV) (Kynurenine-oxoglutarate transaminase 4) (Kynurenine-oxoglutarate transaminase IV) (Plasma membrane-associated fatty acid-binding protein) (FABPpm) (Transaminase A)	Got2Maat							
P00507	Prohibitin	Phb	AATM_RAT	0,447792	0,067821955	6,60246372	446	1,15E-10	1,15E-09
P67779	Tropomodulin-1 (Erythrocyte tropomodulin) (E-Tmod)	Tmodl Tmod	PHB_RAT	-0,4586467	0,069620077	-6,5878505	402	1,40E-10	1,39E-09
P70567	Synapsin-2 (Synapsin II)	Syn2	TMODI_RAT	-0,4637257	0,059938418	-7,7367026	57	1,88E-10	1,86E-09
Q63537	60S ribosomal protein L4 (60S ribosomal protein L1)	Rpl4 Rpll	SYN2_RAT	-7,3010674	0,187728988	-38,891529	2,10E-10	2,06E-09	
P50878			R4_RA T	-7,4958207	0,194381212	-38,562475	2,25E-10	2,19E-09	
Q9VVV1	Ubiquitin carboxyl-terminal hydrolase 7 (EC 3.4.19.12) (Deubiquitinating enzyme 7) (Herpesvirus-associated ubiquitin-specific protease) (HAUSP) (Ubiquitin thioesterase 7) (Ubiquitin-specific processing protease 7) NAO-dependent protein deacylase sirtuin-5, mitochondrial (EC 3.5.1.-)	Timm8a Ddcl1 Tim8a	USP7_RAT	-0,8342171	0,082002017	-7,734165	55	2,37E-10	2,29E-09
Q4VSI4	(Regulatory protein SIR2 homolog 5) (SIR2-like protein 5)	Sirt5	SIR5_RAT	1,96309335	0,248780096	7,89087783	49	2,81E-10	2,68E-09
Q68FX9	Proteasome activator complex subunit 1 (IS-regulator complex subunit alpha) (REG-alpha) (Activator of multicatalytic protease subunit 1) (Proteasome activator 28 subunit alpha) (PA28a) (PA28alpha)	Psmel	PSMEI_RA T	-2,3676545	0,275511702	-8,5936622	36	3,02E-10	2,87E-09
Q63797	Annexin A6 (Annexin VI) (Annexin-6) (Calcium-binding protein 65/67) (CBP 65/67)	Anxa6Anx6	ANXA6_RA T	0,556117	0,083599722	6,65213935	168	3,89E-10	3,67E-09
P48037	Coatomer subunit gamma-1 (Gamma-1-coat protein) (Gamma-1-COP)	Copgl Copg	COPGI_RAT	-0,3179898	0,050321967	-6,3191056	680	4,76E-10	4,46E-09
Q4AEF8	Calretinin (CR)	Calb2	CALB2_RAT	-1,05198	0,133615262	-7,8732027	41	9,92E-10	9,24E-09
	V-type proton ATPase subunit E 1 (V-ATPase subunit E 1) (Vacuolar proton								
P47728	pumps subunit E 1)	Atp6v1el	VATEI_RAT	-0,4939495	0,079531528	-6,2107387	480	1,14E-09	1,06E-08
Q6PCU2	ATP synthase F(0) complex subunit B1, mitochondrial (ATP synthase subunit b) (ATPase subunit b)	Atp5f1Atp5f	AT5FI_RAT	-0,4407879	0,070470076	-6,254966	305	1,34E-09	1,23E-08
P19511	Calcydin-binding protein (CacyBP)	Cacybp	CYBP_RAT	-0,8087168	0,104707005	-7,723617	42	1,37E-09	1,25E-08
Q6AYK6	40S ribosomal protein S9	Rps9	RS9_RAT	0,36931402	0,05707646	6,47051384	123	2,09E-09	1,89E-08
P29314	Neurotrimin (GP65)	Ntrn HntNt	NTR1_RAT	-0,6142256	0,092234613	-6,6593826	86	2,47E-09	2,23E-08
Q62718	Protein disulfide-isomerase A3 (EC 5.3.4.1) (58 kDa glucose-regulated protein) (58 kDa microsomal protein) (p58) (Disulfide isomerase ER-60) (Endoplasmic reticulum resident protein 57) (ER protein 57) (ERp57) (Endoplasmic reticulum resident protein 60) (ER protein 60) (ERp60) (HIP-70) (Q-2)	Pdia3 Erp60 Grp58	PDIA3_RA T	-0,4237018	0,035994185	-11,771396	16	2,72E-09	2,44E-08
P11598	Glycine cleavage system H protein, mitochondrial (Uipoic add-containing protein)	Gcsh	GCSH_RA T	0,35858871	0,059979634	5,97850791	378	5,22E-09	4,65E-08
Q5I0P2	60S ribosomal protein L 12	Rpl12	RI 12_RA T	-3,1529802	0,424784518	-7,4225402	39	5,67E-09	5,02E-08
P23358	Tubulin beta-3 chain (Neuron-specific class III beta-tubulin)	Tubb3	TBB3_RAT	-0,4972352	0,080128809	-6,2054487	125	7,36E-09	6,48E-08
Q4QRB4	Tubulin alpha-4A chain (Alpha-tubulin 4) (Tubulin alpha-4 chain)	Tuba4a Tuba4	TBA4A_RA T	-0,9484418	0,157494931	-6,0220464	214	7,41E-09	6,48E-08
	Gamma-enolase (EC 4.2.1.11) (2-phospho-D-glycerate hydro-lyase) (Enolase	Eno2 Eno-2							
Q5XIF6	2) (Neural enolase) (Neuron-specific enolase) (NSE)		ENOG_RAT	-0,5336046	0,083897805	-6,3601736	88	8,75E-09	7,61E-08
P07323	Proteasome subunit beta type-10 (EC 3.4.25.1) (Low molecular mass protein 10) (Macropain subunit MECl-1) (Multicatalytic endopeptidase complex subunit MECl-1) (Proteasome MECl-1) (Proteasome subunit beta-2)	PsmblO LmpIO Mecil	PSBI_O_RA T	-0,5637037	0,096320266	-5,852389	487	8,91E-09	7,70E-08
Q4KM35	ATP-binding cassette sub-family A member 2 (ATP-binding cassette transporter 2) (ATP-binding cassette 2)	Abca2Abc2	ABCA2_RA T	0,82256912	0,060926764	13,5009489	12	1,29E-08	1,11E-07
Q9ESR9	Thymosin beta-10	ThybIO	TYBIO_RAT	0,70925608	0,023997958	29,5548509	1,31E-08	1,12E-07	
P63312	Cytochrome b-c1 complex subunit Rieske, mitochondrial (EC 1.10.2.2) (Complex III subunit 5) (Cytochrome b-c1 complex subunit 5) (Liver regeneration-related protein LRRGT00195) (Rieske iron-sulfur protein) (RISP)								
CON_002203	(Ubiquinol-cytochrome c reductase iron-sulfur subunit) (Cleared into: Cytochrome b-c1 complex subunit 11 (Complex III subunit IX) (Ubiquinol-cytochrome c reductase 8 kDa protein))	Uqcrrfsl	UCRI_RA T	0,76983535	0,110539687	6,96433444	43	1,45E-08	1,23E-07
P20788	Sideroflexin-5 (Tricarboxylate carrier BBG-TCC)	Sfxn5	SFXN5_RAT	-1,0104532	0,07572222	-13,34421	12	1,47E-08	1,24E-07
Q8CFDO	Cysteine and glycine-rich protein 1 (Cysteine-rich protein 1) (CRP) (CRPI)	CsrplCsrp	CSRPI_RAT	-0,6602071	0,085426847	-7,7283329	29	1,60E-08	1,34E-07
P47875	40S ribosomal protein S19	Rps19	RS19_RAT	-0,5918491	0,076602254	-7,7262625	28	2,04E-08	1,70E-07
P17074	Neurocan core protein (245 kDa early postnatal core glycoprotein) (Chondroitin sulfate proteoglycan 3) [Cleared into : 150 kDa adult core glycoprotein]	Ncan Cspg3	NCAN_RAT	-1,2409175	0,208619161	-5,9482434	117	2,88E-08	2,39E-07
	NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial (EC 1.6.5.3) (EC 1.6.9.3)	Ndufsl							
P55067			NBUSI_RAT	-0,4646868	0,076891039	-6,0434449	88	3,55E-08	2,93E-07
Q66HF1	40S ribosomal protein SA (37 kDa laminin receptor precursor) (37LRP) (37/67 kDa laminin receptor) (LRP/LR) (67 kDa laminin receptor) (67LR) (Laminin receptor 1) (LamR) (laminin-binding protein precursor p40) (LBP/p40)	Rpsa Lamrl	RSSA_RAT	-0,2851664	0,049049275	-5,8138762	144	3,78E-08	3,10E-07
P38983	3'(2'),5'-bisphosphate nucleotidase 1 (EC 3.1.3.7) (Bisphosphate 3'-nucleotidase 1) (PAP-inositol 1,4-phosphatase) (PIP) (scHAL2 analogous 3) Alpha-2-HS-glycoprotein (59 kDa bone sialic acid-containing protein) (BSP) (Fetuin-A) (Glycoprotein PP63)	Bpnt1Sal3	BPNTI_RAT	-0,3815751	0,066943012	-5,6999988	182	4,76E-08	3,88E-07
	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial (Complex I-42kD) (CI-42kD) (NADH-ubiquinone oxidoreductase 42 kDa subunit)	AhsgFetua	FETUA_RAT	-0,2614391	0,043628078	-5,9924511	85	4,83E-08	3,92E-07
Q9ZIN4		Ndufa1O	NDUAA_RAT	-0,5554462	0,095085188	-5,8415637	113	5,07E-08	4,09E-07
P24090	Proenkephalin-A [Cleared into: Synenkephalin; Met-enkephalin (Opioid growth factor) (OGF); PENK(114-133); PENK(143-185); Met-enkephalin-Arg-Gly-Leu; Leu-enkephalin; PENK(239-260); Met-enkephalin-Arg-Phe] V-type proton ATPase subunit B, brain isoform (V-ATPase subunit B 2) (Endomembrane proton pump 58 kDa subunit) (Vacuolar proton pump subunit B 2)	Penk Penk-rs Penkl	PENK_RAT	0,5542585	0,091644161	6,04794119	75	5,31E-08	4,25E-07
Q56ISO		Atp6v1b2 Atp6b2 Vat2	VATB2_RAT	-0,8127996	0,137794748	-5,8986252	91	6,18E-08	4,92E-07
P04094	Pantothenate kinase 4 (Pank4) (EC 2.7.1.33) (Pantothenic acid kinase 4)	Pank4Fangl	PANK4_RA T	-1,393301	0,110712139	-12,584898	11	7,12E-08	5,65E-07
P62815	Bleomycin hydrolase (Bh) (BLM hydrolase) (BLMH) (EC 3.4.22.40)	Blmh	BLMH_RAT	-0,4343572	0,079947103	-5,4330568	639	7,88E-08	6,18E-07
Q923S8	Beta-2-microglobulin	B2m	B2MG_RAT	0,76885104	0,099582958	7,72070903	23	7,85E-08	6,18E-07
P70645	Annexin A8 (Annexin VIII) (Annexin-8)	Anxa8	ANXA8_RA T	-4,0064875	0,517621989	-7,7401803	22	1,02E-07	7,93E-07
	Allograft inflammatory factor 1 (AIF-1) (Ionized calcium-binding adapter								



280Z29	5,40E-05	hydrolase domain-containing protein 1)		FAHDI_RAT	0,4274487S	0,063295364	6,75323959	14	9,27E-06	5,60E-05
Q8AF98		Elongation factor Tu, mitochondrial	Tufm	EFTU_RAT	-0,618S034	0,07569899	-8,1705633	10	9,78E-06	5,88E-05
P85834		Gelsolin (Actin-depolymerizing factor) (ADF) (Brevin)	Gso	GELS_RAT	-0,3196176	0,071028918	-4,4998232	235	1,07E-05	6,41E-05
Q68FP1-2		ATP synthase subunit alpha, mitochondrial	Atp5a1	ATPA_RAT	0,92314997	0,121829593	7,57738695	11	1,09E-05	6,50E-05
P15999		Mitochondrial import inner membrane translocase subunit Tim13	Timm13 Tim13a							
P62076		Complement C1q subcomponent subunit B	Timm13a	TIM13_RAT	-0,3233094	0,072877909	-4,436316	516	1,12E-05	6,65E-05
		Ubiquitin-like modifier-activating enzyme ATG7 (ATG12-activating enzyme E1	C1qb	CIQB_RAT	-1,19C0681	0,109208474	-10,897213		1,21E-05	7,13E-05
P31721		ATG7) (Autophagy-related protein 7) (APG7-like)	Atg7	Apq7l						
Q641Y5		Up-regulated during skeletal muscle growth protein 5 (Diabetes-associated protein in insulin-sensitive tissues)	Usmg5Dapit							
Q9JJW3		Sodium/potassium-transporting ATPase subunit beta-2 (Sodium/potassium-dependent ATPase subunit beta-2)	Atp1b2							

ATG7_RAT	0,49814774	0,07792964	6,39227568	15	1,21E-05	7,13E-05
USMG5_RAT	-0,3363382	0,062032002	-5,4220116	25	1,26E-05	7,37E-05
AT1B2_RAT	-1,2138S11	0,096031945	-12,640076		1,50E-05	8,78E-05



P13638	Kinesin-1 heavy chain (Conventional kinesin heavy chain) (Ubiquitous kinesin heavy chain) (UKHC)	Kif5bKhc	KINH_RAT	-0,2528902	0,056198268 -4,4999651	122	1,56E-05	9,09E-05			
Q2PQA9	Mannose-6-phosphate isomerase (EC 5.3.1.8) (Phosphohexomutase) (Phosphomannose isomerase) (PMI)	Mpi	MPI_RAT	0,26394453	0,059487165 4,4369996	174	1,61E-05	9,35E-05			
Q68FX1	residual protein 31 (ERP31)	Erp29	ERP29_RAT	-0,6502673	0,118969736 -5,4658211	22	1,72E-05	9,92E-05			
P52555	tRNA-splicing ligase RtcB homolog (EC 6.5.1.3) (p55)	Rtcb	RTCB_RAT	0,24153298	0,052110599 4,63500669	66	1,73E-05	9,97E-05			
Q6AYT3	Long-chain specific acyl-CoA dehydrogenase, mitochondrial (LCAD) (EC 1.3.8.8)	Acadl	ACADL_RAT	-0,2587381	0,056136931 -4,609054	66	1,91E-05	0,00010912			
	Aldehyde dehydrogenase, mitochondrial (EC 1.2.1.3) (ALDH class 2) (ALDH-										
P15650	E2(ALDH1)	Aldh2	ALDH2_RAT	-0,4742377	0,109545393 -4,3291429	214	2,30E-05	0,00013112			
P11884	Septin-2 (Vascular endothelial cell specific protein 11)	Sept2	Vespll	SEPT2_RAT	-0,4095897	0,096154474 -4,2597051	328	2,68E-05	0,0001521		
	Thymosin beta-4 (T beta 4) [Cleaved into: Hematopoietic system regulatory peptide(Seraspenide)]	Tmsb4x	Thyb4 Tmsb4	TYB4_RAT	-0,3825182	0,085600428 -4,4686479	75	2,74E-05	0,00015513		
Q91Y81	Serine/threonine-protein phosphatase 6 catalytic subunit (PP6C) (EC 3.1.3.16) (Protein phosphatase V) (PP-V) (Cleaved into: Serine/threonine-protein phosphatase 6 catalytic subunit, N-terminally processed)	Ppp6c	Ppv	PPP6_RAT	0,83886	0,193734417 4,32994826	143	2,79E-05	0,00015721		
P62329	Uncharacterized protein C12orf43 homolog	C1043	RAT	0,32612537	0,067218868 4,85169392	33	2,85E-05	0,00016023			
Q64620	Aspartate aminotransferase, cytoplasmic (cAspAT) (EC 2.6.1.1) (EC 2.6.1.3) (Cysteine aminotransferase, cytoplasmic) (Cysteine transaminase, cytoplasmic) (cCAT) (Glutamate oxaloacetate transaminase 1) (Transaminase A)	Gotl									
Q51034	Unconventional myosin-Va (Dilute myosin heavy chain, non-muscle)	Myo5a	AATC_RAT	0,42254128	0,065282944 6,47246047	12	3,06E-05	0,00017101			
P13221	Cyclin-dependent kinase 5 (EC 2.7.11.22) (Cell division protein kinase 5) (Serine/threonine-protein kinase PSSALRE) (Tau protein kinase II catalytic subunit)(TPKII catalytic subunit)	Myo5a	MYO5A_RAT	-0,3709406	0,088406875 -4,1958338	596	3,13E-05	0,00017454			
Q9QYF3	Fatty acid-binding protein, brain (Brain lipid-binding protein) (BLBP) (Brain-	Cdk5 Cdkn5	CDK5_RAT	-0,320939	0,075300619 -4,2621035	172	3,33E-05	0,00018485			
CON_007152	type fatty acid-binding protein) (B-FABP) (Fatty acid-binding protein 7)	Fabp7	Blbp	FABP7_RAT	0,47931201	0,07170741 6,68427453	11	3,45E-05	0,00019064		
Q03114	Sodium- and chloride-dependent GABA transporter 3 (GAT-3) (Solute carrier family 6 member 11)	Slc6all	Gatb3 Gat-3	S6all_RAT	-0,4387573	0,101487035 -4,3232842	99	3,67E-05	0,00020199		
P55051	Alpha-2-macroglobulin (Alpha-2-M)	A2m	A2mI	A2M_RAT	0,45742732	0,106865877 4,28038714	119	3,80E-05	0,0002083		
	Galectin-3-binding protein (Cyp-C-associated protein) (CypCA) (Lectin galactoside-binding soluble 3-binding protein) (Mac-2-binding protein) (MAC2BP) (Mac-2 BP) (Protein 90K)	Igals3bp	LG3BP_RAT	-0,4861173	0,114829632 -4,2333785	152	3,97E-05	0,00021694			
P31647	Sodium/potassium-transporting ATPase subunit alpha-3 (Na(+)/K(+) ATPase alpha-3 subunit) (EC 3.6.3.9) (Na(+)/K(+) ATPase alpha(III) subunit) (Sodium pumpsubunitalpha-3)	Atpla3	AT1A3_RAT	-0,276051	0,045838394 -6,0222664	13	4,29E-05	0,00023348			
P06238	Serotransferrin (Transferrin) (Beta-1 metal-binding globulin) (Liver										
070513	regeneration-related protein LRRG03) (Slenderophilin)	Tf	TRFE_RAT	0,92212516	0,148017059 6,22985733	12	4,39E-05	0,00023788			
	Protein kinase C and casein kinase substrate in neurons protein 1 (Dynamn praline-rich domain-interacting protein) (Dynamn PRO-interacting protein) (Synaptic, dynamn-associated protein I) (Syndapin-1) (Syndapin-1) (Sdpl)	Pacsinl									
P06687	Adenylate kinase isoenzyme 1 (AK 1) (EC 2.7.4.3) (EC 2.7.4.6) (ATP-AMP transphosphorylase 1) (ATP-AMP phosphotransferase) (Adenylate monophosphate kinase) (Myokinase)	Akl	KADI_RAT	-0,25708	0,062631459 -4,1046468	815	4,46E-05	0,00023998			
P12346	T-kininogen 1 (Alpha-1-MAP) (Major acute phase protein) (T-kininogen I) (Thiostatin) (Cleaved into: T-kininogen 1 heavy chain (T-kininogen I heavy chain); T-kinin; T-kininogen 1 light chain (T-kininogen I light chain))	Mapl	KNTI_RAT	-0,3665903	0,088494422 -4,1425248	282	4,54E-05	0,00024378			
Q9ZOW5	N-acetylaspate synthetase (NAA synthetase) (N-acetyltransferase 8-like protein) (EC2.3.1.17)	Nat8l	NAT8L_RAT	-0,4561675	0,110235846 -4,1381053	281	4,63E-05	0,00024713			
P39069	Dolichyl-diphosphooligosaccharide-protein glycosyltransferase subunit 1 (EC 2.4.99.18) (Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 67 kDa subunit) (Ribophorin I) (RPN-I) (Ribophorin-1)	Rpnl	RPN I_RAT	-0,4055431	0,09715675 -4,1741114	181	4,64E-05	0,00024713			
P54311	14-3-3 protein theta (14-3-3 protein tau)	Ywha	1433T_RAT	1,21335073	0,25493285 4,75949148	29	4,95E-05	0,00026186			
P01048	CDSSH iron-sulfur domain-containing protein 1 (MitoNEET)	Cisd1	CISD1_RAT	-0,4201157	0,074860959 -5,6119468	15	4,95E-05	0,00026186			
D3ZVU9	Brevican core protein (Brain-enriched hyaluronan-binding protein) (BEHAB)	Bean	Behab	PGCB_RAT	-0,2716141	0,063873991 -4,2523428	88	5,26E-05	0,00027677		
P07153	40S ribosomal protein S4, X isoform	Rps4x	Rps4	RS4X_RAT	0,55504297	0,130384319 4,25697636	85	5,31E-05	0,00027889		
P68255	Electrogenic sodium bicarbonate cotransporter 1 (Sodium bicarbonate cotransporter) (NBC-like protein) (Na(+)/HCO3(-) cotransporter) (Solute carrier family 4 member 4)	Slc4a4	Nbc NbcI	Nbccl	RnbcI	S4A4_RAT	-0,4378242	0,09802014 -4,4666757	42	5,89E-05	0,00030797
B0K020	Atlastin-1 (EC 3.6.5.-) (Spastic paraplegia 3A homolog)	Atl1	Spg3a	ATLA1_RAT	-0,3444747	0,083471261 -4,1268655	136	6,38E-05	0,00033212		
P55068	V-type proton ATPase 16 kDa proteolipid subunit (V-ATPase 16 kDa proteolipid subunit) (Vacuolar proton pump 16 kDa proteolipid subunit) (Large neutral amino acids transporter small subunit 1) (4F2 light chain) (4F2 LC) (4F2LC) (Integral membrane protein E16) (Protein TAJ) (L-type amino acid transporter 1) (Solute carrier family 7 member 5)	Atp6v0c	Atp6l	VATL_RAT	-0,3660936	0,089371246 -4,096324	158	6,69E-05	0,00034711		
Q9J166-3	Copine-9 (Copine IX)	Slc7a5	Mpe16Tat	LATI_RAT	-0,243383	0,046058424 -5,2842234	16	7,41E-05	0,00038334		
Q6PST4	ZWIO interactor (SNAP25-interacting protein 30) (Scollin) (ZWIO-interacting protein 1) (Zwint-1)	Cpne9	CPNE9_RAT	-0,7438464	0,182034192 -4,0863007	122	7,88E-05	0,00040619			
P63081	26S proteasome non-ATPase regulatory subunit 2	Zwint	Slp30	ZWINT_RAT	-0,6174351	0,136961102 -4,5081053	31	8,75E-05	0,00044925		
Q63016	Ras GTPase-activating protein 1 (GAP) (GTPase-activating protein) (RasGAP)	Psm2	PSM2_RAT	0,3937554	0,058713557 6,70637951		8,79E-05	0,00044977			
Q5BJS7	(Ras p21 protein activator) (p120GAP)	Rasal	Rasa	RASAI_RAT	-0,2671535	0,051586636 -5,1787339	16	9,14E-05	0,00046618		
Q8BVJ3	Arfaptin-2 (ADP-ribosylation factor-interacting protein 2)	Arfp2	ARFP2_RAT	0,46167121	0,108849067 4,24138874	51	9,36E-05	0,00047549			
	Regulating synaptic membrane exocytosis protein 3 (Nim3) (RIM3 gamma)										
Q4FZT9	(Rab-3-interacting molecule 3) (RIM 3)	Rims3	Nim3	RIMS3_RAT	0,27906456	0,070417119 3,9630215	269	9,49E-05	0,00048039		
P50904	Rab GTPase-binding effector protein 1 (Rabaptin-5) (Rabaptin-5alpha)	Rabep1	Rabpt5	RABPT5_RAT	0,5082693	0,10800426 4,70601161	23	9,69E-05	0,00048868		
	Lanosterol 14-alpha demethylase (LDM) (EC 1.14.13.70) (CYPLI) (Cytochrome P450 51A1) (Cytochrome P450-14DM) (Cytochrome P45014DM) (Cytochrome P450L) (Sterol 14-alpha demethylase)	Cyp51a1	Cyp51	CP51A_RAT	-0,6914293	0,126251814 -5,4765889	13	0,0001063	0,00053444		
Q6AY65	60S ribosomal protein L32	Rpl32	RL32_RAT	1,1453551	0,103963173 11,0179907	5	0,0001072	0,00053713			
Q0J1R3	Adenosine kinase (AK) (EC 2.7.1.20) (Adenosine 5'-phosphotransferase)	Adk	ADK_RAT	0,25762716	0,061701376 4,17538758	54	0,00010909	0,00054467			
Q35550	5-oxoprolinase (EC 3.5.2.9) (5-oxo-L-prolinase) (5-OPase) (Pyroglutamase)	Oplah	OPLA_RAT	-0,7802747	0,127272051 -6,1307623	10	0,0001111	0,0005528			
Q64654	Protein SIOO-A (S-100 protein alpha chain) (S-100 protein subunit alpha)										
P62912	(SIOO calcium-binding protein A)	Slc7a5	Mpe16Tat	LATI_RAT	-0,243383	0,046058424 -5,2842234	16	0,00011201	0,00055545		
Q64640	Alpha-enolase (EC4.2.1.11) (2-phospho-D-glycerate hydro-lyase) (Enolase 1) (Non-neural enolase) (NNE)	Eno1	ENO-1	ENOA_RAT	-0,3007396	0,075203291 -3,9990221	106	0,00011792	0,00056247		
Q46404	Myelin protein PO (Myelin peripheral protein) (MPP) (Myelin protein zero)	Mpz	PO	MYPO_RAT	0,30034064	0,064350714 4,66724644	22	0,00011827	0,00056247		
P97608	Plastin-3 (T-plastin)	Pls3		PLST_RAT	-0,9023133	0,219765815 -4,1057946	62	0,0001199	0,00058851		
P35467	Diphosphoinositol polyphosphate phosphohydrolase 1 (DIPP-1) (EC 3.6.1.52) (Dienosine 5',5''-P1,P6-hexaphosphate hydrolase 1) (EC 3.6.1.-) (Nucleoside diphosphate-linked moiety X motif 3) (Nudix motif 3) (DNA-(apurinic or apyrimidinic site) lyase (EC 3.1.-.-) (EC 4.2.99.18) (APEX nuclease) (APEN) (Apurinic-apyrimidinic endonuclease 1) (AP endonuclease 1)(REF-1) (Redox factor-1) [Cleaved into: DNA-(apurinic or apyrimidinic site) lyase, mitochondrial ]	Nudt3	Dipp Dippi	NUDT3_RAT	0,28351728	0,073267973 3,86959366	425	0,00012613	0,00061697		
P04764	Methylmalonate-semialdehyde dehydrogenase (acylating), mitochondrial (MMSDH) (Malonate-semialdehyde dehydrogenase (acylating)) (EC 1.2.1.18) (EC 1.2.1.27) (Aldehyde dehydrogenase family 6 member A)	Apexl	Ape Apex Ref	APEX1_RAT	-0,6243591	0,15437611 -4,0444025	74	0,00012737	0,00062091		
Q63598	Glutathione S-transferase kappa 1 (EC 2.5.1.18) (GST 13-13) (GST class-kappa a)	Aldh6a1	Mmsdh	MMSA_RAT	-0,2917243	0,075480281 -3,8649072	327	0,00013404	0,00065123		
Q566CT	(GSTK1-1) (rGSTK1) (Glutathione S-transferase subunit 13)	Gstk1		GSTK1_RAT	0,25026124	0,061713773 4,05519266	64	0,00013837	0,00067004		
P43138	CTP synthase 2 (EC 6.3.4.2) (CTP synthetase 2) (UTP--ammonia ligase 2) (Protein arginine N-methyltransferase 1) (EC 2.1.1.-) (Histone-arginine N-methyltransferase PRMT1) (EC 2.1.1.125)	Ctp2		PYRG2_RAT	0,44950903	0,071575897 6,28017326	9	0,00014435	0,00069663		
Q02253	ATP synthase subunit delta, mitochondrial (F-ATPase delta subunit)	Prmt1	HrmtII2	ANMI_RAT	-0,3269657	0,084454115 -3,8715192	179	0,00015144	0,00072843		
P24473	Dihydropolypol dehydrogenase, mitochondrial (EC 1.8.1.4) (Dihydropolipoamide dehydrogenase)	Atp5d		ATPD_RAT	-0,3676332	0,082068063 -4,4796139	23	0,00017031	0,00081649		
Q5U2NO	60S acidic ribosomal protein P1	Did		DLDH_RAT	-0,3892254	0,053890005 -7,2252901	7	0,00017401	0,00083145		
Q63009	Sorbitol dehydrogenase (EC 1.1.1.14) (L-iditol 2-dehydrogenase)	Rplpl		RLAI_RAT	0,26362632	0,06781824 3,88724809	101	0,00018155	0,00086459		
P35434	Peptidyl-prolyl cis-trans isomerase D (PPIase D) (EC 5.2.1.8) (40 kDa peptidyl-prolyl cis-trans isomerase) (Cyclophilin-40) (CYP-40) (Rotamase D)	Sord	Sdhl	DHSO_RAT	-0,3342786	0,082376667 -4,0579286	42	0,00021069	0,00100006		
Q6P6R2	60S ribosomal protein L23a	Rpl23a		RL23A_RAT	-0,2684027	0,071275372 -3,7657139	223	0,00021248	0,00100529		
P19844	Four and a half LIM domains protein 1 (FHL-1)	Rpl23a		RL23A_RAT	-0,5336663	0,129386932 -4,1245768	35	0,0002174	0,00102518		
P27867		Fhl1		FHL1_RAT	0,22093118	0,057437388 3,84646981	88	0,00022631	0,00106371		

	Myosin-10 (Cellular myosin heavy chain, type B) (Myosin heavy chain 10) (Myosin heavy chain, non-muscle IIB) (Non-muscle myosin heavy chain B) (NMHC-B) (Non-muscle myosin heavy chain IIB) (NMHC 11-b) (NMHC-IIB)	myr10	MYH10_RAT	0,2558769	0,068852488	3,71630583	347	0,00023557	0,00110364
Q6DGG0			MTPN_RAT	-0,4717416	0,119629102	-3,9433678	53	0,00023727	0,00110801
P62752	Myotrophin (Granule cell differentiation protein) (Protein V-1)	MtpnGcdp	Rpl18a	0,46832403	0,050499386	9,27385583	5	0,00024511	0,00114096
Q9WU44	60S ribosomal protein L18a								
Q9JLT0	Potassium voltage-gated channel subfamily C member 3 (KSHLID) (Voltage-gated potassium channel subunit Kv3.3)	Kcnc3	KCNC3_RAT	-0,2018991	0,055005482	-3,6705263	561	0,00026517	0,00123034
P62775	Vacuolar protein sorting-associated protein 45 (rVps45)	Vps45Vps45a	VPS45_RAT	0,28679322	0,061672657	4,65024912	16	0,00026673	0,00123362
P62718	UPF0587 protein Clorf123 homolog		CA123_RAT	-0,3001662	0,078656515	-3,8161645	67	0,00029823	0,00137489
Q01956	Histone-binding protein RBBP7 (Nucleosome-remodeling factor subunit RBAP46) (Retinoblastoma-binding protein 7) (RBBP-7)	Rbbp7	RBBP7_RAT	-0,3682005	0,064808412	-5,6813682	9	0,00030134	0,00138483
Q08700	60S ribosomal protein L9	Rpl9	RL9_RAT	-0,398315	0,100598392	-3,9594565	37	0,00032847	0,00150471
Q498R7	8-oxo-dGDP phosphatase NUDT18 (EC 3.6.1.58) (2-hydroxy-dADP phosphatase) (7,8-dihydro-8-oxoguanine phosphatase) (MutT homolog 3) (Nucleoside diphosphate-linked moiety X motif 18) (Nudix motif 18)	Nudt18Mth3	NUDT18_RAT	0,33667605	0,083132659	4,04986507	30	0,00033288	0,0015201
Q71UF4	Tubulin beta-2A chain	Tubb2a	TBB2A_RAT	0,30796567	0,080055352	3,84690912	51	0,00033399	0,00152034
P17077	Trafficking protein particle complex subunit 3	Trappc3	TPPC3_RAT	-0,4434852	0,118506445	-3,7422879	81	0,00033943	0,00154022
Q641Y7	Transcription elongation factor B polypeptide 2 (Elongin 18 kDa subunit) (Elongin-B) (EloB) (RNA polymerase II transcription factor Sili subunit B) (Sili p18)	Tceb2	ELOB_RAT	0,3489863	0,076040503	4,58947904	15	0,00033543	0,00160268
P85108	Succinyl-CoA ligase [ADP/GDP-forming] subunit alpha, mitochondrial (EC 6.2.1.4) (EC 6.2.1.5) (Succinyl-CoA synthetase subunit alpha) (SCS-alpha)	Sucig1	SUCA_RAT	-0,2974669	0,064981186	-4,5777386	15	0,00036265	0,00163533
QSU122	Cell adhesion molecule 3 (Immunoglobulin superfamily member 4B) (IgSF48) (Nectin-like protein 1) (NECL-1)	Cadm3Igsf48Nect1	CADM3_RAT	0,25465867	0,064880355	3,92505049	36	0,00037498	0,00168565
P62870	Peptidyl-prolyl cis-trans isomerase A (PPIase A) (EC 5.2.1.8) (Cyclophilin A) (Cytochrome A-binding protein) (Rotamase A) (p1B15) (p31) (Cleaved into: Peptidyl-prolyl cis-trans isomerase A, N-terminally processed)	Ppia	PPIA_RAT	0,29034002	0,076329967	3,80374884	51	0,00038261	0,00170403
P13086	Sortilin (Glycoprotein 110) (SpilD) (Neurotensin receptor 3) (NTR3)	Sortl	SORT_RAT	-0,5645863	0,154000482	-3,6661336	109	0,00038229	0,00170403
Q1WIM3	Nucleosome assembly protein 1-like 4	Nap1l4	NP1L4_RAT	-0,258496	0,06706918	-3,854169	43	0,00038252	0,00170403
P10111	Vitamin D-binding protein (DBP) (VDB) (Ge-globulin) (Group-specific component)	Vtbdp	VTDB_RAT	0,42082447	0,117692778	3,57561846	327	0,00040211	0,00178539
Q54861	Guanine nucleotide-binding protein subunit beta-5 (Gbeta5) (Transducin beta chains)	Gnb5	GBBS_RAT	0,47817804	0,115838074	4,12798681	23	0,00040922	0,00181135
QSU223	Thiosulfate sulfurtransferase (EC 2.8.1.1) (Rhodanese)	Tst	THTR_RAT	-0,4275949	0,119390632	-3,5814777	152	0,00045925	0,00202662
P04276	Clusterin (Dimeric acid glycoprotein) (DAG) (Sulfated glycoprotein 2) (SGP-2) (Testosterone repressed prostate message 2) (TRPM-2) (Cleaved into: Clusterin beta chain; Clusterin alpha chain)	Clo	CLUS_RAT	0,79473625	0,129246469	6,14899778		0,000468	0,00205891
P62882	Oxidation resistance protein 1 (Protein C7)	Oxrl C7	OXR1_RAT	-0,3144408	0,083146801	-3,7817545	42	0,00048663	0,00213436
P24329	Spermatogenesis-defective protein 39 homolog (hSPE-39) (VPS33B-interacting protein in apical-basolateral polarity regulator) (VPS33B-interacting protein in laterality and apical restriction)	Vipas39Spe39Vipar	SPE39_RAT	-0,2192506	0,061605674	-3,5589353	153	0,00049629	0,00217014
P05371	Bridging integrator 2	Bin2	BIN2_RAT	0,58467419	0,162215343	3,6043088	87	0,00052087	0,00227074
Q4V8B0	60S ribosomal protein L10a	Rpl10a	RI10A_RAT	0,23669272	0,067155278	3,52455866	200	0,00052575	0,00227825
QSPQN6	Aflatoxin B1 aldehyde reductase member 2 (rAfar2) (EC 1.1.1.11) (Succinic semialdehyde reductase) (SSA reductase)	Akr7a2Afar2Aiar	ARK72_RAT	-0,7762232	0,160622887	-4,8325813	11	0,00052519	0,00227825
Q68FR2	Aldose 1-epimerase (EC 5.1.3.3) (Galactose mutarotase)	Galm	GALM_RAT	0,54231347	0,144088607	3,76374982	40	0,00053774	0,00232323
P62907	Prostaglandin reductase 2 (PRG-2) (EC 1.3.1.48) (15-oxoprostaglandin 13-reductase) (Zinc-binding alcohol dehydrogenase domain-containing protein 1)	Ptgr2Zadhl	PTGR2_RAT	-0,4704481	0,127586597	-3,687285	52	0,00054214	0,00233526
Q8CG4S	DnaJ homolog subfamily A member 2 (RDJ2)	Dnaja2	DNJA2_RAT	-0,3269618	0,091703135	-3,565437	107	0,00054453	0,00233854
Q66HG4	Rho guanine nucleotide exchange factor 7 (Beta-Pix) (PAK-interacting exchange factor beta)	Rmgel7Pak39Pix	ARHG7_RAT	0,26421884	0,072609221	3,63891573	62	0,00055936	0,00238802
QSBK81	Aldose reductase (AR) (EC 1.1.1.21) (Aldehyde reductase)	Akr1b1Akr1b4Aldr1	ALDR_RAT	0,31869675	0,074242603	4,29263971	16	0,00055917	0,00238802
Q35824	26S protease regulatory subunit 7 (26S proteasome AAA-ATPase subunit RPT1) (Proteasome 26S subunit ATPase 2) (Protein MSS1)	Psmc7Mss1	PRST_RAT	-0,6026862	0,16871146	-3,5722894	80	0,00060279	0,00256587
Q55043	Clathrin light chain B (Lcb)	Cltb	CLCB_RAT	-0,4457654	0,094103749	-4,7369573	11	0,00061244	0,00259927
	3-hydroxyacyl-CoA dehydrogenase type-2 (EC 1.1.1.35) (17-beta-hydroxysteroid dehydrogenase 10) (17-beta-HSD 10) (EC 1.1.1.51) (3-hydroxy-2-methylbutyryl-CoA dehydrogenase) (EC 1.1.1.178) (3-hydroxyacyl-CoA dehydrogenase type II) (Endoplasmic reticulum-associated amyloid beta-peptide-binding protein) (Mitochondrial ribonuclease P protein 2) (Mitochondrial RNase P protein 2) (Type II HADH)	Hsd17b10	ErabHadh2						
P07943			HCD2_RAT	-0,2793495	0,080940438	-3,4512968	341	0,00062802	0,00265759
Q63347	Tubulin beta-2B chain (T beta-15)	Tubb2b	Tubb2a	0,25073547	0,073052421	3,43226773	245	0,00070249	0,00296403
P08082	T-complex protein 1 subunit gamma (TCP-1-gamma) (CCT-gamma)	Cct3	TCPOG_RAT	0,25421841	0,060833522	4,1789198	16	0,00070908	0,0029831
Q70351	Sortingnexin-5	Snx5	SNXS_RAT	-0,2993141	0,084823909	-3,5286528	75	0,00071723	0,00300573
Q3KR58	Serine--tRNA ligase, cytoplasmic (EC 6.1.1.11) (Seryl-tRNA synthetase) (SerRS)	Sarsrsarsl	SYSC_RAT	-0,3208946	0,076906477	-4,1725302	16	0,00071863	0,00300573
Q6P502	Ig kappa chain C region, B allele		KACB_RAT	-0,254553	0,075018684	-3,3931943	350	0,00076995	0,00321109
B1H267	Solute carrier family 15 member 2 (Kidney H(+))peptide cotransporter) (Oligopeptide transporter, kidney isoform) (Peptide transporter 2)	Sclt2a2Hep2z	S15A2_RAT	0,24896948	0,066339357	3,752968	27	0,00084759	0,0035247
Q6P799	LETMI and EF-hand domain-containing protein 1, mitochondrial (Leucine zipper-EF-hand-containing transmembrane protein 1)	Letmi	LETMI_RAT	0,26758832	0,079482235	3,36664315	284	0,00088658	0,00359031
	Ectonucleotide pyrophosphatase/phosphodiesterase family member 6 (ENPP6) (NPP-6) (EC 3.1.4.-) (EC 3.1.4.38) (Choline-specific glycerophosphodiester phosphodiesterase) (Glycerophosphocholine cholinephosphodiesterase) (GPC-Cpde)	Enpp6	ENPP6_RAT	-0,3441193	0,084333983	-4,0804344	16	0,0008716	0,0036038
P01835	Cell cycle exit and neuronal differentiation protein 1	Cend1	CEND_RAT	-0,6353679	0,123405784	-5,1486072	8	0,00087582	0,00360637
Q63424	Sentrin-specific protease 8 (EC 3.4.22.68) (Deneddylase-1) (NEDD8-specific protease 1) (Sentrin/SUMO-specific protease SENP8)	Senp8	SENP8_RAT	-0,3057321	0,083041482	-3,6816797	31	0,00087722	0,00360637
QXIN6	Secretory carrier-associated membrane protein 1 (Secretory carrier membrane protein 1) (SCAMP 37)	Scamp3scamp	SCAM1_RAT	-0,5549819	0,163608309	-3,3921373	136	0,00090847	0,00371367
BOBND0	60S ribosomal protein L13	Rpl13	RL13_RAT	-0,437912	0,125298569	-3,494948	59	0,00090655	0,00371367
QSFV4	Reticulocalbin-2 (Calcium-binding protein ERC-55) (Taipoxin-associated calcium-binding protein 49) (TCBP-49)	Rcn2Rcbs	RCN2_RAT	1,39025245	0,159003812	8,74351645	4	0,00094287	0,0038434
QSFV8		Mt-atp8	Atp8						
P56603	ATP synthase protein 8 (AGL) (Chargenn II) (F-ATPase subunit 8)	Mtatp8	ATP8_RAT	-0,7668975	0,215494138	-3,558786	40	0,00097771	0,00397417
P41123	Beta-glucuronidase (EC 3.2.1.31)	GusbGus	BGLR_RAT	-0,2971212	0,087855053	-3,3819483	96	0,00104261	0,00422808
Q62703	Mitochondrial import receptor subunit TOM70 (Mitochondrial precursor proteins import receptor) (translocase of outer membrane 70 kDa subunit)	Tom70a	TOM70_RAT	-0,4764916	0,141690252	-3,3629101	103	0,0010837	0,00438035
	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 (Complex I subunit B13) (Complex I-13kD-B) (CI-13kD-B) (NADH-ubiquinone oxidoreductase 13 kDa-B subunit)	Ndufa5	NDUA5_RAT	-0,9119703	0,184005062	-4,9562241	8	0,00111216	0,0044828
P11608	40S ribosomal protein S18	Rps18	RS18_RAT	-0,4204698	0,085254847	-4,9319168	8	0,00114667	0,00460903
P06760	Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform (PP2A-beta) (EC 3.1.3.16)	Rppccu	PP2AB_RAT	-0,5965894	0,17167854	-3,4750379	44	0,00116025	0,00465065
Q75Q39	Serine/threonine-protein phosphatase CPPED1 (EC 3.1.3.16) (Calcineurin-like phosphoesterase domain-containing protein 1)	Upped1Lstpl	CPPED_RAT	-0,4882408	0,120359836	-4,0565096	14	0,00117815	0,00470934
Q63362	Charged multivesicular body protein 5 (Chromatin-modifying protein 5)	Chmp5	CHMP5_RAT	-0,305363	0,08996534	-3,3942103	56	0,00127048	0,00506438
P62271	26S protease regulatory subunit 4 (P26s4) (26S proteasome AAA-ATPase subunit RPT2) (Proteasome 26S subunit ATPase 1)	Psmc4	PRS4_RAT	-0,2041188	0,052815249	-3,86477	16	0,00137193	0,00545372
P62716	Bis(S'-nucleosyl)-tetraphosphatase [asymmetrical] (EC 3.6.1.17) (Dienadenosine 5',5''-PI4P-tetraphosphatase asymmetrical hydrolase) (Ap4A hydrolase) (Ap4Aase) (Dienadenosine tetraphosphatase) (Nucleoside diphosphate-linked moiety X motif 2) (Nudix motif 2)	Nudtz	AP4A_RAT	0,27803647	0,080073341	3,47227261	35	0,00139161	0,00551674
Q66H71		Rps12	RS12_RAT	0,61464013	0,173676778	3,53898858	28	0,00142425	0,00561527
CON_000213	Stress-70 protein, mitochondrial (75 kDa glucose-regulated protein) (GRP-75) (Heat shock 70 kDa protein 9) (Mortalin) (Peptide-binding protein 74)	Hspa9	Grp75						
Q4QQV8	(PBP74) (mtHSP70)		GRP75_RAT	0,3760194	0,112126171	3,35353824	57	0,001423	0,00561527
	26S protease regulatory subunit GB (26S proteasome AAA-ATPase subunit RPT3) (Proteasome 26S subunit ATPase 4) (S6 ATPase) (Tat-binding protein 7) (TBP-7)	Psmc4	Thp7						
P62193			PRS6B_RAT	0,29759467	0,09160468	3,24868411	147	0,00143685	0,00564953
Q6PECO	Glycerophosphodiester phosphodiesterase domain-containing protein 1 (EC 3.1.-.-)	Gdpdl	GDPD1_RAT	-0,7411204	0,225465772	-3,2870639	88	0,00145556	0,00570755

