

**Supplementary files:**

***De novo* assembly of *Schizothorax waltoni* transcriptome to identify  
immune-related genes and microsatellite markers**

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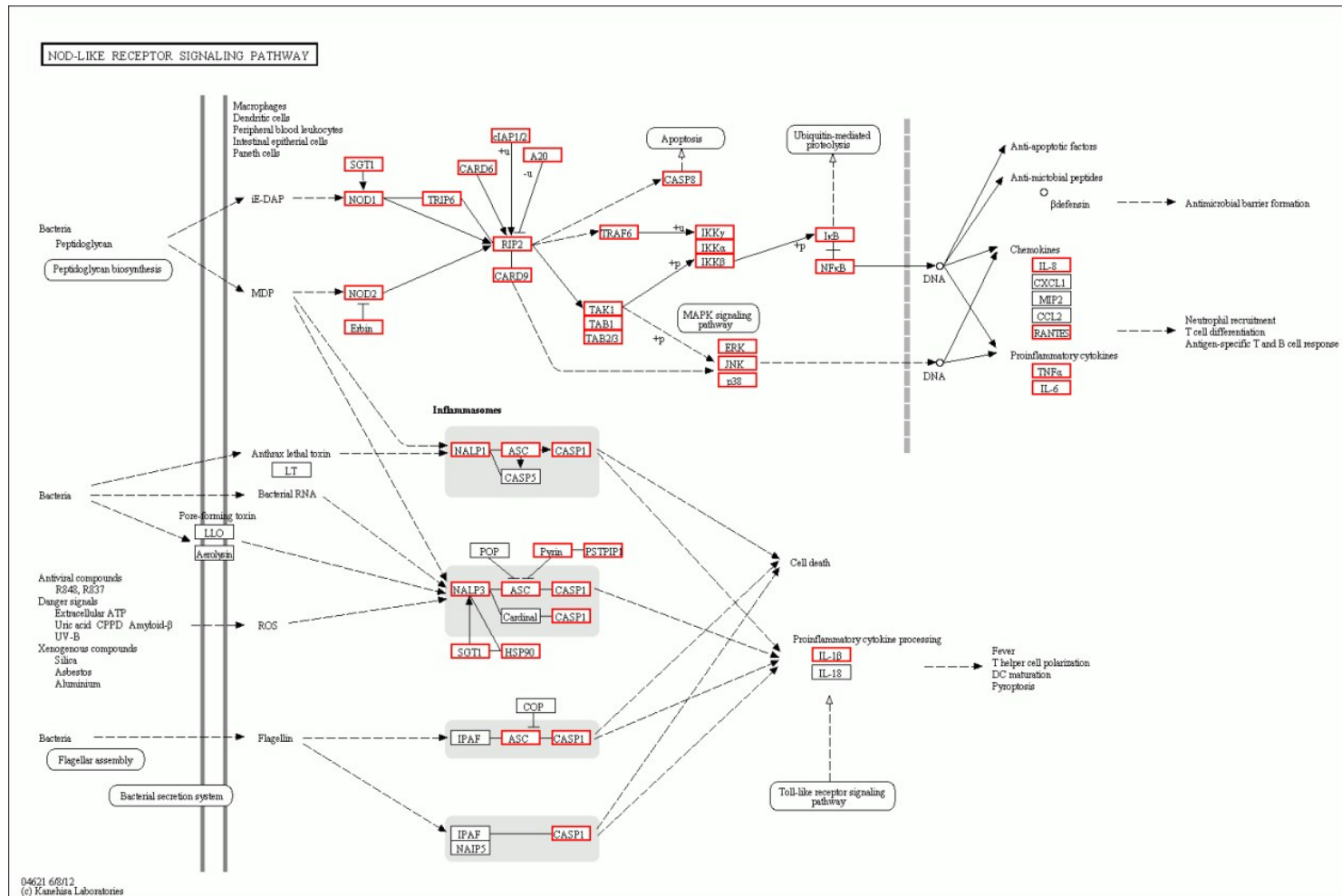
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**Figure S1: NOD-like receptor signaling pathway showing the annotated and non-annotated proteins. Proteins appearing in *Schizothorax waltoni*'s transcriptome are represented in red boxes and absent proteins in white boxes.**



