The rarefaction curves (Fig. S1) based on the OTUs show that all the gut content samples tended to approach the saturation plateau.

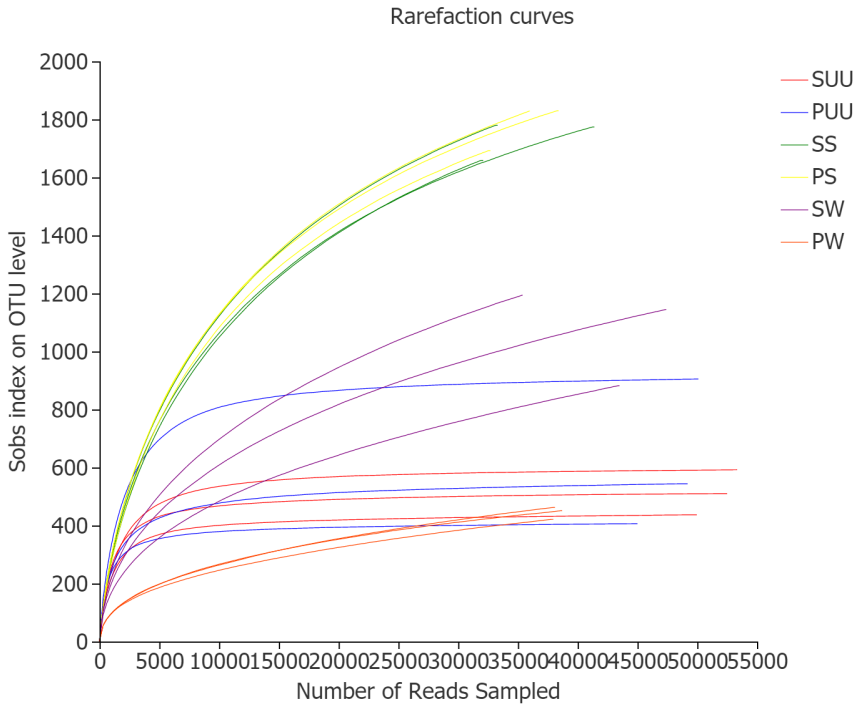

Fig. S1. Rarefaction analysis of different samples from the gut of *Urechis unicinctus* and the two different habitats. Rarefaction curves of OTUs clustered for a dissimilarity of 3%.

The Venn diagrams are presented in Fig. S2. The total OTU numbers in the pond samples was 3389. The common OTU number was 146, only 4.15% of all the OTU. The special OTU number in the PS was highest of 1655. The special OTU number of PUU was 1009, which of 73% of the OTUs in PUU. The total OTU number in the sea samples was 5069 with the common OTU number of 123. Similarly, the highest special OTU number was 1106 of SS.The total OTU number was 9728 among all the samples, of which the common OTU number was 52. While the special OTU number in PUU and SUU was 672 and 550, which was higher than that in sea water and sea sediments samples. The special OTU in PW was lowest, only 32 OTUs.