P63324	Sterol 4- $\alpha$ -carboxylate 3-dehydrogenase, decarboxylating (EC 1.1.1.170)	Nsdhl	NSDHL_RAT	-0.2564212	0.078603423	-3.2622147	111	0.00146908	0.00574493
P48721	Prelamin-A/C (Cleaved into: Lamin-A/C)	Lmnlalnmli	LMNA_RAT	-0.1250684	0.039278295	-3.1846705	391	0.00156536	0.00605658
Q63570	Nischarin (Imidazoline receptor 1) (1-1) (IR) (Imidazoline-1 receptor) (IR)	Nisch	NISCH_RAT	0.30242708	0.093322051	3.24068186	115	0.00155986	0.00605558
QOIVGK4	Myelin-oligodendrocyte glycoprotein	Mog	MOG_RAT	-0.3841951	0.061687083	-6.2281287	5	0.00156122	0.00605558
Q5PPL3	Acidic leucine-rich nuclear phosphoprotein 32 family member E	Anp32e	AN32E_RAT	-0.353238	0.086822787	-4.0684938	12	0.00155781	0.00605558
	Aromatic-L-amino-acid decarboxylase (AADC) (EC4.1.1.28) (DOPA								
P48679	decarboxylase) (DOC)	Ddc	DDC_RAT	0.52572402	0.086613449	6.06977358	5	0.00175294	0.00676334
	Glutathione S-transferase Yb-3 (EC 2.5.1.18) (Chain 4) (GST Yb3) (GST class-								
Q4G017	mu3)	Gstm3	GSTM4_RAT	-0.7829C02	0.23381089	-3.3484335	40	0.00178005	0.00684964
Q63345	Calnexin	Canx	CALX_RAT	-0.316049	0.097336295	-3.2469801	66	0.00183462	0.00704083
Q5XIEO	Tyrosine-protein phosphatase non-receptor type 23 (EC 3.1.3.48) (His domain-containing protein tyrosine phosphatase) (HD-PTP) (Protein tyrosine phosphatase TD14) (PTP-TD14) (Fragment)	Ptpn23	PTN23_RAT	-0.4733819	0.089546706	-5.2864246	6	0.00185377	0.00709545
P14173	Enoyl-CoA delta isomerase 1, mitochondrial (EC 5.3.3.8) (3,2-trans-enoyl-CoA isomerase) (Delta(3),Delta(2)-enoyl-CoA isomerase) (D3,D2-enoyl-CoA isomerase) (Dodecenoyl-CoA isomerase)	Ecol Dci	ECOL_RAT	0.20384272	0.061918886	3.29209276	48	0.00187043	0.00714028
P08009	Protein phosphatase 1 regulatory subunit 7 (Protein phosphatase 1 regulatory subunit 22)	Ppp1r7Sds22	PP1R7_RAT	0.34789563	0.11023257	3.15601488	155	0.00192203	0.0073179
	Neurosecretory protein VGF (VGF8a protein) (Cleaved into: VGF(24-63); VGF(180-194); VGF(375-407); Neuroendocrine regulatory peptide-I (NERP-	Vgf							
P35565	1); Neuroendocrine regulatory peptide-2 (NERP-2); TLQP-11; TLQP-21; TLQP-30; TLQP-62; HFHH-10; AQEE-30; LOEQ-19)								
O88902	Nucleosome assembly protein 1-like 1 (NAP-1-related protein)	Nap1ll Nrp	NPII1_RAT	-0.3224253	0.103001739	-3.1302897	277	0.00193303	0.00734042
P23965	60S ribosomal protein L8	Rpl8	RL8_RAT	-0.3299907	0.106170558	3.25725912	54	0.00194721	0.00735555
Q5HZV9	Myeloid-associated differentiation marker (Myeloid up-regulated protein)	Myadm	MYADM_RAT	0.17452245	0.055946525	3.11945108	270	0.00200813	0.00750708
P20156	Small ubiquitin-related modifier 1 (SUMO-1)	Sumol	SUMO1_RAT	0.48144804	0.142718128	3.37341894	31	0.00200786	0.00750708
Q9Z2G8	Isocitrate dehydrogenase [NAD] subunit alpha, mitochondrial (EC 1.1.1.41) (Isocitric dehydrogenase subunit alpha) (NAD(+)-specific ICDH subunit alpha)	Idh3a	IDH3A_RAT	-0.5193559	0.153391989	-3.3858084	30	0.00199673	0.00750708
P62919	Dihydropyrimidinase-related protein 4 (DRP-4) (Collapsin response mediator protein 3) (CRMP-3) (UNC33-like phosphoprotein4) (ULIP-4) (Fragment)	Dpysl4 Cmp3 Ulip4	DPYL4_RAT	-0.6535821	0.203244485	-3.2157434	67	0.00200387	0.00750708
Q6VBQ5	Myoglobin	Mb	MYG_RAT	-0.553137	0.158970715	-3.4794897	23	0.00202684	0.00755744
Q5I0H3	Saccharopine dehydrogenase-like oxidoreductase (EC 1.1.1.15)	Scpdp	SCPDL_RAT	0.42865422	0.106896351	4.00999859	11	0.00205085	0.00760764
	Thioredoxin-dependent peroxide reductase, mitochondrial (EC 1.1.1.1.15)								
Q99NA5	(PRx III) (Peroxiredoxin-3) (PRX-3)	Prdx3	PRDX3_RAT	-0.4238368	0.135681736	-3.1237572	202	0.00204797	0.00760764
	RWD domain-containing protein 1 (Small androgen receptor-interacting								
Q62951	protein)	Rwddi	RWDDI_RAT	0.22613583	0.072784202	3.10693565	295	0.00207448	0.00767559
Q9QZ76	ATP synthase subunit e, mitochondrial (ATPase subunit e)	Atpsi	ATPSI_RAT	0.29295797	0.076507085	3.82916136	13	0.00208846	0.00770753
Q6AY30	Rho GDP-dissociation inhibitor 1 (Rho GDI 1) (Rho-GDI alpha)	Arhgdia	GDIR1_RAT	-0.9601438	0.28630286	-3.3535948	31	0.00211596	0.00778912
Q9ZOV6	Dolichyl-diphosphooligosaccharide-protein glycosyltransferase subunit DAD1 (Oligosaccharyl transferase subunit DAD1) (EC 2.4.99.18) (Defender against cell death 1) (DAD-1)	Dadl	DADI_RAT	-0.4208137	0.13428501	-3.1337354	124	0.00215449	0.00791076
P54313	Neurocalcin-delta	Ncald	NCALD_RAT	-0.3850077	0.122070511	-3.1539779	84	0.0022347	0.00818445
Q96ND9	Secretogranin-3 (1B1075) (Secretogranin III) (Sgll)	Scg3	SCG3_RAT	0.64569465	0.138132944	4.67444353	7	0.0022756	0.00831315
P29419	Guanine nucleotide-binding protein G(o) subunit alpha	Gnaol GnaO Gnao	GNAO_RAT	-0.4771591	0.139108442	-3.4301235	23	0.0022853	0.00832749
Q5X173	ATP-dependent 6-phosphofructokinase, platelet type (ATP-PFK) (PFK-P) [EC 2.7.1.11] (6-phosphofructokinase type C) (Phosphofructo-1-kinase isozyme C) (PFK-C) (Phosphohexokinase)	Pfkp Pfk	PFKAP_RAT	0.3040762	0.098972843	3.07231954	331	0.00230025	0.00836086
P61805	Vesicle-associated membrane protein-associated protein A (VAMP-A) (VAMP-associated protein A) (VAP-A) (33 kDa VAMP-associated protein) (VAP-33)	VapaVap33	VAPA_RAT	-0.2983691	0.087228368	-3.4205509	23	0.00233901	0.0084804
Q5PQNO	Elongator complex protein 1 (ELP1) (IkappaB kinase complex-associated protein) (IKK complex-associated protein)	Ikkbp Elp1 Ikap	ELP1_RAT	-0.9866562	0.273425897	-3.6084956	16	0.00235654	0.00852251
	Serine/arginine-rich splicing factor 2 (Splicing component, 35 kDa) (Splicing	Srsf2Sfrs2							
P47888	factor SC35) (SC-35) (Splicing factor, arginine/serine-rich 2)	Srsf2	SRSF2_RAT	-1.2935613	0.359580099	-3.5974219	16	0.00241232	0.00870243
P59215	60S ribosomal protein L13a	Rpl13a	RL13A_RAT	-0.661208	0.17303812	-3.8211694	12	0.0024343	0.00875985
P47860	Cellular nucleic acid-binding protein (CNBP) (Zinc finger protein 9)	CnbpZnf9	CNBP_RAT	-0.1629952	0.053685655	-3.036104	728	0.00248206	0.00890947
	Rap guanine nucleotide exchange factor 2 (Cyclic nucleotide ras GEF) (CNrasGEF) (Neural RAP guanine nucleotide exchange protein) (nRap GEF) (PDZ domain-containing guanine nucleotide exchange factor 1) (PDZ-GEF1)	Rapgef2 Pdzgef1							
Q9Z270	(RA-GEF-1) (Ras/Rap1-associating-GEF-1)	RPGF2_RAT	RPGF2_RAT	-0.4102194	0.128480884	-3.1928437	47	0.00251403	0.009C0187
Q8VHU4	Elongation factor 1-alpha 1 (EF-1-alpha-1) (Elongation factor Tu) (EF-Tu) (Eukaryotic elongation factor 1 A-1) (eEF1A-1)	Eef1aEefla	EF1A1_RAT	0.32470731	0.099562379	3.26134543	32	0.00263533	0.00941282
	Stress-induced-phosphoprotein 1 (STI) (Hsc70/Hsp90-organizing protein)								
Q6POU1	(Hop)	Stipi	STIPI_RAT	-0.2735938	0.083601887	-3.2725789	30	0.0026841	0.00956335
P35427	Ras-related protein Ral-A	Raia Ral Ral-a	RALA_RAT	-0.3079693	0.095706443	-3.2178532	36	0.00273251	0.00971186
P62634	40S ribosomal protein S29	Rps29	RS29_RAT	-0.3993425	0.088435096	-4.5156564	7	0.00274638	0.00973715
F1M386	Calcium/calmodulin-dependent protein kinase type 1 (EC 2.7.11.17) (CaM kinase I) (CaM-KI) (CaM kinase I alpha) (CaMKI-alpha)	Camk1	KCCI_A_RAT	0.29227591	0.080699558	3.62177825	14	0.00277593	0.00981779
	Heat shock protein 75 kDa, mitochondrial (HSP 75) (TNFR-associated protein 1) (Tumor necrosis factor type 1 receptor-associated protein) (TRAP-1)	Trap1 Hsp75	TRAP1_RAT	-0.5051709	0.16654077	-3.0333166	166	0.00280793	0.00990672
P62630	Alpha-ketoglutarate-dependent dioxygenase FTO (EC 1.14.11.-) (Fat mass and obesity-associated protein)	Fto	FTO_RAT	-0.2143288	0.071613753	-2.9928437	547	0.00288871	0.01014211
Q35814	E3 ubiquitin-protein ligase NEDD4 (EC 6.3.2.-)	Nedd4Nedd4a	NEDD4_RAT	-0.1359232	0.043008924	-3.1603477	43	0.00288462	0.01014211
P63322	E3 ubiquitin-protein ligase RNF181 (EC 6.3.2.-) (RING finger protein 181)	Rnf181	RN181_RAT	-0.3746728	0.117457336	-3.1898629	37	0.00289737	0.01014782
P62275	Potassium voltage-gated channel subfamily A member 2 (RAK) (RBK2) (RCK5)	Kcna2	KCNA2_RAT	-0.3103107	0.100467995	-3.088652	67	0.00292555	0.01022172
Q634SO	(Voltage-gated potassium channel subunit Kv1.2)	Itpa	ITPA_RAT	-0.221018	0.063274517	-3.493002	16	0.00300767	0.01048327
Q5XHZO	Inosine triphosphate pyrophosphatase (ITPase) (Inosine triphosphatase) (EC 3.6.1.19) (Non-canonical purine NTP pyrophosphatase) (Non-standard purine NTP pyrophosphatase) (Nucleoside-triphosphate diphosphatase) (Nucleoside-triphosphate pyrophosphatase) (NTPase)	Nael Appbpl	ULAI_RAT	0.43721088	0.135386285	3.22935868	29	0.00307831	0.01070363
Q2A121	NEDD8-activating enzyme E1 regulatory subunit (Amyloid beta precursor protein-binding protein 1, 59 kDa) (APP-BP1) (Amyloid protein-binding protein 1)	Rpsll	RSII_RAT	0.18889222	0.062091834	3.04214279	83	0.00314418	0.01088624
Q62940	40S ribosomal protein S11	Otubl	OTUB1_RAT	0.12659955	0.036465921	3.47172235	16	0.00314592	0.01088624
Q6AXU4	Ubiquitin thioesterase OTUB1 (EC 3.4.19.12) (Deubiquitinating enzyme OTUB1) (OTU domain-containing ubiquitin aldehyde-binding protein 1) (Otubain-1) (Ubiquitin-specific-processing protease OTUB1)	MaplaMtapla	MAP1A_RAT	-0.3127486	0.089623618	-3.4895779	15	0.00329321	0.01136867
P63142	Microtubule-associated protein 1A (MAP1 A) [Cleaved into: MAP1A heavy chain, MAP1 light chain LC2]	GyglGyg	GLYG_RAT	0.15847798	0.052261798	3.03238674	66	0.00346578	0.01192523
D3ZW55	Glycogenin-1 (GN-1) (GNI) (EC 2.4.1.186)	Hol	HNI_RAT	0.43483057	0.140169041	3.10218696	41	0.00347096	0.01192523
Q9ZIA5	Hematological and neurological expressed 1 protein [Cleaved into: Hematological and neurological expressed 1 protein, N-terminally processed]	Rps21	RS21_RAT	-0.2266994	0.07386114	-3.0692652	49	0.003493	0.01197245
P62282	40S ribosomal protein S21	Gob4	GBB4_RAT	-0.2947516	0.100356841	-2.937035	259	0.00361187	0.01235055
B2RYG6	Guanine nucleotide-binding protein subunit beta-4 (Transducin beta chain 4)	Hopx Glig15b Hod Hop	HOP_RAT	-0.119057	0.040951271	-2.9072843	1746	0.00369183	0.0125941
P34926	Homeodomain-only protein (Global ischemia-induced gene 15B protein) (Glig15b) (Odd homeobox protein 1)	Psmb2	PSB2_RAT	0.26394314	0.086505463	3.05117307	44	0.00385486	0.01311926
Q08730	Proteasome subunit beta type-2 (EC 3.4.25.1) (Macropain subunit C7-I) (Multicatalytic endopeptidase complex subunit C7-I) (Proteasome component C7-I)	Fscnl	FSCNI_RAT	0.27290601	0.076578487	3.56374257	12	0.00389694	0.01323127
Q6AXU6	Fascin	Sik27a1 Fatp Fatp1	SZ7A1_RAT	-0.3075919	0.095619735	-3.216824	22	0.00397141	0.01345245
P05765	Long-chain fatty acid transport protein 1 (FATP-1) (Fatty acid transport protein 1) (EC 6.2.1.-) (Solute carrier family 27 member 1)	Tmod2Ntmtd	TMOD2_RAT	-0.680557	0.187962832	-3.6212251	11	0.00401784	0.01357786
Q35353	Tropomodulin-2 (Neuronal tropomodulin) (N-Tmod)								

P97526	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial (PDH-E1B)(EC 1.2.4.1)	Pdhb	ODPB_RAT	-0,3731662	0,117678432 -3,1710674	22	0,00442323	0,01474069
Q5XIH7	Low molecular weight phosphotyrosine protein phosphatase (LMW-PTP) (LMW-PTPase) (EC 3.1.3.48 ) (Low molecular weight cytosolic acid phosphatase) (EC3.1.3.2)	Acpl	PPAC_RAT	-0,5473899	0,181623833 -3,0138662	38	0,00457516	0,01521188
Q5XIM5	Phosphatidate cytidyltransferase 2 (EC 2.7.7.41) (CDP-DAG synthase 2) (CDP-DG synthase 2) (CDP-diacylglycerol synthase 2) (CDS 2) (CDP-diglyceride pyrophosphorylase 2) (CDP-diglyceride synthase 2) (CTP:phosphatidate cytidyltransferase 2)	Uosf	CD52_RAT	0,1469181	0,048605651 3,02265477	36	0,00459582	0,01524544
P13596	Septin-8	sep-08	SEPT8_RAT	-0,2855775	0,0998384 -2,8603971	227	0,00462575	0,01530954
P48508	MOB-like protein phocin (Class II mMOB) (Mob1 homolog 3) (Mob3) (Mps one binder kinase activator-like 3) (Phocin) (Preimplantation protein 3)	Phocn Prei3	PHOCN_RAT	0,19808608	0,053006885 3,73698777	9	0,00464705	0,01534484
P49432	Heat shock-related 70 kDa protein 2 (Heat shock protein 70.2) (Testis-specific heat shock protein-related) (HST)	Hspa2 Hst70	HSP72_RAT	-0,2654106	0,093346066 -2,8432968	364	0,00471688	0,01548372
P41498	Neuronal calcium sensor 1 (NCS-1) (Frequenin homolog) (Frequenin-like protein) (Frequenin-like ubiquitous protein)	Ncs1 Flup Freq	NCSI_RAT	-0,2749301	0,091581312 -3,0020323	38	0,00472087	0,01548372
Q91XU8	Complement C4 [Cleaved into : Complement C4 beta chain; Complement C4 alpha chain; C4a anaphylatoxin; Complement C4 gamma chain]	C4aa	C04_RAT	-0,2311338	0,070483969 -3,2792388	16	0,0047213	0,01548372
BOBNFI	Neurofilament medium polypeptide (NF-M) (160 kDa neurofilament protein)	Nefm Nef3 Nfm	NFM_RAT	-0,2416473	0,080511441 -3,0014035	37	0,00479199	0,01567993
Q9QYW3	Regulator complex protein LAMTOR3 (late endosomal/lysosomal adaptor and MAPK and MTOR activator 3) (Mitogen-activated protein kinase kinase 1-interacting protein 1)	Lamtor3Map2kl ipl	LTOR3_RAT	0,29608913	0,089717843 3,30022567	15	0,00485666	0,01585556
P14659	L-lactate dehydrogenase A chain (LOH-A) (EC 1.1.1.27) (LOH muscle subunit) (LDH-M)	Ldha Ldh-1 Ldh1	LDHA_RAT	0,35863765	0,125175699 2,86507403	125	0,00489237	0,0159361
P62168	Glutathione S-transferase alpha-4 (EC 2.5.1.18) (GST 8-8) (GST K) (Glutathione S-transferase Yk) (GST Yk)	Gsta4	GSTA4_RAT	-0,842756	0,134483693 -4,7794342	5	0,00497312	0,01616265
P08649	Hsc70-interacting protein (Hip) (Protein FAM10A1) (Protein ST13 homolog)	St13 Fam10a1 Hip	F10A1_RAT	0,18703809	0,065519996 2,85467181	126	0,0050391	0,01634026
P12839	Protein FAM98A	Fam98a	FA98A_RAT	-0,2424886	0,086201011 -2,81306	523	0,0050918	0,01645759
Q5U204	Dolichyl-diphosphooligosaccharide-protein glycosyltransferase subunit 2 (EC 2.4.99.18) (Dolichyl-diphosphooligosaccharide-protein glycosyltransferase 63 kDa subunit) (Ribophorin II) (RPN-11) (Ribophorin-2)	Rpn2	RPN2_RA_T	0,22030757	0,067938296 3,24275974	16	0,00509809	0,01645759
P04642	Tumor protein p63-regulated gene 1-like protein (Mossy fiber terminal-associated vertebrate-specific presynaptic protein)	Iprg11 Mover	TPRGL_RAT	0,31054538	0,109861046 2,82671054	221	0,0051342	0,01653717
P14942	Protein RUFY3 (Rap2-interacting protein x) (RIPx) (Single axon-regulated protein) (Singar)	Rufy3 Ripx	RUFY3_RAT	-0,2670248	0,092651601 -2,8820314	72	0,00520435	0,0167258
P50503	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-1 (EC 3.1.4.11) (Phosphoinositide phospholipase C-gamma-1) (Phospholipase c-gamma-1) (PLC-gamma-1)	Plcgl	PLCG1_RAT	0,17684964	0,062679902 2,82147286	209	0,00524133	0,01680653
Q5FWT1	Sortingnexin-3	Snx3	SNX3_RA_T	-0,2213087	0,030206448 -7,3265396	3	0,00525277	0,01680653
P25235	STE20/SPS1-related proline-alanine-rich protein kinase (Ste-20-related kinase) (EC 2.7.11.3) (Pancreatic serine/threonine-protein kinase) (PS/TK) (PSTK) (Serine/threonine-protein kinase 39)	Stk39PaskSpak	STK39_RAT	-0,4782051	0,164495442 -2,9071024	51	0,00538743	0,01719925
A8WCF8	Neuroendocrine protein 7B2 (Secretogranin V) (Secretogranin-5) (Secretory granule endocrine protein I) (Cleaved into : N-terminal peptide; C-terminal peptide )	Scg5Sgnel	7B2_RAT	-1,0496345	0,355193848 -2,9551032	37	0,00541086	0,01723591
Q5FVJO	Cytochrome c, somatic	Cytc	CYC_RAT	0,24483566	0,075648063 3,23650926	15	0,00553418	0,01758992
P10686	Renin receptor (ATPase H(+)-transporting lysosomal accessory protein 2) (ATPase H(+)-transporting lysosomal-interacting protein 2) (Renin/prorenin receptor)	Atp6ap2 Atp6ip2	REN_RAT	0,24898914	0,081849598 3,0420326	24	0,00561472	0,01780669
Q5U211	Translation initiation factor eIF-2B subunit beta (eIF-2B GDP-GTP exchange factor subunit beta)	Eif2b2 Eif2b	EI2BB_RAT	-0,172995	0,061006436 -2,835684	83	0,00574272	0,01817269
088506	Microsomal glutathione 5-transferase 1 (Microsomal GST-1) (EC 2.5.1.18) (Microsomal GST-I)	Mgst1Gst1z	MGST1_RAT	-0,4116384	0,145062158 -2,8376689	74	0,00586076	0,01850565
P27682	Cytosolic non-specific dipeptidase (EC 3.4.13.18) (CNDP dipeptidase 2) Estradiol 17-beta-dehydrogenase 12 (EC 1.1.1.62) (17-beta-hydroxysteroid dehydrogenase 12) (17-beta-HSD 12) (3-ketoacyl-CoA reductase) (KAR) (EC 1.3.1.-)	Cndp2	CNDP2_RA_T	-0,3841559	0,129610671 -2,9639216	30	0,00590073	0,01859116
P62898	Hsd17b12	Hsd17b12	DHB12_RAT	-0,4319113	0,154281844 -2,7994953	119	0,00597361	0,01877977
Q6AXS4	Gap junction alpha-1 protein (Connexin-43) (Cx43) (Gap junction 43 kDa heart protein)	Gja1Cx43-43	CX41_RAT	-0,2154179	0,06660104 -3,234453	14	0,00599529	0,01880696
Q62818	Isocitrate dehydrogenase (NADP) cytoplasmic (IDH) (EC 1.1.1.42) (Cytosolic NADP-isocitrate dehydrogenase) (IDP) (NADP(+)-specific IDH) (Oxalosuccinate decarboxylase)	Idh1	IDHC_RAT	0,25745545	0,087095021 2,95602949	30	0,00601841	0,01883853
P08011	ATP-dependent (S)-NAD(P)H-hydrate dehydratase (EC 4.2.1.93) (ATP-dependent NAD(P)HX dehydratase) (Carbohydrate kinase domain-containing protein)	Car1d	NNRD_RAT	-0,5352834	0,150096609 -3,5662589	9	0,00605962	0,01892646
Q6QON1	Bifunctional protein NCOAT (Meningioma-expressed antigen 5) (Nuclear cytoplasmic 0-GlcNAcase and acetyltransferase) [Includes: Beta-hexosaminidase (EC 3.2.1.52 ) (Beta-N-acetylhexosaminidase) (Hexosaminidase C) (N-acetyl-beta-D-glucosaminidase) (N-acetyl-beta-glucosaminidase) (0-GlcNAcase); Histone acetyltransferase (HAT) (EC 2.3.1.48)]	Mgea0nhexcmea0	NCOAT_RAT	0,26435506	0,095650822 2,763751	290	0,00607979	0,01894847
Q6P7R8	NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial (Complex 1-18 kDa) (CI-18 kDa) (NADH-ubiquinone oxidoreductase 18 kDa subunit)	Ndufs4	NDUS4_RAT	-0,3306618	0,062941989 -5,2534374	4	0,00628248	0,01953797
P08050	Parvalbuminalpha	PvalbPva	PRVA_RAT	-0,338931	0,122259181 -2,7722337	140	0,00632534	0,01962897
P41562	Propionyl-CoA carboxylase beta chain, mitochondrial (PCCase subunit beta) (EC 6.4.1.3) (Propanoyl-CoA:carbon dioxide ligase subunit beta)	Pccb	PCCB_RAT	-0,2136784	0,077912982 -2,7425266	368	0,00639486	0,01980212
D4AAT7	40S ribosomal protein S17	Rps17	RS17_RAT	-0,5464413	0,149600485 -3,6526707	8	0,00646935	0,01998986
Q8VIJ5	Matr3 (Nuclear scaffold protein p130MAT3)	Matr3	MATR3_RA_T	0,30862709	0,084615474 3,64740725	8	0,00651875	0,02009949
Q5XIF3	Leucine-rich PPR motif-containing protein, mitochondrial (130 kDa leucine-rich protein) (LRP 130) (Leucine rich protein 157) (rLRP157)	Lrp130lrp157	LPPRC_RAT	-0,4517239	0,110893962 -4,0734765	6	0,00655008	0,02015303
P20625	Glutathione S-transferase P (EC 2.5.1.18) (Chain 7) (GST 7-7) (GST class-pi)	Gstpl	GSTPL_RAT	-0,308276	0,112454106 -2,7413497	164	0,00679785	0,02087086
P07633	Integrin alpha-1 (CD49 antigen-like family member A) (Laminin and collagen receptor) (VLA-1) (CD antigen CD49a)	Itga1	ITAI_RAT	-0,2973322	0,106970097 -2,779582	70	0,00698436	0,02139795
P04644	Tubulin-specific chaperone E (Tubulin-folding cofactor E)	Tbce	TBCE_RAT	-0,2239736	0,079010578 -2,8347292	41	0,00708842	0,02167073
P43244	Acyl-coenzyme A thioesterase 1 (Acyl-CoA thioesterase 1) (EC 3.1.2.2) (CTE-1) (Inducible cytosolic acyl-coenzyme A thioester hydrolase) (LACH2) (ACH2) (Long chain acyl-CoA thioester hydrolase) (Long chain acyl-CoA hydrolase)	Acot1Ctel	ACOT1_RAT	-0,4140835	0,130143499 -3,1817453	13	0,00721681	0,02201661
Q5SGEO	Glutathione S-transferase A6 (EC 2.5.1.18) (GST class-alpha member 6) Peroxiredoxin-6 (EC 1.11.1.15) (1-Cys peroxiredoxin) (1-Cys PRX) (Acidic )	Gata6	GSTA6_RAT	-0,4660597	0,168164063 -2,7714581	65	0,00727048	0,02213355
pr: - : : : : ah : : : : x : : : /J! : : (    ) : t   to   -Prdx6 Alpla2 Aop2 Tsa								
P04906	specific antioxidant protein)		PRDX6_RAT	0,4256345	0,157406429 2,70404775	237	0,00734659	0,02231818
P18614	Stromal interaction molecule 1	Stim1Sim	STIMI_RAT	-0,4294674	0,068382293 -6,4696081	3	0,00749359	0,02271691
Q5FVQ9	40S ribosomal protein S15 (R1G protein)	Rps15Rig	RS15_RAT	0,18472315	0,060418205 3,05740869	16	0,00752134	0,02275322
088267	Alpha-soluble NSF attachment protein (SNAP-alpha) (N-ethylmaleimide-sensitive factor attachment protein alpha)	napsnapsnapsa	SNAAL_RAT	0,85082525	0,229604147 3,70561793	7	0,00759854	0,02293869
Q6AXYO	28 kDa heat- and acid-stable phosphoprotein (PDGF-associated protein) (PAP) (PDGFA-associated protein 1) (PAP1)	Pap1 Haspp2z	HAP28_RAT	0,50098999	0,182430241 2,74620037	63	0,0078494	0,02364653
035244	Tropomyosin alpha-1 chain (Alpha-tropomyosin) (Tropomyosin-1) ADP-sugar pyrophosphatase (EC 3.6.1.13) (8-oxo-dGDP phosphatase) (EC 3.6.1.58) (Nucleoside diphosphate-linked moiety X motif 5) (Nudix motif 5)	Tpm1 Alpha-1m Tpm1	TPMI_RAT	0,13899693	0,052268793 2,65927184	427	0,00812547	0,02442614
P84903	Enoyl-CoA hydratase domain-containing protein 3, mitochondrial	Nudt5	NUDT5_RA_T	-0,3627281	0,107353089 -3,3788324	9	0,00814205	0,02442614
P62845	Trifunctional enzyme subunit beta, mitochondrial (TP-beta) [Includes: 3-ketoacyl-CoA thiolase (EC 2.3.1.16) (Acetyl-CoA acyltransferase) (Beta-ketothiolase)]	Echd3	ECHD3_RAT	0,34958282	0,090262992 3,87293633	6	0,0082378	0,02466214
P54921	Galectin-3 (Gal-3) (35 kDa lectin) (Carbohydrate-binding protein 35) (CBP 35) (Galactose-specific lectin 3) (IgE-binding protein) (Lami nin-b inding protein) (Lectin L-29) (Mac-2antigen)	Hadhb	ECHB_RAT	-0,1783394	0,066624595 -2,6767809	148	0,00827205	0,02466905
Q62785	COP9 signalosome complex subunit 3 (SGN3) (Signalosome subunit 3)	Lgals3	LEG3_RAT	0,2359186	0,086223896 2,73611621	57	0,0082743	0,02466905
P04692	FACT complex subunit SSRP1 (Facilitates chromatin transcription complex subunit SSRP1) (Recombination signal sequence recognition protein 1) (Structure-specific recognition protein 1) (T160)	Cops3Csn3	CSN3_RAT	0,29260045	0,087118818 3,35863656	9	0,00840735	0,02496257
Q6AY63	Serpin C1idbip	Ssrp1	SSRP1_RAT	0,19993794	0,064431977 3,10308567	13	0,00839675	0,02496257
Q3MIEO	Serum albumin	Alb	ALBU_RAT	0,20891419	0,069574307 3,0027492	16	0,00843101	0,0249814

Q60587	Isocitrate dehydrogenase [NAO] subunit gamma 1, mitochondrial (EC 1.1.1.41) (isocitric dehydrogenase subunit gamma) (NAD(+)-specific IDH subunit gamma)	Idh3g	IDHG_I_RAT	-0,3755165	0,138358142	-2,7140907	61	0,00862855	0,02551435
P08699	Cysteine sulfinic acid decarboxylase (EC 4.1.1.29) (Cysteine-sulfinate decarboxylase) (Sulfinolalanine decarboxylase)	Usaoua	CSAD_RAT	0,26357134	0,097375227	2,70675965	63	0,00873296	0,02571769
Q68FW9	Receptor-type tyrosine-protein phosphatase-like N (R-PTP-N) (105 kDa islet cell antigen) (BEM-3) (Brain-enriched membrane-associated protein tyrosine phosphatase) (ICA105) (PTP IA-2) (PTPLP)	Ptpn	PTPRN_RAT	-0,41422	0,153937129	-2,6908385	78	0,00871616	0,02571769
Q04931	Fatty aldehyde dehydrogenase (EC 1.2.1.3) (Aldehyde dehydrogenase 4) (Aldehyde dehydrogenase family 3 member A2) (Microsomal aldehyde dehydrogenase) (msALDH)	Aldh3a2Aldh4	AL3A2_RAT	-0,1947872	0,065283487	-2,9837133	16	0,00877242	0,02578127
P02770	Ras-related protein Rab-Ga (Rab-6)	Rab6a Rab6	RAB6A_RAT	0,16137293	0,061399732	2,62823515	548	0,00882357	0,0258789
P41565	NAO kinase 2, mitochondrial (EC 2.7.1.23) (Mitochondrial NAO kinase) (NAO kinase domain-containing protein 1, mitochondrial)	Nadk2Mnadk Nadkl NA KD_2_RAT		-0,2167161	0,081832142	-2,6483004	138	0,00903218	0,026437
	ATP-dependent 6-phosphofructokinase, liver type (ATP-PFK) (PFK-L) (EC 2.7.1.11) (6-phospho fructokinase type B) (Phosphofructo-1-kinase isozyme 8) (PFK-B) (Phospho xokinase)	PfkI Pfk-I	PFKAL_RAT	0,21195147	0,077145324	2,74743118	37	0,00922582	0,0269491
Q64611	Cytochrome c oxidase subunit 7A2, mitochondrial (Cytochrome c oxidase subunit VIIa-liver/heart) (Cytochrome c oxidase subunit VIIa-L)	Cox7a2 Cox7a3 Cox7a1 CX 7A_2_RAT		0,27519278	0,067084059	4,10220825	5	0,00933465	0,02721192
Q63259	Glycylpeptide N-tetradecanoyltransferase 1 (EC 2.3.1.97) (Myristoyl-CoA:protein N-myristoyltransferase 1) (NMT 1) (Type IN-myristoyltransferase) (Peptide N-myristoyltransferase 1)	Nmt1	NMT1_RAT	-0,2233296	0,084356584	-2,6474472	104	0,00937191	0,02726546
P30839	Omega-amidase NIT2 (EC 3.5.1.3) (Nitrilase homolog 2)	Nit2	NIT2_RAT	-0,2089561	0,080114857	-2,6082067	160	0,00996365	0,02892867
Q9WV81									
	Dihydropyrimidinase-related protein 2 (DRP-2) (Collapsin response mediator protein 2) (CRMP-2) (Turned on after division 64 kDa protein) (TOAD-64)	Dpysl2	DPYL2_RAT	-0,2119071	0,077618846	-2,730098	33	0,01007867	0,02920385
Q1HCL7	26S proteasome non-ATPase regulatory subunit 1 (26S proteasome regulatory subunit RPN2 ) (26S proteasome regulatory subunit Si) (26S proteasome subunit p112)	Psm1	PSMD1_RAT	-0,3065233	0,117215307	-2,6150447	107	0,0102089	0,02952194
P30835	cAMP-dependent protein kinase catalytic subunit beta (PKA C-beta) (EC 2.7.11.11)	PrkacbPkacb	KAPCB_RAT	-0,4125822	0,149752568	-2,7550927	26	0,01057275	0,03051295
P35171	Sulfotransferase 1 family member 01 (ST1D1) (EC 2.8.2.-) (Dopamine sulfotransferase Sultid1) (Tyrosine-ester sulfotransferase)	Sultid1	ST1D1_RAT	0,46073286	0,170951346	2,69511103	36	0,01062662	0,0306072
Q8K1Q0		Pfndn2	PFND2_RAT	-0,2348954	0,090285998	-2,6016809	93	0,01079395	0,03102722
Q49780	Prefoldin subunit 2	Efta	ETFA_RAT	-0,27065S9	0,106002859	-2,5532883	712	0,01087847	0,03111981
P47942	Electron transfer flavoprotein subunit alpha, mitochondrial (Alpha-ETF)								
Q88761	Alpha-mannosidase 2C1 (EC 3.2.1.24) (Alpha-D-mannoside mannohydrolase) (Mannosidase alpha class 2C member 1)	Man2c1	MA2C1_RAT	0,1189562	0,046342902	2,56687	232	0,01089085	0,03111981
P68182	Dipeptidyl peptidase 2 (EC 3.4.14.2) (Dipeptidyl aminopeptidase II) (Dipeptidyl peptidase 7) (Dipeptidyl peptidase II) (OPP II) (Quiescent cell proline dipeptidase)	Dpp7 Dpp2	DDP2_RAT	-0,506S948	0,188828584	-2,6828289	37	0,0108491	0,03111981
G3V9R3	Tissue alpha-L-fucosidase (EC 3.2.1.51) (Alpha-L-fucosidase I) (Alpha-L-fucoside fucosylhydrolase 1) (Alpha-L-fucosidase 1)	FucalI-fuca	FUCO_RAT	-0,1544S38	0,048634105	-3,1758329	9	0,01125992	0,0321108
808N18	40S ribosomal protein S2	Rps2	RS2_RAT	-0,298S376	0,111657968	-2,6736796	35	0,01132226	0,0322249
	Serine protease inhibitor A3M (Serpin A3M) (Serine protease inhibitor 2.4)								
P13803	(SPI-2.4)(Fragment)	Serpina3m	SPA3M_RAT	-0,2928386	0,114984253	-2,5467715	255	0,01146093	0,03255537
	Insulin-degrading enzyme (EC 3.4.24.56) (Insulin protease) (Insulinase)								
P21139	(Insulysin)	ide	IDE_RAT	-1,11766	0,330139284	-3,3854197	7	0,01167209	0,03309003
Q9EP81	Tubulin polymerization-promoting protein family member 3	Tppp3	TPPP3_RAT	0,20334878	0,079435512	2,55992284	115	0,01176614	0,03329126
	Myosin-9 (Cellular myosin heavy chain, type A) (Myosin heavy chain 9) (Myosin heavy chain, non-muscle Ila) (Non-muscle myosin heavy chain A) (NMMHC-A) (Non-muscle myosin heavy chain Ila) (NMMHC II-a) (NMMHC-IIA)	Myh9	MYH9_RAT	0,30SSS074	0,105699788	2,89074122	14	0,01185698	0,03348263
P17164	Proteasome subunit beta type-8 (EC 3.4.25.1) (Macropain subunit C13) (Multicatalytic endopeptidase complex subunit C13) (Proteasome component C13) (Proteasome subunit beta-Si)	Psmb8	PSB8_RAT	-0,2766204	0,107852655	-2,564799	84	0,01210125	0,03410567
P27952	Leukocyte elastase inhibitor A (Serine protease inhibitor EIA) (Serpin B1a)	Serpinb1a	ILEUA_RAT	0,79317117	0,207018012	3,83141137	5	0,01223009	0,03440161
Q63556	NADH-ubiquinone oxidoreductase chain 4 (EC 1.6.5.3) (NADH dehydrogenase subunit4)	Mtnd4 mt-Nd4 Nd4	NU4M_RAT	-0,1862764	0,070409965	-2,6455976	33	0,01239338	0,03479309
P35559	Delta-1-pyrroline-5-carboxylate dehydrogenase, mitochondrial (PSC dehydrogenase) (EC 1.2.1.88) (Aldehyde dehydrogenase family 4 member A1) (L-glutamate gamma-semialdehyde dehydrogenase)	Aldh4a1	AL4A1_RAT	-0,2716874	0,107653224	-2,5237278	149	0,01266001	0,03547261
Q5PPN5	Heme oxygenase 2 (H0-2) (EC 1.14 .99 .3)	Hmox2	HMOX2_RAT	0,2172621S	0,085581975	2,53864378	98	0,01270261	0,0355523
Q62812									
P28064	Monocarboxylate transporter 1 (MCT 1) (Solute carrier family 16 member 1)	Slc16a1Mct1	MOTI_RAT	0,2881S02	0,100933709	2,85484608	14	0,01272767	0,03552425
Q4G075	cGMP-dependent 3',5'-cyclic phosphodiesterase (EC 3.1.4.17) (Cyclic GMP-stimulated phosphodiesterase) (CGS-PDE) (cGSPDE)	Pde2a	PDE2A_RAT	0,28380917	0,112428309	2,52435682	121	0,01288561	0,03589562
P05508	Lambda-crystallin homolog (EC 1.1.1.45) (L-gulonate 3-dehydrogenase) (Gul3DH)	CryII Cry	CRYLI_RAT	-0,7S343S3	0,176684385	-4,2643006	4	0,01300898	0,03616949
POC2X9	CD59 glycoprotein (MAC-inhibitory protein) (MAC-IP) (Membrane attack complex inhibition factor) (MACIF) (Protectin) (CD antigen CD59)	Cd59	CDS9_RAT	-0,416S90S	0,161765681	-2,5752711	49	0,01308543	0,03622078
P23711	Small glutamine-rich tetratricopeptide repeat-containing protein beta (Beta-SGT) (Small glutamine-rich protein with tetratricopeptide repeats 2)	Sgtb Sgt2	SGTB_RAT	-0,22734	0,086145752	-2,6390158	30	0,0130593	0,03622078
	Rho-associated protein kinase 2 (EC 2.7.11.1) (Rho-associated, coiled-coil-containing protein kinase 2) (Rho-associated, coiled-coil-containing protein kinase II) (RUCK-II) (RhoA-binding kinase 2) (p150 ROK-alpha) (RUKalpha) (p164 ROCK-2)	Rock2	ROCK2_RAT	-0,346S974	0,10917686	-3,1746419	8	0,01310274	0,03622078
P53987	Complex III assembly factor LYRM7 (LYR motif-containing protein 7)	Lyrm7MZM1L	LYRM7_RAT	-1,1S77226	0,351701489	-3,2917763	7	0,01327004	0,03661314
Q01062	Alpha-actinin-1 (Alpha-actinin cytoskeletal isoform) (F-actin cross-linking protein) (Non-musclealpha-actinin-1)	Acta11	ACTN1_RAT	0,212402S9	0,082430677	2,576742	45	0,01332421	0,03669243
Q811X6	C-1-tetrahydrofolate synthase, cytoplasmic (C1-THF synthase) (Cleaved into: C-1-tetrahydrofolate synthase, cytoplasmic, N-terminally processed) (Includes: Methylene tetrahydrofolate dehydrogenase (EC 1.5.1.5); Methylenetetrahydrofolate cyclohydrolase (EC 3.5.4.9); Formyltetrahydrofolate synthetase (EC 6.3.4.3))	Mthfd1Mthfd							
P27274	Alpha-crystallin B chain (Alpha(B)-crystallin)	Cryab	CITC_RAT	-0,3548811	0,13617563	-2,6060541	35	0,01336332	0,03673003
Q80W98	Synaptotagmin-1 (Synaptotagmin I) (Sytl) (p65)	Sytl	CRYAB_RAT	-0,4476662	0,173038678	-2,5870876	39	0,01352323	0,03709891
Q62868	Synaptoagmin-1 (Synaptoagmin I) (Sytl) (p65)	Bsa	SYTL_RAT	0,311S8338	0,104510736	2,98135288	10	0,01377579	0,03772004
84F7A1	Protein bassoon	Echl	BSN_RAT	-0,4913226	0,058448345	-8,4060987	2	0,01385828	0,03787406
Q921P2	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial (EC 5.3.3.-)	Echl	ECHI_RAT	0,3329S63	0,124055763	2,68392449	21	0,01389599	0,03790531
	Splicing factor U2AF 26 kDa subunit (Liver regeneration-related protein LRRG157/LRRG158) (U2 auxiliary factor 26) (U2 small nuclear RNA auxiliary factor 1-like protein 4)	U2af14 Cb2-806 Cb2-807	U2AF4_RAT	-0,24SS32	0,09855167	-2,4914037	130	0,01398309	0,03799925
P27653	Enoyl-CoA hydratase, mitochondrial (EC 4.2.1.17 ) (Enoyl-CoA hydratase 1) (Short-chain enoyl-CoA hydratase) (SCEH)	Echsl	ECHM_RAT	0,2690378	0,107714511	2,49769316	111	0,01396698	0,03799925
P23928	LanC-like protein 1 (40 kDa erythrocyte membrane protein) (p40)	Lanc1Gpr69a	LANC1_RAT	-0,203220S	0,08151156	-2,4931489	120	0,01402441	0,03803989
P21707	40S ribosomal protein S26	Rps26	RS26_RAT	0,SS1S2871	0,161126582	3,42295297	6	0,01409254	0,03815297
Q88778									
Q62651	Pyruvate carboxylase, mitochondrial (EC 6.4.1.1) (Pyruvic carboxylase) (PCB)	Pc	PYC_RAT	-0,2080982	0,079969298	-2,6022265	29	0,01443864	0,03901678
Q77P17	Inactive phospholipase C-like protein 1 (PLC-L) (PRIP) (Phospholipase c-related but catalytically inactive protein) (p130)	Fam213b	PGFS_RAT	-0,392S277	0,107475232	-3,8522619	5	0,01471342	0,03968499
P14604	40S ribosomal protein S3	Rps3	PLQLI_RAT	-0,8S91377	0,344383466	-2,4947125	67	0,01507775	0,04059179
Q90X69	Isovaleryl-CoA dehydrogenase, mitochondrial (IVD) (EC 1.3.8.4)	Rps3	RS3_RAT	-0,2854728	0,114205974	-2,499631	56	0,01538934	0,04135348
P62856	Eukaryotic translation initiation factor 5 (eIF-5)	Ied	IVD_RAT	-0,2336S8	0,091965137	-2,5407236	36	0,01551691	0,04161877
P52873	N(G),N(G)-dimethylarginine dimethylaminohydrolase 2 (DDAH-2) (Dimethylarginine dimethylaminohydrolase 2) (EC 3.5.3.18) (DDAHII)	Eifs	IFS_RAT	-0,09S707	0,039462539	-2,4252609	435	0,01570349	0,04204107
Q3ZV7R	(Dimethylarginine dimethylaminohydrolase-2)	Ddah2	DDAH2_RAT	0,26466454	0,086681954	3,05328298	8	0,01574234	0,04206703
Q62688	40S ribosomal protein S16	Rps16	RS16_RAT	0,18993896	0,077055936	2,46494915	77	0,01593032	0,04249068
P62909	60S ribosomal protein LIS	Rpl1S	RI S_RAT	-0,1140143	0,046961489	-2,427826	226	0,01597201	0,04252326
	Creatine kinase LI-type, mitochondrial (EC 2.7.3 . 2) (Acidic-type mitochondrial								