**Supplementary table S1:** COG functional classification of putative protein for *Schizothorax waltoni* transcriptome.

Code	Functional-Categories	Gene-Number	All-Number	Percent
A	RNA processing and modification	81	11334	0.7
B	Chromatin structure and dynamics	375	11334	3.3
C	Energy production and conversion	536	11334	4.7
D	Cell cycle control, cell division, chromosome partitioning	1538	11334	13.6
E	Amino acid transport and metabolism	723	11334	6.4
F	Nucleotide transport and metabolism	240	11334	2.1
G	Carbohydrate transport and metabolism	1460	11334	12.9
H	Coenzyme transport and metabolism	415	11334	3.7
I	Lipid transport and metabolism	461	11334	4.1
J	Translation, ribosomal structure and biogenesis	1891	11334	16.7
K	Transcription	2127	11334	18.8
L	Replication, recombination and repair	2170	11334	19.1
M	Cell wall/membrane/envelope biogenesis	1317	11334	11.6
N	Cell motility	380	11334	3.4
O	Posttranslational modification, protein turnover, chaperones	1876	11334	16.6
P	Inorganic ion transport and metabolism	887	11334	7.8
Q	Secondary metabolites biosynthesis, transport and catabolism	579	11334	5.1
R	General function prediction only	4899	11334	43.2
S	Function unknown	1494	11334	13.2
T	Signal transduction mechanisms	1553	11334	13.7
U	Intracellular trafficking, secretion, and vesicular transport	860	11334	7.6

V	Defense mechanisms	106	11334	0.9
W	Extracellular structures	19	11334	0.2
Y	Nuclear structure	8	11334	0.1
Z	Cytoskeleton	859	11334	7.6

**Supplementary table S2:** Detailed annotation information for KEGG pathways.

#Pathway	Count	Pathway ID	Level 1	Level 2
Lysine degradation	252	ko00310	Metabolism	Amino acid metabolism
Arginine and proline metabolism	146	ko00330	Metabolism	Amino acid metabolism
Valine, leucine and isoleucine degradation	134	ko00280	Metabolism	Amino acid metabolism
Glycine, serine and threonine metabolism	108	ko00260	Metabolism	Amino acid metabolism
Cysteine and methionine metabolism	105	ko00270	Metabolism	Amino acid metabolism
Tryptophan metabolism	88	ko00380	Metabolism	Amino acid metabolism
Alanine, aspartate and glutamate metabolism	84	ko00250	Metabolism	Amino acid metabolism
Tyrosine metabolism	57	ko00350	Metabolism	Amino acid metabolism
Histidine metabolism	47	ko00340	Metabolism	Amino acid metabolism
Phenylalanine metabolism	34	ko00360	Metabolism	Amino acid metabolism
Phenylalanine, tyrosine and tryptophan biosynthesis	16	ko00400	Metabolism	Amino acid metabolism
Valine, leucine and isoleucine biosynthesis	5	ko00290	Metabolism	Amino acid metabolism
Lysine biosynthesis	4	ko00300	Metabolism	Amino acid metabolism
Butirosin and neomycin biosynthesis	10	ko00524	Metabolism	Biosynthesis of other secondary metabolites

Caffeine metabolism	8	ko00232	Metabolism	Biosynthesis of other secondary metabolites
Pathways in cancer	1127	ko05200	Human Diseases	Cancers: Overview
Transcriptional misregulation in cancer	585	ko05202	Human Diseases	Cancers: Overview
Prostate cancer	319	ko05215	Human Diseases	Cancers: Specific types
Small cell lung cancer	255	ko05222	Human Diseases	Cancers: Specific types
Renal cell carcinoma	241	ko05211	Human Diseases	Cancers: Specific types
Chronic myeloid leukemia	234	ko05220	Human Diseases	Cancers: Specific types
Colorectal cancer	231	ko05210	Human Diseases	Cancers: Specific types
Glioma	226	ko05214	Human Diseases	Cancers: Specific types
Basal cell carcinoma	225	ko05217	Human Diseases	Cancers: Specific types
Pancreatic cancer	202	ko05212	Human Diseases	Cancers: Specific types
Endometrial cancer	195	ko05213	Human Diseases	Cancers: Specific types
Non-small cell lung cancer	158	ko05223	Human Diseases	Cancers: Specific types
Melanoma	152	ko05218	Human Diseases	Cancers: Specific types
Acute myeloid leukemia	152	ko05221	Human Diseases	Cancers: Specific types
Thyroid cancer	124	ko05216	Human Diseases	Cancers: Specific types
Bladder cancer	116	ko05219	Human Diseases	Cancers: Specific types
Amino sugar and nucleotide sugar metabolism	309	ko00520	Metabolism	Carbohydrate metabolism
Starch and sucrose metabolism	239	ko00500	Metabolism	Carbohydrate metabolism
Glycolysis / Gluconeogenesis	211	ko00010	Metabolism	Carbohydrate metabolism
Fructose and mannose metabolism	202	ko00051	Metabolism	Carbohydrate metabolism

