

Supplementary Document

Table S1: An orthologous gene list containing 162 genes from 12 selected model species. Each gene possesses a sequence identity higher than 80% compared to human genome mutually.

Ensembl Gene ID	Gene Name	Description
ENSG00000006042	<i>TMEM98</i>	transmembrane protein 98
ENSG00000013016	<i>EHD3</i>	EH-domain containing 3
ENSG00000025800	<i>KPNA6</i>	karyopherin alpha 6 (importin alpha 7)
ENSG00000044574	<i>HSPA5</i>	heat shock 70kDa protein 5 (glucose-regulated protein, 78kDa)
ENSG00000047249	<i>ATP6V1H</i>	ATPase, H ⁺ transporting, lysosomal 50/57kDa, V1 subunit H
ENSG00000048540	<i>LMO3</i>	LIM domain only 3 (rhombotin-like 2)
ENSG00000054803	<i>CBLN4</i>	cerebellin 4 precursor
ENSG00000055163	<i>CYFIP2</i>	cytoplasmic FMR1 interacting protein 2
ENSG00000061676	<i>NCKAP1</i>	NCK-associated protein 1
ENSG00000061918	<i>GUCY1B3</i>	guanylate cyclase 1, soluble, beta 3
ENSG00000062725	<i>APPBP2</i>	amyloid beta precursor protein (cytoplasmic tail) binding protein 2
ENSG00000066117	<i>SMARCD1</i>	SWI/SNF related, matrix associated, actin dependent regulator of chromatin, subfamily d, member 1
ENSG00000066777	<i>ARFGEF1</i>	ADP-ribosylation factor guanine nucleotide-exchange factor 1 (brefeldin A-inhibited)
ENSG00000068793	<i>CYFIP1</i>	cytoplasmic FMR1 interacting protein 1
ENSG00000069329	<i>VPS35</i>	vacuolar protein sorting 35 homolog (<i>S. cerevisiae</i>)
ENSG00000070718	<i>AP3M2</i>	adaptor-related protein complex 3, mu 2 subunit

ENSG00000073712	<i>FERMT2</i>	fermitin family member 2
ENSG00000075290	<i>WNT8B</i>	wingless-type MMTV integration site family, member 8B
ENSG00000077147	<i>TM9SF3</i>	transmembrane 9 superfamily member 3
ENSG00000077458	<i>FAM76B</i>	family with sequence similarity 76, member B
ENSG00000077549	<i>CAPZB</i>	capping protein (actin filament) muscle Z-line, beta
ENSG00000078142	<i>PIK3C3</i>	phosphoinositide-3-kinase, class 3
ENSG00000079785	<i>DDX1</i>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 1
ENSG00000084623	<i>EIF3I</i>	eukaryotic translation initiation factor 3, subunit I
ENSG00000086475	<i>SEPHS1</i>	selenophosphate synthetase 1
ENSG00000087191	<i>PSMC5</i>	proteasome (prosome, macropain) 26S subunit, ATPase, 5
ENSG00000100206	<i>DMC1</i>	DMC1 dosage suppressor of mck1 homolog, meiosis-specific homologous recombination (yeast)
ENSG00000100220	<i>C22orf28</i>	chromosome 22 open reading frame 28
ENSG00000100280	<i>APIB1</i>	adaptor-related protein complex 1, beta 1 subunit
ENSG00000100353	<i>EIF3D</i>	eukaryotic translation initiation factor 3, subunit D
ENSG00000100410	<i>PHF5A</i>	PHD finger protein 5A
ENSG00000100528	<i>CNIH</i>	cornichon homolog (Drosophila)
ENSG00000100796	<i>SMEK1</i>	SMEK homolog 1, suppressor of mek1 (Dictyostelium)
ENSG00000100934	<i>SEC23A</i>	Sec23 homolog A (<i>S. cerevisiae</i>)
ENSG00000101146	<i>RAE1</i>	RAE1 RNA export 1 homolog (<i>S. pombe</i>)
ENSG00000101310	<i>SEC23B</i>	Sec23 homolog B (<i>S. cerevisiae</i>)
ENSG00000101460	<i>MAP1LC3A</i>	microtubule-associated protein 1 light chain 3 alpha