P12007	creatine kinase) (Mia-CK) (Ubiquitous mitochondrial creatine kinase) (U-MCK)	CkmtlCkmt	KCRU_RAT	-0,6S061S9	0,258051256 -2,5212663	38 0,01600802 0,04254066
Q07205	Triosephosphate isomerase (TIM) (EC 5.3.1.1) (Triose-phosphate isomerase)	Tpil	TPIS_RAT	-0,26104S3	0,106376059 -2,4539857	77 0,01638698 0,04346766
Q6MG60	Elongator complex protein 2 (ELP2) (SHINC-2) (STAB-interacting protein 1) (StiPI)	Elp2Statipl	ELP2_RAT	0,191248S7	0,078602525 2,43310978	118 0,01647005 0,04360786

P62250	Unconventional myosin-1e (Myosin heavy chain myr 3) (Unconventional myosin1E) Multifunctional protein ADE2 [Includes : Phosphoribosylaminoimidazole-	Myo1eMyr3	MYO1_E_RAT	-0,1930592	0,078556582	-2,457582	68	0,0165423	0,04371894
P61314	succinocarboxamide synthase (EC 6.3.2.6) (SAICAR synthetase); Phosphoribosylaminoimidazole carboxylase (EC 4.1.1.21) (AIR carboxylase) (AIRC)	PaicsAde2Airc	PUR6_RAT	-0,295456	0,119726197	-2,4677643	56	0,01667751	0,04399569
P25809	Calcium -dependent secret ion activator 1 (Calcium-dependent activator protein for secretion 1) (CAPS-1) (rCAPS)	LaapsLapsCaps1	CAPSI_RAT	-0,2808628	0,116546779	-2,409872	164	0,01706478	0,04488742
P48500	Ubiquitin-fold modifier 1 Proteasome subunit alpha type-1 (EC 3.4.25.1) (Macropain subunit C2) (Multicatalytic endopeptidase complex subunit C2) (Proteasome component C2) (Proteasome nu chain)	Ufm1	UFMI_RAT	-0,261204	0,108574613	-2,4057561	194	0,01707775	0,04488742
Q496Z0	4F2 cell-surface antigen heavy chain (4F2hc) (Solute carrier family 3 member 2) (CD antigen CD98)	Psmal	PSAI_RAT	0,2742433	0,091627495	2,99302411	8	0,01725419	0,04526873
Q63356	Excitatory amino add transporter 2 (GLT-1) (Sodium-dependent glutamate/aspartate transporter 2) (GLUT-RI (Solute carrier family 1 member 2))	Slc3a2	4F2_RAT	-0,3593958	0,123488905	-2,9103492	9	0,01730141	0,04531023
P51583	Fetuin-B (Fetuin-like protein IRL685)	Slc1 a2 Eaat2 Glt1	EAA2_RAT	0,20275183	0,084163973	2,40900975	135	0,017345	0,0453421
Q62717	AP-2 complex subunit sigma (Adaptor protein complex AP-2 subunit sigma) (Adaptor-related protein complex 2 subunit sigma) (Clathrin assembly protein 2 sigma small chain) (Clathrin coat assembly protein AP17) (Clathrin coat-associated protein AP17) (Plasma membrane adaptor AP-217 kDa protein) (Sigma-adaptin 3b) (Sigma2-adaptin)	Fetub	FETUB_RAT	-0,1715035	0,071909501	-2,3849904	530	0,01743009	0,04548214
Q5BJP3	Obg-like ATPase 1	Ap2sl Ap17 Claps2	AP2S1_RAT	-0,2908844	0,118962019	-2,4451875	55	0,01770778	0,04612334
P18420	DnaJ homolog subfamily A member 1 (DnaJ-like protein 1) (Heat shock proteinJ2) (HSJ-2)	Olal	OLAI_RAT	0,22991856	0,096120181	2,39199046	175	0,01781699	0,04632418
Q794F9	Cyclin-G-associated kinase (EC 2.7.11.1)	Dnajal Hsj2Rdjl	DNJAI_RAT	-0,4478929	0,186265337	-2,4045959	108	0,01789182	0,04643507
P31596	Prenylcysteine oxidase (EC 1.8.3.5 ) (Chloride ion pump-associated 55 kDa protein)	Gak	GAK_RAT	-0,4040241	0,163827075	-2,4661619	41	0,01792881	0,04644754
Q9QX79	CBI cannabinoid receptor-interacting protein 1 (CRIP-1)	PCYOX1UPSS	PCYOX_RAT	0,39782188	0,134528643	2,95715375	8	0,01822531	0,04713104
P62744	Paraspeckle component 1	Cnrip1	CNRPI_RAT	-0,2481328	0,103460028	-2,3983444	88	0,01858153	0,04796628
AQJPJ7	Protein kinase C alpha type (PKC-A) (PKC-alpha) (EC 2.7.11.13)	Pspcl	PSPCI_RAT	-0,2884174	0,12164861	-2,3709062	214	0,01863213	0,04801102
P63036		Prkca Pkca	KPCA_RAT	-0,4735792	0,185784204	-2,549082	21	0,01868093	0,04805095
P97874				-0,320701	0,126873553	-2,5277212	23	0,01880578	0,04811478
Q99MLS				-0,2588049	0,106711057	-2,4252862	52	0,01880423	0,04811478
Q5M7A7				-0,1333702	0,050185159	-2,6575623	14	0,01875015	0,04811478
Q4KLH4				-0,4328384	0,127142916	-3,4043452	5	0,01916048	0,04893554
P05696				-0,19C0497	0,076722683	-2,4770995	28	0,01955016	0,04984256

Supplementary Table S2: Altered proteins by Ad-Bgal infection after RA

Protein	Description	Gene	Entry Name	Estimate	Fold Change	Std. Error	t value	DF	p value	adj. p value
B0BN93	26S proteasome non-ATPase regulatory subunit 13 (26S proteasome regulatory subunit RPN9) (26S proteasome regulatory subunit 511) (26S proteasome regulatory subunit p40.5)	Psm13	PSD13_RAT	-1,155993263		0,10892362	-10,61288	125		
	Rab GTPase-binding effector protein 1 (Rabaptin-5) (Rabaptin-Salpa)	Rabpt5	RABE1_RAT	-2,27050162		0,05875012	-38,64676	54		
035550	Glutamine peptidase (EC 3.4.11.1) (Cysteine aminopeptidase)	Gpxl	GPXI_RAT	-1,866954523		0,09452584	-19,750732	79		
P05545	Serine protease inhibitor A3K (Serpin A3K) (CPI-21) (Contrapsin-like protease inhibitor 1) (GHR-P63) (Growth hormone-regulated proteinase inhibitor) (Kallikrein-binding protein) (KBP) (SPI-2.3) (Serine protease inhibitor 2) (SPI-2) (Thyroid hormone-regulated protein)	na	Spina3_RAT	2,937846306		0,10974679	26,7693132	116		
P07633	Propionyl-CoA carboxylase beta chain, mitochondrial (PCCase subunit beta) (EC 6.4.1.3) (Propanoyl-CoA: carbon dioxide ligase subunit beta)	Pccb	PCCB_RAT	-1,797240535		0,10526829	-17,072952	70		
P09812	Glycogen phosphorylase, muscle form (EC 2.4.1.1) (Myophosphorylase)	Pygm	PYGM_RAT	-0,929480115		0,07284617	-12,759492	239		
P11442	Clathrin heavy chain 1	Cite	CLH1_RAT	-0,74546929		0,04031118	-18,492866	1787		
P13264	Glutaminase kidney isoform, mitochondrial (GLS) (EC 3.5.1.2) (L-glutaminase) (L-glutamine amidohydrolyase) [Cleaved into: Glutaminase kidney isoform 68 kDa chain; Glutaminase kidney isoform 65 kDa chain] 3-ketoacyl-CoA thio lyase, mitochondrial (EC 2.3.1.16) (Acetyl-CoA acyltransferase) (Beta-ketothiolase) (Mitochondrial 3-oxoacyl-CoA thio lyase)	Gls	GLSK_RAT	-4,293237217		0,23892245	-17,969166	27		
P13437	Proteasome subunit alpha type-3 (EC 3.4.25.1) (Macropain subunit CB) (Multicatalytic endopeptidase complex subunit CB) (Proteasome component CB) (Proteasome subunit K)	Acaa2	THIM_RAT	-0,882236527		0,07146997	-12,344157	168		
P18422	Peptidyl-prolyl cis-trans isomerase B (P-Plase B) (EC 5.2.1.8) (CYP-51) (Cyclophilin B) (Rotanase B) (5-cyclophilin) (SCYLP)	Pma3	PSA3_RAT	-4,304068385		0,09205354	-46,75614	104		
P24368	Pyruvate dehydrogenase E1 component subunit alpha, somatic form, mitochondrial (EC 1.2.4.1) (PDH-E1 type I)	Ppib	PIIB_RAT	-1,431301824		0,08693548	-16,463955	99		
P26284	Hypoxanthine-guanine phosphoribosyltransferase (HGPRTase) (EC 2.4.2.8)	Pdhal	ODPA_RAT	-0,813234733		0,08563672	-9,4963323	419		
P27605	Dynactin subunit 1 (150 kDa dynein-associated polypeptide) (DAP-150) (DP-150) (p150-glued)	Hprt1	HPRT_RAT	-1,969194585		0,07336624	-26,840609	179		
P28023	3-hydroxyisobutyrate dehydrogenase, mitochondrial (HIBADH) (EC 1.1.1.31)	Dctn1	DCTN1_RAT	-0,870695974		0,05969286	-14,586267	444		
P29266	Leukotriene A-4 hydro lyase (LTA-4 hydro lyase) (EC 3.3.2.6) (Leukotriene A(4) hydrolase)	Hibadh	3HIDH_RAT	-1,821803001		0,12235181	-14,889873	142		
P30349	Ras-related protein Rab-10	Lta4h	LKHA4_RAT	-0,751880219		0,05300106	-14,186136	251		
P35281	Cytoplasmic dynein 1 heavy chain 1 (Cytoplasmic dynein heavy chain 1) (Dynein heavy chain, cytosolic) (MAP1C)	Rab10	RAB10_RAT	-1,897923999		0,10398805	-18,251367	58		
P38650	Cytosolic NADP-isocitrate dehydrogenase (IDH) (EC 1.1.1.42) (Cytosolic NADP-isocitrate dehydrogenase) (IDP) (NADP(+)-specific ICDH) (Oxalosuccinate decarboxylase)	Dnchl0	DYHCl_RAT	-0,401498078		0,0297316	-13,504084	2339		
P41562	ATP-dependent 6-phosphofructokinase, muscle type (ATP-PFK) (PFK-M) (EC 2.7.1.11) (6-phosphofructokinase type A) (Phosphofructo-1-kinase isozyme A) (PFK-A) (Phosphohexokinase)	ldhl	IDHC_RAT	-0,887248369		0,09088786	-9,7620118	368		
P47858	Annexin A6 (Annexin VI) (Annexin-6) (Calcium-binding protein 65/67) (CBP 65/67)	Pfk-m	PFKAM_RAT	-0,964282021		0,08735507	-11,038649	423		
P48037	60S ribosomal protein L4 (60S ribosomal protein L1)	Anxa6	ANXA6_RAT	-0,871593341		0,05142861	-16,947636	680		
P50878	Ras-related protein Rab-4B	Rpl4	RL4_RAT	-2,158034132		0,07953625	-27,13271	55		
P51146	Ras-related protein Rab-14	Rab4b	RAB4B_RAT	-1,867074322		0,1068527	-17,473347	73		
P61107	26S protease regulatory subunit 4 (P26s4) (26S proteasome AAA-ATPase subunit RPT2) (Proteasome 26S subunit ATPase 1)	Rab14	RAB14_RAT	-0,908661026		0,0973764	-9,3314295	250		
P62193	Geranylgeranyl transferase type-2 subunit alpha (EC 2.5.1.60) (Geranylgeranyl transferase type II subunit alpha) (Rab geranylgeranyl transferase subunit alpha) (Rab GG transferase alpha) (Rab GGTase alpha) (Rab geranylgeranyl transferase subunit alpha)	Psmc1	PRS4_RAT	-1,122195028		0,09087523	-12,348744	147		
Q08602	UPF0587 protein Clorf123 homolog	Rabgta	GGTA_RAT	-0,676874953		0,06077722	-11,136985	191		
Q498R7	UV excision repair protein RAD23 homolog B	CA123	CA123_RAT	-2,221915385		0,09304396	-23,880274	30		
Q4KMA2	Protein phosphatase 1 regulatory subunit 7 (Protein phosphatase 1 regulatory subunit 22)	Rad23b	RD23B_RAT	1,962226805		0,11497222	17,0669642	63		
Q5HZV9	Twinfilin-1	Ppp1r7	Sds22 PP1R7_RAT	-0,803745626		0,05917421	-13,582702	270		
Q5RJR2	Ubiquitin-like modifier-activating enzyme 1 (Ubiquitin-activating enzyme E1)	Twfl	Ptk9 TWFL_RAT	-1,170523566		0,07656887	-15,287199	119		
Q5U300	Major vault protein (MVP)	Ubal	UBAL_RAT	-0,643963036		0,05858279	-10,992359	659		
Q62667	Nuclear migration protein nude (Nuclear distribution protein C homolog) (c15)	Mvp	MVP_RAT	-0,890462113		0,06497203	-13,705314	152		
Q63525	Plastin-3 (T-plastin)	Nude	NUDC_RAT	-0,970424587		0,08849056	-10,966419	201		
Q63598	UPF0160 protein MYG1, mitochondrial 1	Pls3	PLST_RAT	-1,797176968		0,07403173	-24,275767	327		
Q641W2	Calpain small subunit 1 (CSS1) (Calcium-activated neutral proteinase small subunit) (CANP small subunit) (Calcium-dependent proteinase small subunit) (COPS) (Calcium-dependent protease small subunit 1) (Calpain small subunit)	11ygl	C12orf1 MYG1_RAT	-2,292223596		0,08842302	-25,923381	42		
Q64537	Calpain small subunit 1 (CSS1) (Calcium-activated neutral proteinase small subunit) (CANP small subunit) (Calcium-dependent proteinase small subunit) (COPS) (Calcium-dependent protease small subunit 1) (Calpain small subunit)	msl	Capn4 C CPNS1_RAT	-1,008948593		0,10565995	-9,5490165	135		
Q75Q39	Mitochondrial import receptor subunit TOM70 (Mitochondrial precursor proteins import receptor) (Translocase of outer membrane 70 kDa subunit)	Tomm70a	TOM70_RAT	-2,622044683		0,1588691	-16,504435	44		
Q80Z30	Protein phosphatase 1E (EC 3.1.3.16) (Ca(2+)-calmodulin-dependent protein kinase phosphatase N) (CaMKP-N) (CaMKP-nucleus) (CaMKN) (Partner of PIX1) (Partner of PIX-alpha) (Partner of PIXA)	pmle	Camkr PPMIE_RAT	3,033463252		0,12027047	25,2220114	31		
Q8VHF5	Citrate synthase, mitochondrial 1 (EC 2.3.3.1) (Citrate synthase)	Cs	CISY_RAT	-1,184299439		0,08651213	-13,689403	162		
Q8VHU4	Elongator complex protein 1 (ELP1) (IkappaB kinase complex-associated protein) (IKK complex-associated protein)	bkap	Elpl1k ELPI_RAT	-2,273872952		0,09120203	-24,932262	32		
Q8VIO4	Isoaspartyl peptidase / L-asparaginase (EC 3.4.19.5) (EC 3.5.1.1) (Asparaginase-like protein 1) (Asparaginase-like sperm autoantigen) (Beta-aspartyl-peptidase) (Glial asparaginase) (Isoaspartyl dipeptidase) (L-asparagine amidohydrolyase) [Cleaved into: Isoaspartyl peptidase / L-asparaginase alpha chain; Isoaspartyl peptidase / L-asparaginase beta chain]	Alp	Gliap ASGLI_RAT	-0,706488669		0,06361015	-11,10654	180		
Q9ESB5	N-terminal EF-hand calcium-binding protein 1 (EF-hand calcium-binding protein 1) (Neuronal calcium-binding protein 1) (Synaptotagmin-interacting protein 1) (Stip-1)	cabl	Efcblp NECA1_RAT	5,742156428		0,05986842	95,9129505	11		
Q9QXQ0	Alpha-actinin-4 (F-actin cross-linking protein) (Non-muscle alpha-actinin 4)	Actn4	ACTN4_RAT	-0,963209148		0,05736175	-16,791836	374		
Q9WU06	Avillin (Peripheral nervous system villin-like protein) (Pervin)	Avil	AVIL_RAT	1,712477336		0,04285966	39,9554606	86		
035832	Cyclin-dependent kinase 18 (EC 2.7.11.22) (Cdk11 division protein kinase 18) (PCTAI RE-motif protein kinase 3) (Serine/threonine kinase 18 Petaire3 PCKD18) (PCTAIRE-3)	Pctai3	Pc CKD18_RAT	-3,035012572		0,202468	-14,990086	40		
054975	Xaa-Pro aminopeptidase 1 (EC 3.4.11.9) (Aminoacylproline aminopeptidase) (Cytosolic aminopeptidase P) (Soluble aminopeptidase P) (sAmp) (X-Pro aminopeptidase 1) (X-prolyl aminopeptidase 1, soluble) [Cleaved into: Xaa-Pro aminopeptidase 1, N-terminally processed]	Xpnpepl	App XPPI_RAT	-0,960815694		0,08423602	-11,406233			



P02770	Serum albumin	Alb	ALBU_RAT	0,738372087	0,060207	12,2638916	548
P05708	Hexo kinase -1 (EC 2.7.1.1) (Bra in form hexok inase ) (Hexokinase type I) (HK I)	Hkl	HXKI_RAT	-0,809562732	0,05859809	-13,815513	372
P08649	Com ple ment C4 [Cle aved in to: Complement C4 beta chain; Comp le ment C4 alpha chain; C4a anaphy latox in; Complement C4 gamma chain]	C4C4a	C04_RAT	-0,76523277	0,07763929	-9,856257	126
P19139	Casein kinase II subunit alpha (CK II alpha) (EC 2.7.11.1)	Csnk2al	CSK21_RAT	-2,259309202	0,10057301	-22,46437	134
P23514	Coatomer subunit beta (Beta-coat protein) (Beta-COP)	C opbl Copb	COPB_RAT	-3,758 15657	0,12848663	-29,249399	65
P25093	Fum arylacetacetase (FAA) (EC 3.7.1.2) (Be ta-d-ike to nase )	Fah	FAAA_RAT	2,943395967	0,07453284	39,491265	38
P27952	{Fum arylacetacetate hydro lase } 405 ribosomal protein 52	Rps2	RS2_RAT	-1,431678329	0,10145487	-14,111479	84
P30713	Glu tathione 5-transferase theta -2 (EC 2.5.1.18) (GST class- theta -2) (Glutathione 5-transferase 12) (G1utath ione 5-transferase Yrs- Yrs)	Gstt2	GSTT2_RAT	-2,052793962	0,13208336	-15,541655	44
P63029	Translation ally-contro lled tumor protein (TCTP) (Lens epithelial protein)	Tptl Trt	TCTP_RAT	-1,869054341	0,11354997	-16,460192	92
P63047	Sulfotrans fe rase 4A1 (ST4A1) (EC 2.8.2.-) (Bra in sulfotransferase-like protein) (rBR-STL) (Nervous system sulfotrans fe rase) (NST)	Sult4al Sultx3	ST4A1_RAT	-1,818396947	0,11699982	-15,541879	97
P80299	Bifunctional epoxide hydrolase 2 [Includes: Cytosolic epoxide hydrolase 2 (CEH) (EC 3.3.2.10) (Epoxide hydratase ) (Soluble epoxide hydrolase) (SEH); lipid-phosphate phosphatase (EC 3.1.3.76)]	Ephx2	HYES_RAT	-4,339620517	0,15236915	-28,480966	23
Q00981	Ubiquitin carboxy l-termina l hydrolase isozyme L1 (UCH-L1) (EC 3.4.19.12) (EC 6.-.-.-) (Ne urocytoplasmic protein 9.5) (PGP 9.5) (PGP9.5) (Ubiquitin thioesterase L1)	Uchl1	UCHL1_RAT	-1,243175877	0,10637935	-11,686252	353
Q02253	Met hylmalonate-sem ialdehyde dehydrogenase (acylating), mitochondrial (MMSDH) [Malonate-semialdehyde dehydrogenase [acylating]] (EC 1.2.1.18) (EC 1.2.1.27) (Aldehyde dehydrogenase family 6 member A1)	ldh6al Mmsd	MMSA_RAT	-1,694679321	0,08972105	-18,888315	179
Q4QQT4	Serine/ threonine- protein phosphatase 2A 65 kDa regulatory subunit A beta isoform [PP2A subunit A isoform PR65-beta) (PP2A subunit A isoform RI-beta)	Ppp2r1b	2AAB_RAT	-3,361818517	0,10473686	-32,097759	56
QXSX172	Eukaryotic translation initiation factor 4H {eIF-4H) (Williams-Beuren syndrome chromosomal region 1 protein homolog)	Eif4hWbscr1	IF4H_RAT	1,806000744	0,08835017	20,4413961	92
Q63570	26S protease regulator y subunit 6B (26S proteasome AAA-ATPase subunit RPT3) (Proteasome 26S subunit ATPase 4) (56 ATPase) (Tat- binding protein in 7) (TBP-7)	Psmc4 Tbp7	PRS6B_RAT	-1,376584101	0,10541375	-13,058867	115
Q7TP36	Protein Shroom2 {liver regeneration-related protein LRRG167 ) (Protein Apx1)	omf Apxl	Ab SHRMI_RAT	2,580532516	0,10061334	25,6480165	56
Q8K4K5	Lethal(2) giant larvae protein homolog 1 (LLGL) (Rgl-1)	Llgll Rgll	L2Gll_RAT	-1,674884845	0,07461708	-22,446401	55
Q8R491	EHD domain-containing protein 3	Ehd3 Ehd2	EHD3_RAT	-1,896633875	0,15980057	-11,868755	59
Q9Z1B2	Glutathione 5-transferase Mu 5 (EC 2.5.1.18) (GST class-mu 5) Phosphoribosyl pyrophosphate synthase-associated protein 2 (PRPP synthase-associated protein 2) (41 kDa phosphoribosylpyrophosphate synthetase-associated protein) (PAP41)	Gstm5	GSTMS_RAT	-1,309279271	0,13403977	-9,7678419	180
008618		Prpsap2	KPRB_RAT	-1,110105689	0,09646208	-11,508208	111
P05370	Glucose-6- phosphate 1-dehydrogenase (G6PD) (EC 1.1.1.49)	G6pdx G6pd	G6PD_RAT	-0,616559064	0,05941486	-10,377185	291
P07943	Aldehyde reductase (AR) (EC 1.1.1.21) (Aldehyde reductase)	lhl Aklrlb4	ALDR_RAT	-1,046278383	0,07953282	-13,155303	341
P13697	NADP-dependent malic enzyme (N: P-ME) (EC 1.1.1.40) (Malic enzyme class 1)	Mod-1 Mo	MAOX_RAT	-1,612975649	0,06218644	-25,937738	271
P39069	Adenylate kinase isozyme 1 (AK I) (EC 2.7.4.3) (EC 2.7.4.6) (ATP-AMP transphosphorylation 1) (ATP:AMP phosphotransferase) (Adenylate monophosphate kinase) (Myokinase)	Akl	KADI_RAT	-1,41198902	0,11229544	-12,573877	281
P47709	Raph3-like protein 3A (Exophilin-1)	Rph3a	RP3A_RAT	-0,777375672	0,06525064	-11,913686	183
P53534	Glycogen phosphorylase, brain form (EC 2.4.1.1) (Fragment) 60 kDa heat shock protein, mitochondria 1 (60 kDa chaperonin) {Chaperonin 60} (CPN60) {HSP-65} (Heat shock protein 60) (HSP-60) {Hsp60} (Mitochondrial matrix protein in P1)	Pygb	PYGB_RAT	-0,748946083	0,07181354	-10,429037	658
P63039		Hspdl Hsp60	CH60_RAT	-0,995881845	0,07377091	-13,499654	645
P70619	Glutathione reductase (GR) (GRase) (EC 1.8.1.7) (Fragment)	Gs,	GSHR_RAT	-2,724204813	0,09701889	-28,079116	42
P85973	Purine nucleoside phosphorylase (PNP) (EC 2.4.2.1) (Inosine phosphorylase) (Inosine-guanosine phosphorylase)	Pnp Np	PNPH_RAT	-1,581606045	0,08106042	-19,511446	190
Q3KRD5	Mitochondrial import receptor subunit TOM34 {Translocase of outer membrane 34 kDa subunit)	Tomm34	TOM34_RAT	-1,328849333	0,07799808	-17,03695	116
QXSX10	Mammalian ependymin-related protein 1 (MERP-1)	Eprd2 Merpl	EPDRI_RAT	-3,904997455	0,10763486	-36,280046	48
Q63450	Calcium/calmodulin-dependent protein kinase type I (EC 2.7.11.17) {CaM kinase I} {CaM-KI} {CaM kinase I alpha} {CaMKI-alpha}	Camkl	KCCIA_RAT	-1,893110052	0,09070432	-20,871223	67
Q63560	Microtubule-associated protein 6 {MAP-6} (145-kDa STOP) (STOP145) {Stable tubule-only polypeptide} (STOP)	Map6 Mtap6	MAP6_RAT	0,796222264	0,05851883	13,6062567	280
Q64640	Adenosine kinase (AK) (EC 2.7.1.20) (Adenosine 5'-phosphotransferase) Glutaredoxin-3 {PKC-interacting cousin of thiorodoxin} (PICOT) (PKC-the thiol-interacting protein) {PKC-interacting protein} (Thiorodoxin-like protein 2)	Adk	ADK_RAT	-1,592044315	0,07436983	-21,407124	106
Q9JLZ1		Irx3 PicotTxn	GLRX3_RAT	-2,730736099	0,2082629	-13,111966	54
P14669	Annexin A3 (35-alpha calcimedin) (Annexin III) (Annexin-3) (lipocortin III) {Placental anticoagulant protein III} (PAP-III)	Anxa3 Anx3	ANXA3_RAT	-0,766928983	0,0729536	-10,512558	446
P20717	Protein-arginine deiminase type-2 (EC 3.5.3.15) {Peptidylarginine deiminase II} (Protein-arginine deiminase type II)	Iad2 Pdi	PADI2_RAT	-1,162935017	0,12172523	-9,5537712	326
P22062	Protein-L-isoaspartate (D-aspartate) O-methyltransferase (PIMT) (EC 2.1.1.77) (L-isoaspartyl protein carboxyl methyltransferase) (Protein-L-isoaspartyl/O-aspartyl methyltransferase) (Protein-beta-aspartate methyltransferase)	Pcm1l	PIMT_RAT	-1,18925548	0,08402155	-14,154172	241
P27139	Carbonic anhydrase 2 (EC 4.2.1.1) (Carbonate dehydratase II) (Carbonic anhydrase II) {CA-II}	Ca2	CAH2_RAT	-1,739342176	0,10123354	-17,181482	260
P47860	ATP-dependent 6-phosphofructokinase, platelet type (ATP-PFK) (PFK-P) (EC 2.7.1.11) (6-phosphofructokinase type C) (Phosphofructokinase isozyme C) {PFK-C} (Phosphohexokinase)	Pfkp Pfk	PFKAP_RAT	-0,523227542	0,05643593	-9,2711782	728
P50399	Rab GDP dissociation inhibitor or beta (Rab GDI beta) (GDI-3) (Guanosine diphosphate dissociation inhibitor 2) {GDI-2}	Gdi2 Gdi3	GDI B_RAT	-1,452589745	0,07944798	-18,283533	455
P53042	Serine/threonine-protein phosphatase 5 (PPS) (EC 3.1.3.16) (Protein phosphatase T) (PPT)	Ppp5c	PPPS_RAT	-1,647186071	0,10050081	-16,389779	120
Q01205	Dihydrolypoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex, mitochondria 1 (EC 2.3.1.61) (2-oxoglutarate dehydrogenase complex component E1) (OGDC-E2)	Dist	0002_RAT	1,556025115	0,06149978	25,3013105	133
Q05175	Dihydrolypoyllysine-residue succinyltransferase component of 2-oxoglutarate dehydrogenase complex (E2K)						
Q2TL32	Brain acid-soluble protein 1 (22 kDa neuronal tissue-enriched acidic protein) (Neuronal axonal membrane protein NAP-22)	Baspl Nap22	BASPI_RAT	0,886550806	0,07739979	11,4541766	212
QSM9G3	E3 ubiquitin-protein ligase UBR4 (EC 6.3.2.-) (N-recognition-4) (Zinc finger UBR1-type protein in 1)	-4 Rbaf600	ZU UBR4_RAT	-1,221924852	0,09614133	-12,709673	133
QSRJQ4	Caprin-1 (Cytoplasmic activation- and proliferation-associated protein 1) {GPI-anchored protein p137} (GP1-p137) (p137 GP1) (RNA granule protein n1) (Gpiapl Rn CAPRI_RAT)	Gpiapl Rn	CAPRI_RAT	-1,989308809	0,15187522	-13,098311	52
Q63270	NAO-dependent protein deacetylase sirutin-2 (EC 3.5.1.-) (Regulatory protein SIR2 homolog 2) (SIR2-like protein 2)	Sirt2 Sir212	SIR2_RAT	-0,9656565	0,08107365	-11,910854	189
Q6AY84	Cytoplasmic aconitate hydratase (Aconitase) (EC 4.2.1.3) (Citrate hydrolyase) {Iron regulator y protein 1} (IRP1) {Iron-responsive element-binding protein 1} {IRE-BP1}	col Ireb1 Iret	ACOC_RAT	-1,22318507	0,09592009	-12,752126	191
	Secernin-1	Scrn1	SCRNI_RAT	-0,845257181	0,09002042	-9,389616	342

Q9ER24	Ataxin-10 (Neuroligin 1 beta-catenin-like protein) (Spinocerebellar ataxia type 10 protein homolog)	Atxn10 ScalO	ATXIO_RAT	-3,173992751	0,20981817	-15,127349	47	
P47728	Calretinin (CR)	Calb2	CALB2_RAT	-1,019814238	0,07525422	-13,551588	480	
Q68FR6	Elongation factor 1-gamma (EF-1-gamma) (e EF-1B gamma)	Eef1g	EF1G_RAT	-0,790054942	0,08148691	-9,6954826	314	
Q6AYC4	Macrophage-capping protein (Actin regulatory protein CAP-G)	Capg	CAPG_RAT	-0,936082129	0,07667609	-12,208266	101	
Q99N27	Sorting nexin-1	Snx1	SNX1_RAT	-1,532844996	0,06271155	-24,442785	88	
A0JPM9	Eukaryotic translation initiation factor 3 subunit J (eIF3j) (Eukaryotic translation initiation factor 3 subunit 1) (eIF-3-alpha) (eIF3 p35)	Eif3j Eif3sl	EIF3J_RAT	-3,109745972	0,07891836	-39,404596	42	
P04631	Protein S100-B (S-100 protein beta chain) (S-100 protein subunit beta) (S100 calcium-binding protein B)	S100b	S100B_RAT	-4,578924542	0,36453595	-12,560846	57	
P10760	Adenosylhomocysteinase (AdoHcyase) (EC 3.3.1.1) (S-adenosyl-L-homocysteine hydrolase)	Ahcy	SAHH_RAT	-1,273912679	0,10614673	-12,001431	180	
P85968	6-phosphogluconate dehydrogenase, decarboxylating (EC 1.1.1.44)	Pgd	6PGD_RAT	-1,007379197	0,10205309	-9,8711289	194	
Q5XHY5	Threonine-tRNA ligase, cytoplasmic (EC 6.1.1.3) (Threonyl-tRNA synthetase) (ThrRS)	Tars	SYTC_RAT	-1,678514378	0,07321089	-22,927113	105	
Q6BB18	Ubiquitin-like domain-modifying enzyme 1 (Ufm1-conjugating enzyme 1)	Ufc1	UFC1_RAT	-3,662171432	0,13062113	-28,036593	33	
Q91X3	Bis(S'-adenosyl)-tri-phosphatase (EC 3.6.1.29) (AP3A hydrolase) (AP3Aase) (Diadenosine 5',5''-P1,P3-triphosphate hydrolase)	Fhit	FHIT_RAT	-4,330556377	0,09043208	-47,88739	32	
008697	(Dinucleoside triphosphatase) (Fragile histidine triad protein) ADP-ribosylation factor-like protein 2	Arl2 Arl184	ARL2_RAT	-1,396935684	0,09861091	-14,166137	74	
Q04631	Protein farnesyl transferase type-1 subunit alpha (EC 2.5.1.58) (EC 2.5.1.59) (CAAX farnesyl transferase subunit alpha) (Frase-alpha) (Ras proteins prenyl transferase subunit alpha) (Type I protein geranylgeranyl transferase subunit alpha) (GGTase-1-alpha)	Fnta	FNTA_RAT	-1,955422271	0,08580939	-22,787976	118	
Q32PX2	Aminoacyl-tRNA synthetase complex-interacting multifunctional protein 2 (Multisynthase complex auxiliary component p38) (Protein JTV-1)	Aimp2 Jtv1	AIMP2_RAT	-3,525463241	0,12827725	-27,483154	30	
Q63081	Protein disulfide-isomerase AG (EC 5.3.4.1) (Calcium-binding protein 1) (CaBP1) (Protein disulfide isomerase PS) (Thioredoxin domain-containing protein n7)	Cap1l Txn	PDIA6_RAT	-1,207218906	0,09965419	-12,114081	152	
Q6PECO	Bis(S'-nucleosyl)-tetraphosphatase [asymmetrical] (EC 3.6.1.17) (Diadenosine 5',5''-P1,P4-tetraphosphate asymmetrical hydrolase) (Ap4A hydrolase) (Ap4Aase) (Diadenosine tetraphosphatase)	Nudt2	AP4A_RAT	-2,383471099	0,21873393	-10,896669	88	
Q920J4	(Nucleoside diphosphate-linked moiety X motif 2) (Nucleoside diphosphate-linked moiety X motif 2)	Txnll Trp	TXNLI1_RAT	-0,857289401	0,09330608	-9,1879269	213	
B0BN18	Thioredoxin-like protein 1 (Thioredoxin-related protein)	Pfdn2	PFD2_RAT	-4,880011032	0,10909077	-44,73349	35	
P62959	Histidine triad nucleotide-binding protein 1 (EC 3.---) (17 kDa inhibitor of protein kinase C) (Adenosine 5'-monophosphoramidase) (Protein kinase C inhibitor 1) (Protein kinase-interacting protein 1) (PKCI-1) Cyclin-dependent kinase 5 (EC 2.7.11.22) (Cdk II division protein kinase 5) (Serine/threonine-protein kinase PSSALRE) (Tau protein kinase II catalytic subunit) (TKI catalytic subunit)	int1 Hint Pkci	HINT1_RAT	-2,386449782	0,15745197	-15,156685	114	
Q03114	Polyadenylation-binding protein 1 (PABP-1) (Poly(A)-binding protein 1)	Jabp1 Pabpl	PABP1_RAT	-0,92823097	0,05345299	-17,36537	206	
Q9QZA2	Programmed cell death 6-interacting protein (ALG-2-interacting protein 1)	Pdc61a Arl1	PDIC61_RAT	-0,034056086	0,06213086	-10,255407	332	
Q6RUV5	Ras-related C3 botulinum toxin substrate 1 (p21-Rac1)	Rael	RAC1_RAT	-2,477784895	0,16676642	-14,857817	67	
Q63468	Phosphoribosyl pyrophosphate synthase-associated protein 1 (PRPP synthase-associated protein 1) (39 kDa phosphoribosylpyrophosphate synthase-associated protein) (PAP39)	Prpsap1	KPRA_RAT	-1,659728354	0,1163728	-14,262168	79	
P04764	Alpha-enoase (EC 4.2.1.11) (2-phosphohydro-D-glycerate hydro-lyase) (Enoase 1) (Non-neuronal enoase) (NNE)	Enol Eno-1	ENOA_RAT	-0,907142297	0,07437394	-12,197045	425	
Q7TP48	Adipocyte plasma membrane-associated protein	pmap Ab2-3CAPMAP	ADIP_RAT	-5,999531534	0,13421239	-44,701772	15	
035509	Ras-related protein Rab-11B	Rab11b	RB11B_RAT	-1,247571919	0,05645329	-22,099189	43	
P12368	cAMP-dependent protein kinase type II-alpha regulatory subunit	Prkar2a	KAP2_RAT	-0,97586403	0,10763736	-9,0662206	182	2,22E-16 2,52E-15
055043	Rho guanine nucleotide exchange factor 7 (Beta-Pix) (PAK-interacting exchange factor beta)	gef7 Pak3bp	IARHG7_RAT	-6,297080183	0,08149624	-77,268355	11	2,22E-16 2,52E-15
Q497B0	Omega-amidase NIT2 (EC 3.5.1.3) (Nitrilase homolog 2)	Nit2	NIT2_RAT	-0,889474981	0,08905756	-9,9876415	93	2,22E-16 2,52E-15
Q07009	Calpain-2 catalytic subunit (EC 3.4.22.53) (Calcium-activated neutral proteinase 2) (CANP 2) (Calpain M-type) (Calpain-2 large subunit) (Milimolocalin) (M-calpain)	Capn2	CAN2_RAT	-0,763567719	0,08990884	-8,4926881	362	4,44E-16 4,89E-15
Q6P7B0	Tryptophan-tRNA ligase, cytoplasmic (EC 6.1.1.2) (Tryptophanyl-tRNA synthetase) (TrpRS) (Cleaved into: TrpRS; T2-TrpRS)	Wars	SYWC_RAT	-0,797890821	0,09079534	-8,7877944	230	4,44E-16 4,89E-15
089049	Thioredoxin reductase 1, cytoplasmic (TR) (EC 1.8.1.9) (NADPH-dependent thioredoxin reductase) (Thioredoxin reductase TR1)	Txnrd1 Trxr1	TRXR1_RAT	-0,841447229	0,09117388	-9,2290383	143	4,44E-16 4,89E-15
P13086	Succinyl-CoA ligase [ADP/GDP-forming] subunit alpha, mitochondrial (EC 6.2.1.4) (EC 6.2.1.5) (Succinyl-CoA synthetase subunit alpha) (SCS-alpha)	Suc1gl	SUCA_RAT	-1,33128011	0,13928523	-9,5579415	109	4,44E-16 4,89E-15
P34067	Proteasome subunit beta type-4 (EC 3.4.25.1) (Macropain beta chain) (Multicatalytic endopeptidase complex beta chain) (Proteasome beta chain) (Proteasome chain 3) (RN3)	Psmb4	PSB4_RAT	1,163488715	0,1280272	9,08782447	137	8,88E-16 9,71E-15
Q568Z9	Phytanoyl-CoA hydroxylase-interacting protein (Phytanoyl-CoA hydroxylase-associated protein 1) (PAHX-A PI) (PAHXAPI)	Phyhip	PHYIP_RAT	-2,179931766	0,17076418	-12,765744	40	1,11E-15 1,20E-14
Q8K1P7	Transcription activator BRG1 (EC 3.6.4.-) (ATP-dependent helicase SMARCA4) (BRG1-associated factor 190A) (BAF190A) (Protein in brahma homolog 1) (SNF2-beta) (SWI-SNF-related matrix-associated actin-dependent regulatory chromatin subfamily A member 4)	Ifi90a Brg1	SISMA4_RAT	-9,876761293	0,06077476	-162,51419		2,22E-15 2,39E-14
Q62940	E3 ubiquitin-protein ligase NEDD4 (EC 6.3.2.-)	edd4 Nedd4	NEDD4_RAT	-0,701895982	0,07235714	-9,7004388	83	2,66E-15 2,85E-14
054715	V-type proton ATPase subunit S1 (V-ATPase subunit S1) (C7-1 protein) (V-ATPase A45 subunit) (V-ATPase S1 accessory protein) (Vacuolar proton pump subunit S1)	pl At6p1 A	VASI_RAT	-3,519475208	0,13382319	-26,299442	17	3,11E-15 3,30E-14
QSUIZ0	Rab3 GTPase-activating protein non-catalytic subunit (Rab3 GTPase-activating protein 150 kDa subunit) (Rab3-GAP p150) (Rab3-GAP regulatory subunit)	Rab3gap2	RBGPR_RAT	-1,529373144	0,119785	-12,767652	36	6,22E-15 6,55E-14
P23928	Alpha-crystallin B chain (Alpha(B)-crystallin)	Cryab	CRYAB_RAT	-1,137573993	0,12802283	-8,885712	111	1,29E-14 1,35E-13
QSU2P0	DIS3-like exonuclease 1 (EC 3.1.13.-)	Dis31	DISL1_RAT	-1,19143243	0,04541783	-26,2327	16	1,42E-14 1,48E-13
P06760	Beta-glucuronidase (EC 3.2.1.31)	GusbGus	BGLR_RAT	-7,566850599	0,06255995	-120,95358		2,44E-14 2,52E-13
Q63356	Unconventional myosin-1c (Myosin heavy chain myr3) (Unconventional myosin 1c)	Myo1c	MYO1C_RAT	-6,44631016	0,07750731	-83,170354		2,66E-14 2,73E-13
P36972	Adenine phosphoribosyl transferase (APRT) (EC 2.4.2.7)	Aprt	APTAT_RAT	-0,789246307	0,09091021	-8,6816028	107	4,84E-14 4,92E-13
P50554	4-aminobutyrate aminotransferase, mitochondrial (EC 2.6.1.19) ((S)-3-aminobutyrate 2-methylpropanoyl transferase) (EC 2.6.1.22) (GABA aminotransferase) (GABA-AT) (Gamma-aminobutyrate aminotransferase) (GABA transaminase) (GABA-T) (L-AIBAT) (Cleaved into: 4-aminobutyrate aminotransferase, brain isoform; 4-aminobutyrate aminotransferase, liver isoform)	AbatGabat	GABT_RAT	-0,986316056	0,12471619	-7,9084848	286	5,73E-14 5,78E-13
P29826	Ran class II histocompatibility antigen, B-1 beta chain (RTI class II histocompatibility antigen, B-1 beta chain) (RTI-B-beta1)	RTI-Bb	HB2B_RAT	-7,151949199	0,07197182	-99,371515		1,17E-13 1,18E-12
P13635	Ceruloplasmin (EC 1.16.3.1) (Ferroxidase)	Cp	CERU_RAT	0,631375185	0,07911378	7,98059648	193	1,27E-13 1,26E-12
P62198	26S protease regulatory subunit 8 (26S proteasome AAA-ATPase subunit RPT6) (Proteasome 26S subunit ATPase 5) (Proteasome subunit p45) (Thyroid hormone receptor-interacting protein 1) (TRIP1) (p45/SUG)	Psmc5 Sugl	PRS8_RAT	-1,412786124	0,16535533	-8,5439407	100	1,51E-13 1,50E-12
P17425	Hydroxymethylglutaryl-CoA synthase, cytoplasmic (HMG-CoA synthase) (EC 2.3.3.10) (3-hydroxy-3-methylglutaryl coenzyme A synthase)	mgcs1 Hmgcs	HMCST_RAT	-0,777877291	0,0985199	-7,8956359	212	1,54E-13 1,51E-12