Inositol phosphate metabolism	184	ko00562	Metabolism	Carbohydrate metabolism
Pentose and glucuronate interconversions	176	ko00040	Metabolism	Carbohydrate metabolism
Ascorbate and aldarate metabolism	146	ko00053	Metabolism	Carbohydrate metabolism
Pyruvate metabolism	125	ko00620	Metabolism	Carbohydrate metabolism
Galactose metabolism	103	ko00052	Metabolism	Carbohydrate metabolism
Propanoate metabolism	92	ko00640	Metabolism	Carbohydrate metabolism
Pentose phosphate pathway	91	ko00030	Metabolism	Carbohydrate metabolism
Citrate cycle (TCA cycle)	91	ko00020	Metabolism	Carbohydrate metabolism
Glyoxylate and dicarboxylate metabolism	77	ko00630	Metabolism	Carbohydrate metabolism
Butanoate metabolism	73	ko00650	Metabolism	Carbohydrate metabolism
Dilated cardiomyopathy	848	ko05414	Human Diseases	Cardiovascular diseases
Hypertrophic cardiomyopathy (HCM)	777	ko05410	Human Diseases	Cardiovascular diseases
Viral myocarditis	651	ko05416	Human Diseases	Cardiovascular diseases
Arrhythmogenic right ventricular cardiomyopathy (ARVC)	408	ko05412	Human Diseases	Cardiovascular diseases
Focal adhesion	927	ko04510	Cellular Processes	Cell communication
Tight junction	843	ko04530	Cellular Processes	Cell communication
Adherens junction	521	ko04520	Cellular Processes	Cell communication
Gap junction	245	ko04540	Cellular Processes	Cell communication
Cell cycle	314	ko04110	Cellular Processes	Cell growth and death
Oocyte meiosis	287	ko04114	Cellular Processes	Cell growth and death

p53 signaling pathway	219	ko04115	Cellular Processes	Cell growth and death
Apoptosis	210	ko04210	Cellular Processes	Cell growth and death
Regulation of actin cytoskeleton	1210	ko04810	Cellular Processes	Cell motility
Vascular smooth muscle contraction	721	ko04270	Organismal Systems	Circulatory system
Cardiac muscle contraction	707	ko04260	Organismal Systems	Circulatory system
Axon guidance	530	ko04360	Organismal Systems	Development
Osteoclast differentiation	431	ko04380	Organismal Systems	Development
Dorso-ventral axis formation	122	ko04320	Organismal Systems	Development
Bile secretion	393	ko04976	Organismal Systems	Digestive system
Gastric acid secretion	392	ko04971	Organismal Systems	Digestive system
Pancreatic secretion	384	ko04972	Organismal Systems	Digestive system
Salivary secretion	362	ko04970	Organismal Systems	Digestive system
Protein digestion and absorption	334	ko04974	Organismal Systems	Digestive system
Mineral absorption	262	ko04978	Organismal Systems	Digestive system
Carbohydrate digestion and absorption	210	ko04973	Organismal Systems	Digestive system
Fat digestion and absorption	120	ko04975	Organismal Systems	Digestive system
Vitamin digestion and absorption	83	ko04977	Organismal Systems	Digestive system
Type II diabetes mellitus	176	ko04930	Human Diseases	Endocrine and metabolic diseases
Type I diabetes mellitus	147	ko04940	Human Diseases	Endocrine and metabolic diseases
Maturity onset diabetes of the young	47	ko04950	Human Diseases	Endocrine and metabolic diseases
Insulin signaling pathway	464	ko04910	Organismal Systems	Endocrine system