ENSG00000102978	<i>POLR2C</i>	polymerase (RNA) II (DNA directed) polypeptide C, 33kDa
ENSG00000103043	<i>VAC14</i>	Vac14 homolog (<i>S. cerevisiae</i>)
ENSG00000105258	<i>POLR2I</i>	polymerase (RNA) II (DNA directed) polypeptide I, 14.5kDa
ENSG00000105443	<i>CYTH2</i>	cytohesin 2
ENSG00000105618	<i>PRPF31</i>	PRP31 pre-mRNA processing factor 31 homolog (<i>S. cerevisiae</i>)
ENSG00000107105	<i>ELAVL2</i>	ELAV (embryonic lethal, abnormal vision, <i>Drosophila</i>)-like 2 (Hu antigen B)
ENSG00000108055	<i>SMC3</i>	structural maintenance of chromosomes 3
ENSG00000108061	<i>SHOC2</i>	soc-2 suppressor of clear homolog (<i>C. elegans</i>)
ENSG00000108306	<i>FBXL20</i>	F-box and leucine-rich repeat protein 20
ENSG00000108379	<i>WNT3</i>	wingless-type MMTV integration site family, member 3
ENSG00000108591	<i>DRG2</i>	developmentally regulated GTP binding protein 2
ENSG00000108883	<i>EFTUD2</i>	elongation factor Tu GTP binding domain containing 2
ENSG00000109956	<i>B3GAT1</i>	beta-1,3-glucuronyltransferase 1 (glucuronosyltransferase P)
ENSG00000110367	<i>DDX6</i>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 6
ENSG00000110906	<i>KCTD10</i>	potassium channel tetramerisation domain containing 10
ENSG00000111530	<i>CAND1</i>	cullin-associated and neddylation-dissociated 1
ENSG00000111707	<i>SUDS3</i>	suppressor of defective silencing 3 homolog (<i>S. cerevisiae</i>)
ENSG00000111783	<i>RFX4</i>	regulatory factor X, 4 (influences HLA class II expression)
ENSG00000112237	<i>CCNC</i>	cyclin C
ENSG00000112282	<i>MED23</i>	mediator complex subunit 23
ENSG00000112308	<i>C6orf62</i>	chromosome 6 open reading frame 62

ENSG00000112333	<i>NR2E1</i>	nuclear receptor subfamily 2, group E, member 1
ENSG00000112335	<i>SNX3</i>	sorting nexin 3
ENSG00000113369	<i>ARRDC3</i>	arrestin domain containing 3
ENSG00000113595	<i>TRIM23</i>	tripartite motif containing 23
ENSG00000113719	<i>ERGIC1</i>	endoplasmic reticulum-golgi intermediate compartment (ERGIC) 1
ENSG00000114030	<i>KPNA1</i>	karyopherin alpha 1 (importin alpha 5)
ENSG00000114388	<i>NPRL2</i>	nitrogen permease regulator-like 2 (<i>S. cerevisiae</i>)
ENSG00000115866	<i>DARS</i>	aspartyl-tRNA synthetase
ENSG00000116586	<i>LAMTOR2</i>	late endosomal/lysosomal adaptor, MAPK and MTOR activator 2
ENSG00000117153	<i>KLHL12</i>	kelch-like 12 (<i>Drosophila</i>)
ENSG00000117505	<i>DRI</i>	down-regulator of transcription 1, TBP-binding (negative cofactor 2)
ENSG00000119487	<i>MAPKAP1</i>	mitogen-activated protein kinase associated protein 1
ENSG00000119820	<i>YIPF4</i>	Yip1 domain family, member 4
ENSG00000120509	<i>PDZD11</i>	PDZ domain containing 11
ENSG00000121022	<i>COPS5</i>	COP9 constitutive photomorphogenic homolog subunit 5 (<i>Arabidopsis</i>)
ENSG00000123159	<i>GIPC1</i>	GIPC PDZ domain containing family, member 1
ENSG00000123353	<i>ORMDL2</i>	ORM1-like 2 (<i>S. cerevisiae</i>)
ENSG00000123374	<i>CDK2</i>	cyclin-dependent kinase 2
ENSG00000123395	<i>C12orf44</i>	chromosome 12 open reading frame 44
ENSG00000123908	<i>EIF2C2</i>	eukaryotic translation initiation factor 2C, 2
ENSG00000124207	<i>CSE1L</i>	CSE1 chromosome segregation 1-like (<i>yeast</i>)