Q6AY30	Saccharopine dehydrogenase-like oxidoreductase (EC 1.-.-.-)	Scepdh	SCPDL_RAT	-3,077332377	0,24919465	-12,349111	31	1,66E-13	1,62E-12
Q3MIE0	Enoyl-CoA hydratase domain-containing protein 3, mitochondrial	Echdc3	ECHD3_RAT	1,527663838	0,06957431	21,9572988	16	2,26E-13	2,19E-12
P85515	Alpha-centractin (Contractin)	Actrla Ctrml	ACTZ_RAT	-0,922650968	0,11768982	-7,8396835	203	2,50E-13	2,41E-12
P30835	ATP-dependent 6-phosphofructokinase, liver type (ATP-PFK) (PFK-L) (EC 2.7.1.11) (6-phosphofructokinase type B) (P-phosphofructo-1-kinase isozyme B) (PFK-B) (Phosphohexokinase)	PfkI Pfk-l	PFKAL_RAT	-1,008991658	0,12140212	-8,3111536	107	3,24E-13	3,10E-12
P16086	Spectrin alpha chain, non-erythrocytic (Alpha-II spectrin) (Fodrin alpha chain) (SPTNL1) (SPTNL1_RAT)			0,226764238	0,03113741	7,28269492	1298	5,66E-13	5,37E-12
P47942	Dihydropyrimidinase-related protein 2 (DRP-2) (Collapsin response mediator protein 2) (CRMP-2) (Turned on after division 64 kDa protein) (TOAD-64)	Dpysl2	DPYL2_RAT	-0,810287357	0,11043395	-7,3373032	712	5,96E-13	5,62E-12
Q9QUL6	Vesicle-fusing ATPase (EC 3.6.4.6) (N-ethylmaleimide-sensitive fusion protein) (NEM-sensitive fusion protein) (Vesicular fusion protein NSF) (Hsp90 co-chaperone Cdc37) (Hsp90 chaperone protein kinase regulator subunit) (p50Cdc37) [Cleaved into: Hsp90 co-chaperone Cdc37, N-terminally processed]	Nsf Ergl	NSF_RAT	-0,419265922	0,05734809	-7,3108965	821	6,30E-13	5,91E-12
Q63692	Hsp90 co-chaperone Cdc37 (Hsp90 chaperone protein kinase regulator subunit) (p50Cdc37) [Cleaved into: Hsp90 co-chaperone Cdc37, N-terminally processed]	Cdc37	CDC37_RAT	0,561641404	0,07397452	7,59236244	246	6,51E-13	6,07E-12
P63329	Serine/threonine-protein phosphatase 2B catalytic subunit alpha isoform (EC 3.1.3.16) (CAM-PRP catalytic subunit) (Calmodulin-dependent calcineurin A subunit alpha isoform)	Ppp3ca CaIna	PP2BA_RAT	7,784460359	0,06528101	119,245406		7,69E-13	7,11E-12
P85125	Polymerase I and transcript release factor (Cavin-1) (cav-p60)	Ptrf	PTRF_RAT	-0,795057448	0,04028297	-19,736811	16	1,17E-12	1,08E-11
P00564	Creatine kinase M-type (EC 2.7.3.2) (Creatine kinase M chain) (M-CK) (1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase beta-1) (EC 3.1.4.11) (PLC-154) (Phosphoinositide phospholipase C-beta-ta-1) (Phospholipase C-1) (PLC-I) (Phospholipase C-beta-1) (PLC-beta-1)	Ckm Ckmm	KCRM_RAT	0,674577865	0,06066506	11,1197098	32	1,59E-12	1,45E-11
P10687	Pyridoxal kinase (EC 2.7.1.35) (Pyridoxine kinase)	Plcbl	PLCBI_RAT	-1,735846585	0,17254952	-10,059991	40	1,62E-12	1,47E-11
Q35331	Proteasome activator complex subunit 2 (11S regulator complex subunit beta) (REG-beta) (Activator of multicatalytic protease subunit 2) (Proteasome activator 28 subunit beta) (PA28b) (PA28beta)	Pdxk Pkh	PDXK_RAT	-0,71192295	0,09644173	-7,3818971	289	1,67E-12	1,51E-11
Q63798	Sodium/potassium-transporting ATPase subunit alpha-3 (Na <sup>+</sup> /K <sup>+</sup> )	Psme2	PSME2_RAT	-6,444387388	0,15739409	-40,944277	10	1,81E-12	1,62E-11
P06687	ATPase alpha-3 subunit (EC 3.6.3.9) (Na <sup>+</sup> /K <sup>+</sup> ) (ATPase alpha(III) subunit) (Sodium pump subunit alpha-3)	Atpla3	ATIA3_RAT	0,422779867	0,05934403	7,12421925	815	2,30E-12	2,05E-11
P46844	Biliverdin reductase A (BVR A) (EC 1.3.1.24) (Biliverdin-IX alpha-reductase)	Blvra Blvr	BIEA_RAT	1,049075489	0,13592829	7,71785982	130	2,76E-12	2,44E-11
P36506	Dual specificity mitogen-activated protein kinase kinase 2 (MAP kinase kinase 2) (MAPKK 2) (EC 2.7.12.2) (ERK activator kinase 2) (MAPK/ERK kinase 2) (MEK 2)	lMek2 Mkk2	MP2K2_RAT	-7,554068593	0,11761757	-64,225682		3,84E-12	3,38E-11
Q5XIC3	Hsp90 co-chaperone Cdc37-like 1	Cdc37l1	CD37L_RAT	-5,66034223	0,11985624	-47,226094		4,29E-12	3,75E-11
Q1W1M1	Cell adhesion molecule 4 (Immunoglobulin superfamily member 4C) (IgSF4C) (Nectin-like protein 4) (NECL-4)	m4 lgsf4c	NcCADM4_RAT	0,499736621	0,06477156	7,71537059	116	4,61E-12	4,00E-11
Q5PQN6	Spermatogenesis-defective protein 39 homolog (hSPE-39) (VPS33B-interacting protein in apical-basolateral polarity regulator) (VPS33B-interacting protein in polarity and apical restriction)	as39 Spe39 Vi	SPE39_RAT	-4,63460023	0,15087893	-30,717346	11	5,16E-12	4,45E-11
P18420	Proteasome subunit alpha-type-1 (EC 3.4.25.1) (Macropain subunit C2) (Multicatalytic endopeptidase complex subunit C2) (Proteasome component C2) (Proteasome subunit)	Psmal	PSAI_RAT	-0,771424206	0,10455136	-7,3784234	175	6,19E-12	5,32E-11
Q1W1M3	Cell adhesion molecule 3 (Immunoglobulin superfamily member 4B) (IgSF4B) (Nectin-like protein 1) (NECL-1)	lM3 lgsf4b	NcCADM3_RAT	0,624061598	0,06706918	9,3047447	43	7,34E-12	6,27E-11
Q5XIE6	3-hydroxyisobutyryl-CoA hydrolase, mitochondrial (EC 3.1.2.4) (3-hydroxyisobutyryl-coenzyme A hydrolase) (HIB-CoA hydrolase) (HIBYL-CoA-H)	Hibch	HIBCH_RAT	3,85959473	0,2641771	14,6098762	19	8,74E-12	7,42E-11
Q99MS0	SEC14-like protein 2 (Alpha-tocopherol-associated protein) (TAP) (Squalene transfer protein) (Supermatant protein factor) (SPF)	Sec14l2	S14L2_RAT	-1,187376538	0,15543282	-7,6391625	103	1,17E-11	9,88E-11
P24329	Thiosulfate sulfurtransferase (EC 2.8.1.1) (Rhodanese)	Tst	THTR_RAT	-0,419510934	0,05742557	-7,3052985	153	1,42E-11	1,20E-10
Q55096	Dipeptidyl peptidase 3 (EC 3.4.14.4) (Dipeptidyl aminopeptidase III) (Dipeptidyl arylamidase III) (Dipeptidyl peptidase III) (OPP HI) (Enkephalinase B)	Dpp3	DPP3_RAT	-0,475833565	0,06748366	-7,0510926	271	1,48E-11	1,23E-10
Q80U96	Exportin-1 (Exp1) (Chromosome region maintenance 1 protein homolog)	Xpol Crm1	XPOL_RAT	-1,573862549	0,21390354	-7,3578143	128	1,99E-11	1,65E-10
B2RY10	WO repeat-containing protein 91	Wdr91	WDR91_RAT	-5,250587981	0,10098292	-51,994811		2,07E-11	1,71E-10
Q641Y5	Ubiquitin-like modifier-activating enzyme ATG7 (ATG12-activating enzyme E1 ATG7) (Autophagy-related protein 7) (APG7-like)	Atg7 Apg7l	ATG7_RAT	-0,831697503	0,07318074	-11,364978	25	2,28E-11	1,87E-10
P12839	Neurofilament medium polypeptide (NF-M) (160 kDa neurofilament protein) (Neurofilament 3) (Neurofilament triplet M protein)	lMnf Nef3 Nfr	NFM_RAT	0,558474907	0,08176685	6,83008921	523	2,36E-11	1,93E-10
Q5U318	Astrocytic phosphoprotein PEA-15 (15 kDa phosphoprotein enriched in astrocytes)	Pea15	PEA15_RAT	-1,691106455	0,23875332	-7,08307	162	4,08E-11	3,31E-10
P31647	Sodium- and chloride-dependent GABA transporter 3 (GAT-3) (Solute carrier family 6 member 11)	Gat3 Gat-3	GAT3_RAT	-0,683411132	0,09634046	-7,0937086	152	4,63E-11	3,73E-10
P37805	Transglutinin-3 (Neuronal protein 22) (NP22) (Neuronal protein NP25)	Tagln3 Np25	TAGL3_RAT	-1,362220167	0,1883496	-7,2324027	112	6,26E-11	4,99E-10
P35559	Insulin-degrading enzyme (EC 3.4.24.56) (Insulin protease) (Insulinase) (Insulysin)	lde	IDE_RAT	-0,794977673	0,08395853	-9,4686943	33	6,24E-11	4,99E-10
Q6P7A9	Lysosomal alpha-glucosidase (EC 3.2.1.20) (Acid maltase)	Gaa	LYAG_RAT	1,432238751	0,17176819	8,3382071	45	1,12E-10	8,84E-10
Q63532	Cornifin-A (Small praline-rich protein 1A) (SPRIA) (SPRRI) (Alpha-aminoadipic semialdehyde dehydrogenase (Alpha-AASA dehydrogenase) (EC 1.2.1.31) (Aldehyde dehydrogenase family 7 member A1) (EC 1.2.1.3) (Antiquitin-1) (Benzoaldehyde dehydrogenase) (EC 1.2.1.8) (Dehydro-piperidine-6-carboxylate dehydrogenase) (P6c dehydrogenase)	mla Spr Sprr	SPRIA_RAT	1,44673956	0,0711711	20,3276271	12	1,15E-10	9,10E-10
Q64057	Aldehyde dehydrogenase, mitochondrial (EC 1.2.1.3) (ALDH class 2) (ALDH-E2) (ALDH1)	Aldh2	ALDH2_RAT	-0,603869989	0,09151123	-6,5988622	328	1,66E-10	1,30E-09
P11884	N-acetylglucosaminyl kinase (N-acetylglucosamine kinase) (EC 2.7.1.59) (GlcNAc kinase)	Nagk	NAGK_RAT	-6,985472004	0,13029933	-53,610959		2,06E-10	1,60E-09
Q68FQ0	T-complex protein 1 subunit epsilon (TCP-1-epsilon) (CCT-epsilon) (on)	Cet5	TCPE_RAT	-0,558584411	0,08519978	-6,5561719	312	2,29E-10	1,76E-09
Q5FV14	Cell cycle exit and neuronal differentiation protein 1	Cendl	CEND_RAT	0,909400701	0,11934733	7,61978282	59	2,41E-10	1,85E-09
A2RRU1	Glycogen [starch] synthase, muscle (EC 2.4.1.11)	Gysl	GYSI_RAT	-2,305086026	0,27258298	-8,4564561	38	2,90E-10	2,20E-09
Q6P6V0	Glucose-6-phosphate isomerase (GP I) (EC 5.3.1.9) (Autocrine motility factor) (AMF) (Neuroleukin) (NLK) (Phosphoglucose isomerase) (PGI)	Gpi	G6PI_RAT	-0,844678689	0,12979974	-6,5075533	325	2,89E-10	2,20E-09
Q5U2Q3	Phosphohexose isomerase (PHI)								
	Ester hydrolase Clorf54 homolog (EC 3.1.-.-)		CK054_RAT	-1,804338988	0,24200289	-7,4558571	64	2,94E-10	2,22E-09
	Rab3 GTPase-activating protein catalytic subunit (RAB3 GTPase-activating protein 33) (RAB3 GTPase-activating protein 33)			-3,965693619	0,16223952	-24,44345	10	3,00E-10	2,25E-09
P69735	protein 130 kDa subunit) (Rab3-GAP p130) (Rab3-GAP) (Fragments)	gap1 Rab3	RBGP_RAT						
Q9QXU9	ProSAAS (Proprotein convertase subtilisin/kexin type 1 inhibitor) (Proprotein convertase 1 inhibitor) (pro-SAAS) [Cleaved into: KEP; Big SAAS (b-SAAS); Little SAAS (l-SAAS); Big PEN-LEN (b-PEN-LEN) (SAAS CT(l-49)); PEN; PEN-20; Little LEN (l-LEN); Big LEN (b-LEN) (SAAS CT[25-40])] (Alpha-2-HS-glycoprotein (59 kDa bone sialic acid-containing protein) (BSP) (Fetuin-A) (Glycoprotein PP63)	Peskin	PCSKI_RAT	0,314849995	0,04536577	6,94025485	105	3,34E-10	2,50E-09
P24090	ProSAAS (Proprotein convertase subtilisin/kexin type 1 inhibitor) (Proprotein convertase 1 inhibitor) (pro-SAAS) [Cleaved into: KEP; Big SAAS (b-SAAS); Little SAAS (l-SAAS); Big PEN-LEN (b-PEN-LEN) (SAAS CT(l-49)); PEN; PEN-20; Little LEN (l-LEN); Big LEN (b-LEN) (SAAS CT[25-40])] (Alpha-2-HS-glycoprotein (59 kDa bone sialic acid-containing protein) (BSP) (Fetuin-A) (Glycoprotein PP63)	Ahsg Fetua	FETUA_RAT	0,706660424	0,09825493	7,19211153	75	4,05E-10	3,01E-09
CON_002203	Phosphoglycerate kinase 1 (EC 2.7.2.3)	Pgk1 Pkg-1	PGKI_RAT	-1,366340027	0,07572222	-18,044109	12	4,62E-10	3,42E-09
P16617	Phospholysine phosphohistidine inorganic pyrophosphate phosphatase (EC 3.1.3.-) (EC 3.6.1.1)	Lhpp	LHPP_RAT	-0,44517297	0,07084163	-6,2840589	789	5,45E-10	4,01E-09
Q51005	Spermatogenic leucine zipper protein 1	Spz1	SPZI_RAT	-1,693633388	0,24924728	-6,7949924	109	5,99E-10	4,38E-09
Q6AXY9	Bleomycin hydrolase (BH) (BLM hydrolase) (BMH) (EC 3.4.22.40)	Blmh	BLMH_RAT	-7,469676088	0,10937313	-68,295348		6,63E-10	4,83E-09
P70645	Sulfotransferase 1 family member 01 (ST1 D1) (EC 2.8.2.-) (Dopamine sulfotransferase Sult1d1) (Tyrosine-ester sulfotransferase)	Sult1d1	STIDI_RAT	-3,714841139	0,36601402	-10,14945	22	9,21E-10	6,68E-09

G3V9R3	He mog lo bin subunit alpha-1/2 (Alpha-1/2 globin) (He mog lo bin alpha-1/2 chain)	Hbal Hba-a1 HBA_RAT	1,191633525	0,04698501	25,361994	1,11E-09	7,99E-09	
P01946	cAMP-dependent protein kinase type I-alpha regulatory subunit (Cleaved into: cAMP-dependent protein kinase type I-alpha regulatory subunit, N-terminally processed)	Prkar1a KAPO_RAT	0,752250143	0,11716906	6,42021172	176	1,22E-09	8,79E-09
P09456	E3 ubiquitin-protein ligase RNF123 (EC 6.3.2.-) (Kip1 ubiquitin-promoting complex protein 1) (RING finger protein 123)	Rnf123 Kpel RN123_RAT	-1,451030345	0,20487629	-7,082471	63	1,44E-09	1,03E-08
D3ZXK7	Pyruvate dehydrogenase E1 component subunit beta, mitochondrial (PDHE1-B) (EC 1.2.4.1)	Pdhb ODPB_RAT	-6,604336833	0,16395958	-40,280274		1,51E-09	1,08E-08
P49432	STE20/SPS1-related proline-4 lanine-rich protein kinase (Ste-20-related kinase) (EC 2.7.11.1) (Pancreatic serine/threonine-protein kinase) (PS/TK) (PSTK) (Serine/threonine-protein kinase 39)	tk39 Pask Spa STK39_RAT	-0,597283251	0,09642777	-6,1941001	364	1,58E-09	1,12E-08
P08506	Complement C1q subcomponent subunit C1 Proenkephalin-A [Cleaved into: Synenkephalin; Met-enkephalin (Opioid growth factor) (OGF); PENK (114-133); PENK (143-185); Met-enkephalin-Arg-Gly-Leu; Leu-enkephalin; PENK (239-260); Met-enkephalin-Arg-Phe]	C1cq C1qg C1CQ_RAT	-1,006734672	0,14641383	-6,8759536	74	1,67E-09	1,15E-08
P31722	Proteasome subunit beta type-3 (EC 3.4.25.1) (Proteasome chain 13) (Proteasome component C10-1) (Proteasome theta chain)	Ik Penk-rs Per PENK_RAT	0,670629975	0,04178315	16,0502484	12	1,79E-09	1,25E-08
P04094	Guanine nucleotide-binding protein alpha-q	Psmb3 PSB3_RAT	-2,223428027	0,12553577	-17,711511	11	1,96E-09	1,37E-08
P40112	Glyoxalase domain-containing protein 4	Glod4 GLOD4_RAT	-1,428847224	0,21240366	-6,7270367	84	1,98E-09	1,37E-08
Q51001	Visinin-like protein 1 (VILIP) (21 kDa CABP) (Neural visinin-like protein 1) (NVL-1) (NVP-1)	Gnaq GNAQ_RAT	-0,693984672	0,11012115	-6,3011935	185	2,10E-09	1,45E-08
P82471	40S ribosomal protein S30	Fau RS30_RAT	0,536594382	0,07072032	7,58755621	42	2,12E-09	1,46E-08
P62864	Visinin-like protein 1 (VILIP) (21 kDa CABP) (Neural visinin-like protein 1) (NVL-1) (NVP-1)	Vsnll Visll VISLI_RAT	-0,516916095	0,04330419	-11,936861	16	2,22E-09	1,52E-08
P62762	Nicotinate phosphoribosyltransferase (NAPR Tase) (EC 6.3.4.21) (Nicotinate phosphoribosyltransferase domain-containing protein 1) (Protein phosphatase 1F (EC 3.1.3.16) (Ca(2+)-calmodulin-dependent protein kinase phosphatase) (CaM-kinase phosphatase) (CaMKPase) (Partner of PIX2)	Naprt Naprtl PNCB_RAT	0,592888789	0,09521589	6,22678401	228	2,27E-09	1,54E-08
Q6XQN1	Creatine kinase B-type (EC 2.7.3.2) (B-CK) (Creatine kinase B chain)	Ppm1f Popx2 PPM1F_RAT	-5,682021416	0,19918292	-28,52665		2,47E-09	1,67E-08
Q9WVR7	Hyaluronan and proteoglycan link protein-2 (Brain link protein 1)	Ckb Ckbb KCRB_RAT	-0,799103618	0,12747079	-6,2689156	184	2,52E-09	1,70E-08
P07335	Gamma-enolase (EC 4.2.1.11) (2-phospho-D-glycylate hydro-lyase) (Enolase 2) (Neural enolase) (Neuron-specific enolase) (NSE)	Hapln2 Brall HPLN2_RAT	-0,483791099	0,08028105	-6,0262179	645	2,82E-09	1,89E-08
Q9E5M2	Coatomer subunit delta (Archain) (Delta-coat protein) (Delta-COP)	Eno2 Eno-2 ENOG_RAT	-0,679285058	0,07176434	-9,4654956	22	3,25E-09	2,17E-08
P07323	Peroxisomal protein 6 (EC 1.11.1.15) (1-Cys peroxidoxin) [1-Cys PRX) (Acidic calcium-independent phospholipase A2) (iPLA2) (EC 3.1.1.-) (Antioxidant protein 2) (Non-nuclear glutathione peroxidase) (NSGPX) (EC 1.1.1.9) (Thiol-specific antioxidant protein)	Arcnl Copd COPD_RAT	-0,655759558	0,10946094	-5,9908087	487	4,06E-09	2,70E-08
Q66H80	ATP synthase subunit delta, mitochondrial (F-ATPase delta subunit) (-terminal-binding protein 1 (CIBP) (EC 1.1.1.-) (50 kDa Delta-dependent ADP-ribosylation substrate) (BARS-SO) (-terminal-binding protein 3) (CIBP3)	AtpSd ATPD_RAT	-0,316793795	0,05304857	-5,9717687	427	4,94E-09	3,26E-08
Q35244	ATP synthase subunit delta, mitochondrial (F-ATPase delta subunit) (-terminal-binding protein 1 (CIBP) (EC 1.1.1.-) (50 kDa Delta-dependent ADP-ribosylation substrate) (BARS-SO) (-terminal-binding protein 3) (CIBP3)	bpl Bars Ctb1 CTBPI_RAT	0,582228197	0,07991711	7,28540144	42	5,69E-09	3,74E-08
P35434	4-methylaminobutyraldehyde dehydrogenase (TMABADH) (EC 1.2.1.47) (Aldehyde dehydrogenase family 9 member A1) (EC 1.2.1.3)	Aldh9a1 AL9A1_RAT	-0,812098379	0,12582699	-6,4540872	88	5,75E-09	3,76E-08
Q9Z2F5	Ubiquitin-fold modifier 1	Ufm1 UFM1_RAT	-0,343083105	0,05683538	-6,0364357	231	6,23E-09	4,05E-08
Q9JUJ3	E3 ubiquitin-protein ligase RNF181 (EC 6.3.2.-) (RING finger protein 181)	Rnf181 RN181_RAT	-0,777177283	0,11419083	-6,8059519	55	7,84E-09	5,07E-08
Q6AXU4	Glutathione S-transferase alpha-3 (EC 2.5.1.18) (GST A3-3) (GST AA) [Glutathione S-transferase Yc-1] (GST Yc1)	Gsta3 Gsyt1 GSTA3_RAT	0,397135743	0,03646592	10,8905995	16	8,28E-09	5,33E-08
P04904	DNA damage-binding protein 1 (Damage-specific DNA-binding protein 1)	Ddb1 DDB1_RAT	-2,837297143	0,38757416	-7,3206562	38	9,09E-09	5,83E-08
Q9E5W0	Endophilin-A1 (Endophilin-1) (SH3 domain protein 2A) (SH3 domain-containing GRB2-like protein 2) (SH3 p4)	Sh3d2a Sh SH3G2_RAT	-0,830312942	0,13576061	-6,1160078	131	1,03E-08	6,58E-08
Q35179	Short coiled-coil protein	Scoc Scoco SCOC_RAT	-0,36467135	0,06265273	-5,8205183	323	1,41E-08	8,99E-08
Q5RJZ6	Aflatoxin B1 aldehyde reductase member 2 (aRAFAR2) (EC 1.1.1.nll) (Succinial semialdehyde reductase) (SSA reductase)	Ar7a2 Afar2 Ai ARK72_RAT	-1,272003278	0,11595894	-10,969429	15	1,46E-08	9,24E-08
Q8CG45	Vesicular inhibitory amino acid transporter (GABA and glycine transporter) (Solute carrier family 32 member 1) (Vesicular GABA transporter) (rGVAT)	Slc32a1 Vgat Vic V1AAT_RAT	-0,734550983	0,11992091	-6,1252952	107	1,53E-08	9,63E-08
Q35458	Tetraspanin -2 (Tspan-2)	Tspan2 TSN2_RAT	-0,755990714	0,12668269	-5,9675927	156	1,56E-08	9,75E-08
Q9JWJ1	14-3-3 protein eta	Ywhah 1433F_RAT	1,709504318	0,12878144	13,2744621	12	1,56E-08	9,75E-08
P68511	Protein SIOO-A1 (S-100 protein alpha chain) (S-100 protein subunit alpha) (SIOO calcium-binding protein Al)	SIOOa1 SIOA1_RAT	0,720764267	0,12366821	5,82820972	254	1,69E-08	1,05E-07
P35467	ATP synthase subunit f1, mitochondrial	Atp5f2 ATPK_RAT	-1,947754831	0,30235632	-6,4419186	62	1,97E-08	1,22E-07
D3ZAF6	Guanine nucleotide-binding protein G(i)(G(S)/G(T) subunit beta-1 (Transducin beta chain 1)	Gnb1l GBB1_RAT	-0,738997218	0,06919664	-10,67967	15	2,09E-08	1,29E-07
P54311	Oxidation resistance protein 1 (Protein C7)	Oxrl C7 OXRI_RAT	0,530121139	0,09065446	5,8477118	181	2,28E-08	1,40E-07
Q4V8B0	Chloride intracellular channel protein 4 (Intracellular chloride ion channel protein p64Hl)	Clic4 CLIC4_RAT	0,390072441	0,0677161	5,76040952	200	3,13E-08	1,91E-07
Q9Z0W7	Alpha-interxerin (Alpha-Inx)	Ina Inexa AIN X_RAT	-0,749744615	0,13105991	-5,7206253	219	3,46E-08	2,11E-07
P23565	Myristoylated alanine-rich C-kinase substrate (MARCKS) (Protein kinase C substrate 80 kDa protein)	MarcksMacrs MARCS_RAT	0,402295569	0,07007041	5,74130456	189	3,69E-08	2,24E-07
P30009	Actin-related protein 2/3 complex subunit 2 (Arp2/3 complex 34 kDa subunit) (p34-ARC)	Arpc2 ARPC2_RAT	0,991542875	0,16788639	5,90603481	111	3,90E-08	2,35E-07
P85970	Brevican core protein (Brain-enriched hyaluronan-binding protein) (BEHAB)	Bean Behab PGCB_RAT	-0,701900704	0,12095486	-5,8029972	138	4,26E-08	2,56E-07
P55068	Myoglobin	Mb MYG_RAT	0,505676534	0,08778311	5,76052176	136	5,35E-08	3,20E-07
P61459	Pterin-4-alphacarbinolamine dehydratase (PHS) (EC 4.2.1.96) (4-alpha-hydroxy-5-tetrahydropterin dehydratase) (Dimerization cofactor of HNF1) (Phenylalanine hydroxylase-stimulating protein) (Pterin carbinolamine dehydratase) (PCD)	hdbl Dech Pd PHS_RAT	0,782256778	0,0708318	11,0438647	13	5,62E-08	3,35E-07
Q9QZ76	Farnesyl pyrophosphate synthase (FPP synthase) (FPS) (EC 2.5.1.10)	Fdps FPPS_RAT	-1,750123861	0,2142618	-8,1681563	21	5,89E-08	3,50E-07
P61459	((2E,6E)-farnesyl diphosphate synthase) (Cholesterol-regulated 39 kDa protein) (CR 39) [Dimethylallyltransferase] (EC 2.5.1.1) (Farnesyl diphosphate synthase) (Geranyl transferase)	Fdps FPPS_RAT	-1,750123861	0,2142618	-8,1681563	21	5,89E-08	3,50E-07
P05369	Haloacid dehalogenase-like hydrohalase domain-containing protein 2	Hdh2 HDH02_RAT	-1,616509589	0,27897646	-5,7944311	115	6,09E-08	3,60E-07
Q6AYR6	Sorting nexin-3	Snx3 SNX3_RAT	-0,869995774	0,1466216	-5,9336126	85	6,23E-08	3,67E-07
Q5U211	Quinone oxidoreductase (EC 1.6.5.5) (NAD(P)H:quinone reductase) (Zeta-crystallin)	Cryz QOR_RAT	-0,355782737	0,0600978	-5,9200622	83	7,00E-08	4,10E-07
Q6AYTO	Ras-related protein Ral-A	RalA Ral-Ral-A RALA_RAT	-1,949356875	0,15537547	-12,546104	11	7,35E-08	4,30E-07
P63322	P11240	Glutathione S-transferase alpha-4 (EC 2.5.1.18) (GST A4-4) (GST A4-GSTA4_RAT)	4,2654048422	0,22018839	-12,053393	41	1,11E-07	7,16E-07
P14942	Arf-GAP with coiled-coil, ANK repeat and PH domain-containing protein 2	ArfGAP with coiled-coil, ANK repeat and PH domain-containing protein 2	0,03826419	0,06264512	-9,76644062	65	1,25E-07	7,16E-07
Q5FVC7	Thiamine-binding protein	Thiamine-binding protein	0,22714436	0,10762791	6,24151006	46	1,26E-07	7,16E-07
P02401	Thiamine-binding protein	Thiamine-binding protein	0,22714436	0,10762791	6,24151006	46	1,26E-07	7,16E-07
P57113	Thiamine-binding protein	Thiamine-binding protein	0,22714436	0,10762791	6,24151006	46	1,26E-07	7,16E-07
Q8CGV7	Thiamine-binding protein	Thiamine-binding protein	0,22714436	0,10762791	6,24151006	46	1,26E-07	7,16E-07
P62755	Thiamine-binding protein	Thiamine-binding protein	0,22714436	0,10762791	6,24151006	46	1,26E-07	7,16E-07
		CoxSa COXSA_RAT	0,770367867	0,11523583	6,68514205	32	1,52E-07	8,62E-07
		Ube2n UBE2N_RAT	-1,328456877	0,23608224	-5,62700000	104	1,56E-07	8,62E-07

U  
b  
i  
q  
u  
i  
t  
i  
n  
-  
c  
o  
n  
j  
u  
g  
a  
t  
i  
n  
g  
e  
n  
z  
y  
m  
e  
E  
2  
N  
{  
E  
C  
6  
.  
3  
.  
2  
.  
1  
9  
)  
(  
B  
e  
n  
d  
l  
e  
s  
s  
-  
l  
i  
k  
e  
u  
b  
i  
q  
u  
i  
t  
i  
n  
-  
c  
o  
n  
j  
u  
g  
a  
t  
i  
n  
g  
e  
n  
z  
y  
m  
e  
)  
(  
U  
b  
i  
q  
u  
i  
t  
i  
n  
c  
a  
r  
r  
i  
e  
r  
p  
r  
o  
t  
e  
i  
n  
N

)(Ubiquitin-protein ligase N)

0,278272983	0,04300892	6,47012201	43	7,57E-08	4,40E-07
-0,625202694	0,10530348	-5,9371514	72	9,37E-08	S,43E-07

Q9EQX9	Neuromodulin {Axonal membrane protein GAP-43} (Growth-associated protein 43) (Protein F1)	Gap43	NEUM_RAT	0,643389648	0,07311639	8,79952758	16	1,SBE-07	8,89E-07
P07936	Glutathione S-transferase Mu 2 (EC 2.5.1.18) (GST M2-2) {Glutathione S-transferase Yb-2} (GST Yb2)	Gstm2	GSTM2_RAT	0,904283757	0,1592347	5,67893672	91	1,61E-07	9,01E-07
P08010	Protein LZIC {Leucine zipper and CTNBNBIP1 domain-containing protein} (Leucine zipper and ICAT homologous domain-containing protein)	Lzic	LZIC_RAT	0,994808275	0,11406346	8,72153351	16	1,78E-07	9,94E-07
QSPQN7	Integrin beta-1 {Beta oligodendroglia} (Beta OL) (Fibronectin receptor subunit beta) {VLA-4 subunit beta} (CD antigen CD29)	Iltgbl	ITBI_RAT	-0,331237899	0,05543174	-5,9755997	54	1,87E-07	1,04E-06
P49134	Tyrosine tRNA ligase, cytoplasmic (EC 6.1.1.1) (Tyrosyl-tRNA synthetase) {TyRS} [Cleaved into: Tyrosine tRNA ligase, cytoplasmic, N-term inally processed]	Vars	SYYC_RAT	-0,936749283	0,13400094	-6,9906175	26	2,01E-07	1,12E-06
Q4KM49	Enoyl-CoA delta isomerase 2, mitochondrial (EC 5.3.3.8) (Delta(3),delta(2)-enoyl-CoA isomerase) (D3, D2-cis-omega-CoA isomerase) (Dodecenoyl-CoA isomerase) (Peroxisomal delta(3)-trans-omega-CoA isomerase) (pECI)	Ec12Peci	EC12_RAT	-0,36768861	0,0691463	-5,3175458	292	2,09E-07	1,16E-06
QXSICO	14-3-3 protein epsilon {14-3-3E} [Mitochondrial import stimulatory factor L subunit] [MSF L]	Ywhae	1433E_RAT	-1,229312789	0,13168587	-9,3351915	14	2,1BE-07	1,19E-06
P62260	Elongation factor 1-alpha 2 (EF-1-alpha-2) (Eukaryotic elongation factor_1a_2) (eEF1A-2) (Statin-51)	Eef1a2	StnEfiA2_RAT	0,423374396	0,08084478	5,23687959	688	2,17E-07	1,19E-06
P62632	60S ribosomal protein L23	Rpl23	RL23_RAT	-1,201127926	0,21547401	-5,5743517	98	2,19E-07	1,20E-06
P62832	ATP synthase subunit beta, mitochondrial (EC 3.6.3.14)	AtpSb	ATPB_RAT	-0,418444562	0,04892053	-8,5535557	16	2,30E-07	1,25E-06
P10719	Hemopexin	Hpx	HEM O_RAT	-0,486294605	0,09344175	-5,2042542	824	2,46E-07	1,33E-06
P20059	Ketimine reductase mu-crystallin (EC 1.5.1.25) (CDK108) (NADP-regulated thyroid-hormone-binding protein)	Crym	CRYM_RAT	0,44453121	0,08295014	5,35901679	180	2,54E-07	1,37E-06
Q9QYU4	Heme oxygenase 2 (HO-2) (EC 1.1.4.99.3)	Hmo2	HMOX2_RAT	-0,828842031	0,1174614	-7,0562927	24	2,70E-07	1,45E-06
P23711	Proteasome subunit beta type-10 (EC 3.4.25.1) (Low molecular mass protein 10) {Macropain subunit MECL-1} {Multicatalytic endopeptidase complex subunit MECL-1} (Proteasome MECL-1) (Proteasome subunit beta-2i)	b10Lmp10M	PSBIO_RAT	-0,801218113	0,12182849	-6,5766071	30	2,82E-07	1,51E-06
Q4KM35	Tryptophan 5-hydroxylase 2 (EC 1.1.4.16.4) (Neuronal tryptophan hydroxylase) {Tryptophan 5-mono-oxygenase 2}	Tph2Nph	TPH2_RAT	-0,667938223	0,06580843	-10,149737	12	3,05E-07	1,63E-06
Q8CGU9	Neurotrimin {GP65}	NtmHntNt	NTRI_RAT	-0,751560045	0,08653709	-8,6848319	15	3,09E-07	1,64E-06
Q62718	Protein S100-A4 {Metastasin} {Nerve growth factor-induced protein 42A} {P9K} (Placental calcium-binding protein) {S100 calcium-binding protein A4}	S100a4	S10A4_RAT	0,298284485	0,03599419	8,28701863	16	3,50E-07	1,86E-06
P05942	Bifunctional ATP-dependent dihydroxyacetone kinase/FAD-AMP lyase (cyclizing) [Includes: ATP-dependent dihydroxyacetone kinase (DHA kinase) (EC 2.7.1.28) {EC 2.7.1.29} (Glycylglycyl kinase) (Triokinase) (Triose kinase); FAD-AMP lyase (cyclizing) {EC 4.6.1.15} (FAD-AMP lyase (cyclic FMN forming)) (FMN cyclase)]	Dak	DHAK_RAT	-4,288059271	0,64361468	-6,6624634	27	3,77E-07	1,99E-06
Q4KLZ6	Mississippi-like kinase 1 (EC 2.7.11.1) {GCK family kinase MiNK} {MAPK/ERK kinase kinase kinase 6} {MEKK kinase kinase 6} {MEKKK 6} {Mississippi-related kinase} (Mitogen-activated protein kinase kinase kinase kinase 6)	klMap4k6	MINK1_RAT	-0,50510461	0,08811695	-5,7322207	52	5,0BE-07	2,68E-06
F1LP90	Arfaptin-2 (ADP-ribosylation factor-interacting protein 2)	Arfp2	ARFP2_RAT	-0,493761315	0,0616458	-8,0096504	16	5,46E-07	2,86E-06
Q6AY65	Palmitoyl-protein thioesterase 1 (PPT-1) (EC 3.1.2.22) (Palmitoyl-protein hydrolase 1)	Ppt1Ppt	PPT1_RAT	1,137138638	0,12625181	9,00690934	13	5,97E-07	3,12E-06
P45479	Transgelin {Smooth muscle protein 22-alpha} (SM22-alpha) {Excitatory amino acid transporter 2 (GLT-1)} (Sodium-dependent glutamate/aspartate transporter 2) (GLUT-R) (Solute carrier family 1 member 2)	TaglnSm22	TAGL_RAT	-0,576508186	0,10402743	-5,5418862	63	6,27E-07	3,27E-06
P31232	MARCKS-related protein {Brain protein F52} (MARCKS-like protein 1) {Macrophage myristoylated alanine-rich C kinase substrate} (MacMARCKS) {MacMARCKS}	cla2Eaat2Gi	EAA2_RAT	-0,566096094	0,10194588	-5,5529078	59	7,04E-07	3,66E-06
P31596	Estradiol 17-beta-dehydrogenase 11 (EC 1.1.1.1) (17-beta-hydroxysteroid dehydrogenase 11) {17-beta-HSD 11} {17-beta-HSD 11} (17-steroid dehydroxysteroid dehydrogenase XI) {17-beta-HSD XI} {17-beta-HSDXI} (Dehydrogenase/reductase SDR family member 8)	dh11Dhl	DHBI1_RAT	0,548928658	0,06597608	8,32011661	14	8,65E-07	4,46E-06
Q9EPH2	Retinoid-inducible serine carboxypeptidase (EC 3.4.16.-) (Serine carboxypeptidase 1)	SceplRise	RISC_RAT	-6,169637718	0,38992248	-15,822729		9,76E-07	5,01E-06
Q6AY58	Nischarin (1-methylzoline receptor 1) (IL-1) (IL1) (Imidazole-1-receptor) (ILR)	Nisch	NISCH_RAT	-0,804700689	0,15098226	-5,3297698	65	1,32E-06	6,76E-06
Q920A6	Guanine nucleotide-binding protein G(z) subunit alpha (G(z) alpha chain) (Gz-alpha)	Gnaz	GNAZ_RAT	-1,237359864	0,21791334	-5,6782198	40	1,34E-06	6,83E-06
Q4G017	ADP-ribosylation factor-like protein 3 {ARD3}	Ar13	ARL3_RAT	0,519027137	0,06975008	7,44124034	16	1,40E-06	7,11E-06
P19627	Guanine nucleotide-binding protein subunit alpha-11 (G(alpha)-11) (G-protein subunit alpha-11)	Gnal1	GNA11_RAT	-0,254596113	0,04900488	-5,1953216	83	1,44E-06	7,27E-06
P37996	Annexin A8 {Annexin VIII} {Annexin-8}	Anxa8	ANXAB_RAT	-2,002022571	0,29717835	-6,7367713	20	1,49E-06	7,51E-06
Q9JID2	40S ribosomal protein S18	Rps18	RS18_RAT	-0,505850102	0,06374164	-7,9359441	14	1,50E-06	7,56E-06
Q4FZU6	Ciliary neurotrophic factor receptor subunit alpha (CNTF receptor subunit alpha) {CNTFR-alpha}	Cntfr	CNTFR_RAT	0,466214621	0,08691751	5,36387484	56	1,60E-06	8,04E-06
Q08406	Serine-threonine kinase receptor-associated protein (UNR-interacting protein)	StrapUnrip	STRAP_RAT	0,768997763	0,06222674	12,3579958		1,71E-06	8,55E-06
QXSUGB	Atlastin-1 {EC 3.6.5.-} (Spastic paraplegia 3A homolog)	At1lSpg3a	ATLAI_RAT	-0,435137391	0,08854867	-4,9141042	197	1,87E-06	9,32E-06
Q6PST4	Ras-related protein Rab-6A (Rab-6)	Rab6a	Rab6_RAT	-0,823933353	0,16523003	-4,9865837	122	2,06E-06	1,02E-05
Q9WVB1	Vimentin	Vim	VIME_RAT	-0,405845194	0,08242916	-4,9235634	160	2,10E-06	1,04E-05
P31000	Cytochrome b5 type B {Cytochrome b5 outer mitochondrial membrane isoform}	SbCybsm	ORCYBSB_RAT	1,508014831	0,25825189	5,83931779	29	2,48E-06	1,22E-05
P04166	AP-2 complex subunit alpha-2 {100 kDa coated vesicle protein C} (Adaptor protein complex AP-2 subunit alpha-2) (Adaptor-related protein complex 2 subunit alpha-2) {Alpha-adaptin C} (Alpha2-adaptin) {Clathrin assembly protein complex 2 alpha-C large chain} (Plasma membrane adaptor HA2/AP2 adaptin alpha C subunit)	Ap2a2Adtb	AP2A2_RAT	-0,670989707	0,08836244	-7,5936074	14	2,50E-06	1,23E-05
P18484	CD151 antigen {Platelet-endothelial tetraspan antigen 3} (PETA-3) (CD antigen CD151)	Cdis1Peta3	CDIS1_RAT	-0,443644031	0,09271328	-4,7851183	327	2,59E-06	1,27E-05
Q9QZA6	Allograft inflammatory factor 1 {AIF-1} (Nucleic acid-binding adapter molecule 1) {MRF-1} (Microglia response factor)	ifl1lbalMrf1	AIFI_RAT	1,396908773	0,15895624	8,78800817	11	2,65E-06	1,29E-05
P41498	GMP synthase {glutamine-hydrolase} (EC 6.3.5.2) (GMP synthetase) {Glutamine amidotransferase}	Gmps	GUAA_RAT	-0,474128499	0,08598317	-5,5142012	38	2,64E-06	1,29E-05
P55009	Protein NDR G2 {Antidepressant-related protein ADRG123} (N-myc downstream-regulated gene 2 protein) (NDRG1-related protein)	Ndr2g	NDRG2_RAT	-0,37466149	0,04289822	-8,7337308	11	2,81E-06	1,36E-05
Q4V7C6	Protein S100-A11 {Calgizzarin} {S100 calcium-binding protein A11}	S100a11	SI OAB_RAT	-0,369129019	0,0759636	-4,859288	152	2,91E-06	1,40E-05
Q8VBU2-2	LIM and SH3 domain protein 1 {LASP-1}	Laspl	LASPI_RAT	-1,454820512	0,1951053	-7,4565913	14	3,08E-06	1,47E-05
Q6B345	Pirin {EC 1.13.11.24} {Probable quercetin 2,3-dioxygenase PIR} {Probable quercetinase}	Pir	PIR_RAT	-1,942915032	0,27810953	-6,9861504	16	3,07E-06	1,47E-05
Q99MZ8	Guanine nucleotide-binding protein subunit beta-4 (Transducin beta chain 4)	Gnb4	GBB4_RAT	0,320782503	0,06599065	4,86102939	139	3,11E-06	1,49E-05
QSM827	Myelin protein PO {Myelin peripheral protein} (MPP) (Myelin protein zero)	MpzPO	MYPO_RAT	-0,654751779	0,12753333	-5,1339661	61	3,13E-06	1,49E-05
035353	Chloride intracellular channel protein 1	Clicl	CLICI_RAT	1,461765153	0,17057349	8,56970884	11	3,38E-06	1,60E-05
P06907	NADH-cytochrome b5 reductase 2 (bSR-2) (EC 1.6.2.2)	Cyb5r2	NBSR2_RAT	0,70362844	0,1403725	5,01258043	74	3,56E-06	1,68E-05