PPAR signaling pathway	305	ko03320	Organismal Systems	Endocrine system
GnRH signaling pathway	295	ko04912	Organismal Systems	Endocrine system
Melanogenesis	268	ko04916	Organismal Systems	Endocrine system
Progesterone-mediated oocyte maturation	236	ko04914	Organismal Systems	Endocrine system
Adipocytokine signaling pathway	222	ko04920	Organismal Systems	Endocrine system
Renin-angiotensin system	29	ko04614	Organismal Systems	Endocrine system
Oxidative phosphorylation	355	ko00190	Metabolism	Energy metabolism
Sulfur metabolism	21	ko00920	Metabolism	Energy metabolism
Circadian rhythm - mammal	67	ko04710	Organismal Systems	Environmental adaptation
Circadian rhythm - fly	38	ko04711	Organismal Systems	Environmental adaptation
Endocrine and other factor-regulated calcium reabsorption	240	ko04961	Organismal Systems	Excretory system
Vasopressin-regulated water reabsorption	194	ko04962	Organismal Systems	Excretory system
Aldosterone-regulated sodium reabsorption	189	ko04960	Organismal Systems	Excretory system
Proximal tubule bicarbonate reclamation	150	ko04964	Organismal Systems	Excretory system
Collecting duct acid secretion	80	ko04966	Organismal Systems	Excretory system
Protein processing in endoplasmic reticulum	539	ko04141	Genetic Information Processing	Folding, sorting and degradation
Ubiquitin mediated proteolysis	455	ko04120	Genetic Information Processing	Folding, sorting and degradation
RNA degradation	199	ko03018	Genetic Information	Folding, sorting and degradation

			Processing	
Proteasome	125	ko03050	Genetic Information Processing	Folding, sorting and degradation
SNARE interactions in vesicular transport	59	ko04130	Genetic Information Processing	Folding, sorting and degradation
Protein export	39	ko03060	Genetic Information Processing	Folding, sorting and degradation
Sulfur relay system	18	ko04122	Genetic Information Processing	Folding, sorting and degradation
Metabolic pathways	2880	ko01100	Metabolism	Global map
Other types of O-glycan biosynthesis	104	ko00514	Metabolism	Glycan biosynthesis and metabolism
N-Glycan biosynthesis	79	ko00510	Metabolism	Glycan biosynthesis and metabolism
Glycosaminoglycan biosynthesis - heparan sulfate	73	ko00534	Metabolism	Glycan biosynthesis and metabolism
Mucin type O-Glycan biosynthesis	38	ko00512	Metabolism	Glycan biosynthesis and metabolism
Other glycan degradation	38	ko00511	Metabolism	Glycan biosynthesis and metabolism
Glycosylphosphatidylinositol(GPI)-anchor biosynthesis	37	ko00563	Metabolism	Glycan biosynthesis and metabolism
Glycosphingolipid biosynthesis - ganglio series	32	ko00604	Metabolism	Glycan biosynthesis and metabolism
Glycosaminoglycan degradation	31	ko00531	Metabolism	Glycan biosynthesis and metabolism
Glycosaminoglycan biosynthesis - chondroitin sulfate	30	ko00532	Metabolism	Glycan biosynthesis and metabolism

Glycosaminoglycan biosynthesis - keratan sulfate	28	ko00533	Metabolism	Glycan biosynthesis and metabolism
Glycosphingolipid biosynthesis - lacto and neolacto series	26	ko00601	Metabolism	Glycan biosynthesis and metabolism
Glycosphingolipid biosynthesis - globo series	19	ko00603	Metabolism	Glycan biosynthesis and metabolism
Systemic lupus erythematosus	404	ko05322	Human Diseases	Immune diseases
Rheumatoid arthritis	269	ko05323	Human Diseases	Immune diseases
Primary immunodeficiency	244	ko05340	Human Diseases	Immune diseases
Autoimmune thyroid disease	199	ko05320	Human Diseases	Immune diseases
Allograft rejection	193	ko05330	Human Diseases	Immune diseases
Asthma	143	ko05310	Human Diseases	Immune diseases
Graft-versus-host disease	134	ko05332	Human Diseases	Immune diseases
NOD-like receptor signaling pathway	585	ko04621	Organismal Systems	Immune system
Leukocyte transendothelial migration	566	ko04670	Organismal Systems	Immune system
Chemokine signaling pathway	522	ko04062	Organismal Systems	Immune system
Complement and coagulation cascades	509	ko04610	Organismal Systems	Immune system
Fc gamma R-mediated phagocytosis	496	ko04666	Organismal Systems	Immune system
Natural killer cell mediated cytotoxicity	400	ko04650	Organismal Systems	Immune system
T cell receptor signaling pathway	400	ko04660	Organismal Systems	Immune system
B cell receptor signaling pathway	398	ko04662	Organismal Systems	Immune system
Hematopoietic cell lineage	371	ko04640	Organismal Systems	Immune system