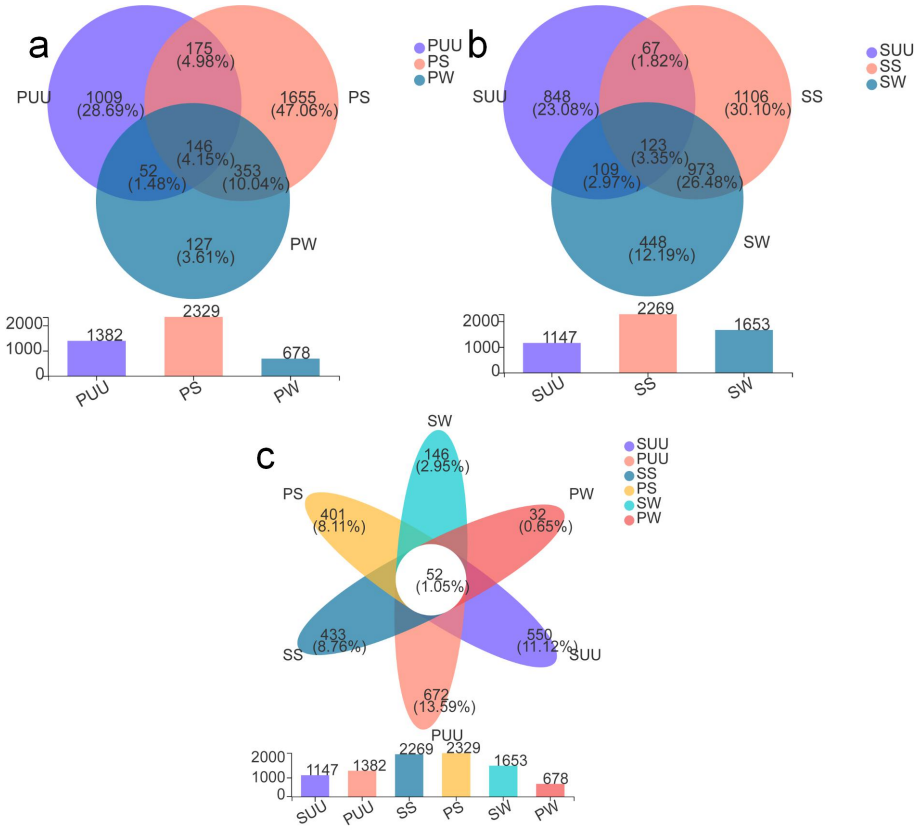

Fig. S2. Venn diagram of OTUs in (a) the pond samples, (b) the sea samples, and (c) all samples.

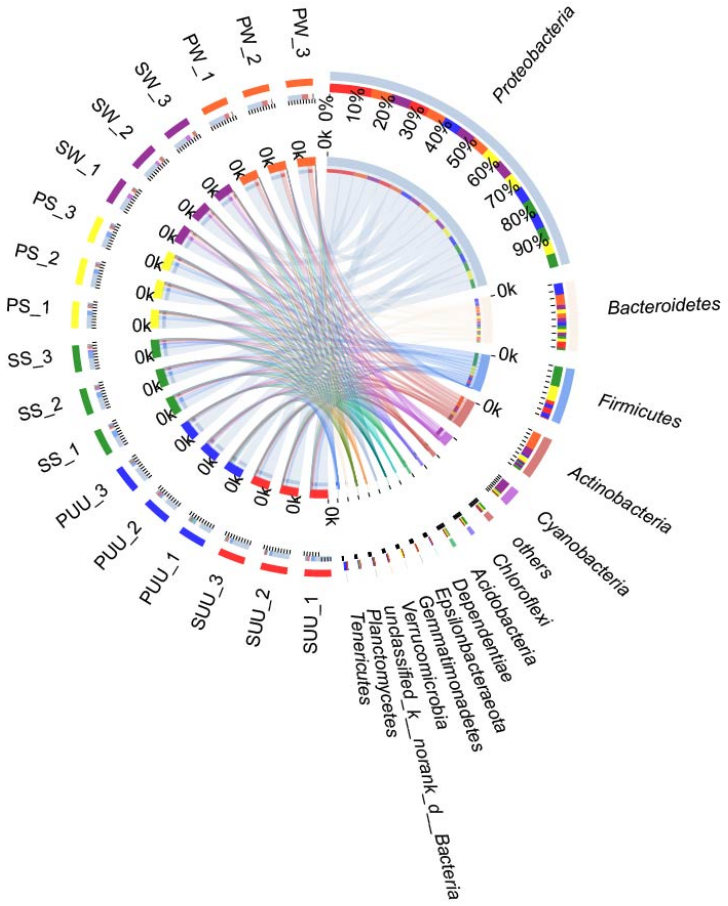

Fig. S3. The Circos diagram of the relationship between samples and species on the phylum level.