Q6MG61	Ubiquitin carboxyl-terminal hydrolase 7 (EC 3.4.19.12) (Deubiquitinase) (Herpesvirus-associated ubiquitin-specific protease) (rHAUSP) Usp7	Usp7_Hausp	UBP7_RAT	-0,453143335	0,08348676	-5,4277272	37	3,74E-06	1,76E-05
	(Ubiquitin thioesterase 7) (Ubiquitin-specific-processing protease 7)								
Q6AY12	Guanine nucleotide-binding protein G(i) subunit alpha-1 (Adenylate cyclase-inhibiting G alpha protein)	Gnai1	GNAI1_RAT	-1,072397645	0,10782974	-9,9452866		3,75E-06	1,76E-05
	Protein disulfide-isomerase A3 (EC 5.3.4.1) (58 kDa glucose-regulated protein) (58 kDa microsomal protein) (p58) (Disulfide isomerase ER-60)								
Q4VSI4 P10824	(Endoplasmic reticulum resident protein 57) (ER protein 57) (Erp57) (Endoplasmic reticulum resident protein 60) (ER protein 60) (Erp60) (Hsp70) (Q-2)	ia3	Erp60_Grp_PDIA3_RAT	1,247107419	0,24004429	5,19532222	49	3,95E-06	1,85E-05
	Protein bassoon	Bsn	BSN_RAT	0,301429466	0,05605761	5,37713702	38	4,07E-06	1,90E-05
CON_007152	Prosaposin receptor GPR37 (G-protein coupled receptor 37) (G-protein coupled receptor CNS1)	Gpr37	GPR37_RAT	0,601473277	0,07170741	8,38788175	11	4,15E-06	1,93E-05
		Phb	PHB_RAT	0,302764528	0,06496832	4,66018738	378	4,39E-06	2,03E-05
P11598 O88778	Prohibitin Thioredoxin, mitochondrial (MTRX) (Mt-Trx) (Thioredoxin in-2) Spectrin beta chain, non-erythrocytic 2 (Beta Spectin 1) (Beta-III spectrin) (Glutamate transporter EAAT4-associated protein 41) (SPNB-3) (SPTN2) (Spectrin-like protein GTRAP41)	Txn2	Trx2_THIOM_RAT	2,120481345	0,13617682	15,5715298		4,44E-06	2,05E-05
Q9QYC6 P67779	CBI cannabinoid receptor-1 (teratogen protein 1) (CRIP-1)	Cnrip1	CNRP1_RAT	0,292003373	0,05775252	5,05611454	57	4,74E-06	2,18E-05
	Transitional endoplasmic reticulum ATPase (TER ATPase) (EC 3.6.4.6) (155 Mg(2+)-ATPase p97 subunit) (Valosin-containing protein) (VCP)	Vcp	TERA_RAT	-0,393211817	0,0505446	-7,7795019	12	5,00E-06	2,29E-05
P97615	Enoyl-CoA delta isomerase 1, mitochondrial (EC 5.3.3.8) (3,2-trans-enoyl-CoA isomerase) (Delta(3),Delta(2)-enoyl-CoA isomerase) (03,02-enoyl-CoA isomerase) (Dodecenoyl-CoA isomerase)	Eci1	ECI1_RAT	0,358652739	0,07407854	4,84151989	92	5,18E-06	2,36E-05
	Coiled-coil domain-containing protein 91 (GGA-binding partner)	ccdc91	Ggab_CCD91_RAT	0,330788712	0,04646243	7,11948814	14	5,18E-06	2,36E-05
P46462	Acetyl-CoA acetyltransferase, mitochondrial (EC 2.3.1.9) (Acetoacetyl-CoA thiolase)	Acat1	THIL_RAT	-0,294875323	0,06437358	-4,5806884	785	5,39E-06	2,45E-05
P23965 Q6AY97	Pantothenate kinase 4 (PANK4) (EC 2.7.1.33) (Pantothenate kinase 4) Joubertin (Abelson helper integration site 1 protein homolog) (AHL-1) (Peptidyl-prolyl cis-trans isomerase FKBP1A) (PPIase FKBP1A) (EC 5.2.1.8) (12 kDa FK506-binding protein) (12 kDa FKBP) (FKBP-12) (FK506-binding)	Pank4	Fangl_PANK4_RAT	-0,43174223	0,07833597	-5,5114173	30	5,50E-06	2,49E-05
		Ahl1	AHL1_RAT	0,499425133	0,06133145	8,14305099	11	5,52E-06	2,49E-05
		Fkbp1a	Fkbp1a_FKBP1A_RAT	0,351152909	0,07572158	4,63742175	265	5,55E-06	2,49E-05
P17764	protein 1A) (FKBP-1A) (Immunophilin FKBP12) (Rotamase)	Vdac1	VDAC1_RAT	0,58268755	0,09958296	5,85127778	23	5,80E-06	2,60E-05
	Voltage-dependent anion-selective channel protein 1 (VDAC-1) (rVDAC1)	10	Pmb1OT1_TYBIO_RAT	0,984198378	0,13516192	7,28162493	13	6,17E-06	2,75E-05
Q92358 Q6DTM3 Q62658	(Outer mitochondrial membrane protein porin 1) Thymosin beta-10 Retinol-1 (Neuroendocrine-specific protein) (5-rex) Dipeptidyl peptidase 2 (EC 3.4.14.2) (Dipeptidyl aminopeptidase II) (Dipeptidyl peptidase 7) (Dipeptidyl peptidase II) (DPP II) (Quiescent cell praline dipeptidase)	Rtn1	Nsp_RTN1_RAT	0,533120578	0,07933393	6,71995672	15	6,87E-06	3,06E-05
Q9Z2L0		Dpp7	Dpp2_RAT	0,178900032	0,03899046	4,58830276	191	8,08E-06	3,58E-05
		Mdr1	MdrH_MDR1_RAT	0,560240134	0,11053969	5,06822618	43	8,09E-06	3,58E-05
P63312	Multidrug resistance protein 1 (EC 3.6.3.44) (ATP-binding cassette subfamily B member 1) (P-glycoprotein 1) (CD antigen CD243) Succinate-semialdehyde dehydrogenase, mitochondrial (EC 1.2.1.24) (Aldehyde dehydrogenase family 5 member A1) (NAD(+)-dependent succinic semialdehyde dehydrogenase)	1db5al	Ssadl_SSDH_RAT	-1,057023751	0,20375261	-5,1877802	34	9,80E-06	4,33E-05
Q64548-2 Q9EPB1	Mevlonate kinase (MK) (EC 2.7.1.36)	Mvk	KIME_RAT	-0,385670388	0,08386797	-4,5985419	115	1,10E-05	4,84E-05
P43245	Neural cell adhesion molecule 1 (N-CAM-1) (NCAM-1) (CD antigen CD56)	Ncam1	Ncam_NCAM1_RAT	-1,673599321	0,32397438	-5,1658384	33	1,13E-05	4,96E-05
P51650 P17256	N-acetylglutamate synthetase (NAG synthetase) (N-acetyltransferase 8-like protein) (EC 2.3.1.17) Cysteine-rich protein 2 (CRP-2) (Protein ESPI)	Nat81	NAT8L_RAT	0,864574	0,13557471	6,37710366	15	1,24E-05	5,44E-05
P13596	Thymosin beta-4 (T beta 4) [Cleaved into: Hematopoietic system regulator y peptide (Seraspenide)]	Crip2	Crp2_CRIP2_RAT	-0,562364527	0,11814247	-4,7600538	59	1,30E-05	5,65E-05
		b4x	Thyb4_Tn_TYB4_RAT	-0,418330741	0,09415279	-4,4431052	227	1,39E-05	6,02E-05
D3ZVU9 P36201	Kinesin heavy chain isoform SA (Kinesin heavy chain neuron-specific 1) (Neuronal kinesin heavy chain) (NKH) Tubulin beta-2A chain	Kif5a	KIF5A_RAT	-0,43611819	0,06930778	-6,2924853	15	1,44E-05	6,25E-05
	Microtubule-associated protein 1B (MAP1B) (Neuraxin) [Cleaved into: MAP1B heavy chain; MAP1 light chain LCI]	Tubb2a	TBB2A_RAT	-0,368901852	0,06030438	-6,1173311	16	1,49E-05	6,42E-05
P62329 Q6QLM7 P85108 P15205	Map1b 60S ribosomal protein L11 40S ribosomal protein S25	Map1b	MAPIB_RAT	0,885632994	0,19754625	4,48316795	143	1,50E-05	6,43E-05
		Rpl11	RLI1_RAT	-0,761335152	0,15455133	-4,9260989	40	1,50E-05	6,43E-05
		Rps25	R525_RAT	0,376612355	0,06016089	6,2600864	15	1,53E-05	6,54E-05
P62914 P62853	Ubiquitin conjugation factor E4A NAO-dependent protein deacylase sirtuin-5, mitochondrial (EC 3.5.1.-) (Regulatory protein SIR2 homolog 5) (SIR2-like protein 5)	Ube4a	UBE4A_RAT	-0,148866413	0,03430623	-4,3393407	1309	1,54E-05	6,57E-05
		Sirt5	SIRS_RAT	0,869539931	0,18379276	4,73108923	55	1,60E-05	6,81E-05
Q6P7A2	UPF0364 protein C6orf211 homolog Serine/arginine-rich splicing factor 2 (Splicing component, 35 kDa) (Splicing factor SC35) (SC-35) (Splicing factor, arginine/serine-rich 2)	CF211	CF211_RAT	-0,660178347	0,08635747	-7,6447158	10	1,75E-05	7,42E-05
	GTP-binding nuclear protein Ran (GTPase Ran) (Ras-like protein TC4) (Ras-related nuclear protein)	Srsf2	Sfs2_SRSF2_RAT	-0,448533073	0,07051559	-6,3607651	14	1,77E-05	7,47E-05
Q68FX9 Q6AYT5	Dynactin subunit 2 Potassium voltage-gated channel subfamily C member 3 (KSHII ID) (Voltage-gated potassium channel subunit Kv3.3)	Rao	RAN_RAT	-1,317795985	0,26662188	-4,9425651	36	1,79E-05	7,55E-05
Q6PDU1 P62828		Dctn2	DCTN2_RAT	-0,461897195	0,09881172	-4,6745184	55	1,95E-05	8,20E-05
	60S ribosomal protein L27a	Kcnc3	KCNK3_RAT	0,3912338	0,07740031	5,05468015	30	2,00E-05	8,37E-05
Q6AYH5	Lo w molecular weight phosphotyrosine protein phosphatase (LMW-PTP) (LMW-PTPase) (EC 3.1.3.48) (Low molecular weight cytosolic acid phosphatase) (EC 3.1.3.2)	Rpl27a	RL27A_RAT	0,500174079	0,10657603	4,69311994	51	2,06E-05	8,61E-05
		Acpl1	PPAC_RAT	-0,448661088	0,1034217	-4,3381718	222	2,18E-05	9,10E-05
Q01956 P18445	Kinesin heavy chain isoform SC (Kinesin heavy chain neuron-specific 2) (Fragment) T-complex protein 1 subunit delta (TCP1-delta) (CCT-delta)	Kif5c	Nkhe2_KIF5C_RAT	0,623331027	0,07789002	8,00270746		2,21E-05	9,18E-05
P41498-2	Inositol monophosphatase 1 (IMP1) (IMPase 1) (EC 3.1.3.25) (Inositol-1-(or 4)-monophosphatase 1) (Lithium-sensitive myo-inositol monophosphatase A1)	Cct4	TCPD_RAT	-0,506498979	0,10100558	-5,0145644	30	2,24E-05	9,22E-05
		Imp1a	IMP1A_RAT	-0,720933522	0,08217364	-8,7732947		2,23E-05	9,22E-05
P56536 Q7TPB1	ER membrane protein complex subunit 2 (Teatriconcept ide repeat protein 35) (TPR repeat protein 35)	Emc2	Tic35 EMC2_RAT	-0,513667742	0,08492556	-6,0484472	15	2,23E-05	9,22E-05
P97697 B0BNG0 P60868	40S ribosomal protein S20 Alpha-1-macroglobulin (Alpha-1-M) (Alpha-1-macroglobulin 165 kDa subunit) [Cleaved into: Alpha-1-macroglobulin 45 kDa subunit] Beta-synuclein (Phosphonucleoprotein 14) (PNP 14)	Rps20	R520_RAT	0,320662618	0,0743908	4,31051421	280	2,26E-05	9,28E-05
		Alm	Pzp_AIM_RAT	-0,568150257	0,1285325	-4,4202848	104	2,43E-05	9,95E-05
		Sncb	SYUB_RAT	0,26385276	0,04515734	5,84296445	16	2,50E-05	0,00010205
	Eukaryotic translation initiation factor 5 (eIF-5)	Eif5	IFS_RAT	0,414586641	0,09296531	4,45958433	84	2,53E-05	0,00010293
Q63041	Inosine triphosphate pyrophosphatase (ITPase) (Inosine triphosphatase) (EC 3.6.1.19) (Non-canonical purine NTP pyrophosphatase) (Non-standard purine NTP pyrophosphatase) (Nucleoside-triphosphate pyrophosphatase) (NTPase)	Itpa	ITPA_RAT	0,227738752	0,05350437	4,25645124	429	2,55E-05	0,00010377
Q63754	Elongation factor G, mitochondrial (EF-Gmt) (Elongation factor G1, mitochondrial) (mEF-G1) (Elongation factor G1)	111	Efg_Efg1_G_EFGM_RAT	-0,504354729	0,11391687	-4,4273928	94	2,57E-05	0,00010422
Q07205 D3ZW55	Secretogranin-1 (Chromogranin-B) (CgB) (Glucagonoma peptide) (Secretogranin-1) (Sgl) [Cleaved into: CCB peptide short form; CCB peptide long form]	Chgb	SCGI_RAT	-0,463296218	0,1035846	-4,4726363	77	2,63E-05	0,00010588
Q07803	60S ribosomal protein L18a NADH-ubiquinone oxidoreductase chain 3 (EC 1.6.5.3) (NADH dehydrogenase subunit 3)	Rpl18a	RL18A_RAT	-0,232001057	0,05132007	-4,5206694	66	2,62E-05	0,00010588
		nd3	mt-Nd3_II_NU3M_RAT	-0,442661042	0,05170223	-8,5617391		2,67E-05	0,00010735
035314 P62718	CD81 antigen (26 kDa cell surface protein TAPA-1) (Target of the antiproliferative antibody 1) (CD antigen CD81) Sulfated glyco protein 1 (SGP-1) (Prosaposin)	Cd81	Tapal_CD81_RAT	0,75820881	0,15486698	4,89587147	32	2,69E-05	0,00010778
		Psap	Sgpl_SAP_RAT	0,354207721	0,07865652	4,50322164	67	2,74E-05	0,0001097

P05506	Cellular nucleic acid-binding protein (CNBP) (Zinc finger protein 9) 14-3-3 protein gamma [Cleaved into: 14-3-3 protein gamma, N-terminally processed]	Cnbp Znf9	CNBP_RAT	0,394997208	0,05771609	6,843797	11	2,79E-05	0,00011079
Q62745	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 5 (Complex 1 subunit B13) (Complex 1-13 kD-B) (C1-13 kD-B) (NADH-ubiquinone oxidoreductase 13 kDa-B subunit)	Ywhag	1433G_RAT	0,758642746	0,15610538	4,85981175	33	2,79E-05	0,00011079
P10960	Tissue alpha-L-fucosidase (EC 3.2.1.51) (Alpha-L-fucosidase 1) (Alpha-L-fucoside fucosylase 1) (Alpha-L-fucosidase 1)	Ndufa5	NDUA5_RAT	-0,487016389	0,11248043	-4,3297879	128	2,98E-05	0,00011832
P62634	Tropomodulin-2 (Neuronal tropomodulin) (N-Tmod)	Fucal Fuca	FUCO_RAT	0,787058497	0,08337741	9,43970934		3,12E-05	0,00012353
P61983	Serine/threonine-protein phosphatase 2A catalytic subunit beta isoform (PP2A-beta) (EC 3.1.3.16)	rmod2 Ntmoc	TMOD2_RAT	-0,561792814	0,13281778	-4,2298014	292	3,13E-05	0,00012355
Q63362	Golgi reassembly-stacking protein 2 (GRS2) (Golgi reassembly-tackling protein of 55 kDa) (GRASP55)	Ppp2cb	PP2AB_RAT	-0,720590467	0,12035984	-5,9869678	14	3,33E-05	0,00013088
P17164		Gorasp2	GORS2_RAT	-0,680968177	0,11416882	-5,9645723	14	3,46E-05	0,00013565
CON_007006	Lanosterol 14-alpha demethylase (LDM) (EC 1.1.4.13.70) (CYP14) (Cytochrome P450 51A1) (Cytochrome P450-14DM) (Cytochrome P45014DM) (Cytochrome P450U) (Sterol 14-alpha demethylase)	yp51a1 Cyp5	CP51A_RAT	-1,908785438	0,30147595	-6,3314683	12	3,77E-05	0,0001473
P70566	Mitochondrial inner membrane protein (Mitofilin) (Fragment)	Immt	IMMT_RAT	0,372946152	0,08640914	4,31604985	95	3,89E-05	0,00015187
P62716	WO repeat-containing protein 61 [Cleaved into: WO repeat -containing protein 61, N-terminally processed]	Wdr61	WDR61_RAT	0,294024108	0,05281525	5,56703066	16	4,25E-05	0,00016535
Q9R064	Amyloid beta A4 precursor protein-binding family A member 1 (Adapter protein Xlalpha) (Neuron-specific XII protein) (Neuronal Munc18-1) (N-munc18 interacting protein 1) (Mint-1)	ApbA1	APBA1_RAT	0,473639005	0,0834166	5,67799494		4,38E-05	0,00017001
Q64654	Large neutral amino acids transporter small subunit 1 (4F2 light chain) (4F2 LC) (4F2LC) [Integral membrane protein E16] (Protein in TAI) (L-type: 7a5 Mpe16 TAI)	LAT1	LAT1_RAT	-0,948352992	0,13909644	-6,8179529	10	4,64E-05	0,00017939
Q3KR86	amino acid transporter 1 (Solute carrier family 7 member 5)	Prva	PRVA_RAT	0,309968772	0,06856851	4,52057006	43	4,78E-05	0,00018452
Q4V7A0	Nucleobindin-2 [DNA-binding protein NEFA] (Prepronesfatin) [Cleaved into: Nesfatin-1]	Nuch2 Nefa	NUCB2_RAT	0,493235116	0,10978482	4,9274428	40	5,87E-05	0,00022571
Q35430	Calnexin	Canx	CALX_RAT	0,552674427	0,0839037	6,58700886	10	6,18E-05	0,0002371
Q63016	Aldose 1-epimerase (EC 5.1.3.3) (Galactose mutarotase)	Galm	GALM_RAT	0,342562488	0,04885263	7,01216023		6,24E-05	0,00023886
P02625	Dystrobrein beta (DTN-B) (Beta-dystrobrein)	Dtnb	DTNB_RAT	-0,439495881	0,1071589	-4,1013474	164	6,45E-05	0,00024634
Q9J185	Alanine-tRNA ligase, cytoplasmic (EC 6.1.1.7) (Alanyl-tRNA synthetase) (AlaRS)	Aars	SYAC_RAT	-0,554059875	0,07324261	-7,564721		6,52E-05	0,00024814
P35565	Acylpyruvate FAHDL, mitochondrial (EC 3.7.1.5) (Fumarylacetoacetate hydrolase domain-containing protein 1)	Fahdl	FAHDL_RAT	-0,414003445	0,10221944	-4,0501439	277	6,65E-05	0,00025255
Q66HG4	Syntaxin-7	Stx7	STX7_RAT	-0,299739238	0,07021221	-4,269047	62	6,85E-05	0,00025946
P84060	Xaa-Pro dipeptidase (X-Pro dipeptidase) (EC 3.4.13.9) (Imidodipeptidase) (Peptidase D) (Praline dipeptidase) (Proliase)	Pepd	PEPD_RAT						
P50475	PDZ domain-containing protein GIPC1 (GAIP -terminus-interacting protein) (GLUT1 C-terminal-binding protein) (GLUTICBP) (RGS-GAIP-interacting protein) (RGS19-interacting protein 1) (Synectin)	Gipc1	GIPC1_RAT	-1,09744444	0,18501954	-5,9315055	12	6,91E-05	0,00026095
Q6AYQ8	Protein IMPACT [Imprinted and ancient gene protein homolog]	Impact	IMPACT_RAT	-0,19333088	0,04872361	-3,9679096	686	8,01E-05	0,00030185
Q70257	Very-long-chain enoyl-CoA reductase (EC 1.3.1.93) (Synaptic glycoprotein SC2) (Trans-2,3-enoyl-CoA reductase) (TER)	Teer Gpsn2	TECR_RAT	-0,571473888	0,08956825	-6,3803175	10	8,03E-05	0,00030185
Q51007	Malectin	Mlec	MLEC_RAT	0,481249048	0,11389641	4,22532243	59	8,39E-05	0,00031441
Q9Z254	Glyceraldehyde-3-phosphate dehydrogenase (GAPDH) (EC 1.2.1.12) (38 kDa BFA-dependent ADP-ribosylation substrate) (BARS-38) (Peptidyl-cysteine 5-nitrosylase GAPDH) (EC 2.6.99.-)	Gapdh	GAPD_G3P_RAT	-0,271269288	0,06689258	-4,0552969	132	8,51E-05	0,00031824
Q5GFD9	AP-2 complex subunit mu (AP-2 mu chain) (Adaptor protein complex AP-2 subunit mu) (Adaptor-related protein complex 2 subunit mu) (Clathrin assembly protein complex 2 mu medium chain) (Clathrin coat assembly protein AP50) (Clathrin coat-associated protein AP50) (Mu2-adaptin) (Plasma membrane adaptor AP-2 50 kDa protein)	Ap2m1	AP2M1_RAT	-0,929573752	0,17145223	-5,4217653	14	9,00E-05	0,00033564
Q64232	Kinesin-like protein KIF27	Kif27	KIF27_RAT	0,49193129	0,12312648	3,99533303	174	9,52E-05	0,00035419
Q5FVQ4	Four and a half LIM domains protein 1 (FHL-1)	Fhl1	FHL1_RAT	0,85499593	0,19286594	4,43310991	33	9,70E-05	0,00035967
P04797	Hippocalcin-like protein 4 [Neural visinin-like protein 2] (NVL-2) (NVP-2) [Visinin-like protein 2] (VILIP-2)	Hpcal4	HPCL4_RAT	-0,68980744	0,14534993	-4,7458394	22	9,77E-05	0,00036135
P84092	Oligoribonuclease, mitochondrial (EC 3.1.-.-) (RNA exonuclease 2 homolog) (Small fragment nuclease)	Rexo2 Smfn	ORN_RAT	-0,643222625	0,16332955	-3,938189	305	0,00010179	0,00037566
	Hydroxyacyl-coenzyme A dehydrogenase, mitochondrial (HCDH) (EC 1.1.1.35) [Medium and short-chain L-3-hydroxyacyl-coenzyme A dehydrogenase] (Short-chain L-3-hydroxyacyl-CoA dehydrogenase)	Had hsdh	HCDH_RAT	0,263144246	0,06667581	3,94662251	235	0,00010473	0,00038552
CON_007119	Cofilin-1 [Cofilin, non-muscle isoform]	Cfil1	COF1_RAT	-0,606543955	0,15130656	-4,0087089	119	0,00010689	0,00039247
Q9WU44	Paralemm-1 (Paralemm-1)	Palm	PALM_RAT	-0,609599413	0,11450662	-5,3237046	14	0,00010745	0,00039353
P35332	Nuclear protein localization protein 4 homolog (Protein NPL4)	Nplc4 Npl4	NPL4_RAT	0,607506463	0,05531931	10,9818165		0,00010892	0,0003979
Q5U1X1	Valine-tRNA ligase (EC 6.1.1.9) (Valyl-tRNA synthetase) (ValRS)	Vars Vars2	SYVC_RAT	0,574115787	0,12764559	4,49773291	28	0,00010933	0,00039839
Q9VVK7	V-type proton ATPase subunit F (V-ATPase subunit F) (V-ATPase 14 kDa subunit) (Vacuolar proton pump subunit F)	Vatf5	VATF_RAT	-2,137521902	0,41358791	-5,1682407	15	0,00011451	0,00041622
P45592	Aconitate hydratase, mitochondrial (Aconitase) (EC 4.2.1.3) (Citrate hydro-lyase)	Aco2	ACON_RAT	-2,605457482	0,55162423	-4,723247	21	0,0001155	0,00041771
Q920Q0	Golgi resident protein GCP60 (Acyl-CoA-binding domain-containing protein 3) (DMT1-associated protein) (OAP) (Golgi complex-associated Acb3 Gcp60 GCP60) (GOLPH1)	Gcp60	GCP60_RAT	-1,158054073	0,28344609	-4,0856237	70	0,00011541	0,00041771
Q9E554	40S ribosomal protein S28	Rps28	RS28_RAT	0,416281349	0,09560977	4,35396257	34	0,00011614	0,00041898
Q04462	Electron transfer flavoprotein subunit alpha, mitochondrial (Alpha-H F)	EtfA	ETFA_RAT	-0,509827215	0,11926912	-4,2745952	39	0,00011946	0,00042989
P50408	Heat shock 70 kDa protein 4 (Ischemia responsive 94 kDa protein)	Hspa4 Hsp94	HSP74_RAT	-0,215315942	0,05549253	-3,8800884	328	0,00012622	0,00045306
Q9ER34	KATS regulatory NSL complex subunit 3 (NSL complex protein NSL3) (Non-Kans specific lethal 3 homolog)	Kans1	KANL3_RAT	-0,359776295	0,08972073	-4,0099571	85	0,00012999	0,00046547
Q7TNY6	Protein phosphatase methyltransferase 1 (PM-E1) (EC 3.1.1.89)	Ppmel	PPME1_RAT	-0,257100744	0,06699587	-3,8375613	815	0,00013387	0,00047816
P62859	60S ribosomal protein L30	Rpl30	RL30_RAT	-0,951813888	0,1276164	-7,4583978		0,00014221	0,00050667
P13803	Ribosylidihydroxynicotinamide dehydrogenase [quinone] (EC 1.10.99.2) [NRH dehydrogenase [quinone] 2] (NRH:quinone oxidoreductase 2) [Quinone reductase 2] (QR2)	Nqo2	NQO2_RAT	0,271053368	0,05528028	4,90325613	16	0,00015915	0,00056564
Q88600	26S proteasome non-ATPase regulatory subunit 1 (26S proteasome regulatory subunit RPN2) (26S proteasome regulatory subunit 51) (26S proteasome subunit p112)	Psm1	PSMD1_RAT	-0,451073355	0,11778931	-3,8294932	255	0,00016168	0,00057144
Q3KR73	Fatty aldehyde dehydrogenase (EC 1.2.1.3) (Aldehyde dehydrogenase 4) [Aldehyde dehydrogenase family 3 member A2] (Microsomal aldehyde dehydrogenase) (msALDH)	Ldh3a2	AL3A2_RAT	-1,168662732	0,23873264	-4,8952783	16	0,00016174	0,00057144
Q4FZT2	Copine-9 [Copine IX]	Cpne9	CPNE9_RAT						



	Homeodomain-only protein (Global ischemia-induced gene 15B protein) [Gig15b] (Odd homeobox protein 1)	Abhd14b	ABHEB_RAT						
P62890					0,303822401	0,07729613	3,93062909	83	0,00017475 0,00061505
Q6AY80	Alpha/beta hydrolase domain-containing protein 14B (Abhydrolase domain-containing protein 14B) (EC 3.-.-.-)	Abhd14b	ABHEB_RAT		0,242000587	0,05863846	4,12699458	40	0,00018103 0,0006356
	ATP-dependent (S)-NAD (P)H-hydrate dehydratase (EC 4.2.1.93) (ATP-dependent NAD(P)HX dehydratase) (Ca ribohydrate kinase domain-containing protein)	Carld	NNRD_RAT		-1,396292558	0,06125461	-22,794899		0,00018491 0,00064763
088761	Phosphatidylethanolamine-binding protein 1 (PEB P-1) (23 kDa morphine-binding protein) (HCNPpp) (P23K) [Cleaved into: Hippocampal cholinergic enhancing peptide (HCNP)]				-0,178512706	0,04707832	-3,7918243	232	0,00019075 0,00066646
P30839					-0,317677347	0,08242363	-3,8542024	104	0,00020124 0,00070144
Q5BJ57	Sideroflexin-3	Sfxn3	SFXN3_RAT		-0,244800207	0,05158664	-4,7454191	16	0,00021947 0,00076312
	Vesicle-associated membrane protein 7 (VAMP-7) (Synaptobrevin-like protein 1)	Vamp7	Sybl1 VAMP7_RAT		-0,281114117	0,04745041	-5,9243766		0,00022226 0,00077097
Q78ZRS	Endophilin-B1 (SH3 domain-containing GRB2-like protein B1)	Sh3glb1	SHLB1_RAT		-0,449377356	0,11162546	-4,0257605	41	0,00023905 0,00082721
Q6DGG1									

	COP9 signalosome complex subunit 1 (SGN1) (Signalosome sub unit 1) (G protein pathway suppressor 1) (GPS-1) (JAB1 -containing signalosome subunit 1) (MFH protein)	>S1 Cpsl1 Csl1 CSN1_RAT	-0,853152659	0,13603967	-6,2713522		0,0002401	0,00082885
04AATT	Macrophage migration inhibitory factor (MIF) (EC 5.3.2.1) (Glutathione-binding 13 kDa protein) (L-dopachrome isomerase) (L-dopachrome tautomerase) (EC 5.3.3.12) (Phe nylpyruvate tautomerase)	Mif MIF_RAT	-0,417647548	0,11227745	-3,7197812	228	0,0002511	0,00086478
P31044	Phospholemman (FXYP domain -containing g ion transport regulator 1)	Fxyd1 Plm PLM_RAT	0,298749075	0,0616307	4,84740666	14	0,00025851	0,00088818
Q9JHY2	Nuclear transport factor 2 (NTF-2)	Nutf2 Ntf2 NTF2_RAT	0,269161645	0,05099005	5,27870925	11	0,0002608	0,00089391
Q9JHW5	Ephrin type-B receptor 6 (Tyrosine -pro tein kinase-defective receptor EPH-6)	Ephb6 EPHB6_RAT	-0,282352436	0,07155021	-3,9462142	46	0,00026954	0,00091949
Q6AYE2	Alpha-1-inhibitor 3 (Alpha-1-inhibitor 3 variant II) (Alpha-I-inhibitor III)	Ali3 Mugl A113_RAT	0,574121129	0,15250421	3,76462487	110	0,00026953	0,00091949
P97834	Beta,beta-carotene 15,15'-monooxygenase (EC 1.14.99.36) (Beta-carotene dioxygenase 1)	I101 Bedo Bed BCDO1_RAT	-0,73594847	0,17683373	-4,1618104	28	0,0002719	0,00092325
CON_000213	Ribonuclease UK114 (EC 3.1.-.-) (14.5 kDa translatio nal inhibitor protein) (Perchloric acid sub - protein)	Hsp12 Psp1 UK114_RAT	-0,488534709	0,12977602	-3,764445	108	0,00027192	0,00092325
P30904	Gap junction alpha-1 protein (Connexin -in-43) (Cx43) (Gap junction 43 kDa heart protein)	Gjal Cxn-43 CXA1_RAT	1,080953202	0,12070434	8,95537956		0,00028943	0,0009804
008589	Serine protease inhibitor A3N (Serpin A3N) (CPI-2) (Co nt ra psin-like protease inhibitor 6) (SPI-2.2) (Seri ne protease inhibitor 3) (SPI-3)	Irp ina3n Spin SPA3N_RAT	-0,364614318	0,09631541	-3,7856282	75	0,00030676	0,0010366
P61972	Sodium - and chloride-dependent GABA transporter 1 (GAT-1) (Solute carrier family 6 member 1)	I Gabt1 Gat-1 SC6A1_RAT	0,693991833	0,16969236	4,08970588	29	0,00031341	0,00105666
POCOK7	Actin- related protein 2/3 comp lex subunit 1B (Ar p2/3 comp lex 41 kDa subunit) (p41-ARC)	Arpc1b ARC1B_RAT	-0,680443732	0,17611731	-3,8635823	49	0,0003284	0,00110463
P14046	Protein twenty two homolog 1	Ttyhl TTYH1_RAT	1,146928743	0,20627844	5,56009985		0,00035183	0,00118067
Q91XT5	Heat shock-related 70 kDa protein 2 (Heat shock protein 70.2) (Testis-specific heat shock protein-related) (HST)	Hspa2 Hst70 HSP72_RAT	-0,311060892	0,08358129	-3,7216569	84	0,00035687	0,0011948
P52759	Eukaryotic initiation factor 4A-II (eIF4A-II) (eIF4A-II) (EC 3.6.4.13) (ATP-dependent RNA helicase eIF4A-2)	Eif4a2 IF4A2_RAT	0,420482863	0,11513909	3,65195583	140	0,00036681	0,00122523
P08050	CD59 glycoprotein [MAC-inhibitory protein] [MAC-1P] (Membrane attack complex inhibition factor) (MACIF) (Protectin) (C D antigen CD59)	Cd59 CD59_RAT	-0,655304805	0,16643412	-3,9373226	35	0,00037412	0,00124678
P09006	Gelsolin [Actin-depolymerizing factor] (ADF) (Brevin)	Gsn GELS_RAT	-0,60520316	0,15954824	-3,7932299	54	0,00037743	0,00125491
P23978	14-3-3 protein theta (14 -3-3 protein tau)	Ywhaq 14337_RAT	-0,595432762	0,10161876	-5,8594766	8	0,00037869	0,00125621
088656	Ool ic hyl- di phospho li gosaccha ride- prote i n glycosyl tra ns ferase subunit 2 (EC 2.4.99.18) (Dol ic hyl- di phospho hoo li gosacchar ide- prote i n glycosyl tra nsferase 63 kDa subunit) (Ribophorin II) (RPN-11) (Ribophorin-2)	Rpn2 RPN2_RAT	0,501440201	0,11778999	4,25706969	20	0,00038568	0,00127353
P0C5X8	Multifunctional protein ADE2 (Inclu des: Phosphoribosylaminoimidazole-succinocarboxamide synthase (EC 6.3.2.6) (SAICAR synthetase); Phosphoribosylaminoimidazole carboxylase (EC 4.1.1.21) (AIR carboxylase) (AIRC))	'aicsAde2 Air PUR6_RAT	-0,480511161	0,13168515	-3,6489396	125	0,00038529	0,00127353
P14659	DnaJ homolog subfamily A member 1 (Dn aJ-like protein 1) (Heat shock protein J2) (HSJ-2)	najal Hsj2 Rd DNJ1_RAT	-0,407123622	0,11295084	-3,6044321	216	0,0003884	0,0012796
QSRK11	UDP- g lu cose 4-epimerase (EC 5.1.3.2) (G alactosa ldenase) (UDP- galactose 4-epimerase)	Gale GALE_RAT	0,493284287	0,12667881	3,89397628	35	0,00042378	0,00139298
P27274	(-reactive protein	Crp Ptxl CRP_RAT	0,643789907	0,13024131	4,94305446	11	0,00044045	0,00144448
Q68FP1-2	Tumor protein p63-regulated gene I-like protein (Mossy fiber terminal-associated vertebrate-spec ific presynaptic protein)	T rgll Mover TPRGL_RAT	0,49060336	0,13452809	3,64684703	85	0,0004567	0,00149436
P68255	Endoplasmic reticulum resident protein 29 (Erp29) (Endoplasmic reticulum resident protein 31) (Erp31)	Erp29 ERP29_RAT	-0,53744567	0,14372114	-3,7395032	51	0,00046779	0,00152719
P25235	Thioredoxin-dependent peroxide reductase, mitochondria l (EC 1.11.1.15) (Prx III) (Peroxiredoxin-3) (PRX-3)	Prdx3 PRDX3_RAT	-0,39092919	0,10903974	-3,5851991	135	0,00046953	0,00152941
P51583	Le ucine -ric h repeat -conta i ning protein 56	Lrrc56 LRC56_RAT	-0,836726313	0,20254332	-4,1310981	21	0,00047492	0,00154349
P63036	Hi ppocalci n-li ke protein 1 (Neural visinin-like protein 3) (NVL-3) (NVP-3) (Visi nin-li ke protein 3) (VIUP-3)	Hpcall HPLC1_RAT	-0,890808221	0,22076796	-4,035043	24	0,00048224	0,00156375
P18645	Melanoma-associated antigen 01 (MAGE-01 antigen) (Neuro trophin receptor-i ntera cting MAGE hom olog) (Sertoli cell neodin-related gene protein 1) (SNERG-1)	viaged1 Nrag1MAGD1_RAT	0,356827456	0,09043431	3,94570872	28	0,00048596	0,0015723
P48199	40S ribosomal protein S21	Rps21 RS21_RAT	-1,474911335	0,38604394	-3,8205789	37	0,00049259	0,00158661
A8WCF8	Glutamine synthetase (GS) (EC 6.3.1.2) (Glu tamate d ecarboxylase) (EC 4.1.1.15) (Glu tamate-ammon ia li gase)	Gln1 Glns GLNA_RAT	0,194703351	0,05310327	3,66650389	66	0,00049227	0,00158661
PS2555	Integrin alpha-1 (CD49 antigen-like family member A) (Laminin and co llagen receptor) (VLA-1) (CD antigen CD49a)	Itga1 ITA1_RAT	-0,43474088	0,12156454	-3,5762144	124	0,00049796	0,00160034
Q9Z0V6	Proteasome sub unit beta type-7 (EC 3.4.25.1) (Macropain chain Z) (Multicatalytic endopeptidase complex chain Z) (Proteasome subunit Z)	Psmb7 PSB7_RAT	0,58132305	0,08636341	6,73112686		0,00052333	0,00167815
Q4V8C9	40S ribosomal protein S7 (S8)	Rps7 RS7_RAT	-0,38671092	0,10606799	-3,6458777	64	0,00053627	0,00171583
P62749	Protein disulfide-isomerase A4 (EC 5.3.4.1) (Calcium-binding protein 2) (CaBP2) (Endoplasmic reticulum resident protein 70) (ER protein 70) (ERp70) (Endoplasm ic reticulum resident protein 72) (ER protein 72) (ERp72)	Ca1p2 Eri:PD1A4_RAT	0,450911793	0,09381696	4,80629281	11	0,00054779	0,0017488
Q9E573	Protea some ma l ubiquitin receptor ADRMI (110 kDa cell membrane glycopro tein) (Gp II O) (Adhesio n-regu la ti ng molecule 1) (ARM-1) (Rpn13 homolog)	Adrm1 Gp1CADRMI_RAT	0,34204678	0,0848745	4,03002988	22	0,00056056	0,00178564
POS765	Transtin-associated protein X (Transtlin -asso ciated factor X)	TsnaX Trax TSNAX_RAT	0,271834358	0,07824846	3,47398999	408	0,0005677	0,00180437
P09606	ATP-binding cassette sub-family 8 member 6, mitochondrial (Ubiquitously-expressed mammalian ABC half transporter)	Abcb6 Umat ABCB6_RAT	1,02595344	0,06638229	15,4552275		0,00058849	0,00186635
P18614	Coiled-coil domain -containing prote in 43	Ccdc43 CCD43_RAT	-0,704341374	0,19311678	-3,6472303	55	0,00058986	0,0018666
Q9JHWO	Mitogen-activated protein kinase 1 (MAP kinase 1) (MAPK 1) (EC 2.7.11.24) (ERT1) (Extrace llul ar signa l- regu lated kinase 2) (ERK-2) (MAP kinase isoform p42) (p42-MAPK) (Mitogen-activated protein kinase 2) (MAPKase 2) (MAPK2)	I Erk2 Mapk1 MKO1_RAT	-0,644469112	0,13967799	-4,6139634	12	0,00059637	0,00188308
CON_007078	DNA-(apur in ic or apyrimidin ic site) lyase (EC 3.1.-.-) (EC 4.2.99.18) (APEX nuclease) (APEN) (Apurinic -apyrimi din ic endonuclease 1) (AP endonuclease 1) (REF-1) (Re dox factor-I) (Cle ave for: ONA-(apurinic or xl apyrimidin ic site) lyase, mitochondrial)	I Ape Apex APEX1_RAT	-0,59362696	0,16772582	-5,3392858	93	0,00062857	0,0019804
P62083	UDP- N-acetylglucosamine- N-acetylglucosaminidyl transferase 110 kDa s ubun it (EC 2.4.1.255) (O-G l c NAc transferase subun it p10) (O-linked N-acetylglucosamine transferase 110 kDa s ubun it) (OG T) (Gua nine nucleot ide-bind ing protein G) (I)G(S)/G(T) subun it beta-2 (G protein subunit beta-2) (Trans ducin beta chain 2)	Ogt OGT1_RAT	-0,296573435	0,08167079	-3,6313279	52	0,00064474	0,00202252
P38659	Ne urofi la ment hea vy polypeptide (NF-H) (200 kDa neurofilament protein) (Neurofilament triple t H protein)	Gnb2 GBB2_RAT	0,624438678	0,17325592	3,60414053	59	0,0006445	0,00202252
Q9JMB5	Oihydrolypolylysine-residue acetyltransferase component of pyruvate dehydrogenase complex, mitochondrial (EC 2.3.1.12) (70 kDa mitochondrial autoantigen of primary biliary cirrhosis) (PBC) (Dihydroipoamide acetyltransfe rase comp onent of pyruvate dehydrogenase complex) (Pyruvate dehydrogenase comp lex component E2) (PDC-E2) (PDCE2)	Nefh Nfh NFH_RAT	-1,2761881	0,334135	-3,8193787	29	0,00065183	0,00204032
Q9JHB5	ATP-binding cassette sub-family A member 2 (ATP-bin ding cassette transporter 2) (ATP-bin din g c cassette 2)	Dlat ODP2_RAT	0,521777165	0,09681695	5,3893164		0,00065431	0,00204366
070595	Aromatic-L-amino-acid decarboxy lase (AADC) (EC 4.1.1.28) (DOPA decarboxy lase) (DOC)	Ddc DDC_RAT	-0,15661359	0,04555418	-3,437963	275	0,00067688	0,00210502
P63086	NADH dehydrogenase [ub iqu inone ] flavoprotein 3, mitochondria l (Complex 1-9kD) (CI-9k D) (NDH- H- ub iqu inone ox idore ductase 9 kDa subun it)	Ndufv3 NDUV3_RAT	0,361993717	0,0715759	5,05748072		0,00068337	0,00212066
P43138								

	V-type proton ATPase subunit B, brain isoform (V-ATPase subunit B 2) (Endomembrane proton pump 58 kDa subunit) (Vacuolar proton pump vlb2 Atp6b2 VATB2_RAT subunit B 2)		-0,714169018	0,20022563	-3,5668211	63	0,00069678	0,00215299
P56558	Staphylococcal nuclease domain-containing protein 1 {100 kDa coactivator} (SND p102) (p100 co-activator) (p105 coactivator)	Snd1 SND1_RAT	-0,257263957	0,04472161	-5,7525646		0,00069658	0,00215299
P54313;P543	Lysosome-associated membrane glycoprotein 1 (LAMP-1) (Lysosome-associated membrane protein 1) (120 kDa lysosomal membrane glycoprotein) (LGP-120) (CD107 antigen-like family member A) (CD antigen CD107a)	amp1 Lamp-1: LAMPL_RAT	0,467689556	0,1362678	3,43213557	251	0,00070021	0,00215566
P16884	AP-2 complex subunit sigma (Adaptor protein complex AP-2 subunit sigma) (Adaptor-related protein complex 2 subunit sigma) (Clathrin assembly protein 2 sigma small chain) (Clathrin coat assembly protein AP17) (Clathrin coat-associated protein AP17) (Plasma membrane adaptor AP-2 17 kDa protein) (Sigma-adaptin 3b) (Sigma2-a adaptin)	2sl Ap17 Clat AP2SI_RAT	-0,243565771	0,07098713	-3,4311257	256	0,00070063	0,00215566
P08461	Ezrin (Cyto villin) (Villin-2) (p81)	Ezr Vil2 EZRI_RAT	0,23017517	0,04069052	5,65672747		0,00076908	0,00236125
O9ESR9	Cellular retinoic acid-binding protein 1 (Cellular retinoic acid-binding protein 1) (CRABP-1)	Crabp1 RABP1_RAT	0,198469455	0,0556555	3,56603462	48	0,00083302	0,00255211
P14173	Sentrin-specific protease 8 (EC 3.4.22.68) (Densin-1) (NEDD8-specific protease 1) (Sentrin/SUMO-specific protease SENP8)	Senp8 SENP8_RAT	0,528204269	0,10194714	5,18115815		0,00084156	0,00257282
O6PCU8	Alpha-mannosidase 2C1 (EC 3.2.1.24) (Alpha-D-mannoside mannohydrolase) (Mannosidase alpha class 2C member 1)	Man2c1 MA2C1_RAT	-0,257445311	0,07690384	-3,3476264	639	0,00086291	0,00263251
P62815	Connector enhancer of kinase suppressor of ras 2 (Connector enhancer of KSR 2) (CNK homolog protein 2) (CNK2) (Membrane-associated guanylate kinase-interacting protein) (MAGUK)	Cnksr2 CNKR2_RAT	0,292809089	0,08648209	3,38577738	148	0,00090906	0,00276116
O66X93	Unconventional myosin-1d (Myosin heavy chain myr4)	Myold Myr4MYO1D_RAT	0,412950659	0,11626342	3,5518536	45	0,00091082	0,00276116
P14562	Liprin-alpha-3 (Protein tyrosine phosphatase receptor type f polypeptide-interacting protein alpha-3) (PTPRF-interacting protein alpha-3)	Ppfia3 LIPA3_RAT	-0,340247231	0,09909625	-3,4335026	88	0,00091044	0,00276116
P62744	Major prion protein (PrP) (CD antigen CD230)	Prnp Prn Prp PRIO_RAT	-1,036471968	0,20289258	-5,1084765		0,00092017	0,00278366
P31977	Guanine deaminase (Guanase) (Guanine aminase) (EC 3.5.4.3) (Guanine aminohydrolase) (GAH)	Gda GUAD_RAT	0,302340831	0,08621172	3,50695743	53	0,00093197	0,00281347
P62966	Aspartate aminotransferase, cytoplasmic (cAspAT) (EC 2.6.1.1) (EC 2.6.1.3) (Cysteine aminotransferase, cytoplasmic) (Cysteine transaminase, cytoplasmic) (cCAT) (Glutamate oxaloacetate transaminase 1) (Transaminase A)	Got1 AATC_RAT	1,390040283	0,15900381	8,74218211		0,00094342	0,00284209
O5FVJ8	Fructose-bisphosphate aldolase C (EC 4.1.2.13) (Brain-type aldolase)	Aldoc ALDOC_RAT	-2,542069295	0,46688745	-5,4447154		0,0009614	0,0028902
P21139	cAMP-dependent protein kinase catalytic subunit beta (PKA C-beta) (EC 2.7.11.11)	Prkacb Kpacb KAPCB_RAT	-0,715487793	0,08283431	-8,6375773		0,00098796	0,00296388
O921T4	Stromal interaction molecule 1	Stim1Sim STIM1_RAT	-0,253052225	0,05286291	-4,7869518		0,00099916	0,00296864
063357	Leucine-rich glioma-inactivated protein 1	Lgil LGIL_RAT	0,392945554	0,09642488	4,07514696	15	0,00099518	0,00297317
091279	Kynurenine-oxoglutarate transaminase 3 (EC 2.6.1.7) (Cysteine-S-conjugate beta-lyase 2) (EC 4.4.1.13) (Kynurenine aminotransferase III) (KATIII) (Kynurenine-glyoxylate transaminase) (EC 2.6.1.63) (Kynurenine-oxoglutarate transaminase III)	Ceb12 Kat3 KAT3_RAT	0,323563242	0,07976359	4,05622792	15	0,00103351	0,0030813
P13852	Myelin-oligodendrocyte glycoprotein	Mog MOG_RAT	-0,255178328	0,07590162	-3,3619615	119	0,00104121	0,00309786
O9WTT6	FAS-associated factor 2 (UBX domain-containing protein 8)	Faf1 Ubxd8 FAF2_RAT	-0,312725244	0,09505433	-3,2899633	596	0,00106112	0,0031506
P13221	Ubiquitin carboxyl-terminal hydrolase 19 (EC 3.4.19.12) (Deubiquitinating enzyme 19) (Ubiquitin thioesterase 19) (Ubiquitin-specific-processing protease 19)	Usp19 UBP19_RAT	0,326009759	0,09915815	3,28777586	588	0,00107007	0,00316914
P09117	Charged multivesicular body protein 5 (Chromatin-modifying protein 5)	Chmp5 CHMP5_RAT	-0,634889225	0,17888316	-3,5491839	37	0,00107175	0,00316914
P68182	UBX domain-containing protein 4 (Erasin) (UBX domain-containing protein 2)	n4 Ubxd2 Ub, UBXN4_RAT	0,503842397	0,10735309	4,69331997		0,00113076	0,00333679
P84903	Cysteine sulfinic acid decarboxylase (EC 4.1.1.29) (Cysteine-sulfinylate decarboxylase) (Sulfinolalanine decarboxylase)	Csad Csd CSAD_RAT	0,488035881	0,1396826	3,49389185	42	0,00113577	0,00334472
O8K4Y5	Cullin-3	Cul3 CUL3_RAT	0,062964584	0,01087678	5,78889787		0,00116298	0,00341787
O58FK9	Acyl-protein thioesterase 2 (APT-2) (EC 3.1.2.-) (Lysophospholipase 2) (Lysophospholipase II) (LPL-II) (LysopLA II)	Lyp2a2 LYPA2_RAT	0,280782839	0,08295687	3,38468461	66	0,00120343	0,00352957
063345	Pre-B-cell leukemia transcription factor-interacting protein 1 (Hematopoietic PBX-interacting protein)	Pbxip1 Hpip PBIP1_RAT	-1,235425823	0,28681225	-4,3074374	11	0,00124044	0,00363073
O5BK32	Vacuolar protein sorting-associated protein 45 (rVps45)	Vps45 Vps45a VPS45_RAT	0,873794493	0,13360435	6,54016522		0,00125111	0,00365456
O6J1Y9	Hepatoma-derived growth factor (HDGF)	Hdgf HDGF_RAT	0,361630034	0,10662311	3,39166647	57	0,00126814	0,00369683
Q4QQV8	Microtubule-associated protein P/EBF family member 3 (EB1 protein family member 3) (EBF3) (End-binding protein 3) (EB3) (RP3)	Maprc3 MARE3_RAT	0,42860525	0,06576056	6,51766457		0,00127088	0,00369733
O5HZV0	Phosphoglycerate mutase 2 (EC 3.1.3.13) (EC 5.4.2.11) (EC 5.4.2.4) (BPG-dependent PGAM 2) (Muscle-specific phosphoglycerate mutase)	Pgam2 PGAM2_RAT	-0,301926838	0,08684321	-3,4766891	37	0,00131436	0,00381614
064611	{Phosphoglycerate mutase isozyme M} (PGAM-M)							
B5DF89	ADP-ribosylation factor 4	Arf4 ARF4_RAT	-0,338365799	0,1042116	-3,246911	158	0,0014247	0,0041282
O90YL8	Contactin-1 (Neural cell surface protein F3)	Cntn1 CNTN1_RAT	0,839179886	0,23831773	3,52126496	29	0,00144151	0,00416853
A2VD12	Prohibitin-2 (B-cell receptor-associated protein BAP37) (BAP-37)	Phb2 Bcap37 PHB2_RAT	-0,911149205	0,25711821	-3,5436977	27	0,00145963	0,0042054
008700	Calumenin (CBP-50) (Crocalbin)	Calu CALU_RAT	-0,320304399	0,09313601	-3,4391036	37	0,00146009	0,0042054
O8VHK7	Mitochondrial import receptor subunit TOM22 homolog (rTOM22) (Translocase of outer membrane 22 kDa subunit homolog)	Jmm22 Tom2TOM22_RAT	0,380726367	0,10598672	3,59220833	24	0,00146573	0,00421325
O5XIT1	Tubulin beta-3 chain (Neuron-specific class III beta-tubulin)	Tubb3 TBB3_RAT	0,20070516	0,06160822	3,25776591	113	0,00148321	0,00425102
P16290	Hematological and neurological expressed 1 protein [Cleaved into: Hematological and neurological expressed 1 protein, N-terminally processed]	Hal HNL_RAT	1,185575088	0,15274012	7,76204129		0,00148476	0,00425102
P61751	ADP-ribosylation factor-like protein 8B	Arl8b ARL8B_RAT	0,474271532	0,10573675	4,48539916		0,00152055	0,00434487
063198	Vesicular glutamate transporter 2 (VGLUT2) (Differentiation-associated BNPI) (Differentiation-associated Na(+)-dependent inorganic phosphate 17a Dnpi Vgl VGLU2_RAT cotransporter) (Solute carrier family 17 member 6)	17a6 Dnpi Vgl VGLU2_RAT	0,194266458	0,06088686	3,19061368	401	0,0015314	0,00436722
O5XIH7	Aminoacylase-1A (ACY-1A) (EC 3.5.1.14) (ACY-1A) (N-acyl-L-amino acid amidohydrolase)	Acyla Acyl ACY1A_RAT	0,619477587	0,18162383	3,41077257	38	0,00154912	0,00440904
035783	Galectin-3 (Gal-3) (35 kDa lectin) (Carbohydrate-binding protein 35) (CBP35) (Galactose-specific lectin 3) (IgE-binding protein) (Laminin-binding protein) (Lectin L-29) (Mac-2 antigen)	Lgals3 LEG3_RAT	-1,39606218	0,22411848	-6,2291256		0,00156009	0,00442281
O75041	Osteoclast-stimulating factor 1	Ostf1 OSTF1_RAT	0,49906346	0,09126045	5,46856218		0,00156001	0,00442281
O4ORB4	Histone H1.4 (H1d)	-listh1e H1fL H14_RAT	-0,477692013	0,14918828	-3,2019407	214	0,00157296	0,00445056
O6AXU6	D-dopachrome decarboxylase (EC 4.1.1.84) (D-dopachrome tautomerase)	Ddt DOPD_RAT	0,358917288	0,08842522	4,05899232	12	0,00158457	0,00447462
O66HA6	COP9 signalosome complex subunit 4 (SGN4) (Signalosome subunit 4) (JAB1-containing signalosome subunit 4)	Cops4 Csn4 CSN4_RAT	0,431176458	0,12426841	3,46971906	30	0,00160027	0,00451013
Peptidyl-prolyl-cis-trans isomerase FKBP4 (PPIase FKBP4) (EC 5.2.1.8) (52 kDa FK506-binding protein) (52 kDa FKBP) (FKBP-52) (59 kDa immunophilin) (p59) (FK506-binding protein 4) (FKBP-4) (FKBP59) (HSP-binding immunophilin) (HBI) (Immunophilin FKBP52) (Rotamase)	Fkbp4 Fkbp52 FKBP4_RAT		-0,571250419	0,16925811	-3,3750254	41	0,00162413	0,00456846
O9J112	[Cleaved into: Peptidyl-prolyl-cis-trans isomerase FKBP4, N-terminally processed]							
O6AY87	ATP synthase F(0) complex subunit B1, mitochondrial (ATP synthase subunit b) (ATPase subunit b)	Atp5f1 Atp5f AT5F1_RAT	-0,167986019	0,05176208	-3,2453492	92	0,00163648	0,00459424
P08699	Paraspeckle component 1	Pspcl1 PSPCL1_RAT	-0,345041955	0,10506841	-3,2839742	63	0,00167338	0,00467962
O6P686	Cytosolic acyl coenzyme A thioester hydrolase (EC 3.1.2.2) (ACH1) (ACT) (Acyl-CoA thioesterase 7) (Brain acyl-CoA hydrolase) (BACH) (CTE-IIa) (CTE-IIb) (CTE-11) (LAC-H1) (Long chain acyl-CoA thioester hydrolase) (MTE-II)	Acot7 Bach BACH_RAT	-0,785674967	0,23718796	-3,3124572	53	0,00167059	0,00467962
P15865	Ig kappa chain C region, B allele	KACB_RAT	0,36198605	0,09001805	4,02126084	12	0,00169561	0,00473263