Antigen processing and presentation	318	ko04612	Organismal Systems	Immune system
Fc epsilon RI signaling pathway	285	ko04664	Organismal Systems	Immune system
Toll-like receptor signaling pathway	218	ko04620	Organismal Systems	Immune system
RIG-I-like receptor signaling pathway	218	ko04622	Organismal Systems	Immune system
Intestinal immune network for IgA production	166	ko04672	Organismal Systems	Immune system
Cytosolic DNA-sensing pathway	102	ko04623	Organismal Systems	Immune system
Tuberculosis	855	ko05152	Human Diseases	Infectious diseases: Bacterial
Pertussis	754	ko05133	Human Diseases	Infectious diseases: Bacterial
Salmonella infection	622	ko05132	Human Diseases	Infectious diseases: Bacterial
Pathogenic Escherichia coli infection	539	ko05130	Human Diseases	Infectious diseases: Bacterial
Vibrio cholerae infection	439	ko05110	Human Diseases	Infectious diseases: Bacterial
Shigellosis	434	ko05131	Human Diseases	Infectious diseases: Bacterial
Bacterial invasion of epithelial cells	422	ko05100	Human Diseases	Infectious diseases: Bacterial
Staphylococcus aureus infection	413	ko05150	Human Diseases	Infectious diseases: Bacterial
Legionellosis	298	ko05134	Human Diseases	Infectious diseases: Bacterial
Epithelial cell signaling in Helicobacter pylori infection	192	ko05120	Human Diseases	Infectious diseases: Bacterial
Amoebiasis	586	ko05146	Human Diseases	Infectious diseases: Parasitic
Toxoplasmosis	424	ko05145	Human Diseases	Infectious diseases: Parasitic
Leishmaniasis	381	ko05140	Human Diseases	Infectious diseases: Parasitic
Chagas disease (American trypanosomiasis)	362	ko05142	Human Diseases	Infectious diseases: Parasitic

African trypanosomiasis	150	ko05143	Human Diseases	Infectious diseases: Parasitic
Malaria	129	ko05144	Human Diseases	Infectious diseases: Parasitic
Influenza A	1092	ko05164	Human Diseases	Infectious diseases: Viral
Epstein-Barr virus infection	817	ko05169	Human Diseases	Infectious diseases: Viral
HTLV-I infection	803	ko05166	Human Diseases	Infectious diseases: Viral
Herpes simplex infection	732	ko05168	Human Diseases	Infectious diseases: Viral
Measles	397	ko05162	Human Diseases	Infectious diseases: Viral
Hepatitis C	368	ko05160	Human Diseases	Infectious diseases: Viral
Glycerophospholipid metabolism	167	ko00564	Metabolism	Lipid metabolism
Arachidonic acid metabolism	125	ko00590	Metabolism	Lipid metabolism
Steroid hormone biosynthesis	124	ko00140	Metabolism	Lipid metabolism
Fatty acid metabolism	107	ko00071	Metabolism	Lipid metabolism
Glycerolipid metabolism	101	ko00561	Metabolism	Lipid metabolism
Linoleic acid metabolism	93	ko00591	Metabolism	Lipid metabolism
Sphingolipid metabolism	93	ko00600	Metabolism	Lipid metabolism
Ether lipid metabolism	84	ko00565	Metabolism	Lipid metabolism
Fatty acid elongation	56	ko00062	Metabolism	Lipid metabolism
Primary bile acid biosynthesis	53	ko00120	Metabolism	Lipid metabolism
Biosynthesis of unsaturated fatty acids	52	ko01040	Metabolism	Lipid metabolism
alpha-Linolenic acid metabolism	42	ko00592	Metabolism	Lipid metabolism
Steroid biosynthesis	27	ko00100	Metabolism	Lipid metabolism