ENSG00000124209	<i>RAB22A</i>	RAB22A, member RAS oncogene family
ENSG00000125037	<i>TMEM111</i>	transmembrane protein 111
ENSG00000125354	<i>SEPT6</i>	septin 6
ENSG00000125820	<i>NKX2-2</i>	NK2 homeobox 2
ENSG00000125851	<i>PCSK2</i>	proprotein convertase subtilisin/kexin type 2
ENSG00000126970	<i>ZC4H2</i>	zinc finger, C4H2 domain containing
ENSG00000127054	<i>CPSF3L</i>	cleavage and polyadenylation specific factor 3-like
ENSG00000127774	<i>TMEM93</i>	transmembrane protein 93
ENSG00000127922	<i>SHFM1</i>	split hand/foot malformation (ectrodactyly) type 1
ENSG00000128699	<i>ORMDL1</i>	ORM1-like 1 (<i>S. cerevisiae</i>)
ENSG00000129083	<i>COPB1</i>	coatamer protein complex, subunit beta 1
ENSG00000129562	<i>DAD1</i>	defender against cell death 1
ENSG00000130520	<i>LSM4</i>	LSM4 homolog, U6 small nuclear RNA associated (<i>S. cerevisiae</i>)
ENSG00000132142	<i>ACACA</i>	acetyl-CoA carboxylase alpha
ENSG00000132356	<i>PRKAA1</i>	protein kinase, AMP-activated, alpha 1 catalytic subunit
ENSG00000132640	<i>BTBD3</i>	BTB (POZ) domain containing 3
ENSG00000132646	<i>PCNA</i>	proliferating cell nuclear antigen
ENSG00000132912	<i>DCTN4</i>	dynactin 4 (p62)
ENSG00000133119	<i>RFC3</i>	replication factor C (activator 1) 3, 38kDa
ENSG00000134014	<i>ELP3</i>	elongation protein 3 homolog (<i>S. cerevisiae</i>)
ENSG00000134058	<i>CDK7</i>	cyclin-dependent kinase 7
ENSG00000135932	<i>CAB39</i>	calcium binding protein 39

ENSG00000136518	<i>ACTL6A</i>	actin-like 6A
ENSG00000137522	<i>RNF121</i>	ring finger protein 121
ENSG00000137822	<i>TUBGCP4</i>	tubulin, gamma complex associated protein 4
ENSG00000137947	<i>GTF2B</i>	general transcription factor IIB
ENSG00000140612	<i>SEC11A</i>	SEC11 homolog A (<i>S. cerevisiae</i>)
ENSG00000140829	<i>DHX38</i>	DEAH (Asp-Glu-Ala-His) box polypeptide 38
ENSG00000141429	<i>GALNT1</i>	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 1 (GalNAc-T1)
ENSG00000144043	<i>TEX261</i>	testis expressed 261
ENSG00000144231	<i>POLR2D</i>	polymerase (RNA) II (DNA directed) polypeptide D
ENSG00000144580	<i>RQCD1</i>	RCD1 required for cell differentiation1 homolog (<i>S. pombe</i>)
ENSG00000144935	<i>TRPC1</i>	transient receptor potential cation channel, subfamily C, member 1
ENSG00000145817	<i>YIPF5</i>	Yip1 domain family, member 5
ENSG00000145833	<i>DDX46</i>	DEAD (Asp-Glu-Ala-Asp) box polypeptide 46
ENSG00000147164	<i>SNX12</i>	sorting nexin 12
ENSG00000148606	<i>POLR3A</i>	polymerase (RNA) III (DNA directed) polypeptide A, 155kDa
ENSG00000148943	<i>LIN7C</i>	lin-7 homolog C (<i>C. elegans</i>)
ENSG00000149100	<i>EIF3M</i>	eukaryotic translation initiation factor 3, subunit M
ENSG00000151348	<i>EXT2</i>	exostosin 2
ENSG00000151729	<i>SLC25A4</i>	solute carrier family 25 (mitochondrial carrier; adenine nucleotide translocator), member 4
ENSG00000154473	<i>BUB3</i>	budding uninhibited by benzimidazoles 3 homolog (yeast)
ENSG00000157837	<i>SPPL3</i>	Signal peptide peptidase-like 3