	Ectonucleotide pyrophosphatase / phosphodiesterase family member 6 (E-NPP6) (NPP-6) (EC 3.1.4.-) (EC 3.1.4.38) (Choline-specific glycerophosphodiester phosphodiesterase) (Glycerophosphocholine cholinephosphodiesterase) [GPC-Cpde]	Enpp6	ENPP6_RAT	-0,212220911	0,08551932	-3,1831209	111	0,0011212	0,00479411
P80254	Protein phosphatase 1A (EC 3.1.3.16) (Protein phosphatase 2C isoform alpha) (PP2C-alpha) (Protein phosphatase 1A)	laPp2c1	PPM1A_RAT	-0,287202696	0,09050577	-3,1733082	216	0,00172668	0,00480077
Q68FS2	Fetuin-B {Fetuin-like protein IRL685}	Fetub	FETUB_RAT	0,520907753	0,13703896	3,80116532	15	0,00173908	0,00482595
Q9QVC8	Microtubule-associated protein RP/EB family member 2	Mapre2	MARE2_RAT	0,513249643	0,16044484	3,19891639	117	0,00177526	0,00490746
P19511	Cytochrome c, somatic	Cytc	CYC_RAT	0,349567463	0,10470701	3,33852985	42	0,00177302	0,00490746
Q4KLH4	Ke1b-like protein 22	Klhl22	KLH22_RAT	-0,825413318	0,13733004	-6,0104351		0,00183184	0,00504454
Q64559-1	60S ribosomal protein L3 {L4}	Rpl3	RL3_RAT	0,343085678	0,08623497	3,97849828	12	0,00183124	0,00504454
	tRNA <sup>tyr</sup> synthetase 4 (tRNA <sup>tyr</sup> -synthesizing protein 4) (EC 2.1.1.290) (EC 2.3.1.231) (Leucine carboxyl methyltransferase 2)								
	(tRNA(Phe) (7-(3-amino-3-(methoxycarbonyl)propyl)lysine(37)-N)-methoxycarbonyltransferase) (tRNA(Phe) (7-(3-amino-3-carboxypropyl)lysine(37)-0)-methyltransferase)	Lem2	Tyw4 TYW4_RAT	0,31373735	0,08433398	3,72017708	16	0,00186135	0,00511604
P01835	Vitamin D-binding protein (DBP) (VDB) (G-globulin) (Group-specific component)	GeDbp	VTDB_RAT	-0,482398182	0,15224426	-3,1685805	136	0,00189221	0,00518898
BOBND0	Serine/threonine-protein kinase 24 (EC 2.7.11.1) (Mammalian STE20-like protein kinase 3) (MST-3) (MST3b) (STE20-like kinase MST3) [Cleaved into: Serine/threonine-protein kinase 24 35 kDa subunit (Mammalian STE20-like protein kinase 3 N-terminal) (MST3/N); Serine/threonine-protein kinase 24 12 kDa subunit (Mammalian STE20-like protein kinase 3 (-terminal) (MST3/C))]	24Mst3	Stk24_RAT	0,391147042	0,12320435	3,17478262	123	0,00189507	0,00518898
P20650	Alpha-actinin-1 (Alpha-actinin cytoskeletal isoform) (F-actin cross-linking protein) (Non-muscle alpha-actinin-1)	Actn1	ACTN1_RAT	0,622118988	0,13709132	4,5379895		0,00190423	0,00520416
Q9QX79	Heterochromatin protein 1-binding protein 3	Hplbp3	HPIB3_RAT	0,309871937	0,0957872	3,23500358	62	0,00195251	0,00532604
Q3B8Q0	40S ribosomal protein SA (37 kDa laminin receptor precursor) (37 LR P) (37/67 kDa laminin receptor) (LRP/LR) (67 kDa laminin receptor) (67 LR) {Laminin receptor 1} (LamR) (Laminin-binding protein precursor p40)	Rpsa	Lamr1 RSSA_RAT	-0,547818285	0,17315517	-3,163742	119	0,00197729	0,00538344
P62898	(LBP/p40) Estradiol 17-beta-dehydrogenase 12 (EC 1.1.1.62) (17-beta-hydroxysteroid dehydrogenase 12) (17-beta-HSD 12) (3-ketoacyl-CoA reductase) (KAR) (EC 1.3.1.-)	Hsd17b12	DHB12_RAT	0,473197878	0,11043905	4,28469722		0,00203586	0,00552208
03ZC3	40S ribosomal protein 511	Rps11	RS11_RAT	-0,768026021	0,23135488	-3,319688	37	0,00203299	0,00552208
P21531	Obg-like ATPase 1	Dial	OLAI_RAT	0,691438825	0,20459287	3,37958414	28	0,00215286	0,00581755
Q5XIA3	Complexin-1 (Complexin I) (CPX I) (Synaphin-2)	Cplx1	CPLX1_RAT	0,630390437	0,13348518	4,72255002		0,00215114	0,00581755
P04276	Mannose-6-phosphate isomerase (EC 5.3.1.8) (Phosphohexomutase) {Phosphomannose isomerase} (PM I)	Mpi	MPI_RAT	-0,549044964	0,15933814	-3,4457849	23	0,0022	0,00593384
BOLT89	Catenin beta-1 (Beta-catenin)	Ctnnb1	Catnb CTNBL_RAT	0,517274817	0,14860535	3,48086259	21	0,00223075	0,00600555
Q9Z1P2	WO repeat-containing protein 1	Wdr1	WDRI_RAT	1,20233396	0,32687791	3,67823561	15	0,00223662	0,00601012
Q6P747	60S acidic ribosomal protein P1	Rplp1	RLAI_RAT	0,138931105	0,04413872	3,1476018	85	0,00227059	0,00609007
P38983	Dynein light chain 2, cytoplasmic {Dynein light chain LC8-type 2}	Dynl2	Dlc2 DYLL2_RAT	-0,543470245	0,07850245	-6,9229715		0,00228488	0,00611703
Q6P7R8	Latexin (Endogenous carboxypeptidase inhibitor) (EC1) (Tissue carboxypeptidase inhibitor) (TCI)	Utn	LXN_RAT	0,242250842	0,07534517	3,21521394	49	0,00230908	0,00617038
P62282	Protein quaking {Rqkl}	QkiQk	QKI_RAT	-0,365974488	0,11895822	-3,0764961	214	0,0023679	0,00631586
AOJP37									
	Neurexin-1 (Neuron-derived neurotrophic factor) (SCIR P10-related protein) (Spinal cord injury-related protein 10)	Neuf	Scirp10 NENF_RAT	0,470910538	0,15325757	3,07267394	208	0,00240534	0,0064039
P63041	Membrane-associated progesterone receptor component 1 (25-DX)	125dx	Lewi1 PGRC1_RAT	-0,578990911	0,16905557	-3,4248556	22	0,00242312	0,00643935
Q68FX1	(Acidic 25 kDa protein) {Ventral midline antigen} (VEMA)	Add2	ADDB_RAT	1,597452175	0,2833222	5,63828799		0,00243394	0,0064562
Q9WU82	Beta-adducin {Adducin-63} (Erythrocyte adducin subunit beta)	Syng1	SNGL_RAT	-0,228023057	0,07516144	-3,0337772	496	0,00254177	0,00671973
Q5RKIO	Synaptagyrin-1 (p29)	Oabl	Hsp84 f HS90B_RAT	-0,546927439	0,16821277	-3,2514026	35	0,0025426	0,00671973
P19944	Heat shock protein HSP 90-beta (Heat shock 84 kDa) (HSP84) (HSP84)	Capza1	CAZAL_RAT	0,399964735	0,12685854	3,15284046	58	0,00256003	0,00675341
Q78P75	F-actin-capping protein subunit alpha-1 (CapZ alpha-1)	Rpl19	RLI9_RAT	-0,465165298	0,15087462	-3,0831249	112	0,00257943	0,00679219
Q64361	60S ribosomal protein L19	Nap1l4	NP1L4_RAT	-0,209108117	0,06666183	-3,1368494	62	0,002612	0,00685986
Q91XU1	Nucleosome assembly protein 1-like 4	Oped	DPCD_RAT	0,331441686	0,09710089	3,41337446	21	0,00261464	0,00685986
Q61UR5									
	DnaJ homolog subfamily B member 6 (Heat shock protein J2) (HSJ-2) {Hsp40 homolog} {MRJ} {MSJ-1}	Dnajb6	DNJB6_RAT	-0,32650515	0,10322672	-3,1629906	48	0,00270767	0,00709105
P70580									
	Protein lin-7 homolog C (Lin-7C) (Mammalian lin-seven protein 3) (MALS-3) (Vertebrate lin-7 homolog 3) (Veli-3)	Lin7c	LIN7C_RAT	0,648490647	0,11852583	5,47130233		0,00277811	0,00726234
Q05764	Stress-70 protein, mitochondrial (75 kDa glucose-regulated protein) (GRP-75) (Heat shock 70 kDa protein 9) (Mortalin) (Peptide-binding protein 74) {BP74} {mtHSP70}	a9Grp75	Hsp GRP75_RAT	0,312851086	0,09854453	3,1747179	42	0,00280714	0,00732496
Q62876	Nucleobindin-1 (Bone 63 kDa calcium-binding protein) {CALNUC}	Nucb1	Nuc NUCB1_RAT	-0,173457097	0,0578719	-2,9972592	558	0,0028454	0,0074114
P34058	Uncharacterized protein C12orf43 homolog		CL043_RAT	-0,236488526	0,07740497	-3,055211	101	0,00287668	0,00747937
B2GUZ5	Prostaglandin reductase 2 (PRG-2) (EC 1.3.1.48) (15-oxoprostaglandin 13-reductase) (Zinc-binding alcohol dehydrogenase domain-containing protein 1)	Ptgr2	Zadhl PTGR2_RAT	0,694247739	0,21795193	3,185325	38	0,0028866	0,00749166
P84100	Secretogranin-3 {B1075} (Secretogranin III) (SgIII)	Seg3	SCG3_RAT	-0,337514874	0,11157602	-3,0249768	152	0,00292032	0,00756558
Q5U2Z3	Trafficking protein particle complex subunit 3	Trappc3	TPPC3_RAT	-0,623562733	0,17802776	-3,5026152	16	0,00294722	0,00762158
Q6AYM4	Beta-2-microglobulin	B2m	B2MG_RAT	0,973297826	0,27251969	3,57147711	14	0,0030673	0,0079179
Q6AYU3	Arginine-tRNA ligase, cytoplasmic (EC 6.1.1.19) (Arginyl-tRNA synthetase) {ARGRS}	Rars	SYRC_RAT	0,529741307	0,14360617	3,68884781	12	0,00309829	0,00798363
079210	0-alpha-aminooxidase (DAO) (DAMOXY) (DAO) (EC 1.4.3.3)	Dao	Daol OXDA_RAT	0,109592702	0,03694969	2,96599751	391	0,00320217	0,0082366
P48721	60S ribosomal protein L5	Rpl5	RLS_RAT	0,332305683	0,08054567	4,12568047		0,00331813	0,00851969
Q63083	Ubiquitin-like modifier-activating enzyme 5 (Ubiquitin-activating enzyme 5) (UFM1-activating enzyme) (Ubiquitin-activating enzyme E1 domain 1) {Jba5 Ubeldc: UBA5}_RAT			0,237968718	0,06528294	3,64518973	12	0,003356	0,00860161
Q51034	Clusterin {Dimeric acid glycoprotein} (DAG) (Sulfated glycoprotein 2) (SGP-2) (Testosterone repressed prostate message 2) (TRPM-2) [Cleaved into: Clusterin beta chain; Clusterin alpha chain]	Cl	CLUS_RAT	0,255219403	0,0742426	3,43764082	16	0,00338064	0,0086494
Q5BK81	GMP reductase 1 {EC 1.7.1.7} (Guanosine 5'-monophosphate oxidoreductase 1) (Guanosine monophosphate reductase 1)	Gmpr	Gmpr1 GMPRI_RAT	-1,654127491	0,48194562	-3,432187	16	0,00341978	0,00873407
P47868	Vesicle-associated membrane protein 3 (VAMP-3) (Cellubrevin) (CEB) {Synaptobrevin-3}	Vamp3	Syb3 VAMP3_RAT	0,197918302	0,06317588	3,13281418	36	0,00343311	0,00875262
Q5UIZ2	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 11 {Complex I-B1.4.7} (CI-B14.7) (NADH-ubiquinone oxidoreductase subunit B14.7)	Ndufa11	NDUAB_RAT	0,285434484	0,08129136	3,5112524	14	0,00345704	0,00879807
P07151	Ubiquitin thioesterase OTUB1 (EC 3.4.19.12) (Deubiquitinating enzyme OTUB1) (OTU domain-containing ubiquitin aldehyde-binding protein 1) (Otubain-1) (Ubiquitin-specific-processing protease OTUB1)	Otub1	OTUB1_RAT	-0,244419855	0,08224502	-2,9718499	128	0,00353703	0,00898579
P40329	Myosin-3 {Myosin heavy chain 3} (Myosin in heavy chain, fast skeletal muscle, embryonic)	Myh3	MYH3_RAT	-0,486952054	0,14399891	-3,3816372	17	0,00354591	0,00899252
035078	Potassium voltage-gated channel subfamily A member 2 (RAK) (RBK2) {RCK5} (Voltage-gated potassium channel subunit Kv1.2)	Kcna2	KCNA2_RAT	-0,743456025	0,23317251	-3,1884377	27	0,00360234	0,00911961
P09895	40S ribosomal protein S4, X isoform	Rps4x	Rps4 RS4X_RAT	-0,226915319	0,07452967	-3,0446309	52	0,00365097	0,00922654
Q5M7A4	Hsp70-binding protein 1 (HspBP1) (Heat shock protein-binding protein 1) {Hsp70-interacting protein 1}	spbp1	Hspb1 HPBP1_RAT	0,492852051	0,16528598	2,98181405	87	0,00371621	0,00937499
P05371									
	Prelamin A/C [Cleaved into: Lamin A/C]	Lmna	Lmnl LMNA_RAT	-0,65703855	0,22205575	-2,95889	119	0,00372602	0,00937973
Q9Z244		Asah1	ASAH1_RAT	0,174704644	0,05811774	3,00604669	65	0,00375877	0,00943288
		Tf	TRFE_RAT	-0,284558035	0,09738602	-2,9219599	259	0,00378541	0,00948324

P63025	Trans form ing protein RhoA	10a Arha Arh; RHQA_RAT	0,27540142	0,06459726 4,26336078	0,00373109 0,00937973
Q80W89	Acid cceramidase {AC} (ACDase) (Ac id CDase) (EC 3.5.1.23) (Acylsphingosine deacylase) (N-acylsphingosine amidohydrolase)				
B2RYG6	Serotransferrin (Transferrin) (Be t a-1 meta l- bi nd i ng globulin) (Liver regeneration -related protein LRRG03) (Sideroph ilin)				

P12847	NSFL1 cofactor p47 (XV body-associate protein XY40) (p97 cofactor p47)	Nsf1lc	NSF1C_RAT	0,241318255	0,0474294	5,08794639	0,00380875	0,00952517
P63142	Nucleoside diphosphate kinase A (NOKA) (NOPkinase A) (EC 2.7.4.6) (Metastasis inhibitory factor NM23) (Tumor metastatic process-associated protein)	Nimel	NDKA_RAT	0,28354422	0,08297535	3,41721043	15	0,00382045 0,00953791
P62703	NADH dehydrogenase [ubiquinone] 1 alpha subcomplex subunit 10, mitochondrial (Complex I-42kD) (CI-42kD) (NADH-ubiquinone oxidoreductase 42 kDa subunit)	Ndufa10	NDUAA_RAT	0,251325249	0,08577587	2,93002263	158	0,00389181 0,00969927
Q61M X7	Signal transducer and activator of transcription 3	Stat3	STAT3_RAT	-0,51495806	0,12191017	-4,2240781		0,00391676 0,00974462
P48679	Calcium-regulated heat stable protein 1 (Calcium-regulated heat-stable protein of 24 kDa) (CRHSP-24)	Carhsp1	CHSP1_RAT	0,389308305	0,07746942	5,02531564		0,00401685 0,00997645
P61589	Coronin-1A (Coronin-like protein A) (Clipin-A) (Tryptophan aspartate-containing coat protein) (TACO)	Coro1a	COR1A_RAT	0,475527829	0,1632369	2,91311484	162	0,00408407 0,01012596
Q6P751	40S ribosomal protein S23	Rps23	R523_RAT	0,236719435	0,06212071	3,8106361		0,00414907 0,01026949
P12346	ADP-ribosylation factor 1	Arf1	ARF1_RAT	0,493882451	0,17009798	2,90351742	148	0,00425531 0,0105144
	Aspartate aminotransferase, mitochondrial (mAspAT) (EC 2.6.1.1) (EC 2.6.1.7) (Fatty acid-binding protein) (FABP-1) (Glutamate oxaloacetate transaminase 2) (Kynurenine aminotransferase 4) (Kynurenine aminotransferase IV) (Kynurenine-oxoglutarate transaminase 4) (Kynurenine-oxoglutarate transaminase IV) (Plasma membrane-associated fatty acid-binding protein) (FABPpm) (Transaminase A)	Got2	MAATM_RAT	0,192883383	0,06692865	2,88192548	276	0,00426311 0,01051566
Q05987	T-complex protein 1 subunit alpha (TCP-1-alpha) (CCT-alpha)	Cct1	CCT1_RAT	-0,542240843	0,16346197	-3,3172294	16	0,00435819 0,01073185
Q05982	Alpha-2-macroglobulin receptor-associated protein (Alpha-2-MRAP) (Gp330-binding 45 kDa protein) (Low density lipoprotein receptor-related protein-associated protein 1) (RAP)	Lrpap1	AMRP_RAT	-0,424450367	0,14585384	-2,9101075	91	0,00454162 0,0111645
Q56150	Cotachman subunit gamma-1 (Gamma-1-coat protein) (Gamma-1-COP)	Copg1	COPG1_RAT	-0,460710929	0,15710624	-2,9324801	69	0,0045595 0,01118938
P52631	Retinal-binding protein 1 (Cellular retinal-binding protein) (CRBP) (Cellular retinal-binding protein I) (CRBP-I)	Rbp1	RBP1_RAT	-0,488980665	0,16279022	-3,0037472	40	0,004584 0,0112304
Q9WU49	Solute carrier family 2, facilitated glucose transporter member 3 (Glucose 2,3-glucose 1,3-GITR 3)	Rp15	R15_RAT	-0,281593781	0,09699581	-2,903154	92	0,00462401 0,01130924
Q912N1	40S ribosomal protein S15 (R1G protein)	Rps15	R15_RAT	0,426889238	0,14359764	2,97281504	46	0,00468363 0,01143565
P62268	Citrate lyase subunit beta-like protein, mitochondrial (Citrate lyase beta-like) (EC 4.1.1.1)	Clybl	CLYBL_RAT	-0,485790539	0,15836071	-3,0676203	28	0,00474882 0,01157524
P61212	V-type proton ATPase 16 kDa proteolipid subunit (V-ATPase 16 kDa proteolipid subunit) (Vacuolar proton pump 16 kDa proteolipid subunit) (V-ATPase 16 kDa proteolipid subunit)	Vat1f	VAT1F_RAT	0,190663089	0,06744019	2,82714339	402	0,0049312 0,01199953
P00507	Swi5-dependent recombination DNA repair protein 1 homolog (Liver regeneration-related protein LRRGT00030) (Meiosis protein 5 homolog)	Sfr1	SFR1_RAT	0,148810063	0,05273945	2,82160839	488	0,00497322 0,01206937
P28480								
Q99068	Coiled-coil domain-containing protein 134	Ccdc134	CC134_RAT	0,340056235	0,09208914	3,69268562		0,00497663 0,01206937
CON_007008	Dehydrogenase 5-carboxylate dehydrogenase, mitochondrial (P5C dehydrogenase) (EC 1.2.1.88) (Aldehyde dehydrogenase family 4 member A1) (L-glutamate gamma-semialdehyde dehydrogenase)	Aldh4a1	AL4A1_RAT	-0,720285244	0,24644674	-2,9226811	55	0,00502809 0,01217372
	Cytochrome b-c1 complex subunit 2, mitochondrial 1 (Complex III subunit 2) (Core protein II) (Ubiquinol-cytochrome c reductase complex core protein 2)	Uqcrc2	QCR2_RAT	-0,455695703	0,15389327	-2,9611153	41	0,00507861 0,01227542
Q4AEF8	Tropomyosin alpha-4 chain (Tropomyosin in-4) (TM-4)	Tpm4	TPM4_RAT	-0,567528977	0,10241831	-5,5412841		0,00518616 0,01251444
P02696	AP-2-associated protein kinase 1 (EC 2.7.11.1) (Adaptor-associated kinase 1)	Aak1	AAK1_RAT	-1,6854326	0,35694448	-4,7218341		0,00523406 0,01255605
Q07647	Eukaryotic translation initiation factor 2 subunit 3 (Eukaryotic translation initiation factor 2 subunit gamma) (eIF-2-gamma) (PP42)	Eif2s3	EIF2G_RAT	0,341680943	0,07993825	4,27431106		0,00523821 0,01255605
P62845	Guanine nucleotide-binding protein subunit beta-2-like 1 (Receptor-activated C kinase) (Receptor-activated protein kinase C1) (RACK1) (Cleaved into: Guanine nucleotide-binding protein subunit beta-2-like 1, N-terminally processed)	Gnb2l1	GBLP_RAT	-0,406695957	0,11441791	-3,5544781	10	0,0052291 0,01255605
Q510K3	Trifunctional enzyme subunit alpha 1, mitochondrial (TP-alpha 1) (Includes: Long-chain NADH-CoA hydratase (EC 4.2.1.17); long-chain 3-hydroxyacyl-CoA dehydrogenase (EC 1.1.1.211))	Hadha	ECHA_RAT	0,391995245	0,13047127	3,00445652	31	0,00522933 0,01255605
P63081	Carbonic anhydrase 1 (EC 4.2.1.1) (Carbonate dehydratase I) (Carbonic anhydrase I) (CA-I)	Cal	CA1_RAT	0,757282862	0,13759971	5,50352094		0,00531584 0,01272098
Q6TXG9	Nucleosome core protein 2	Nudcd2	NUDC2_RAT	-0,725273177	0,1991649	-3,6415713		0,0053877 0,0128716
Q5M862	40S ribosomal protein S27	Rps27	R527_RAT	-0,593511201	0,20454483	-2,9016191	49	0,00554752 0,01323153
POC2X9	FACT complex subunit SSRP1 (Facilitates chromatin transcription complex subunit SSRP1) (Recombines on signal sequence recognition protein 1) (Structure-specific recognition protein 1) (T160)	Ssrp1	CIIDBP_RAT	0,178611766	0,06353636	2,81117386	151	0,00559139 0,01331072
P32551	Cooper transport protein ATOX1 (ATX1 homolog protein Rahl) (Metalloprotein transport protein ATX1)	Atox1	RAHL_RAT	0,291230259	0,10231402	2,84643553	81	0,00559917 0,01331072
P09495	Regulating synaptic membrane exocytosis protein 3 (Nim3) (RIM3 gamma) (Ra-b-3-interacting molecule 3) (RIM3)	Rims3	NIM3_RAT	0,134423065	0,04848337	2,77256	384	0,00583272 0,01382038
POC1X8	COP9 signalosome complex subunit 3 (SGN3) (Signalosome subunit 3) (Neurochordin) (Neurochordin-related protein from the rat brain) (Norbin)	Cops3	CSN3_RAT	0,129278224	0,04586219	2,81884106	98	0,00583188 0,01382038
P63245	5-oxoprolinase (EC 3.5.2.9) (5-oxo-L-prolinease) (5-OPase) (Pyroglutaminase)	Ncdn	NCDN_RAT	0,383122461	0,1366075	2,80454934	110	0,00595867 0,01409568
Q64428	Serine/threonine-protein phosphatase 2A catalytic subunit alpha isoform (PP2A-alpha) (EC 3.1.3.16)	Oplah	OPLA_RAT	-0,244481042	0,08781693	-2,7839854	163	0,00600485 0,0141585
BOBNN3	Fatty acid-binding protein, heart (Fatty acid-binding protein 3) (Heart-type fatty acid-binding protein) (H-FABP)	Ppp2ca	PP2AA_RAT	0,247770687	0,0880163	2,8150546	89	0,00600385 0,0141585
Q5M823	COP9 signalosome complex subunit 8 (SGN8) (Signalosome subunit 8) (COP9 homolog) (JAB1-containing signalosome subunit 8)	Fabp3	FABPH_RAT	0,374678204	0,12763401	2,9355672	32	0,00611892 0,01440393
Q71TY3	CaM kinase-like vesicle-associated protein (1G5)	Cops8	CSN8_RAT	0,295037647	0,09642721	3,05969276	20	0,00618434 0,01453421
Q04931	Nucleosome core protein 2	Camk1g5	CAMKV_RAT	-0,205535207	0,06528349	-3,1483491	16	0,0062167 0,0145865
Q9WUC4	Secretogranin-2 (Chromogranin C) (Secretogranin II) (Sgl1) (Cleaved into: Secretoneurin (SN))	Nestn	NICA_RAT	-0,767926715	0,26338534	-2,9156016	34	0,006243 0,01462442
Q9JIR3	Serine/threonine-protein kinase PAK3 (EC 2.7.11.1) (Beta-PAK) (p21-activated kinase 3) (PAK-3) (p65-PAK)	eg2	CHGEG2_RAT	0,46666443	0,10395317	4,48917928		0,0064637 0,01511688
Q68FW9	Translation initiation factor eIF-2B subunit beta (eIF-2B-GDP-GTP exchange factor subunit beta)	Pak3	PAK3_RAT	-0,486010193	0,17401039	-2,7929953	78	0,00656672 0,01533298
Q35095	Complex C3 (Cleaved into: Complex C3 beta chain; Complex C3 alpha chain (ENCF-1) (Neutrophil chemotactic factor-I); Neutrophil chemotactic factor-2 (ENCF-2); C3a anaphylatoxin; Acylation stimulating protein (ASP) (C3ad esArg); Complement C3b alpha chain; Complement C3c alpha chain fragment I; Complex C3d fragment; Complement C3f fragment; Complement C3c alpha chain fragment 2)	Eif2b2	EIF2BB_RAT	-0,3042486	0,11141597	-2,7307451	326	0,00666284 0,01553227
P97608	Genetral vesicular transport factor p115 (Protein USOL homolog) (Transcytosis-associated protein) (TAP) (Vesicle-docking protein)	Usol	VDP_RAT	0,155236883	0,05008185	3,09966329	16	0,00688473 0,01599786
P63331	Calcium/calmodulin-dependent protein kinase type II subunit alpha (CaM kinase II subunit alpha) (CaMK-II subunit alpha) (EC 2.7.11.17)	Camk2a	KCC2A_RAT	0,48463028	0,17214146	2,81530247	51	0,00690993 0,0160306
P07483	Microtubule-associated protein RPB/EB family member 1 (APC-binding protein EBI) (End-binding protein 1) (EB1)	Mapre1	MARE1_RAT	-0,218131759	0,07883443	-2,7669606	83	0,00697412 0,01614136
Q6P429	Eukaryotic peptide chain release factor subunit 1 (Eukaryotic release factor 1) (eRF1)	Etfl	ERF1_RAT	0,197359769	0,07036016	2,80499332	54	0,00698005 0,01614136
Q63092	40S ribosomal protein S16	Rps16	RS16_RAT	-0,459586639	0,14393858	-3,1929357	13	0,007063 0,01630704
Q8CGU6	60S ribosomal protein S14	Rpl34	RL34_RAT	0,236022594	0,08698991	2,71321813	194	0,00726288 0,01674175
P10362								

Q62829	Fibroblast growth factor 1 (FGF-1) (Acidic fibroblast growth factor) (aFGF):gflfg 1 Fgfc FGF1_RAT (Heparin-binding growth factor 1) (HBGF-1)	-					
Q62818	Phenylalanine--tRNA ligase alpha subunit (EC 6.1.1.20) (Phenylalanyl-tRNA synthetase alpha subunit) (PheRS) 8-oxo-dGDP phosphatase NUDT18 (EC 3.6.1.58) (2-hydroxy-dADP	Farsa Farsla SYFA_RAT	0,174180566	0,06311761 2,75961901	74	0,00728959 0,01677651	
			0,264175693	0,09180621 2,8775361	30	0,00731596 0,0168104	
P01026	phosphatase) (7,8-dihydro-8-oxoguanine phosphatase) (Muff homolog Nudt18 Mth3 NUD18_RAT 3) (Nucleoside diphosphate-linked moiety X motif 18) (Nudix motif 18)		0,175050858	0,06494161 2,69551164	328	0,00739038 0,01695439	
P41542	Acylamino-acid-releasing enzyme (AARE) (EC 3.4.19.1) (Acyl-peptide hydrolase) (APH) (Acylaminoacyl-peptidase)	Apch ACPH_RAT	0,232506896	0,08610914 2,70014203	195	0,00754041 0,01726712	
P11275	Gastrin-releasing peptide (GRP) [Cleaved into: Neuropeptide Y (GRP-10)]	Gp GRP_RAT	-0,528784507	0,18901502 -2,7975793	45	0,00755062 0,01726712	
Q66HR2	ADP/ATP translocase 1 (ADP/ATP carrier protein 1) (Adenine nucleotide SLC25_4 Antl ADT1_RAT translocator 1) (ANT 1) (Solute carrier family 25 member 4)		0,218412696	0,07552985 2,89174013	26	0,00764196 0,01744834	
QSU2Q7	Ubiquitin-like co-nucleic acid synthetase (UBQL) (Autophagy-related protein 3) (APG3-like) (Preconditioning-inducible gene 1 protein) BAG family molecular chaperone regulator 5 (BAG-5) (Bcl-2-associated	Atg3 Apg3l ATG3_RAT	-0,911555643	0,28955028 -3,14817774	13	0,0076986 0,0175311	
P62250	athanogene 5)	Bags BAGS_RAT	0,21575346	0,07855658 2,74647208	68	0,00770251 0,0175311	
P11250	Small ubiquitin-related modifier 1 (SUMO-1)	Sumo1 SUMO1_RAT	0,177400305	0,05648197 3,14083062	13	0,00780826 0,01774382	
P61149	6-phosphogluconolactonase (6PGL) (EC 3.1.1.31)	Pgls 6PGL_RAT	-0,319174737	-0,319174737	38	0,00786641 0,01784785	
Q505J8	Zinc transporter 3 (ZnT-3) (Solute carrier family 30 member 3) Dynein light chain roadblock-type 1 (Bithoraxoid-like protein) (BLP)	Slc30a3 Znt3 ZNT3_RAT	-0,263921561	0,0960585 -2,7475087	57	0,0080252 0,01817953	
Q641Y7	(robl/LC7-like protein) (Dynein light chain 2A, cytoplasmic) (Dynein-associated protein Km23)	rbl Dnc12a Dr DLRL1_RAT	0,214016225	0,07039983 3,0400107		0,00827024 0,01870526	
P13676	Leucine carboxyl-terminal hydrolase isozyme L3 (UCH-L3) (EC 3.4.19.12) (Ubiquitin thioesterase L3)	Lcmt1 LCMT1_RAT	-0,219453208	0,08223553 -2,6685935	171	0,00835015 0,01885644	
P24393	cGMP-dependent 3',5'-cyclic phosphodiesterase (EC 3.1.4.17) (Cyclic GMP-stimulated phosphodiesterase) (CGS-PDE) (cGSPDE)	Pde2a PDE2A_RAT	-0,416761758	0,10799607 -3,8590457		0,00837157 0,01887527	
CON_007044	Isocitrate dehydrogenase [NAD+] subunit alpha, mitochondrial (EC 1.1.1.41) (Isocitric dehydrogenase subunit alpha) (NAD(+)-specific ICDH subunit alpha)	Idh3a IDH3A_RAT	0,167379699	0,0596434 2,80634082	32	0,00845841 0,01904132	
Q05962	Cytochrome b-c1 complex subunit 1, mitochondrial (Complex III subunit 1) (Core protein 1) (Ubiquinol-cytochrome-c reductase complex core protein 1)	Uqcrc1 QCRI_RAT	0,14330937	0,05340459 2,68346545	87	0,00872105 0,019602	
	ATP-sensitive inward rectifier potassium channel 10 (ATP-sensitive inward rectifier potassium channel KAB-2) (BIRIO) (Brain-specific inwardly rectifying K+) channel 1) (BIRK1) (Inward rectifier K+ channel Kir4.1) (Potassium channel, inwardly rectifying K subfamily J member 10)	Kcnj10Ka b-2 KCJ10_RAT	-0,555043561	0,20092238 -2,7624775	36	0,00897757 0,02014718	
Q6AZ50	Neurofibromin (Neurofibromatosis-related protein NF-1)	Nfl NFI_RAT	-0,17080815	0,06120394 -2,790803	30	0,00905434 0,0202879	
QSI0H3	Nucleolar protein 3 (Apoptosis repressor with CARD)	Nol3 Arc NOL3_RAT	0,450682765	0,14351318 3,14035804	11	0,0094024 0,02102974	
P85971	Sortilin [Glycoprotein 110] (Gp110) (Neurotensin receptor 3) (NTR3) NEDD8-activating enzyme E1 catalytic subunit (EC 6.3.2.-) (NEDD8-activating enzyme E1C) (Ubiquitin-activating enzyme E1C) (Ubiquitin-activating enzyme 3) (Ubiquitin-activating enzyme 3)	Sort1 SORT1_RAT	-0,195914265	0,0744833 -2,6303114	151	0,00941456 0,02102974	
Q6Q1X3	Acidic leucine-rich nuclear phosphoprotein 32 family member E	Anp32e AN32E_RAT	-0,319965258	0,12124918 -2,6389066	81	0,00997267 0,02220766	
Q6P4Z6	Endophilin-B2 (SH3 domain-containing GRB2-like protein B2) Mitogen-activated protein kinase 10 (MAP kinase 10) (MAPK 10) (EC 2.7.11.24) (SAPK-beta) (Stress-activated protein kinase JNK3) (c-Jun N-terminal kinase 3) (p54-beta)	Sh3glb2 SHLB2_RAT	-0,27095088	0,08589579 -3,1544141	10	0,01025571 0,02280276	
Q01062	Ubiquitin carboxyl-terminal hydrolase isozyme L3 (UCH-L3) (EC 3.4.19.12) (Ubiquitin thioesterase L3)	Uch13 UCHL3_RAT	0,284780425	0,14055733 2,58053018	172	0,01066975 0,02365544	
Q99NA5	Serine--tRNA ligase, cytoplasmic (EC 6.1.1.11) (Seryl-tRNA synthetase) (SerRS) [Seryl-tRNA (Ser/Sec) synthetase]	Sars Sarsl SYSC_RAT	-0,525409903	0,20002519 -2,6267187	59	0,01096739 0,02423574	
Q68FY0	60S ribosomal protein L7a	Rpl7a RL7A_RAT	0,339740071	0,12256834 2,77184202	22	0,01112346 0,02454305	
P49655	Interferon-inducible double-stranded RNA-dependent protein kinase activator A (Protein activator of the interferon-induced protein kinase) (Protein kinase, interferon-inducible double-stranded RNA-dependent activator)	Prkra PRKRA_RAT	-0,33335769	0,1280708 -2,6029171	70	0,01127559 0,02484072	
Q62881			-0,26936759	0,09803325 -2,7477166	23	0,01146376 0,02521679	
054861	Calcium-dependent secretion activator 1 (Calcium-dependent activator protein for secretion 1) (CAPS-1) (rCAPS)		-0,233410156	0,08864761 -2,6330114	45	0,01155739 0,02538405	
Q99M17	Methionine adenosyltransferase 2 subunit beta (Methionine adenosyltransferase II beta) (MAT II beta)	Mat2b MAT2B_RAT		0,08203601 -3,5703859		0,0117787 0,02575253	
QSXIE0	Nucleosome assembly protein 1-like 1 (NAP-1-related protein) Calcium/calmodulin-dependent protein kinase kinase 2 (CaM-KK 2) (CaM-kinase kinase 2) (CaMKK 2) (EC 2.7.11.17) (Calcium/calmodulin-dependent protein kinase kinase beta) (CaM-KK beta) (CaM-kinase kinase beta) (CaMKK beta)	Nap1l1 Nrp NP1L1_RAT	-0,292900215	0,08203601 -3,5703859		0,0117787 0,02575253	
QSPJP9	Rho-related GTP-binding protein RhoB	Rhob Arhb RHOB_RAT	-0,684229472	0,25745613 -2,6576546	35	0,01177802 0,02575253	
P49187	Histidine triad nucleotide-binding protein 3 (HINT-3) (EC 3.-.-.-) (HINT-4)	Hint3 Hint4 HINT3_RAT	0,307763374	0,11956233 2,57408316	83	0,01182665 0,02581823	
Q91Y78	Beta-enolase (EC 4.2.1.11) (2-phospho-D-glycerate hydro-lyase) (Enolase 3) (Muscle-specific enolase) (MSE) (Skeletal muscle enolase)	Eno3 ENO3_RAT	-0,345198235	0,13335887 -2,5884911	53	0,01241421 0,02705997	
P11232	Glycolipid transfer protein (GLTP)	GLTP GLTP_RAT	-0,203348076	0,08083987 -2,5154429	284	0,01244033 0,02707601	
Q6P799	3-mercaptopyruvate sulfurtransferase (MST) (EC 2.8.1.2)	Mpst THMT_RAT	-0,259825192	0,1005285 -2,5845923	52	0,01259554 0,02737254	
P62425	ZW10 interactor (SNAP25-interacting protein 30) (Scoilin) (ZW10-interacting protein 1) (Zwint-1)	Zwint Sip30 ZWINT_RAT	-0,897613472	0,33517545 -2,6780406	26	0,01266272 0,02747715	
Q4V8C7	60S ribosomal protein L14	Rpl14 RL14_RAT	-0,177864562	0,07130884 -2,4942848	530	0,01292463 0,02800336	
Q62717	WO repeat-containing protein 7 (TGF-beta resistance-associated protein TRAG)	Wdr7Trag WDR7_RAT	-0,437219229	0,16511992 -2,6478891	28	0,01315288 0,02845518	
QSU2R0		Tagln2 TAGL2_RAT	-0,540591655	0,20558511 -2,6295272	30	0,01335771 0,02881193	
Q922G8	Transgelin-2						
088831	Heat shock protein beta-1 (HspB1) (Heat shock 27 kDa protein) (HSP 27)	Hspb1 Hsp27 HSPB1_RAT	-0,502823592	0,19318161 -2,6028543	36	0,01334222 0,02881193	
CON_007131	Ribonuclease inhibitor (Ribonuclease/angiogenin inhibitor 1)	Rnhl Rnh RINI_RAT	-0,255755693	0,09975609 -2,5638103	49	0,01347134 0,02901366	
	Serine/threonine-protein phosphatase 2B catalytic subunit beta isoform (EC 3.1.3.16) (CAM-PRP catalytic subunit) (Calmodulin-dependent calcineurin A subunit beta isoform)	Ppp3cb PP2BB_RAT	-0,636084548	0,22737897 -2,7974643		0,01352876 0,02909389	
P62747							
Q8K3P7	Eukaryotic translation initiation factor 2 subunit 1 (Eukaryotic translation Initiation factor 2 subunit alpha) (eIF-2-alpha) (eIF-2A) (eIF-2alpha)	IF2A_RAT	0,568763771	0,21199007 2,68297369	22	0,01358743 0,02917658	
P15429	Cotaxone subunit beta' (Beta'-coat protein) (Beta'-COP) (p102)	Copb2 COPB2_RAT	0,576575253	0,19658647 2,93292069	11	0,01361909 0,02920111	
B0BNM9	Importin subunit beta-1 (Karyopherin subunit beta-1) (Nuclear factor p97) (Pore targeting complex 97 kDa subunit) (PTAC97) van Willebrand factor A domain-containing protein SA (Loss of	Kpnbl IMB1_RAT	-0,338285198	0,13455165 -2,5141661	82	0,01388699 0,02973135	
			-0,319863316	0,12732093 -2,5122603	79	0,01403333 0,03000015	
P97532	heterozygosity 11 chromosomal region 2 gene A protein homolog) (MastA Lohller2a WWASA_RAT cell surface antigen 1) (Masa-1)		0,263640754	0,10379756 2,53995146		0,01417603 0,03026037	
Q8VIL3	Alanyl-tRNA editing protein in Aarsdl (Alanyl-tRNA synthetase domain-containing protein 1)						
Q63507	Capza2 CAZA2_RAT	Capza2 CAZA2_RAT	0,864862305	0,10379756 2,53995146		0,01417603 0,03026037	
Q9ERH3	ATP5i ATP5I_RAT	Atp5i ATP5I_RAT	-1,420056822	0,49123821 -2,8907702		0,0146856 0,03124934	
	Gpd1 GPDA_RAT	Gpd1 GPDA_RAT	0,10336292 -2,4604757	172	0,01486317 0,03154053		
	Stx12 Stx13 STX12_RAT	Stx12 Stx13 STX12_RAT	0,158116902	0,06445312 2,45320802	193	0,01504654 0,03188276	
	Albg AIBG_RAT	Albg AIBG_RAT					