Synthesis and degradation of ketone bodies	23	ko00072	Metabolism	Lipid metabolism
Fatty acid biosynthesis	15	ko00061	Metabolism	Lipid metabolism
ABC transporters	174	ko02010	Environmental Information Processing	Membrane transport
Retinol metabolism	144	ko00830	Metabolism	Metabolism of cofactors and vitamins
Porphyrin and chlorophyll metabolism	126	ko00860	Metabolism	Metabolism of cofactors and vitamins
Nicotinate and nicotinamide metabolism	112	ko00760	Metabolism	Metabolism of cofactors and vitamins
One carbon pool by folate	29	ko00670	Metabolism	Metabolism of cofactors and vitamins
Pantothenate and CoA biosynthesis	22	ko00770	Metabolism	Metabolism of cofactors and vitamins
Folate biosynthesis	20	ko00790	Metabolism	Metabolism of cofactors and vitamins
Riboflavin metabolism	19	ko00740	Metabolism	Metabolism of cofactors and vitamins
Ubiquinone and other terpenoid-quinone biosynthesis	17	ko00130	Metabolism	Metabolism of cofactors and vitamins
Vitamin B6 metabolism	14	ko00750	Metabolism	Metabolism of cofactors and vitamins
Lipoic acid metabolism	7	ko00785	Metabolism	Metabolism of cofactors and vitamins
Thiamine metabolism	7	ko00730	Metabolism	Metabolism of cofactors and vitamins
Biotin metabolism	2	ko00780	Metabolism	Metabolism of cofactors and vitamins
Glutathione metabolism	108	ko00480	Metabolism	Metabolism of other amino acids
beta-Alanine metabolism	64	ko00410	Metabolism	Metabolism of other amino acids
Selenocompound metabolism	38	ko00450	Metabolism	Metabolism of other amino acids
Taurine and hypotaurine metabolism	17	ko00430	Metabolism	Metabolism of other amino acids
D-Glutamine and D-glutamate metabolism	15	ko00471	Metabolism	Metabolism of other amino acids

Cyanoamino acid metabolism	10	ko00460	Metabolism	Metabolism of other amino acids
D-Arginine and D-ornithine metabolism	8	ko00472	Metabolism	Metabolism of other amino acids
Terpenoid backbone biosynthesis	26	ko00900	Metabolism	Metabolism of terpenoids and polyketides
Insect hormone biosynthesis	2	ko00981	Metabolism	Metabolism of terpenoids and polyketides
Polyketide sugar unit biosynthesis	2	ko00523	Metabolism	Metabolism of terpenoids and polyketides
Dopaminergic synapse	466	ko04728	Organismal Systems	Nervous system
Neurotrophin signaling pathway	394	ko04722	Organismal Systems	Nervous system
Glutamatergic synapse	351	ko04724	Organismal Systems	Nervous system
Serotonergic synapse	322	ko04726	Organismal Systems	Nervous system
Cholinergic synapse	320	ko04725	Organismal Systems	Nervous system
Retrograde endocannabinoid signaling	301	ko04723	Organismal Systems	Nervous system
Long-term potentiation	296	ko04720	Organismal Systems	Nervous system
GABAergic synapse	283	ko04727	Organismal Systems	Nervous system
Synaptic vesicle cycle	236	ko04721	Organismal Systems	Nervous system
Long-term depression	202	ko04730	Organismal Systems	Nervous system
Huntington's disease	711	ko05016	Human Diseases	Neurodegenerative diseases
Alzheimer's disease	618	ko05010	Human Diseases	Neurodegenerative diseases
Parkinson's disease	390	ko05012	Human Diseases	Neurodegenerative diseases
Amyotrophic lateral sclerosis (ALS)	274	ko05014	Human Diseases	Neurodegenerative diseases
Prion diseases	166	ko05020	Human Diseases	Neurodegenerative diseases
Purine metabolism	643	ko00230	Metabolism	Nucleotide metabolism