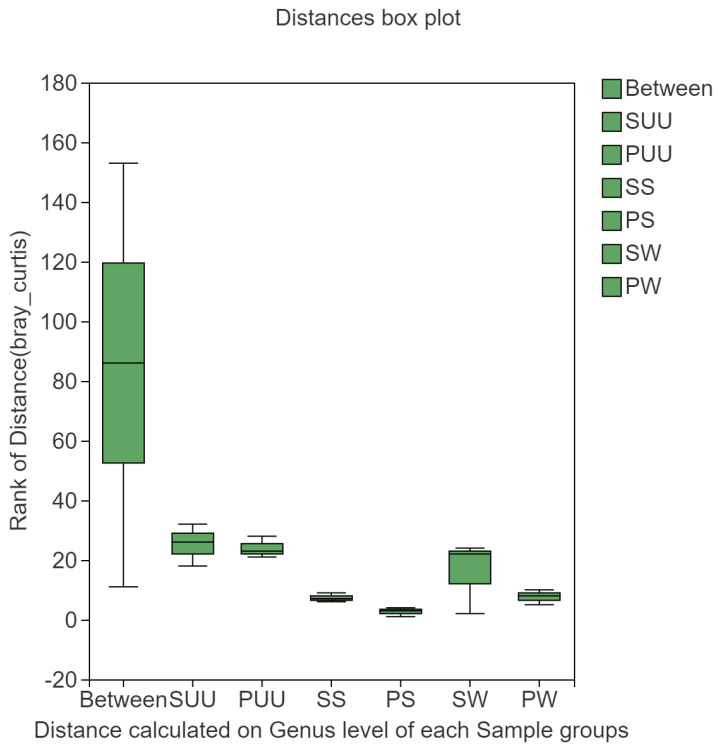

Fig. S4. ANOSIM analysis of all the samples on genus level.

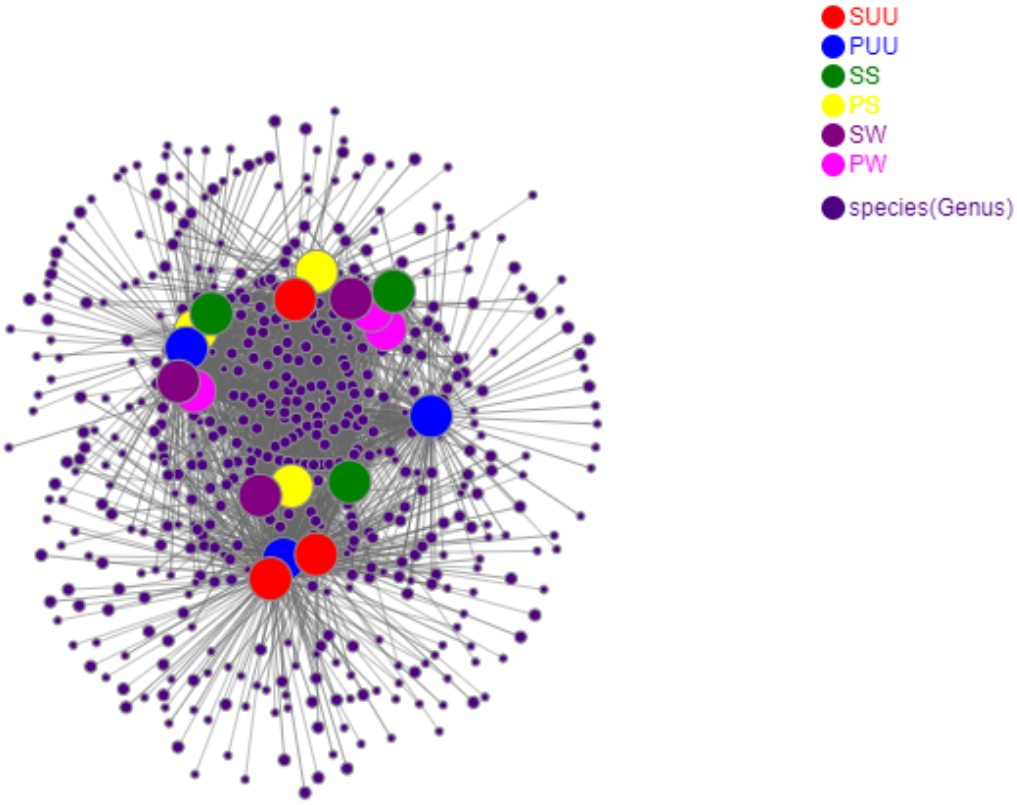

Fig. S5. Network analysis between the samples and the species on genus level.