Alpha- 1B- glycoprotein (C44) (Liver regeneration- related protein 1) Sorbitol dehydrogenase (EC 1.1.1.14) (L- iditol 2- dehydrogenase)	Aarsdl	AASDI_RAT							
P68101		Protein prune homolog (EC 3.6.1.1)	Prune	PRUNE_RAT	-0,352736023	0,13814435	-2,5533873	35	0,01518226 0,03210206
035142		40S ribosomal protein S17	Rps17	RS17_RAT	0,179770028	0,0720853	2,49385139	64	0,01523113 0,03213235
P52296		Calycalin-binding protein (CacyBP)	Cacybp	CYBP_RAT	-0,154331477	0,06315505	-2,4436917	220	0,01532535 0,03228392



Q75WE7	Thiopurine 5-methyltransferase (EC 2.1.1.67) (Thiopurine methyltransferase)	Tpmt	TPMT_RAT	-0,595174846	0,18714726	-3,1802487	0,01548529	0,03257328
Q5XI97	Microtubule-associated protein 1A (MAP-1A) [Cleaved into: MAP1A heavy chain; MAP1 light chain LC2]	Map1a	Map1a_RAT	-0,170914154	0,06825659	-2,5039948	0,01558832	0,03274227
Q3TIK5	Cytochrome b-c1 complex subunit 6, mitochondrial (Complex III subunit 6) (Complex III subunit VIII) (Cytochrome c1 non-heme 11 kDa protein)	Uqcrc	QCR6_RAT	-0,295351525	0,12079166	-2,4451317	0,0156953	0,03291907
P29419	(Mitochondrial hinge protein) (Ubiquinol-cytochrome c reductase complex 11 kDa protein)							
	ADP-ribosylation factor 5	Arf5	ARF5_RAT	0,274074903	0,1051561	2,60636243	0,01578338	0,03305575
	Fatty acid synthase (EC 2.3.1.85) [Includes: [Acyl-carrier-protein] 5-acetyltransferase (EC 2.3.1.38); [Acyl-carrier-protein] 5-malonyltransferase (EC 2.3.1.39); 3-oxoacyl-[acyl-carrier-protein] synthase (EC 2.3.1.41); 3-oxoacyl-[acyl-carrier-protein] reductase (EC 1.1.1.100); 3-hydroxyacyl-[acyl-carrier-protein] dehydratase (EC 4.2.1.59); Enoyl-[acyl-carrier-protein] reductase (EC 1.3.1.39); Oleoyl-[acyl-carrier-protein] hydrolase (EC 3.1.2.14)]	Fasn	FAS_RAT	-0,195253979	0,08053797	-2,4243717	0,01581854	0,03308137
035077	Renin receptor (ATPase H(+)-transporting lysosomal accessory protein 2) (ATPase H(+)-transporting lysosomal malin interacting protein 2) (Renin/prorenin receptor)	tp6ap2	Atp6i RENR_RAT	-0,530510726	0,21202148	-2,5021556	0,0158816	0,03311812
G3V7PI	Serine/threonine-protein phosphatase CPPEDI (EC 3.1.3.16) (Calcineurin-dependent Cstpl CPPED RAT)							
CON_150456	like phosphoesterase domain-containing protein 1			0,313231747	0,11615777	2,69660599	0,01588201	0,03311812
Q9EPH1	Very long-chain specific acyl-CoA dehydrogenase, mitochondrial (VLCAD) Acadv1 Vlcad ACADV RAT			0,455616375	0,15414941	2,95568036	0,0160719	0,03346574
P27867	Aldehyde dehydrogenase X, mitochondrial (EC 1.2.1.3) (Aldehyde dehydrogenase family 1 member B1)	Idh1b1	Aldh1 ALIB1_RAT	-0,140878861	0,05743739	-2,4527379	0,01615045	0,03358083
	Peptidyl-prolyl cis-trans isomerase A (PPIase A) (EC 5.2.1.8) (Cyclophilin A) (Cyclosporin A-binding protein) (Rotamase A) (p1B15) (p31) [Cleaved into: Peptidyl-prolyl cis-trans isomerase A, N-terminal; processed]	Ppia	PPIA_RAT	-1,026549251	0,41426067	-2,4780273	0,01643122	0,03411547
Q6AYG3	Ig gamma-2A chain C region	Igg2a	IGG2A_RAT	0,191437003	0,07665152	2,49749783	0,01661383	0,03444504
P04644	Tropomodulin-1 (Erythrocyte tropomodulin) (E-Tmod)	Tmod1	TmodTMOD1_RAT	0,138353678	0,05707646	2,42400596	0,01680543	0,03479231
Q6AYK6	Protein NDRG3 (N-myc downstream-regulated gene 3 protein)	Ndr3	Ndr3 NDRG3_RAT	-0,451226958	0,14506339	-3,1105503	0,01706805	0,03528538
Q9ZOTO	Potassium/sodium hyperpolarization-activated cyclic nucleotide-gated channel 2	Hcn2	HCN2_RAT	-0,097981231	0,04105224	-2,3867448	0,0171042	0,03530954
P34926	Band 4.1-like protein 1 (Neuronal protein 4.1) (4.1 N)	ib411	Epb4.1 E41L1_RAT	0,138133642	0,0517206	2,67076641	0,01745141	0,03597483
Q5M915	60S ribosomal protein L12	Rpl12	RL12_RAT	-0,212628132	0,07128544	-2,982771	0,01752615	0,03607737
P84083	Up-regulated during skeletal muscle growth protein 5 (Diabetes-associated protein in insulin-sensitive tissues)	Usmg5	Dapit USMG5_RAT	0,113316534	0,04792312	2,36454818	0,01823462	0,03748227
P12785	Profilin-2 (Profilin II)	Pfn2	PROF2_RAT	0,177458663	0,06660104	2,66450287	0,01849759	0,03796875
Q6AXS4	Tumor susceptibility gene 101 protein (ESCRT-I complex subunit TSG101)	Tsg101	TSIO1_RAT	-0,213067076	0,08648909	-2,4635138	0,01881854	0,03857265
Q66H71	ATP-binding cassette sub-family D member 3 (70 kDa peroxisomal membrane protein) (PMP70)	d3 Pmp70	Pxr ABCD3_RAT	-0,290351927	0,12050819	-2,4093957	0,01906418	0,03902072
P45953	Glycerophosphodiester phospholipase domain-containing protein 1 (EC 3.1.-.-)	Gdpd1	GDPD1_RAT	0,272301013	0,11302796	2,4091473	0,01936544	0,0395812
Q66HF8	Tubulin beta-4B chain (Tubulin beta-2C chain)	ubb4b	Tubb2 TBB4B_RAT	0,291264439	0,12418557	2,34539676	0,01960413	0,03995588
P10III	Prenylcysteine oxidase (EC 1.8.3.5) (Cholesterol pump-associated 55 kDa protein)	Pcyox1	Clp55 PCYOX_RAT	-0,253191612	0,09275805	-2,7295918	0,01959263	0,03995588
P20760	Ras-related protein Rab-18	Rab18	RAB18_RAT	0,544184155	0,18772899	2,8987753	0,0199291	0,04053139
P70567	Neuronal cell adhesion molecule (Nr-CAM) (Ankyrin-binding cell adhesion molecule NrCAM) (Neuronal surface protein Bravo) (rBravo) (NgCAM-related cell adhesion molecule) (Ng-CAM-related)	Nrcam	NRCAM_RAT	0,130241536	0,05455853	2,38718905	0,01994268	0,04053139
Q6AYR2	Ubiquitin-associated protein 1 (UBAP-1)	Ubap1	UBAP1_RAT	-0,322830367	0,12180823	-2,6503165	0,01999971	0,04059013
Q9JKA9	Syntaxin-binding protein 1 (N-Sec1) (Protein unc-18 homolog 1) (Unc18-1) (Protein unc-18 homolog A) (Unc-18A) (p67) (rbSec1)	stxbp1	Unc18-1 STXBI_RAT	-0,405088514	0,1707883	-2,3718751	0,02007062	0,04061978
Q9WTP0-2	Tubulin beta-2B chain (T beta-15)	ubb2b	Tubb2 TBB2B_RAT	0,202777398	0,08608114	2,3556541	0,02004618	0,04061978
P23358	Eukaryotic translation initiation factor 3 subunit A (eIF3a) (Eukaryotic translation initiation factor 3 subunit 10) (eIF-3-theta)	Eif3a	Eif3s10 EIF3A_RAT	0,226262266	0,09448745	2,3946278	0,02013728	0,04066643
CON_007041	Tumor protein 054 (Tumor protein 052-like 2)	Tpd5212	TPD54_RAT	-0,333024088	0,10616731	-3,1367856	0,02015003	0,04066643
Q9JJW3	Serine/threonine-protein phosphatase 2A 55 kDa regulatory subunit B alpha isoform (PP2A subunit B isoform B55-alpha) (PP2A subunit B isoform BRA) (PP2A subunit B isoform PR55-alpha) (PP2A subunit B isoform R2-alpha) (PP2A subunit B isoform alpha)	Ppp2r2a	2ABA_RAT	-0,465369333	0,19741279	-2,3573414	0,02022446	0,04075964
Q9EPC6	40S ribosomal protein 512	Rps12	RS12_RAT	-0,291389598	0,07825379	-3,7236484	0,0204095	0,04107518
Q6IRE4	Myelin basic protein (MBP)	Mbp	MBP_RAT	-0,547870555	0,21514627	-2,5465027	0,02155511	0,04332036
P16970	Isochorismatase domain-containing protein 1 (Down-regulated in nephrectomized rat kidney protein 1) (DR-NR1)	Isoc1	ISOC1_RAT	-0,178275262	0,05440289	-3,2769445	0,02202877	0,04414932
QOVGK4				-0,395887535	0,17007311	-2,3277491	0,02202552	0,04414932
Q6P9T8				-0,243750764	0,10347303	-2,3556937	0,02229419	0,0446193
Q99ML5				-0,19616684	0,0840023	-2,3352556	0,02267754	0,04532367
Q5EB77				0,22432532	0,08765851	2,55908201	0,02271365	0,04533305
P97686-3				0,30306513	0,08418058	3,60017881	0,02275452	0,04535189
Q5XIS7				-0,497404945	0,21385536	-2,3258942	0,02310613	0,04598917
P61765-2				0,192801638	0,07690648	2,50696231	0,02334481	0,04640023
Q3KRE8				-0,414841694	0,17827435	-2,3269847	0,0236078	0,04685839
Q1JU68				-0,272301233	0,11929886	-2,2825133	0,0238647	0,04730324
Q6PCT3				-0,210861846	0,08931768	-2,3608074	0,02449309	0,0484822
P36876				0,177700879	0,07797156	2,2790473	0,02457669	0,04858104
P63324				0,843074733	0,30535253	2,76098824	0,02463714	0,04863392
P02688-5				-0,334387421	0,1458994	-2,291904	0,02496726	0,04921825
Q6IR3								

**Supplementary Table S3: Signatures for GRP78-promoted neuroprotection**

Entry	Protein names	Gene names	Entry name
A8WCF8 BOBNFI	Tumor protein p63-regulated gene 1-like protein (Mossy fiber terminal-associated vertebrate-specific presynaptic protein)	Tprgll Mover	TPRGL_RAT
	Septin-8	Sept8	SEPT8_RAT
BOK020	CDGSH iron-sulfur domain-containing protein 1 (MitoNEET)	Cisd1	CISDI_RAT
B1H267	Sorting nexin-5	Snx5	SNX5_RAT
B2RYG6	Ubiquitin thioesterase OTUB1 (EC 3.4.19.12)	Otubl	OTUB1_RAT
	(Deubiquitinating enzyme OTUB1) (OTU domain-containing ubiquitin aldehyde-binding protein 1) (Otubain-1) (Ubiquitin-specific-processing protease OTUB1)		
B2RYW9	Fumarylacetoacetate hydrolase domain-containing protein 2 (EC 3.-.-.-)	Fahd2 Fahd2a	FAHD2_RAT
B4F7AI	Complex III assembly factor LYRM7 (LYR motif-containing protein 7)	Lyrm7 MZMIL	LYRM7_RAT
D3ZVR7	Prostamide/prostaglandin F synthase (Prostamide/PG F synthase) (Prostamide/PGF synthase) (EC 1.11.1.20)	Fam213b	PGFS_RAT
F1M386 008730	Rap guanine nucleotide exchange factor 2 (Cyclic nucleotide ras GEF) (CNrasGEF) (Neural RAP guanine nucleotide exchange protein) (nRap GEP) (PDZ domain-containing guanine nucleotide exchange factor 1) (PDZ-GEF1) (RA-GEF-1) (Ras/Rapl-associating GEF-1)	Rapgef2 Pdzgef1	RPGF2_RAT
	Glycogenin-1 (GN-1) (GNI) (EC 2.4.1.186)	Gygl Gyg	GLYG_RAT
035112	CD166 antigen (Activated leukocyte cell adhesion molecule) (HB2) (KG-CAM) (Protein MEMO) (SB-10 antigen) (CD antigen CD166)	Alcam	CD166_RAT
	Stress-induced-phosphoprotein 1 (STII) (Hsc70/Hsp90-organizing protein) (Hop)		STIPI_RAT
035814	DnaJ homolog subfamily A member 2 (RDJ2)	Stipl Hop	DNJA2_RAT
035824	Branched-chain-amino-acid aminotransferase, mitochondrial (BCAT(m)) (EC 2.6.1.42)	Dnaja2	BCAT2_RAT
035854	Endophilin-A2 (Endophilin-2) (SH3 domain protein 2B) (SH3 domain-containing GRB2-like protein 1) (SH3p8)	Bcat2 Bcatm Eca40	SH3GI_RAT
035964	3-hydroxyacyl-CoA dehydrogenase type-2 (EC 1.1.1.35) (17-beta-hydroxysteroid dehydrogenase 10) (17-beta-HSD 10) (EC 1.1.1.51) (3-hydroxy-2-methylbutyryl-CoA dehydrogenase) (EC 1.1.1.178) (3-hydroxyacyl-CoA dehydrogenase type II) (Endoplasmic reticulum-associated amyloid beta-peptide-binding protein) (Mitochondrial ribonuclease P protein 2) (Mitochondrial RNase P protein 2) (Type II HADH)	Sh3gll Sh3p8	HCD2_RAT
070351	Galectin-3-binding protein (Cyp-C-associated protein) (CyCAP) (Lectin galactoside-binding soluble 3-binding protein) (Mac-2-binding protein) (MAC2BP) (Mac-2 BP) (Protein 90K)	Hsd17b10 Erab Hadh2	LG3BP_RAT
070513	Acyl-coenzyme A thioesterase 1 (Acyl-CoA thioesterase 1) (EC 3.1.2.2) (CTE-I) (Inducible cytosolic acyl-coenzyme A thioester hydrolase) (LACH2) (ACH2) (Long chain acyl-CoA thioester hydrolase) (Long chain acyl-CoA hydrolase)	Lgals3bp	ACOTI_RAT
088267	Tyrosine-protein phosphatase non-receptor type 23 (EC 3.1.3.48) (His domain-containing protein tyrosine phosphatase) (HD-PTP) (Protein tyrosine phosphatase TD14) (PTP-TD14) (Fragment)	Acotl Ctel	PTN23_RAT
088902	Cytochrome c oxidase subunit 2 (Cytochrome c oxidase polypeptide II)	Ptpn23	COX2_RAT
P00406	T-kininogen 1 (Alpha-1-MAP) (Major acute phase protein) (T-kininogen I) (Thiostatin) [Cleaved into : T-kininogen 1 heavy chain (T-kininogen I heavy chain); T-kinin; T-kininogen 1 light chain (T-kininogen I light chain)]	Mtco2 Coii mt-Co2	KNTI_RAT
P01048	Ferritin light chain 1 (Ferritin L subunit 1)	Mapl	FRILI_RAT
P02793	L-lactate dehydrogenase A chain (LDH-A) (EC 1.1.1.27) (LOH muscle subunit) (LDH-M)	Ftl Ftl	LDHA_RAT
P04642	Tropomyosin alpha-1 chain (Alpha-tropomyosin) (Tropomyosin-1)	Ldha Ldh-1 Ldhl	TPMI_RAT
P04692	Glutathione S-transferase P (EC 2.5.1.18) (Chain 7) (GST 7-7) (GST class-pi)	Tpml Alpha-tm Tpma	GSTPI_RAT
P04906	60S ribosomal protein L7	Gstpl	RL7_RAT
P05426	Protein kinase C alpha type (PKC-A) (PKC-alpha) (EC 2.7.11.13)	Rpl7	KPCA_RAT
P05696	Alpha-2-macroglobulin (Alpha-2-M)	Prkca Pkca	A2MG_RAT
P06238		A2m A2ml	

	Sodium/potassium-transporting ATPase subunit alpha-2 (Na(+)/K(+) ATPase alpha-2 subunit) (EC 3.6.3.9) (Na(+)/K(+) ATPase alpha(+) subunit) (Sodium pump subunit alpha-2)		AT1A2_RAT
P06686	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit 1 (EC 2.4.99.18) (Dolichyl-diphosphooligosaccharide--protein glycosyltransferase 67 kDa subunit) (Ribophorin I) (RPN-1) (Ribophorin-1)	Atp1a2	RPN1_RAT
P07153	Sodium/potassium-transporting ATPase subunit beta-1 (Sodium/potassium-dependent ATPase subunit beta-1)	Rpnl	AT1B1_RAT
P07340	Superoxide dismutase [Mn], mitochondrial (EC 1.1.5.1.1)	Atp1b1	SODM_RAT
P07895	Glutathione 5-transferase Yb-3 (EC 2.5.1.18) (Chain 4) (GST Yb3) (GST class-mu 3)	Sod2	GSTM4_RAT
P08009	Microsomal glutathione 5-transferase 1 (Microsomal GST-1) (EC 2.5.1.18) (Microsomal GST-1)	Gstm3	MGST1_RAT
P08011	Clathrin light chain A (Lea)	Mgstl Gst12	
P08081-2	Clathrin light chain B (Lcb)	Clta	CLCA_RAT
P08082	T-kininogen 2 (Alpha-1-MAP) (Major acute phase protein) (T-kininogen II) (Thiostatin) [Cleaved into: T-kininogen 2 heavy chain (T-kininogen II heavy chain); T-kinin; T-kininogen 2 light chain (T-kininogen II light chain)]	Cltb	CLCB_RAT
P08932	1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase gamma-1 (EC 3.1.4.11) (Phosphoinositide phospholipase C-gamma-1) (Phospholipase C-gamma-1) (PLC-gamma-1)		KNT2_RAT
P10686	Glutamate dehydrogenase 1, mitochondrial (GDH 1) (EC 1.4.1.3) (Memory-related gene 2 protein) (MRG-2)	Plcgl	PLCG1_RAT
P10860	Cytochrome c oxidase subunit 4 isoform 1, mitochondrial (Cytochrome c oxidase polypeptide IV) (Cytochrome c oxidase subunit IV isoform 1) (COX IV-1)	Gludl Glud	DHE3_RAT
P10888	ATP synthase protein 8 (A6L) (Chargerin II) (F-ATPase subunit 8)	Cox4i1 Cox4 Cox4a	COX41_RAT
P11608	Pyruvate kinase PKM (EC 2.7.1.40) (Pyruvate kinase muscle isozyme)	Mt-atp8 Atp8 Atpase8 Mtap8	ATP8_RAT
P11980-2	605 ribosomal protein L18		KPYM_RAT
P12001	Isovaleryl-CoA dehydrogenase, mitochondrial (IVD) (EC 1.3.8.4)	Pkm Pkm2 Pykm	
P12007	2',3'-cyclic-nucleotide 3'-phosphodiesterase (CNP) (CNPase) (EC 3.1.4.37)	Rpl18	RL18_RAT
P13233	Nucleolin (Protein C23)	Ivd	IVD_RAT
P13383	Sodium/potassium-transporting ATPase subunit beta-2 (Sodium/potassium-dependent ATPase subunit beta-2)	Cnp Cnpl	CN37_RAT
P13638	Enoyl-CoA hydratase, mitochondrial (EC 4.2.1.17) (Enoyl-CoA hydratase 1) (Short-chain enoyl-CoA hydratase) (SCEH)	Ncl Nuc	NUCL_RAT
P14604	Cystatin-C (Cystatin-3)	Atp1b2	AT1B2_RAT
P14841	Steryl-sulfatase (EC 3.1.6.2) (Arylsulfatase C) (ASC) (Steroid sulfatase) (Steryl-sulfate sulfohydrolase)		ECHM_RAT
P15589	Long-chain specific acyl-CoA dehydrogenase, mitochondrial (LCAD) (EC 1.3.8.8)	Echsl	
P15650	ATP synthase subunit alpha, mitochondrial	Cst3	CYTC_RAT
P15999	Phosphate carrier protein, mitochondrial (Phosphate transport protein) (PTP) (Solute carrier family 25 member 3)	Sts	STS_RAT
P16036	405 ribosomal protein 519	Acadl	ACADL_RAT
P17074	605 ribosomal protein L9	Atp5a1	ATPA_RAT
P17077	Alpha-1-antitrypsin (Alpha-1-antitrypsin) (Alpha-1-proteinase inhibitor) (Serpina1)	Slc25a3 Phc	MPCP_RAT
P17475	Glutamate decarboxylase 1 (EC 4.1.1.15) (67 kDa glutamic acid decarboxylase) (GAD-67) (Glutamate decarboxylase 67 kDa isoform)	Rps19	RS19_RAT
P18088	NADH dehydrogenase [ubiquinone] flavoprotein 2, mitochondrial (EC 1.6.5.3) (EC 1.6.99.3) (NADH-ubiquinone oxidoreductase 24 kDa subunit)	Rpl9	RL9_RAT
P19234	Neurofilament light polypeptide (NF-L) (68 kDa neurofilament protein) (Neurofilament triplet L protein)	Serpinal	A1AT_RAT
P19527	605 acidic ribosomal protein PO (60S ribosomal protein L10E)	Gadl Gad67	DCE1_RAT
P19945	Neurosecretory protein VGF (VGF8a protein) [Cleaved into : VGF(24-63); VGF(180-194) ; VGF(375-407); Neuroendocrine regulatory peptide-1 (N ERP-1); Neuroendocrine regulatory peptide-2 (N ERP-2); TLQP-11; TLQP-21; TLQP-30; TLQP-62; HFHH-10; AQEE-30; LQEQ-19]	Ndufv2	NDUV2_RAT
P20156		Nefl Nf68 Nfl	NFL_RAT
		Rplp0 Arbp	RLA0_RAT
		Vgf	VGf_RAT

	Cytochrome b-cl complex subunit Rieske, mitochondrial (EC 1.10 .2.2) (Complex III subunit 5) (Cytochrome b-cl complex subunit 5) (Liver regeneration-related protein LRRGT00195) (Rieske iron-sulfur protein) (RISP) (Ubiquinol-cytochrome c reductase iron-sulfur subunit) [Cleaved into : Cytochrome b-cl complex subunit 11 (Complex III subunit IX) (Ubiquinol-cytochrome c reductase 8 kDa protein)]		UCRI_RAT
P20788	Amine oxidase [flavin-containing] <b>A</b> (EC 1.4.3.4)	Uqcrfsl	
P21396	(Monoamine oxidase type A) (MAO-A)	Maoa	AOFA_RAT
P21707	Synaptotagmin-1 (Synaptotagmin I) (Sytl) (p65)	Sytl	SYTI_RAT
	Cathepsin D (EC 3.4.23.5) [Cleaved into: Cathepsin D 12 kDa light chain; Cathepsin D 9 kDa light chain ; Cathepsin D 34 kDa heavy chain ; Cathepsin D 30 kDa heavy chain]		CATD_RAT
P24268	Glutathione S-transferase kappa 1 (EC 2.5.1.18) (GST 13-13) (GST class-kappa) (GSTKl-1) (rGSTKl) (Glutathione S-transferase subunit 13)	Ctsd	GSTKI_RAT
P24473	Creatine kinase U-type , mitochondrial (EC 2.7.3.2) (Acidic-type mitochondrial creatine kinase) (Mia-CK) (Ubiquitous mitochondrial creatine kinase) (U-MtCK)	Gstk1	KCRU_RAT
P25809	C-1-tetrahydrofolate synthase, cytoplasmic (Cl-THF synthase) [Cleaved into: C-1-tetrahydrofolate synthase , cytoplasmic, N-terminally processed] [Includes : Methylenetetrahydrofolate dehydrogenase (EC 1.5.1.5); Methenyltetrahydrofolate cyclohydrolase (EC 3.5.4.9); Formyltetrahydrofolate synthetase (EC 6.3.4.3)]	Ckmtl Ckmt	CITC_RAT
P27653	Neuroendocrine protein 7B2 (Secretogranin V) (Secretogranin-5) (Secretory granule endocrine protein I) [Cleaved into : N-terminal peptide; (-terminal peptide]	Mthfdl Mthfd	7B2_RAT
P27682	Sorbitol dehydrogenase (EC 1.1.1.14) (L-iditol 2-dehydrogenase)	ScgS Sgnel	DHSO_RAT
P27867	Proteasome subunit beta type-8 (EC 3.4.25.1) (Macropain subunit C13) (Multicatalytic endopeptidase complex subunit C13) (Proteasome component C13) (Proteasome subunit beta-Si)	Sord Sdhl	PSB8_RAT
P28064	40S ribosomal protein S9	Psmb8	RS9_RAT
P29314		Rps9	DLG4_RAT
	Disks large homolog 4 (Postsynaptic density protein 95) (PSD-95) (Synapse-associated protein 90) (SAP-90) (SAP90)		
P31016		Dlg4 Dlgh4 Psd95	
P31721	Complement Clq subcomponent subunit B	Clqb	CIQB_RAT
	Cytochrome c oxidase subunit 7A2, mitochondrial (Cytochrome c oxidase subunit VIIa-iiiver/heart)		CX7A2_RAT
P35171	(Cytochrome c oxidase subunit VIIa-L)	Co x7a2 Cox7a3 Cox7al	
P35427	60S ribosomal protein L13a	Rpl13a	RL13A_RAT
	ATP synthase subunit gamma, mitochondrial (F-ATPase gamma subunit)		ATPG_RAT
P35435	Calnexin	AtpScl AtpSc	
P35565	Proteasome subunit beta type-2 (EC 3.4.25.1) (Macropain subunit C7-I) (Multicatalytic endopeptidase complex subunit C7-I) (Proteasome component C7-I)	Can x	CALX_RAT
P40307	60S ribosomal protein L13		PSB2_RAT
P41123	Isocitrate dehydrogenase [ <b>NAD</b> ] subunit gamma 1, mitochondrial (EC 1.1.1.41) (Isocitri c dehydrogenase subunit gamma) (NAD(+)-specific ICDH subunit gamma)	Psmb2	RL13_RAT
P41565	Matrin-3 (Nuclear scaffold protein p130/MAT3)	Rpl13	IDHGI_RAT
P43244	Cysteine and glycine-rich protein 1 (Cysteine-rich protein 1) (CRP) (CRP1)	ldh3g	
P47875	Triosephosphate isomerase (TIM) (EC 5.3.1.1) (Triose-phosphate isomerase)	Matr3	MATR3_RAT
P48500	Glutamate--cysteine ligase regulatory subunit (GCS light chain) (Gamma-ECS regulatory subunit) (Gamma-glutamylcysteine synthetase regulatory subunit) (Glutamate--cysteine ligase modifier subunit)	Csrpl Csrp	CSRPI_RAT
	Hsc70-interacting protein (Hip) (Protein FAM10A1) (Protein ST13 homolog)		TPIS_RAT
P50503	Ras GTPase-activating protein 1 (GAP) (GTPase-activating protein) (RasGAP) (Ras p21 protein activator) (p120GAP)	Tpil	GSH0_RAT
P50904	Pyruvate carboxylase, mitochondrial (EC 6.4.1.1) (Pyruvic carboxylase) (PCB)	Gclm Gclcr	F10A1_RAT
P52873	Branched-chain-amino-acid aminotransferase , cytosolic (BCAT(c)) (EC 2.6.1.42)	St13 Fam10a1 Hip	RASAI_RAT
P54690		Rasal Rasa	PYC_RAT
	Alpha-soluble NSF attachment protein (SNAP-alpha) (N-ethylmaleimide-sensitive factor attachment protein alpha)	Pc	BCATI_RAT
P54921		Bcatl	<b>SNAA_RAT</b>
		Napa Snap Snapa	

	Fatty acid-binding protein, brain (Brain lipid-binding protein) (BLBP) (Brain-type fatty acid-binding protein) (B-FABP) (Fatty acid-binding protein 7)	Fabp7 Blbp	FABP7_RAT
P55051	Neurocan core protein (245 kDa early postnatal core glycoprotein) (Chondroitin sulfate proteoglycan 3) [Cleaved into : 150 kDa adult core glycoprotein]		NCAN_RAT
P55067	Secretory carrier-associated membrane protein 1 (Secretory carrier membrane protein 1) (SCAMP 37)	Ncan Cspg3	SCAM1_RAT
P56603	Guanine nucleotide-binding protein G(o) subunit alpha	Scamp1 Scamp	GNAO_RAT
P59215	Myelin proteolipid protein (PLP) (Lipophilin)	Gnaol Gna0 Gnao	MYPR_RAT
P60203	Proteasome subunit alpha type-6 (EC 3.4.25.1) (Macropain iota chain) (Multicatalytic endopeptidase complex iota chain) (Proteasome iota chain)	Plpl Pip	PSA6_RAT
P60901	60S ribosomal protein L15	Psma6	
P61314	Dolichyl-diphosphooligosaccharide--protein glycosyltransferase subunit DAD1 (Oligosaccharyl transferase subunit DAD1) (EC 2.4.99.18) (Defender against cell death 1) (DAD-1)	Rpl15	RL15_RAT
P61805	Mitochondrial import inner membrane translocase subunit Tim13	Dadl	DAD1_RAT
P62076	Neuronal calcium sensor 1 (NCS-1) (Frequenin homolog) (Frequenin-like protein) (Frequenin-like ubiquitous protein)	Timm13 Tim13a Timm13a	TIM13_RAT
P62168	40S ribosomal protein 58		NCS1_RAT
P62243	40S ribosomal protein 529	Ncs1 Flup Freq	
P62275	Elongation factor 1-alpha 1 (EF-1-alpha-1) (Elongation factor Tu) (EF-Tu) (Eukaryotic elongation factor 1 A-1) (eEF1A-1)	Rps8	RS8_RAT
P62630	60S ribosomal protein L23a	Rps29	RS29_RAT
P62752	Myotrophin (Granule cell differentiation protein) (Protein V-1)		EF1A1_RAT
P62775	Ras-related protein Rab -3C	Eef1a1 Eefla	
P62824	40S ribosomal protein 526	Rpl23a	RL23A_RAT
P62856	Transcription elongation factor B polypeptide 2 (Elongin 18 kDa subunit) (Elongin-B) (EloB) (RNA polymerase II transcription factor Slii subunit B) (Slii p18)	Mtpn Gcdp	MTPN_RAT
P62907	60S ribosomal protein L10a	Rab3c	RAB3C_RAT
P62909	40S ribosomal protein 53	Rps26	RS26_RAT
P62912	60S ribosomal protein L32		ELOB_RAT
P62919	Platelet-activating factor acetylhydrolase IB subunit alpha (Lissencephaly-1 protein) (LIS-1) (PAF acetylhydrolase 45 kDa subunit) (PAF-AH 45 kDa subunit) (PAF-AH alpha) (PFAH alpha)	Tceb2	
P63004	Casein kinase II subunit beta (CK II beta) (Phosvitin)	Rpl10a	RL10A_RAT
P67874	Voltage-dependent anion-selective channel protein 2 (VDAC-2) (B36-VDAC) (Outer mitochondrial membrane protein porin 2)	Rps3	RS3_RAT
P81155	Elongation factor Tu, mitochondrial	Rpl32	RL32_RAT
P85834	Fascin	Rpl8	RL8_RAT
P85845	Beta-soluble NSF attachment protein (SNAP-beta) (N-ethylmaleimide-sensitive factor attachment protein beta)		LIS1_RAT
P85969	Mitochondrial 2-oxoglutarate/malate carrier protein (OGCP) (Solute carrier family 25 member 11)	Pafah1b1 Lis-1 Lisl Pafaha	
P97700	Long-chain fatty acid transport protein 1 (FATP-1) (Fatty acid transport protein 1) (EC 6.2.1.-) (Solute carrier family 27 member 1)	Csnk2b Ck2n	CSK2B_RAT
P97849	Peroxisomal multifunctional enzyme type 2 (MFE-2) (17-beta-hydroxysteroid dehydrogenase 4) (17-beta-HSD 4) (D-bifunctional protein) (DBP) (Multifunctional protein 2) (MPF-2) [Cleaved into: (3R)-hydroxyacyl-CoA dehydrogenase (EC 1.1.1.n1 2); Enoyl-CoA hydratase 2 (EC 4.2.1.107) (EC 4.2.1.119) (3-alpha, 7-alpha, 12-alpha-trihydroxy-5-beta-cholest-24-enoyl-CoA hydratase)]	Vdac2	VDAC2_RAT
P97852	Cyclin-G-associated kinase (EC 2.7.11.1)	Tufm	EFTU_RAT
P97874	NAD kinase 2, mitochondrial (EC 2.7.1.23) (Mitochondrial NAD kinase) (NAD kinase domain-containing protein 1, mitochondrial)	Fscnl	FSCN1_RAT
Q1HCL7	Alpha-ketoglutarate-dependent dioxygenase FTO (EC 1.14.11.-) (Fat mass and obesity-associated protein)	Napb Snapb	SNAB_RAT
Q2A121	Kinesin-1 heavy chain (Conventional kinesin heavy chain)	Slc25a11 Slc20a4	M2OM_RAT
Q2PQA9	(Ubiquitous kinesin heavy chain) (UKHC)	Slc27a1 Fatp Fatpl	S27A1_RAT
Q3MIE4	Synaptic vesicle membrane protein VAT-1 homolog (EC 1.-.-) (Mitofusin-binding protein) (Protein MIB)		DHB4_RAT
		Hsd17b4 Edh17b4	
		Gak	GAK_RAT
			NAKD2_RAT
		Nadk2 Mnadk Nadkdl	
			FTO_RAT
		Fto	
		Kif5b Khc	KINH_RAT
			VAT1_RAT
		Vatl	

Q496Z0	Elongator complex protein 2 (ELP2) (SHINC-2) (STAT3-interacting protein 1) (StlPI)	Elp2 Statipl	ELP2_RAT
Q499N5	Acyl-CoA synthetase family member 2, mitochondrial (EC 6.2.1.-)	Acsf2	ACSF2_RAT
Q4FZT9	26S proteasome non-ATPase regulatory subunit 2	Psmd2	PSMD2_RAT
Q4G075	Leukocyte elastase inhibitor A (Serine protease inhibitor EIA) (Serpina1)	Serpina1	ILEUA_RAT
Q4V7D2	Protein rogdi homolog	Rogdi	ROGDI_RAT
Q562C6	Leucine zipper transcription factor-like protein 1	Lztfl1	LZTL1_RAT
Q566C7	Diphosphoinositol polyphosphate phosphohydrolase 1 (DIPP-1) (EC 3.6.1.52) (Diadenosine 5',5'''-P1,P6-hexaphosphate hydrolase 1) (EC 3.6.1.-) (Nucleoside diphosphate-linked moiety X motif 3) (Nudix motif 3)	Nudt3 Dipp Dippl	NUDT3_RAT
Q5BJT7	Coiled-coil domain-containing protein 93	Ccdc93	CCD93_RAT
Q5FVJ0	Protein RUFY3 (Rap2-interacting protein x) (RIPx) (Single axon-regulated protein) (Singer)	Rufy3 Ripx	RUFY3_RAT
Q5FVQ9	Tubulin-specific chaperone E (Tubulin-folding cofactor E)	Tbce	TBCE_RAT
Q5FWT1	Protein FAM98A	Fam98a	FA98A_RAT
Q510P2	Glycine cleavage system H protein, mitochondrial (Lipoic acid-containing protein)	Gcsh	GCSH_RAT
Q5PPL3	Sterol-4-alpha-carboxylate 3-dehydrogenase, decarboxylating (EC 1.1.1.170)	Nsdhl	NSDHL_RAT
Q5PPN5	Tubulin polymerization-promoting protein family member 3	Tppp3	TPPP3_RAT
Q5PQN0	Neurocalcin-delta	Ncald	NCALD_RAT
Q5SGEO	Leucine-rich PPR motif-containing protein, mitochondrial (130 kDa leucine-rich protein) (LRP 130) (Leucine rich protein 157) (rLRP157)	Lrpprc Lrp157	LPPRC_RAT
Q5U204	Ragulator complex protein LAMTOR3 (Late endosomal/lysosomal adaptor and MAPK and MTOR activator 3) (Mitogen-activated protein kinase kinase 1-interacting protein 1)	Lamtor3 Map2klip1	LTOR3_RAT
Q5U2N3	Membrane-associated phosphatidylinositol transfer protein 1 (Phosphatidylinositol transfer protein, membrane-associated 1) (PITPnm 1) (Pyk2 N-terminal domain-interacting receptor 2) (NIR-2)	Pitpnm1 Nir2 Pitpnm	PITMI_RAT
Q5XHZ0	Heat shock protein 75 kDa, mitochondrial (HSP 75) (TNFR-associated protein 1) (Tumor necrosis factor type 1 receptor-associated protein) (TRAP-1)	Trap1 Hsp75	TRAP1_RAT
Q5XI73	Rho GDP-dissociation inhibitor 1 (Rho GDI 1) (Rho-GDI alpha)	Arhgdia	GDIR1_RAT
Q5XIF3	NADH dehydrogenase [ubiquinone] iron-sulfur protein 4, mitochondrial (Complex 1-18 kDa) (CI-18 kDa) (NADH-ubiquinone oxidoreductase 18 kDa subunit)	Ndufs4	NDUS4_RAT
Q5XIF6	Tubulin alpha-4A chain (Alpha-tubulin 4) (Tubulin alpha-4 chain)	Tuba4a Tuba4	TBA4A_RAT
Q5XIM5	Protein CDV3 homolog	Cdv3	CDV3_RAT
Q5XIN6	LETMI and EF-hand domain-containing protein 1, mitochondrial (Leucine zipper-EF-hand-containing transmembrane protein 1)	Letmi	LETMI_RAT
Q5XIT1	Microtubule-associated protein RP/EB family member 3 (EB1 protein family member 3) (EBF3) (End-binding protein 3) (EB3) (RP3)	Mapre3	MARE3_RAT
Q60587	Trifunctional enzyme subunit beta, mitochondrial (TP-beta) [Includes : 3-ketoacyl-CoA thiolase (EC 2.3.1.16) (Acetyl-CoA acyltransferase) (Beta-ketothiolase)]	Hadhb	ECHB_RAT
Q62651	Delta(3,5)-Delta(2,4)-dienoyl-CoA isomerase, mitochondrial (EC 5.3.3.-)	Echl	ECHI_RAT
Q62688	Inactive phospholipase C-like protein 1 (PLC-LI) (PRIPI) (Phospholipase C-related but catalytically inactive protein) (p130)	Pleil	PLCLI_RAT
Q62703	Reticulocalbin-2 (Calcium-binding protein ERC-55) (Taipoxin-associated calcium-binding protein 49) (TCBP-49)	Rcn2 Erc55	RCN2_RAT
Q62785	28 kDa heat- and acid-stable phosphoprotein (PDGF-associated protein) (PAP) (PDGFA-associated protein 1) (PAPI)	Pdap1 Haspp28	HAP28_RAT
Q62812	Myosin-9 (Cellular myosin heavy chain, type A) (Myosin heavy chain 9) (Myosin heavy chain, non-muscle IIa) (Non-muscle myosin heavy chain A) (NMMHC-A) (Non-muscle myosin heavy chain IIa) (NMMHC II-a) (NMMHC-IIA)	Myh9	MYH9_RAT

	Rho-associated protein kinase 2 (EC 2.7.11.1) (Rho-associated, coiled-coil-containing protein kinase 2) (Rho-associated, coiled-coil-containing protein kinase II) (ROCK-II) (RhoA-binding kinase 2) (p150 ROK-alpha) (ROKalpha)		ROCK2_RAT
Q62868	(p164 ROCK-2)	Rock2	
Q62915	Peripheral plasma membrane protein CASK (EC 2.7.11.1) (Calcium/calmodulin-dependent serine protein kinase)	Cask	CSKP_RAT
	Dihydropyrimidinase-related protein 4 (DRP-4) (Collapsin response mediator protein 3) (CRMP-3) (UNC33-like phosphoprotein 4) (ULIP-4) (Fragment)		DPYL4_RAT
Q62951	Diphosphomevalonate decarboxylase (EC 4.1.1.33) (Mevalonate (diphospho)decarboxylase) (MDDase)	Dpysl4 Crmp3 Ulip4	MVDI_RAT
Q62967	(Mevalonate pyrophosphate decarboxylase)	Mvd Mpd	
	Seel family domain-containing protein 1 (SLYI homolog) (Slyp) (Syntaxin-binding protein 1-like 2) (Vesicle transport-related protein Ra410)		SCFDI_RAT
Q62991		Scfdl Ra410 Slyl Stxbpll2	
	Protein arginine N-methyltransferase 1 (EC 2.1.1.-) (Histone-arginine N-methyltransferase PRMT1) (EC 2.1.1.125)		ANMI_RAT
Q63009		Prmtl Hrmtl12	
	Receptor-type tyrosine-protein phosphatase-like N (R-PTP-N) (105 kDa islet cell antigen) (BEM-3) (Brain-enriched membrane-associated protein tyrosine phosphatase)		PTPRN_RAT
Q63259	(ICA105) (PTP <b>IA-2</b> ) (PTPLP)	Ptpn	
	26S protease regulatory subunit 7 (26S proteasome <b>AAA</b> -ATPase subunit RPT1) (Proteasome 26S subunit ATPase 2) (Protein MSSI)		PRS7_RAT
Q63347		Psmc2 Mssl	
	Sodium/potassium-transporting ATPase subunit beta-3 (Sodium/potassium-dependent ATPase subunit beta-3) (ATPB-3) (CD antigen CD298)		AT1B3_RAT
Q63377		Atplb3	
	Solute carrier family 15 member 2 (Kidney H(+)/peptide cotransporter) (Oligopeptide transporter , kidney isoform)		S15A2_RAT
Q63424	(Peptide transporter 2)	Slc15a2 Pept2	
Q63537	Synapsin-2 (Synapsin II)	Syn2	SYN2_RAT
	Serine protease inhibitor A3M (Serpina A3M) (Serine protease inhibitor 2.4) (SPI-2.4) (Fragment)	Serpina3m	SPA3M_RAT
Q63556			PRS6A_RAT
	26S protease regulatory subunit 6A (26S proteasome AAA-ATPase subunit RPT5) (Proteasome 26S subunit ATPase 3) (Spermatogenic cell/sperm-associated Tat-binding protein homolog SATA) (Tat-binding protein 1) (TBP-1)	Psmc3 Tbp1	
Q63569	Proteasome activator complex subunit 1 (11S regulator complex subunit alpha) (REG-alpha) (Activator of multicatalytic protease subunit 1) (Proteasome activator 28 subunit alpha) (PA28a) (PA28alpha)		PSME1_RAT
Q63797		Psmel	
	NADH dehydrogenase [ubiquinone] iron-sulfur protein 2, mitochondrial (EC 1.6.5.3) (EC 1.6.99.3) (Complex I-49kD) (CI-49kD) (NADH-ubiquinone oxidoreductase 49 kDa subunit)		NDUS2_RAT
Q641Y2		Ndufs2	
Q641Y8	ATP-dependent RNA helicase DDX1 (EC 3.6.4.13) (DEAD box protein 1)	Ddx1	DDXI_RAT
	Serine/threonine-protein kinase PAK 2 (EC 2.7.11.1) (Gamma-PAK) (p21-activated kinase 2) (PAK-2) [Cleaved into: PAK-2p27; PAK-2p34]		PAK2_RAT
Q64303		Pak2	
	2,4-dienoyl-CoA reductase, mitochondrial (EC 1.3.1.34) (2,4-dienoyl-CoA reductase [NADPH]) (4-enoyl-CoA reductase [NADPH])		DECR_RAT
Q64591		Decri Deer	
	Serine/threonine-protein phosphatase 6 catalytic subunit (PP6C) (EC 3.1.3.16) (Protein phosphatase V) (PP-V) [Cleaved into: Serine/threonine-protein phosphatase 6 catalytic subunit, N-terminally processed]		PPP6_RAT
Q64620		Ppp6c Ppv	
Q66HA8	Heat shock protein 105 kDa (Heat shock 110 kDa protein)	Hsphl Hspl05 Hspl10	HS105_RAT
	NADH-ubiquinone oxidoreductase 75 kDa subunit, mitochondrial (EC 1.6.5.3) (EC 1.6.99.3)		NDUS1_RAT
Q66HF1		Ndufs1	
Q68FR2	Bridging integrator 2	Bin2	BIN2_RAT
	Isocitrate dehydrogenase [NAO] subunit beta, mitochondrial (EC 1.1.1.41) (Isocitric dehydrogenase subunit beta) (NAD(+)-specific ICDH subunit beta)	ldh3B	IDH3B_RAT
Q68FX0	SUMO-activating enzyme subunit 1 (Ubiquitin-like 1-activating enzyme E1A) [Cleaved into: SUMO-activating enzyme subunit 1, N-terminally processed]		SAEI_RAT
Q6AXQ0		Sael Ublela	
	Redox-regulatory protein FAM213A (Peroxiredoxin-like 2 activated in M-CSF stimulated monocytes) (Protein PAMM) (Sperm head protein 1)		F213A_RAT
Q6AXX6		Fam213a Pamm Shpl	
Q6AXY0	Glutathione S-transferase A6 (EC 2.5.1.18) (GST class-alpha member6)	Gsta6	GSTA6_RAT

