

Table 2S – Gene Ontology terms shared by gene clusters

1st Ensembl-Gene	2nd Ensembl-Gene	1st Hugo-Name	2nd Hugo-Name	Common GO-Terms in Layer 4	Common GO-Terms in Layer 5
ENSG00000008125	ENSG00000008128	MIFR-2	CDC2L1	GO:0019538	
ENSG00000175279	ENSG00000160049	CORT	DFFA	GO:0003677,GO:0007242	
ENSG00000153898	ENSG00000055732	MCOLN2	MCOLN3	GO:0015268,GO:0006811	GO:0005216,GO:0006812
ENSG00000162654	ENSG00000154451	GBP4	GBPS	GO:0017076,GO:0016817,GO:0009607	GO:0019001,GO:0016818,GO:0006952
ENSG00000084754	ENSG00000138029	HADHA	HADHB	GO:0016614,GO:0016746,GO:0016835,GO:0005737,GO:0006629,GO:0006082	GO:0016616,GO:0016747,GO:0016836,GO:0005739,GO:0006631,GO:0019752
ENSG00000143947	ENSG00000085760	RPS27A	MTIF2	GO:0005737,GO:0009058,GO:0019538	GO:0009059,GO:0006412
ENSG00000144021	ENSG00000144028	unknown	ASCC3L1	GO:0005634,GO:0006139	
ENSG00000088179	ENSG00000115109	PTPN4	EPB41L5	GO:0005737	GO:0005856
ENSG00000138443	ENSG00000173166	ABI2	RAPH1	GO:0005737	
ENSG00000173166	ENSG00000178562	RAPH1	CD28	GO:0007166	
ENSG00000178562	ENSG00000163599	CD28	CTLA4	GO:0005887,GO:0016021,GO:0009607	GO:0005887,GO:0006952
ENSG00000134086	ENSG00000134070	VHL	IRAK2	GO:0019538	
ENSG00000131368	ENSG00000131381	MRPS25	ZFYVE20	GO:0005737	
ENSG00000145284	ENSG00000138674	SCD4	SEC31L1	GO:0005737	
ENSG00000052802	ENSG00000109472	SC4MOL	CPE	GO:0005886	
ENSG00000132356	ENSG00000145592	PRKAA1	RPL37	GO:0009058,GO:0019538	GO:0009059
ENSG00000113318	ENSG00000113319	MSH3	RASGRF2	GO:0017076	
ENSG00000152700	ENSG00000113615	SARA2	SEC24A	GO:0005737,GO:0015031	GO:0005783,GO:0005794,GO:0006886
ENSG00000177895	ENSG00000177839	PCDHB16	PCDHB9	GO:0016337,GO:0019226,GO:0009887,GO:0016021	GO:0007156,GO:0007268,GO:0007399
ENSG00000122566	ENSG00000122565	HNRPA2B1	CBX3	GO:0005634,GO:0006139	
ENSG00000167031	ENSG00000147454	LYSAL1	unknown	GO:0005737	
ENSG00000136933	ENSG00000044574	unknown	HSPA5	GO:0005737	
ENSG00000156510	ENSG00000156515	unknown	HK1	GO:0016772,GO:0019200,GO:0017076,GO:0005975,GO:0006066,GO:0009056,GO:0006091	GO:0016773,GO:0004396,GO:0030554,GO:0006096,GO:0015980
ENSG00000079332	ENSG00000180817	SARA1	PP	GO:0016817	GO:0016818
ENSG00000148732	ENSG00000122863	PSAP	CHST3	GO:0005737,GO:0016021	
ENSG00000107796	ENSG00000026103	ACTA2	TNFRSF6	GO:0005737	
ENSG00000119912	ENSG00000138160	IDE	KIF11	GO:0005737	
ENSG00000110218	ENSG00000123901	PANX1	GPR83	GO:0016021	
ENSG00000111319	ENSG00000111321	SCNN1A	LTBR	GO:0016021	
ENSG00000069493	ENSG00000110848	unknown	CD69	GO:0004888,GO:0005529,GO:0005887,GO:0016021,GO:0009607,GO:0016337,GO:0007166	GO:0005887,GO:0006952,GO:0007157
ENSG00000087470	ENSG00000139131	DNM1L	unknown	GO:0017076	
ENSG00000102738	ENSG00000102743	MRPS31	SLC25A15	GO:0005737	GO:0005739
ENSG00000068650	ENSG00000126217	ATP11A	MCF2L	GO:0017076	
ENSG00000165410	ENSG00000092277	CFL2	BAZ1A	GO:0005634,GO:0005737	GO:0005856
ENSG00000140990	ENSG00000140988	NDUFB10	RPS2	GO:0005737	
ENSG0000008516	ENSG0000008517	MMP25	unknown	GO:0009607	GO:0006952
ENSG00000109046	ENSG00000141068	WSB1	KSR	GO:0007242	
ENSG00000108823	ENSG00000108821	SGCA	COL1A1	GO:0009887	
ENSG00000132874	ENSG00000141469	SLC14A2	SLC14A1	GO:0016021,GO:0015204,GO:0015268,GO:0015837	GO:0015204,GO:0015840
ENSG00000152229	ENSG00000152234	PSTPIP2	ATP5A1	GO:0005737	
ENSG00000130254	ENSG00000160633	SAFB2	SAFB	GO:0003677,GO:0005634	
ENSG00000090659	ENSG00000104938	CD209	CD209L	GO:0005529	
ENSG00000125753	ENSG00000125741	VASP	OPA3	GO:0005737	GO:0005856
ENSG00000142541	ENSG00000142534	RPL13A	RPS11	GO:0005737,GO:0030529,GO:0009058,GO:0019538	GO:0005840,GO:0009059,GO:0006412
ENSG00000123872	ENSG00000175885	unknown	ZNF611	GO:0005634,GO:0006139	GO:0006350
ENSG00000170954	ENSG00000170949	ZNF415	ZNF160	GO:0006139	GO:0006350
ENSG00000000419	ENSG00000124217	DPM1	MOC53	GO:0009058	
ENSG00000142192	ENSG00000166265	APP	CYR1	GO:0016021	
ENSG00000159113	ENSG00000142166	IL10RB	IFNAR1	GO:0004888,GO:0019955,GO:0016021,GO:0009607	GO:0004896
ENSG00000160216	ENSG00000160218	AGPAT3	TMEM1	GO:0016021	
ENSG00000100413	ENSG00000172346	POLR3H	unknown	GO:0006139	GO:0006350