Pyrimidine metabolism	467	ko00240	Metabolism	Nucleotide metabolism
Base excision repair	101	ko03410	Genetic Information Processing	Replication and repair
Nucleotide excision repair	86	ko03420	Genetic Information Processing	Replication and repair
Fanconi anemia pathway	83	ko03460	Genetic Information Processing	Replication and repair
DNA replication	55	ko03030	Genetic Information Processing	Replication and repair
Homologous recombination	35	ko03440	Genetic Information Processing	Replication and repair
Mismatch repair	30	ko03430	Genetic Information Processing	Replication and repair
Non-homologous end-joining	20	ko03450	Genetic Information Processing	Replication and repair
Olfactory transduction	176	ko04740	Organismal Systems	Sensory system
Phototransduction - fly	163	ko04745	Organismal Systems	Sensory system
Phototransduction	128	ko04744	Organismal Systems	Sensory system
Taste transduction	87	ko04742	Organismal Systems	Sensory system



MAPK signaling pathway	798	ko04010	Environmental Information Processing	Signal transduction
Calcium signaling pathway	629	ko04020	Environmental Information Processing	Signal transduction
Wnt signaling pathway	491	ko04310	Environmental Information Processing	Signal transduction
NF-kappa B signaling pathway	427	ko04064	Environmental Information Processing	Signal transduction
ErbB signaling pathway	263	ko04012	Environmental Information Processing	Signal transduction
Phosphatidylinositol signaling system	263	ko04070	Environmental Information Processing	Signal transduction
Jak-STAT signaling pathway	262	ko04630	Environmental Information Processing	Signal transduction
VEGF signaling pathway	258	ko04370	Environmental Information Processing	Signal transduction
TGF-beta signaling pathway	237	ko04350	Environmental Information Processing	Signal transduction
Notch signaling pathway	192	ko04330	Environmental Information Processing	Signal transduction
Hedgehog signaling pathway	188	ko04340	Environmental Information Processing	Signal transduction
mTOR signaling pathway	153	ko04150	Environmental Information Processing	Signal transduction
MAPK signaling pathway - fly	62	ko04013	Environmental Information Processing	Signal transduction
Cell adhesion molecules (CAMs)	575	ko04514	Environmental	Signaling molecules and interaction

			Information Processing	
Neuroactive ligand-receptor interaction	486	ko04080	Environmental Information Processing	Signaling molecules and interaction
ECM-receptor interaction	339	ko04512	Environmental Information Processing	Signaling molecules and interaction
Cytokine-cytokine receptor interaction	331	ko04060	Environmental Information Processing	Signaling molecules and interaction
Alcoholism	343	ko05034	Human Diseases	Substance dependence
Amphetamine addiction	273	ko05031	Human Diseases	Substance dependence
Morphine addiction	238	ko05032	Human Diseases	Substance dependence
Cocaine addiction	158	ko05030	Human Diseases	Substance dependence
Nicotine addiction	115	ko05033	Human Diseases	Substance dependence
Spliceosome	534	ko03040	Genetic Information Processing	Transcription
RNA polymerase	298	ko03020	Genetic Information Processing	Transcription
Basal transcription factors	86	ko03022	Genetic Information Processing	Transcription
RNA transport	638	ko03013	Genetic Information Processing	Translation
Ribosome	435	ko03010	Genetic	Translation

			Information Processing	
mRNA surveillance pathway	319	ko03015	Genetic Information Processing	Translation
Ribosome biogenesis in eukaryotes	275	ko03008	Genetic Information Processing	Translation
Aminoacyl-tRNA biosynthesis	90	ko00970	Genetic Information Processing	Translation
Phagosome	820	ko04145	Cellular Processes	Transport and catabolism
Endocytosis	720	ko04144	Cellular Processes	Transport and catabolism
Lysosome	399	ko04142	Cellular Processes	Transport and catabolism
Peroxisome	187	ko04146	Cellular Processes	Transport and catabolism
Regulation of autophagy	41	ko04140	Cellular Processes	Transport and catabolism
Metabolism of xenobiotics by cytochrome P450	158	ko00980	Metabolism	Xenobiotics biodegradation and metabolism
Drug metabolism - cytochrome P450	152	ko00982	Metabolism	Xenobiotics biodegradation and metabolism
Drug metabolism - other enzymes	114	ko00983	Metabolism	Xenobiotics biodegradation and metabolism