	ADP-sugar pyrophosphatase (EC 3.6.1.13) (8-oxo-dGDP phosphatase) (EC 3.6.1.58) (Nucleoside diphosphate-linked moiety X motif 5) (Nudix motif 5)		NUDTS_RAT
Q6AY63		NudtS	
Q6AYT3	tRNA-splicing ligase RtcB homolog (EC 6.5.1.3) (pSS)	RtcB	RTCB_RAT
	Peptidyl-prolyl cis-trans isomerase D (PPIase D) (EC 5.2.1.8) (40 kDa peptidyl-prolyl cis-trans isomerase) (Cyclophilin-40)		PPID_RAT
Q6DGG0	(CYP-40) (Rotamase D)	Ppid	
	N(G),N(G)-dimethylarginine dimethylaminohydrolase 2 (DDAH-2) (Dimethylarginine dimethylaminohydrolase 2) (EC 3.5.3.18) (DDAHII) (Dimethylargininase-2)		DDAH2_RAT
Q6MG60		Ddah2	
	T-complex protein 1 subunit gamma (TCP-1-gamma) (CCT-gamma)		TCPG_RAT
Q6P502		Cct3	
	Dihydrolipoyl dehydrogenase, mitochondrial (EC 1.8.1.4) (Dihydrolipoamide dehydrogenase)		DLDH_RAT
Q6P6R2		Did	
	V-type proton ATPase subunit E 1 (V-ATPase subunit E 1)		VATE1_RAT
Q6PCU2		Atp6v1e1	
	(Vacuolar proton pump subunit E 1)		
Q6Q0N1	Cytosolic non-specific dipeptidase (EC 3.4.13.18) (CNDP dipeptidase 2)	Cndp2	CNDP2_RAT
Q6VBQ5	Myeloid-associated differentiation marker (Myeloid up-regulated protein)	Myadm	MYADM_RAT
	Histone-binding protein RBBP7 (Nucleosome-remodeling factor subunit RBAP46) (Retinoblastoma-binding protein 7) (RBBP-7)		RBBP7_RAT
Q71UF4		Rbbp7	
	Splicing factor U2AF 26 kDa subunit (Liver regeneration-related protein LRRG157/LRRG158) (U2 auxiliary factor 26) (U2 small nuclear RNA auxiliary factor 1-like protein 4)		U2AF4_RAT
Q7TP17		U2af114 Cb2-806 Cb2-807	
	Cytochrome b-c1 complex subunit 8 (Complex III subunit 8) (Complex III subunit VIII) (Low molecular mass ubiquinone-binding protein) (Ubiquinol-cytochrome c reductase complex 9.5 kDa protein) (Ubiquinol-cytochrome c reductase complex ubiquinone-binding protein QP-C)		QCR8_RAT
Q7TQ16		Uqcrc Qpc	
	Small glutamine-rich tetratricopeptide repeat-containing protein beta (Beta-SGT) (Small glutamine-rich protein with tetratricopeptide repeats 2)		SGTB_RAT
Q80W98		Sgtb Sgt2	
	Nicotinamide phosphoribosyltransferase (NAMPTase) (Nampt) (EC 2.4.2.12) (Pre-B-cell colony-enhancing factor 1 homolog) (PBEF) (Visfatin)		NAMPT_RAT
Q80Z29		Nampt Pbefl	
	Lambda-crystallin homolog (EC 1.1.1.45) (L-gulonate 3-dehydrogenase) (Gul3DH)		CRYLI_RAT
Q811X6		Cryll Cry	
Q8CFD0	Sideroflexin-5 (Tricarboxylate carrier BBG-TCC)	SfxnS	SFXNS_RAT
Q8CFN2	Cell division control protein 42 homolog	Cdc42	CDC42_RAT
	Glycylpeptide N-tetradecanoyltransferase 1 (EC 2.3.1.97) (Myristoyl-CoA:protein N-myristoyltransferase 1) (NMT 1) (Type I N-myristoyltransferase) (Peptide N-myristoyltransferase 1)		NMTI_RAT
Q8K1Q0		Nmtl	
	Monoglyceride lipase (MGL) (EC 3.1.1.23) (Monoacylglycerol lipase) (MAGL)		MGLL_RAT
Q8R431		MglI Mgl2	
	Pyridoxal phosphate phosphatase (PLP phosphatase) (EC 3.1.3.3) (EC 3.1.3.74) (Chronophin) (Reg I-binding protein 1)		PLPP_RAT
Q8VD52		Pdpx Cin Pip Plpp Rbpl	
	Bifunctional protein NCOAT (Meningioma-expressed antigen 5) (Nuclear cytoplasmic O-GlcNAcase and acetyltransferase) [Includes: Beta-hexosaminidase (EC 3.2.1.52) (Beta-N-acetylhexosaminidase) (Hexosaminidase C) (N-acetyl-beta-D-glucosaminidase) (N-acetyl-beta-glucosaminidase) (O-GlcNAcase); Histone acetyltransferase (HAT) (EC 2.3.1.48)]		NCOAT_RAT
Q8VIJS		Mgeas Hexc Meas	
	Phosphatidate cytidyltransferase 2 (EC 2.7.7.41) (CDP-DAG synthase 2) (CDP-DG synthase 2) (CDP-diacylglycerol synthase 2) (CDS 2) (CDP-diglyceride pyrophosphorylase 2) (CDP-diglyceride synthase 2) (CTP:phosphatidate cytidyltransferase 2)		CDS2_RAT
Q91XU8		Cds2	
Q91Y81	Septin-2 (Vascular endothelial cell specific protein 11)	Sept2 Vesp11	SEPT2_RAT
	Succinate dehydrogenase [ubiquinone] flavoprotein subunit, mitochondrial (EC 1.3.5.1) (Flavoprotein subunit of complex II) (Fp)		SDHA_RAT
Q920L2		Sdha	
	RWD domain-containing protein 1 (Small androgen receptor-interacting protein)		RWDDI_RAT
Q99ND9		Rwddl Sarip	
	Electrogenic sodium bicarbonate cotransporter 1 (Sodium bicarbonate cotransporter) (NBC-like protein) (Na(+)/HCO3(-) cotransporter) (Solute carrier family 4 member4)		S4A4_RAT
Q9JI66-3		Slc4a4 Nbc NbcI Nbccl Rnbcl	



	Myosin-10 (Cellular myosin heavy chain , type B) (Myosin heavy chain 10) (Myosin heavy chain , non-muscle <b>lib</b> ) (Non-muscle myosin heavy chain B) (NMMHC-B) (Non-muscle myosin heavy chain lib) (NMMHC 11-b) (NMMHC-11B)		MYH10_RAT
Q9JLT0		Myh10	
	Vesicle-fusing ATPase (EC 3.6.4.6) (N-ethylmaleimide-sensitive fusion protein) (NEM-sensitive fusion protein)		NSF_RAT
Q9QUL6	(Vesicular-fusion protein NSF)	Nsf Ergl	
	LanC-like protein 1 (40 kDa erythrocyte membrane protein)		LANCL_RAT
Q9QX69	(p40)	Lanell Gpr69a	
	Unconventional myosin-Va (Dilute myosin heavy chain, non-		MYOSA_RAT
	muscle)		
Q9QYF3		MyoSa	
	MOB-like protein phocein (Class II mMOBI) (Mobl homolog 3) (Mob3) (Mps one binder kinase activator-like 3)		PHOCN_RAT
Q9QYW3	(Phocein) (Preimplantation protein 3)	1ob4 Mob3 MobkII Phocn Prei	
	Legumain (EC 3.4.22.34) (Asparaginyl endopeptidase)		LGMN_RAT
	(Prot ease, cysteine 1)		
Q9R0J8		Lgmn Prscl	
	Mitochondrial import inner membrane translocase subunit		TIM8A_RAT
Q9WVA1	Tim8 A (Deafness dystonia protein 1 homolog)	Timm8a Ddpl Tim8a	
	Protein kinase C and casein kinase substrate in neurons		PACNI_RAT
	protein 1 (Dynamin proline-rich domain-interacting protein) (Dynamin PRO-interacting protein) (Synaptic ,		
	dynamin-associated protein I) (Syndapin-1) (Syndapin-1)		
Q9Z0WS	(Sdpl)	Pacsinl	
	NEDD8-activating enzyme E1 regulatory subunit (Amyloid beta precursor protein-binding protein 1, 59 kDa) (APP-		ULAI_RAT
Q9Z1AS	BPI) (Amyloid protein-binding protein 1)	Nael Appbpl	
	3'(2'),5'-bisphosphate nucleotidase 1 (EC 3.1.3.7)		BPNTI_RAT
	(Bisphosphate 3'-nucleotidase 1) (PAP-inositol 1,4-		
Q9Z1N4	phosphatase) (PIP) (schAL2 analogous 3)	Bpntl Sal3	
	Vesicle-associated membrane protein-associated protein A		VAPA_RAT
	(VAMP-A) (VAMP-associated protein A) (VAP-A) (33 kDa		
Q9Z270	VAMP-associated protein) (VAP-33)	Vapa Vap33	

Suppl ementary Table S4A: GO Analysis of the proteins altered by GRP78 overexpression (Terms from the Process Ontology of gene\_association.rgd with p-value &lt;= 0.05; PROCESS)

Gene Ontology term	Cluster frequency	Genome frequency	Corrected P-value	FDR	False Positives	Genes annotated to the term
<a href="#">oxidation-reduction process</a>	33 of 220 genes, 15.0%	1899 of 36892 genes, 5.1%	3.52e-05	0.00%	0.00	LDHA_RAT, CRYLI_RAT, VATI_RAT, QCR8_RAT, F213A_RAT, NDUS4_RAT, DHE3_RAT, NDUSI_RAT, ACADL_RAT, DLDH_RAT, ECHM_RAT, COX2_RAT, AOFA_RAT, GLYG_RAT, FTO_RAT, IVD_RAT, DECR_RAT, SODM_RAT, TPIS_RAT, DHB4_RAT, NSDHL_RAT, NDUS2_RAT, MGSTI_RAT, GSTKI_RAT, HCD2_RAT, ECHB_RAT, ECHI_RAT, TRAPI_RAT, DHSO_RAT, NDUV2_RAT, SDHA_RAT, UCRI_RAT, CITC_RAT
<a href="#">small molecule metabolic process</a>	57 of 220 genes, 25.9%	4674 of 36892 genes, 12.7%	7.79e-05	0.00%	0.00	LTOR3_RAT, LDHA_RAT, CRYLI_RAT, BCATI_RAT, EFTU_RAT, DHE3_RAT, MGLL_RAT, RASAI_RAT, NUDT3_RAT, GSHO_RAT, NDUSI_RAT, ACADL_RAT, IDHGI_RAT, CN37_RAT, NAMPT_RAT, TPMI_RAT, ECHM_RAT, MVDI_RAT, RPGF2_RAT, GSTM4_RAT, GNAO_RAT, NUDTS_RAT, KINH_RAT, IVD_RAT, MYH9_RAT, ATPA_RAT, DECR_RAT, KPYM_RAT, MYPR_RAT, SODM_RAT, DDXI_RAT, TPIS_RAT, DHB4_RAT, NSDHL_RAT, S27AI_RAT, MGSTI_RAT, SEPT2_RAT, CDC42_RAT, GSTKI_RAT, DPYL4_RAT, TBA4A_RAT, ECHB_RAT, ECHI_RAT, EFIAI_RAT, NSF_RAT, AT1A2_RAT, GSTA6_RAT, GDIRI_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, LISI_RAT, NAKD2_RAT, ATP8_RAT, CITC_RAT
<a href="#">carboxylic acid metabolic process</a>	27 of 220 genes, 12.3%	1452 of 36892 genes, 3.9%	0.00018	0.00%	0.00	MYPR_RAT, SODM_RAT, TPIS_RAT, LDHA_RAT, CRYLI_RAT, DHB4_RAT, BCATI_RAT, S27AI_RAT, MGSTI_RAT, GSTKI_RAT, DHE3_RAT, MGLL_RAT, ECHB_RAT, GSHO_RAT, ECHI_RAT, ACADL_RAT, IDHGI_RAT, ECHM_RAT, GSTM4_RAT, GSTA6_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, IVD_RAT, DECR_RAT, KPYM_RAT, CITC_RAT
<a href="#">organismal metabolic process</a>	88 of 220 genes, 40.0%	9029 of 36892 genes, 24.5%	0.00024	0.00%	0.00	RPNI_RAT, LDHA_RAT, CDS2_RAT, BCATI_RAT, NDU54_RAT, MGLL_RAT, NUDT3_RAT, GSHO_RAT, IDHGI_RAT, NAMPT_RAT, ECHM_RAT, COX2_RAT, MVDI_RAT, RPGF2_RAT, GSTM4_RAT, GLYG_RAT, PLPP_RAT, FTO_RAT, IVD_RAT, ATPA_RAT, KPYM_RAT, DDXI_RAT, TPIS_RAT, DLG4_RAT, BPNTI_RAT, DHB4_RAT, NDUS2_RAT, NSDHL_RAT, S27AI_RAT, SEPT2_RAT, TBA4A_RAT, HCD2_RAT, EFIAI_RAT, NSF_RAT, KPCA_RAT, RS3_RAT, AT1A2_RAT, CIOB_RAT, GDIRI_RAT, GSTPI_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, ATP8_RAT, STS_RAT, LTOR3_RAT, CRYLI_RAT, CYTC_RAT, VATI_RAT, EFTU_RAT, NCOAT_RAT, QCR8_RAT, F213A_RAT, DHE3_RAT, RASAI_RAT, PLOLI_RAT, NDUSI_RAT, ACADL_RAT, ANMI_RAT, CN37_RAT, DLDH_RAT, TPMI_RAT, GNAO_RAT, AOFA_RAT, NUDT5_RAT, KINH_RAT, PLCGI_RAT, MYH9_RAT, DECR_RAT, MYPR_RAT, SODM_RAT, DADI_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, DPYL4_RAT, ECHB_RAT, ECHI_RAT, TRAPI_RAT, DHSO_RAT, GSTA6_RAT, LISI_RAT, NAKD2_RAT, UCRI_RAT, PYC_RAT, CITC_RAT
<a href="#">oxoacid metabolic process</a>	27 of 220 genes, 12.3%	1535 of 36892 genes, 4.2%	0.00055	0.00%	0.00	MYPR_RAT, SODM_RAT, TPIS_RAT, LDHA_RAT, CRYLI_RAT, DHB4_RAT, BCATI_RAT, S27AI_RAT, MGSTI_RAT, GSTKI_RAT, DHE3_RAT, MGLL_RAT, ECHB_RAT, GSHO_RAT, ECHI_RAT, ACADL_RAT, IDHGI_RAT, ECHM_RAT, GSTM4_RAT, GSTA6_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, IVD_RAT, DECR_RAT, KPYM_RAT, CITC_RAT
<a href="#">organic acid metabolic process</a>	27 of 220 genes, 12.3%	1564 of 36892 genes, 4.2%	0.00079	0.00%	0.00	MYPR_RAT, SODM_RAT, TPIS_RAT, LDHA_RAT, CRYLI_RAT, DHB4_RAT, BCATI_RAT, S27AI_RAT, MGSTI_RAT, GSTKI_RAT, DHE3_RAT, MGLL_RAT, ECHB_RAT, GSHO_RAT, ECHI_RAT, ACADL_RAT, IDHGI_RAT, ECHM_RAT, GSTM4_RAT, GSTA6_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, IVD_RAT, DECR_RAT, KPYM_RAT, CITC_RAT
<a href="#">hydrogen ion transmembrane transport</a>	10 of 220 genes, 4.5%	227 of 36892 genes, 0.6%	0.00122	0.00%	0.00	COX41_RAT, COX2_RAT, ATPG_RAT, QCR8_RAT, UCRI_RAT, VATEI_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, MPCP_RAT
<a href="#">proton transport</a>	10 of 220 genes, 4.5%	273 of 36892 genes, 0.7%	0.00633	0.00%	0.00	COX41_RAT, COX2_RAT, ATPG_RAT, QCR8_RAT, UCRI_RAT, VATEI_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, MPCP_RAT
<a href="#">glutathione metabolic process</a>	6 of 220 genes, 2.7%	76 of 36892 genes, 0.2%	0.00645	0.00%	0.00	SODM_RAT, MGSTI_RAT, GSTKI_RAT, GSTM4_RAT, GSHO_RAT, GSTA6_RAT
<a href="#">hydrogen transport</a>	10 of 220 genes, 4.5%	275 of 36892 genes, 0.7%	0.00674	0.00%	0.00	COX41_RAT, COX2_RAT, ATPG_RAT, QCR8_RAT, UCRI_RAT, VATEI_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, MPCP_RAT

Suppl ementary Table S4B: GO Analysis of the proteins altered by GRP78 overexpression (Terms from the Process Ontology of gene\_association.rgd with p-value &lt;= 0.05; FUNCTION)

Gene Ontology term	Cluster frequency	Genome frequency	Corrected P-value	FDR	False Positives	Genes annotated to the term
<a href="#">oxidoreductase activity</a>	24 of 220 genes, 10.9%	1489 of 36892 genes, 4.0%	0.00231	0.00%	0.00	COX41_RAT, SODM_RAT, CRYLI_RAT, DHB4_RAT, VATI_RAT, NDUS2_RAT, NSDHL_RAT, QCR8_RAT, MGSTI_RAT, GSTKI_RAT, DHE3_RAT, HCD2_RAT, NDUSI_RAT, ACADL_RAT, IDHGI_RAT, COX2_RAT, DHSO_RAT, NDUV2_RAT, SDHA_RAT, IVD_RAT, FTO_RAT, CX7A2_RAT, DECR_RAT, CITC_RAT
<a href="#">structural molecule activity</a>	22 of 220 genes, 10.0%	1375 of 36892 genes, 3.7%	0.00614	1.00%	0.02	LTOR3_RAT, RS19_RAT, RS26_RAT, NFL_RAT, RL23A_RAT, CLCA_RAT, VAPA_RAT, RS29_RAT, RL18_RAT, RL32_RAT, RLIS_RAT, SEPT2_RAT, TBA4A_RAT, RS3_RAT, RS8_RAT, RL9_RAT, CLCB_RAT, RLIOA_RAT, RL8_RAT, RS9_RAT, RL13_RAT, RLAA_RAT
<a href="#">hydrogen ion transmembrane transport activity</a>	8 of 220 genes, 3.6%	201 of 36892 genes, 0.5%	0.00648	0.67%	0.02	COX41_RAT, QCR8_RAT, VATEI_RAT, ATPA_RAT, COX2_RAT, CX7A2_RAT, ATP8_RAT, ATPG_RAT
<a href="#">3-hydroxyacyl-CoA dehydrogenase activity</a>	3 of 220 genes, 1.4%	12 of 36892 genes, 0.0%	0.00950	1.00%	0.04	CRYLI_RAT, DHB4_RAT, HCD2_RAT

Suppl ementary Table 4C: GO Analysis of the proteins altered by GRP78 overexpression (Terms from the Process Ontology of gene\_association.rgd with p-value &lt;= 0.05; COMPONENT)

Gene Ontology term	Cluster frequency	Genome frequency	Corrected P-value	FDR	False Positives	Genes annotated to the term
<a href="#">mitochondrial membrane</a>	32 of 220 genes, 14.5%	916 of 36892 genes, 2.5%	2.03e-13	0.00%	0.00	COX41_RAT, KCRU_RAT, SODM_RAT, CDS2_RAT, VATI_RAT, NDUS2_RAT, M20M_RAT, QCR8_RAT, MGSTI_RAT, NDU54_RAT, GSTKI_RAT, DHE3_RAT, ECHB_RAT, MPCP_RAT, NDUSI_RAT, ACADL_RAT, LETMI_RAT, TRAPI_RAT, KPCA_RAT, COX2_RAT, DHSO_RAT, VDACC2_RAT, TIM13_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, PYC_RAT, IVD_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, SFXNS_RAT
<a href="#">mitochondrial envelope</a>	32 of 220 genes, 14.5%	977 of 36892 genes, 2.6%	1.21e-12	0.00%	0.00	COX41_RAT, KCRU_RAT, SODM_RAT, CDS2_RAT, VATI_RAT, NDUS2_RAT, M20M_RAT, QCR8_RAT, MGSTI_RAT, NDU54_RAT, GSTKI_RAT, DHE3_RAT, ECHB_RAT, MPCP_RAT, NDUSI_RAT, ACADL_RAT, LETMI_RAT, TRAPI_RAT, KPCA_RAT, COX2_RAT, DHSO_RAT, VDACC2_RAT, TIM13_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, PYC_RAT, IVD_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, SFXNS_RAT
<a href="#">mitochondrial inner membrane</a>	26 of 220 genes, 11.8%	632 of 36892 genes, 1.7%	2.86e-12	0.00%	0.00	COX41_RAT, KCRU_RAT, SODM_RAT, CDS2_RAT, NDUS2_RAT, M20M_RAT, QCR8_RAT, MGSTI_RAT, NDU54_RAT, GSTKI_RAT, DHE3_RAT, ECHB_RAT, MPCP_RAT, NDUSI_RAT, LETMI_RAT, TRAPI_RAT, COX2_RAT, TIM13_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, PYC_RAT, ATPA_RAT, CX7A2_RAT, ATP8_RAT, SFXNS_RAT



	160 of 220 genes, 72.7%	19810 of 36892 genes, 53.7%	1.01e-06	0.00%	0.00	COX41_RAT, KCRU_RAT, LANCI_RAT, BCATI_RAT, STIPI_RAT, VATEI_RAT, 7B2_RAT, RL7_RAT, IDHGI_RAT, ECHM_RAT, PRS7_RAT, CLCB_RAT, PLPP_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, RS19_RAT, DDIX_RAT, RS26_RAT, DLG4_RAT, PTN23_RAT, MATR3_RAT, AT1B3_RAT, ELOB_RAT, NSDHL_RAT, RL32_RAT, SEPT2_RAT, ELP2_RAT, TBA4A_RAT, TPPP3_RAT, EFIAI_RAT, NSF_RAT, SCFDI_RAT, KPCCA_RAT, SH3GI_RAT, VDACC2_RAT, GDIRI_RAT, NDUV2_RAT, HS105_RAT, PSB2_RAT, CD166_RAT, NUCL_RAT, RCN2_RAT, CNPD2_RAT, CYTC_RAT, NFL_RAT, NCALD_RAT, M20M_RAT, PSMD2_RAT, QCR8_RAT, F213A_RAT, CATD_RAT, PITMI_RAT, CN37_RAT, DLDH_RAT, TPML_RAT, TIM13_RAT, KINH_RAT, RTCB_RAT, DECR_RAT, S4A4_RAT, SODM_RAT, RL23A_RAT, RL18_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, ECHB_RAT, RSB_RAT, NAKD2_RAT, LISI_RAT, CALX_RAT, SFXN5_RAT, NMTI_RAT, RPNL_RAT, CDS2_RAT, PSB8_RAT, S15A2_RAT, PAK2_RAT, RBBP7_RAT, CSK2B_RAT, NDU5A_RAT, MGLL_RAT, NUDT3_RAT, MPCP_RAT, SYN2_RAT, FIOAI_RAT, COX2_RAT, RPF2_RAT, GSTM4_RAT, RLIOA_RAT, CSKP_RAT, GLYG_RAT, LGMN_RAT, MYO5A_RAT, FTO_RAT, SNAAR_RAT, SYTI_RAT, CSRP1_RAT, BPN1_RAT, DHB4_RAT, ROCK2_RAT, VAPA_RAT, U2AF4_RAT, NDU52_RAT, LG3BP_RAT, HCD2_RAT, IDH3B_RAT, LPPRC_RAT, RS3_RAT, TBCE_RAT, ULAI_RAT, GSTPI_RAT, ATPG_RAT, SDHA_RAT, DDAH2_RAT, ACSF2_RAT, PSA6_RAT, SCAMI_RAT, ATPB_RAT, GAK_RAT, RLAO_RAT, LTOR3_RAT, CRYLI_RAT, PPID_RAT, MYHIO_RAT, VATI_RAT, ROGDI_RAT, MARE3_RAT, EFTU_RAT, PACNI_RAT, NCOAT_RAT, PRS6A_RAT, DHE3_RAT, ATIBI_RAT, NDU5I_RAT, ACADL_RAT, ANMI_RAT, SAEI_RAT, RL9_RAT, RL8_RAT, PLCGI_RAT, MYH9_RAT, CX7A2_RAT, VGF_RAT, RL13_RAT, PHOCN_RAT, RAB3C_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, RL15_RAT, RL13A_RAT, ECHI_RAT, TRAPI_RAT, LETMI_RAT, DHSO_RAT, PYC_RAT, BIN2_RAT
membrane-bounded vesicle	64 of 220 genes, 29.1%	5298 of 36892 genes, 14.4%	2.65e-06	0.00%	0.00	COX41_RAT, LANCI_RAT, RPNL_RAT, PSB8_RAT, S15A2_RAT, CSK2B_RAT, NUDT3_RAT, SYN2_RAT, FIOAI_RAT, 7B2_RAT, GSTM4_RAT, CLCB_RAT, GLYG_RAT, MYO5A_RAT, PLPP_RAT, NCSI_RAT, SNAAR_RAT, SYTI_RAT, RS26_RAT, PTN23_RAT, DLG4_RAT, CSRP1_RAT, BPN1_RAT, AT1B3_RAT, LG3BP_RAT, SEPT2_RAT, TBA4A_RAT, TPPP3_RAT, GDIRI_RAT, DDAH2_RAT, HS105_RAT, PSA6_RAT, SCAMI_RAT, CD166_RAT, PSB2_RAT, LTOR3_RAT, CYTC_RAT, CNPD2_RAT, CRYLI_RAT, VATI_RAT, NCALD_RAT, EFTU_RAT, PSMD2_RAT, F213A_RAT, PACNI_RAT, ATIBI_RAT, CATD_RAT, CN37_RAT, KINH_RAT, VGF_RAT, SODM_RAT, S4A4_RAT, RAB3C_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, GSTKI_RAT, CDC42_RAT, ECHB_RAT, ECHI_RAT, TRAPI_RAT, RSB_RAT, LISI_RAT, CALX_RAT
vesicle	64 of 220 genes, 29.1%	5460 of 36892 genes, 14.8%	8.44e-06	0.00%	0.00	COX41_RAT, LANCI_RAT, RPNL_RAT, PSB8_RAT, S15A2_RAT, CSK2B_RAT, NUDT3_RAT, SYN2_RAT, FIOAI_RAT, 7B2_RAT, GSTM4_RAT, CLCB_RAT, GLYG_RAT, MYO5A_RAT, PLPP_RAT, NCSI_RAT, SNAAR_RAT, SYTI_RAT, RS26_RAT, PTN23_RAT, DLG4_RAT, CSRP1_RAT, BPN1_RAT, AT1B3_RAT, LG3BP_RAT, SEPT2_RAT, TBA4A_RAT, TPPP3_RAT, GDIRI_RAT, DDAH2_RAT, HS105_RAT, PSA6_RAT, SCAMI_RAT, CD166_RAT, PSB2_RAT, LTOR3_RAT, CYTC_RAT, CNPD2_RAT, CRYLI_RAT, VATI_RAT, NCALD_RAT, EFTU_RAT, PSMD2_RAT, F213A_RAT, PACNI_RAT, ATIBI_RAT, CATD_RAT, CN37_RAT, KINH_RAT, VGF_RAT, SODM_RAT, S4A4_RAT, RAB3C_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, GSTKI_RAT, CDC42_RAT, ECHB_RAT, ECHI_RAT, TRAPI_RAT, RSB_RAT, LISI_RAT, CALX_RAT
in intracellular organelle	93 of 220 genes, 42.3%	9439 of 36892 genes, 25.6%	1.00e-05	0.00%	0.00	COX41_RAT, KCRU_RAT, RPNL_RAT, CDS2_RAT, RBBP7_RAT, NDU5A_RAT, CSK2B_RAT, MPCP_RAT, ECHM_RAT, COX2_RAT, RLIOA_RAT, CLCB_RAT, FTO_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, SYTI_RAT, RS19_RAT, DDIX_RAT, RS26_RAT, PTN23_RAT, DLG4_RAT, ROCK2_RAT, DHB4_RAT, MATR3_RAT, VAPA_RAT, U2AF4_RAT, NDU52_RAT, NSDHL_RAT, RL32_RAT, SEPT2_RAT, ELP2_RAT, TBA4A_RAT, LPPRC_RAT, TPPP3_RAT, EFIAI_RAT, NSF_RAT, SCFDI_RAT, KPCCA_RAT, SH3GI_RAT, VDACC2_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, HS105_RAT, PSA6_RAT, SCAMI_RAT, ATPB_RAT, NUCL_RAT, RCN2_RAT, LTOR3_RAT, PPID_RAT, NFL_RAT, MYHIO_RAT, VATI_RAT, MARE3_RAT, M20M_RAT, ROGDI_RAT, EFTU_RAT, PACNI_RAT, QCRB_RAT, DHE3_RAT, NDU5I_RAT, ACADL_RAT, PITMI_RAT, ANMI_RAT, CN37_RAT, DLDH_RAT, TIM13_RAT, RL8_RAT, KINH_RAT, MYH9_RAT, PLCGI_RAT, CX7A2_RAT, RL13_RAT, SODM_RAT, PHOCN_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, RL13A_RAT, ECHB_RAT, LETMI_RAT, TRAPI_RAT, DHSO_RAT, LISI_RAT, CALX_RAT, PYC_RAT, BIN2_RAT, SFXN5_RAT
organelle part	94 of 220 genes, 42.7%	9756 of 36892 genes, 26.4%	2.46e-05	0.00%	0.00	COX41_RAT, KCRU_RAT, RPNL_RAT, CDS2_RAT, RBBP7_RAT, NDU5A_RAT, CSK2B_RAT, MPCP_RAT, ECHM_RAT, COX2_RAT, CSKP_RAT, RLIOA_RAT, CLCB_RAT, FTO_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, SYTI_RAT, RS19_RAT, DDIX_RAT, RS26_RAT, PTN23_RAT, DLG4_RAT, ROCK2_RAT, DHB4_RAT, MATR3_RAT, VAPA_RAT, U2AF4_RAT, NDU52_RAT, NSDHL_RAT, RL32_RAT, SEPT2_RAT, ELP2_RAT, TBA4A_RAT, LPPRC_RAT, TPPP3_RAT, EFIAI_RAT, NSF_RAT, SCFDI_RAT, KPCCA_RAT, SH3GI_RAT, VDACC2_RAT, NDUV2_RAT, ATPG_RAT, SDHA_RAT, HSIO5_RAT, PSA6_RAT, SCAMI_RAT, ATPB_RAT, NUCL_RAT, RCN2_RAT, LTOR3_RAT, PPID_RAT, NFL_RAT, MYHIO_RAT, VATI_RAT, MARE3_RAT, M20M_RAT, ROGDI_RAT, EFTU_RAT, PACNI_RAT, QCRB_RAT, DHE3_RAT, NDU5I_RAT, ACADL_RAT, PITMI_RAT, ANMI_RAT, CN37_RAT, DLDH_RAT, TIM13_RAT, KINH_RAT, MYH9_RAT, PLCGI_RAT, CX7A2_RAT, RL13_RAT, SODM_RAT, PHOCN_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, RL13A_RAT, ECHB_RAT, LETMI_RAT, TRAPI_RAT, DHSO_RAT, LISI_RAT, CALX_RAT, PYC_RAT, BIN2_RAT, SFXN5_RAT
intracellular organelle	144 of 220 genes, 65.5%	17906 of 36892 genes, 48.5%	5.99e-05	0.00%	0.00	COX41_RAT, KCRU_RAT, LANCI_RAT, BCATI_RAT, STIPI_RAT, VATEI_RAT, 7B2_RAT, RL7_RAT, IDHGI_RAT, ECHM_RAT, PRS7_RAT, CLCB_RAT, PLPP_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, RS19_RAT, DDIX_RAT, RS26_RAT, DLG4_RAT, PTN23_RAT, MATR3_RAT, AT1B3_RAT, ELOB_RAT, NSDHL_RAT, RL32_RAT, SEPT2_RAT, ELP2_RAT, TBA4A_RAT, TPPP3_RAT, EFIAI_RAT, NSF_RAT, SCFDI_RAT, KPCCA_RAT, SH3GI_RAT, VDACC2_RAT, NDUV2_RAT, HSIO5_RAT, PSB2_RAT, NUCL_RAT, RCN2_RAT, NFL_RAT, M20M_RAT, QCR8_RAT, F213A_RAT, CATD_RAT, PITMI_RAT, CN37_RAT, DLDH_RAT, TPML_RAT, TIM13_RAT, KINH_RAT, RTCB_RAT, DECR_RAT, SODM_RAT, RL23A_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, ECHB_RAT, RSB_RAT, NAKD2_RAT, LISI_RAT, CALX_RAT, SFXN5_RAT, NMTI_RAT, RPNL_RAT, CDS2_RAT, PSB8_RAT, PAK2_RAT, RBBP7_RAT, CSK2B_RAT, NDU5A_RAT, MGLL_RAT, MPCP_RAT, SYN2_RAT, COX2_RAT, GSTM4_RAT, RPF2_RAT, CSKP_RAT, GLYG_RAT, LGMN_RAT, MYO5A_RAT, FTO_RAT, KPYM_RAT, SYTI_RAT, CSRP1_RAT, DHB4_RAT, ROCK2_RAT, VAPA_RAT, U2AF4_RAT, NDU52_RAT, HCD2_RAT, IDH3B_RAT, LPPRC_RAT, RS3_RAT, TBCE_RAT, ULAI_RAT, GSTPI_RAT, ATPG_RAT, SDHA_RAT, ACSF2_RAT, DDAH2_RAT, PSA6_RAT, SCAMI_RAT, ATPB_RAT, GAK_RAT, RLAO_RAT, LTOR3_RAT, PPID_RAT, MYHIO_RAT, VATI_RAT, ROGDI_RAT, MARE3_RAT, EFTU_RAT, PACNI_RAT, NCOAT_RAT, PRS6A_RAT, DHE3_RAT, NDU5I_RAT, ACADL_RAT, ANMI_RAT, SAEI_RAT, RL9_RAT, RL8_RAT, PLCGI_RAT, MYH9_RAT, CX7A2_RAT, VGF_RAT, RL13_RAT, PHOCN_RAT, RAB3C_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, RL13_RAT, ECHI_RAT, TRAPI_RAT, LETMI_RAT, DHSO_RAT, PYC_RAT, BIN2_RAT
membrane-bounded organelle	141 of 220 genes, 64.1%	17552 of 36892 genes, 47.6%	0.00011	0.00%	0.00	COX41_RAT, KCRU_RAT, LANCI_RAT, BCATI_RAT, STIPI_RAT, VATEI_RAT, 7B2_RAT, IDHGI_RAT, ECHM_RAT, CLCB_RAT, PLPP_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, RS19_RAT, DDIX_RAT, RS26_RAT, DLG4_RAT, PTN23_RAT, MATR3_RAT, AT1B3_RAT, ELOB_RAT, NSDHL_RAT, SEPT2_RAT, ELP2_RAT, TBA4A_RAT, TPPP3_RAT, EFIAI_RAT, SCFDI_RAT, KPCCA_RAT, SH3GI_RAT, VDACC2_RAT, GDIRI_RAT, NDUV2_RAT, HSIO5_RAT, PSB2_RAT, CD166_RAT, NUCL_RAT, RCN2_RAT, CNPD2_RAT, CYTC_RAT, NCALD_RAT, M20M_RAT, PSMD2_RAT, QCRB_RAT, F213A_RAT, CATD_RAT, PITMI_RAT, CN37_RAT, DLDH_RAT, TIM13_RAT, KINH_RAT, RTCB_RAT, DECR_RAT, S4A4_RAT, SODM_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, ECHB_RAT, RSB_RAT, NAKD2_RAT, LISI_RAT, CALX_RAT, SFXN5_RAT, RPNL_RAT, CDS2_RAT, PSB8_RAT, S15A2_RAT, PAK2_RAT, RBBP7_RAT, CSK2B_RAT, NDU5A_RAT, NUDT3_RAT, MPCP_RAT, SYN2_RAT, FIOAI_RAT, COX2_RAT, GSTM4_RAT, RPF2_RAT, CSKP_RAT, GLYG_RAT, LGMN_RAT, MYO5A_RAT, FTO_RAT, SNAAR_RAT, KPYM_RAT, SYTI_RAT, CSRP1_RAT, BPN1_RAT, DHB4_RAT, ROCK2_RAT, VAPA_RAT, U2AF4_RAT, NDU52_RAT, LG3BP_RAT, HCD2_RAT, IDH3B_RAT, LPPRC_RAT, RS3_RAT, ULAI_RAT, GSTPI_RAT, ATPG_RAT, SDHA_RAT, ACSF2_RAT, DDAH2_RAT, PSA6_RAT, SCAMI_RAT, ATPB_RAT, GAK_RAT, RLAO_RAT, LTOR3_RAT, PPID_RAT, MYHIO_RAT, VATI_RAT, ROGDI_RAT, MARE3_RAT, EFTU_RAT, PACNI_RAT, NCOAT_RAT, PRS6A_RAT, DHE3_RAT, NDU5I_RAT, ACADL_RAT, ANMI_RAT, SAEI_RAT, RL9_RAT, RL8_RAT, PLCGI_RAT, MYH9_RAT, CX7A2_RAT, VGF_RAT, PHOCN_RAT, RAB3C_RAT, CLCA_RAT, MTPN_RAT, DADI_RAT, ECHI_RAT, TRAPI_RAT, LETMI_RAT, DHSO_RAT, PYC_RAT
proteasome complex	8 of 220 genes, 3.6%	142 of 36892 genes, 0.4%	0.00049	0.00%	0.00	PSMD2_RAT, PRS6A_RAT, ELP2_RAT, PSA6_RAT, PSB8_RAT, PRS7_RAT, PSB2_RAT, PSMEI_RAT
extracellular vesicular exosome	49 of 220 genes, 22.3%	4233 of 36892 genes, 11.5%	0.00077	0.09%	0.02	COX41_RAT, LTOR3_RAT, LANCI_RAT, CRYLI_RAT, CNPD2_RAT, CYTC_RAT, PSB8_RAT, S15A2_RAT, NCALD_RAT, VATI_RAT, PSMD2_RAT, EFTU_RAT, F213A_RAT, CSK2B_RAT, NUDT3_RAT, ATIBI_RAT, FIOAI_RAT, CN37_RAT, GSTM4_RAT, GLYG_RAT, PLPP_RAT, NCSI_RAT, SNAAR_RAT, S4A4_RAT, SODM_RAT, CSRP1_RAT, RS26_RAT, BPN1_RAT, AT1B3_RAT, MTPN_RAT, LG3BP_RAT, DADI_RAT, SEPT2_RAT, CDC42_RAT, GSTKI_RAT, TBA4A_RAT, ECHB_RAT, ECHI_RAT, TPPP3_RAT, TRAPI_RAT, RSB_RAT, GDIRI_RAT, DDAH2_RAT, HSIO5_RAT, LISI_RAT, CALX_RAT, PSA6_RAT, PSB2_RAT, CD166_RAT
extracellular organelle	49 of 220 genes, 22.3%	4238 of 36892 genes, 11.5%	0.00079	0.09%	0.02	COX41_RAT, LTOR3_RAT, LANCI_RAT, CRYLI_RAT, CNPD2_RAT, CYTC_RAT, PSB8_RAT, S15A2_RAT, NCALD_RAT, VATI_RAT, PSMD2_RAT, EFTU_RAT, F213A_RAT, CSK2B_RAT, NUDT3_RAT, ATIBI_RAT, FIOAI_RAT, CN37_RAT, GSTM4_RAT, GLYG_RAT, PLPP_RAT, NCSI_RAT, SNAAR_RAT, S4A4_RAT, SODM_RAT, CSRP1_RAT, RS26_RAT, BPN1_RAT, AT1B3_RAT, MTPN_RAT, LG3BP_RAT, DADI_RAT, SEPT2_RAT, CDC42_RAT, GSTKI_RAT, TBA4A_RAT, ECHB_RAT, ECHI_RAT, TPPP3_RAT, TRAPI_RAT, RSB_RAT, GDIRI_RAT, DDAH2_RAT, HSIO5_RAT, LISI_RAT, CALX_RAT, PSA6_RAT, PSB2_RAT, CD166_RAT

extracellular membrane- bounded organelle	49 of 220 genes, 22.3%	4238 of 36892 genes, 11.5%	0.00079	0.08%	0.02	COX41_RAT, LTOR3_RAT, LANCL_RAT, CRYLI_RAT, CNDP2_RAT, CYTC_RAT, PSB8_RAT, S15A2_RAT, NCA LD_RAT, VATI_RAT, PSM D2_RAT, EFTU_RAT, F213A_RAT, CSK2B_RAT, NUDT3_RAT, ATIBI_RAT, FIOAI_RAT, CN37_RAT, GSTM4_RAT, GLYG_RAT, PLPP_RAT, NCSI_RAT, SNAA_RAT, S4A4_RAT, SODM_RAT, CSRPI_RAT, RS26_RAT, BPNTI_RAT, AT1 B3_RAT, MTPN_RAT, LG3BP_RAT, DADI_RAT, SEPT2_RAT, CDC42_RAT, GSTKI_RAT, TBA4A_RAT, ECHB_RAT, ECHI_RAT, TPPP3_RAT, TRAPI_RAT, RS8_RAT, GDIRI_RAT, DDAH2_RAT, HSIOS_RAT, LISI_RAT, CALX_RAT, PSA6_RAT, PSB2_RAT, CD166_RAT
respiratory chain	8 of 220 genes, 3. 6%	155 of 36892 genes, 0. 4%	0.0009	0.08%	0.02	NDUSI_RAT, COX2_RAT, NDUS2_RAT, NDUV2_RAT, SDHA_RAT, QCR8_RAT, NDU S4_RAT, CX7A2_RAT
intracellular membrane- bounded organelle	122 of 220 genes, 55.5%	15481 of 36892 genes, 42.0%	0.00752	0.08%	0.02	COX41_RAT, KCRU_RAT, LANCL_RAT, RPNL_RAT, CDS2_RAT, PSB8_RAT, PAK2_RAT, BCATL_RAT, RBBP7_RAT, STIPI_RAT, NDUS4_RAT, CSK2B_RAT, VATEI_RAT, SYN2_RAT, MPCP_RAT, 7B2_RAT, IDH G1_RAT, ECHM_RAT, COX2_RAT, RPPGF2_RAT, GSTM4_RAT, CSKP_RAT, CLCB_RAT, LGMN_RAT, MYO5A_RAT, FTO_RAT, IVD_RAT, ATPA_RAT, NCSI_RAT, KPVM_RAT, SYTL_RAT, RS19_RAT, DDXI_RAT, RS26_RAT, CSRPI_RAT, DLG4_RAT, PTN23_RAT, ROCK2_RAT, DHB4_RAT, MATR3_RAT, AT1 B3_RAT, ELOB_RAT, VAPA_RAT, U2AF4_RAT, NDUS2_RAT, NSDHL_RAT, SEPT2_RAT, EL P2_RAT, HCD2_RAT, IDH3B_RAT, LPPRC_RAT, EFIAI_RAT, SCFDI_RAT, KPCA_RAT, RS3_RAT, SH3GI_RAT, VDACC2_RAT, ULAI_RAT, ATPG_RAT, GSTPI_RAT, NDUV2_RAT, SDHA_RAT, DDAH2_RAT, HSI05_RAT, ACSF2_RAT, PSA6_RAT, SCAMI_RAT, GAK_RAT, PSB2_RAT, ATP8_RAT, NU CL_RAT, RLAO_RAT, RCN 2_RAT, LTOR3_RAT, PPIID_RAT, VATI_RAT, ROGDI_RAT, M20M_RAT, EFTU_RAT, PACNI_RAT, NCOAT_RAT, QCR8_RAT, F213A_RAT, PRS6A_RAT, DHE3_RAT, CATD_RAT, NDUSI_RAT, PITMI_RAT, ACADL_RAT, SAEI_RAT, ANMI_RAT, CN37_RAT, DLDH_RAT, TIM13_RAT, KINH_RAT, RT CB_RAT, MYH9_RAT, PLCGI_RAT, VGF_RAT, CX7A2_RAT, DECR_RAT, SODM_RAT, PHOCN_RAT, RAB3C_RAT, CLCA_RAT, RL23A_RAT, MTPN_RAT, DADI_RAT, MGSTI_RAT, CDC42_RAT, GSTKI_RAT, ECHB_RAT, ECHI_RAT, LETMI_RAT, TRAPI_RAT, DHSO_RAT, RS8_RAT, NAKD2_RAT, LISI_RAT, CALX_RAT, PYC_RAT, SFXNS_RAT