<b>GO-Term layer 4</b>	<b>Description</b>	<b>GO-Term layer 5</b>	<b>Description</b>
GO:0003677	DNA binding	GO:0004396	hexokinase activity
GO:0004888	transmembrane receptor activity	GO:0004896	hematopoietin/interferon-class (D200-domain) cytokine receptor activity
GO:0005529	sugar binding	GO:0005216	ion channel activity
GO:0005634	nucleus	GO:0005739	mitochondrion
GO:0005737	cytoplasm	GO:0005783	endoplasmic reticulum
GO:0005886	plasma membrane	GO:0005794	Golgi apparatus
GO:0005887	integral to plasma membrane	GO:0005840	ribosome
GO:0005975	carbohydrate metabolism	GO:0005856	cytoskeleton
GO:0006066	alcohol metabolism	GO:0005887	integral to plasma membrane
GO:0006082	organic acid metabolism	GO:0006096	glycolysis
GO:0006091	generation of precursor metabolites and energy	GO:0006350	transcription
GO:0006139	nucleobase, nucleoside, nucleotide and nucleic acid metabolism	GO:0006412	protein biosynthesis
GO:0006629	lipid metabolism	GO:0006631	fatty acid metabolism
GO:0006811	ion transport	GO:0006812	cation transport
GO:0007166	cell surface receptor linked signal transduction	GO:0006886	intracellular protein transport
GO:0007242	intracellular signaling cascade	GO:0006952	defense response
GO:0009056	catabolism	GO:0007156	homophilic cell adhesion
GO:0009058	biosynthesis	GO:0007157	heterophilic cell adhesion
GO:0009607	response to biotic stimulus	GO:0007268	synaptic transmission
GO:0009887	organogenesis	GO:0007399	neurogenesis
GO:0015031	protein transport	GO:0009059	macromolecule biosynthesis
GO:0015204	urea transporter activity	GO:0015204	urea transporter activity
GO:0015268	alpha-type channel activity	GO:0015840	urea transport
GO:0015837	amine transport	GO:0015980	energy derivation by oxidation of organic compounds
GO:0016021	integral to membrane	GO:0016616	oxidoreductase activity, acting on the CH-OH group of donors, NAD or NADP as ac
GO:0016337	cell-cell adhesion	GO:0016747	transferase activity, transferring groups other than amino-acyl groups
GO:0016614	oxidoreductase activity, acting on CH-OH group of donors	GO:0016773	phosphotransferase activity, alcohol group as acceptor
GO:0016746	transferase activity, transferring acyl groups	GO:0016818	hydrolase activity, acting on acid anhydrides, in phosphorus-containing anhydride
GO:0016772	transferase activity, transferring phosphorus-containing groups	GO:0016836	hydro-lyase activity
GO:0016817	hydrolase activity, acting on acid anhydrides	GO:0019001	guanyl nucleotide binding
GO:0016835	carbon-oxygen lyase activity	GO:0019752	carboxylic acid metabolism
GO:0017076	purine nucleotide binding	GO:0030554	adenyl nucleotide binding
GO:0019200	carbohydrate kinase activity		
GO:0019226	transmission of nerve impulse		
GO:0019538	protein metabolism		
GO:0019955	cytokine binding		
GO:0030529	ribonucleoprotein complex		