ENSG00000158864	<i>NDUFS2</i>	NADH dehydrogenase (ubiquinone) Fe-S protein 2, 49kDa (NADH-coenzyme Q reductase)
ENSG00000159210	<i>SNF8</i>	SNF8, ESCRT-II complex subunit, homolog (<i>S. cerevisiae</i>)
ENSG00000160563	<i>MED27</i>	mediator complex subunit 27
ENSG00000162374	<i>ELAVL4</i>	ELAV (embryonic lethal, abnormal vision, <i>Drosophila</i>)-like 4 (Hu antigen D)
ENSG00000162409	<i>PRKAA2</i>	protein kinase, AMP-activated, alpha 2 catalytic subunit
ENSG00000163479	<i>SSR2</i>	signal sequence receptor, beta (translocon-associated protein beta)
ENSG00000163625	<i>WDFY3</i>	WD repeat and FYVE domain containing 3
ENSG00000163636	<i>PSMD6</i>	proteasome (prosome, macropain) 26S subunit, non-ATPase, 6
ENSG00000164091	<i>WDR82</i>	WD repeat domain 82
ENSG00000164167	<i>LSM6</i>	LSM6 homolog, U6 small nuclear RNA associated (<i>S. cerevisiae</i>)
ENSG00000164332	<i>UBLCP1</i>	ubiquitin-like domain containing CTD phosphatase 1 [
ENSG00000164576	<i>SAP30L</i>	SAP30-like
ENSG00000165630	<i>PRPF18</i>	PRP18 pre-mRNA processing factor 18 homolog (<i>S. cerevisiae</i>)
ENSG00000166407	<i>LMO1</i>	LIM domain only 1 (rhombotin 1)
ENSG00000166747	<i>APIG1</i>	adaptor-related protein complex 1, gamma 1 subunit
ENSG00000166887	<i>VPS39</i>	vacuolar protein sorting 39 homolog (<i>S. cerevisiae</i>)
ENSG00000167965	<i>MLST8</i>	MTOR associated protein, LST8 homolog (<i>S. cerevisiae</i>)
ENSG00000168291	<i>PDHB</i>	pyruvate dehydrogenase (lipoamide) beta
ENSG00000168301	<i>KCTD6</i>	potassium channel tetramerisation domain containing 6
ENSG00000168385	<i>SEPT2</i>	septin 2
ENSG00000169504	<i>CLIC4</i>	chloride intracellular channel 4

ENSG00000170312	<i>CDK1</i>	cyclin-dependent kinase 1
ENSG00000172318	<i>B3GALT1</i>	UDP-Gal:betaGlcNAc beta 1,3-galactosyltransferase, polypeptide 1
ENSG00000173418	<i>NAA20</i>	N(alpha)-acetyltransferase 20, NatB catalytic subunit
ENSG00000174231	<i>PRPF8</i>	PRP8 pre-mRNA processing factor 8 homolog (<i>S. cerevisiae</i>)
ENSG00000175087	<i>PDIK1L</i>	PDLIM1 interacting kinase 1 like
ENSG00000178307	<i>TMEM11</i>	transmembrane protein 11
ENSG00000181852	<i>RNF41</i>	ring finger protein 41
ENSG00000183207	<i>RUVBL2</i>	RuvB-like 2 (<i>E. coli</i>)
ENSG00000183475	<i>ASB7</i>	ankyrin repeat and SOCS box containing 7
ENSG00000183726	<i>TMEM50A</i>	transmembrane protein 50A
ENSG00000185009	<i>AP3M1</i>	adaptor-related protein complex 3, mu 1 subunit
ENSG00000185527	<i>PDE6G</i>	phosphodiesterase 6G, cGMP-specific, rod, gamma
ENSG00000185722	<i>ANKFY1</i>	ankyrin repeat and FYVE domain containing 1
ENSG00000187555	<i>USP7</i>	ubiquitin specific peptidase 7 (herpes virus-associated)
ENSG00000196655	<i>TRAPPC4</i>	trafficking protein particle complex 4
ENSG00000198700	<i>IPO9</i>	importin 9
ENSG00000203879	<i>GDI1</i>	GDP dissociation inhibitor 1
ENSG00000204628	<i>GNB2L1</i>	guanine nucleotide binding protein (G protein), beta polypeptide 2-like 1
ENSG00000213246	<i>SUPT4H1</i>	suppressor of Ty 4 homolog 1 (<i>S. cerevisiae</i>)