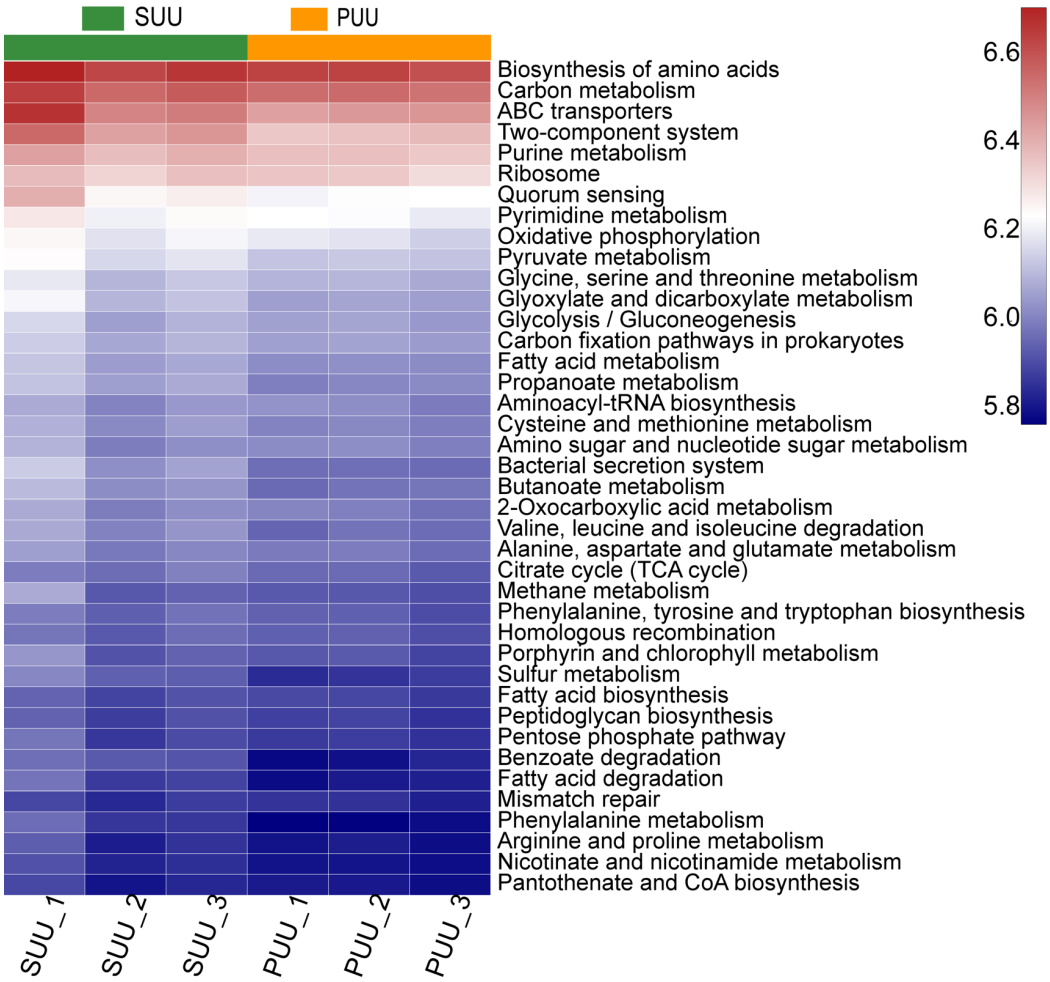

Fig. S6. Heatmap profiles showing the functional categories (KEGG level 3) of bacterial communities as predicted by PICRUSt analysis. Rows represent the 40 KEGG Orthology (KO) functions, columns represent the 6 samples, and the color intensity in the heatmap represents the relative abundance (log) of the functional genes.

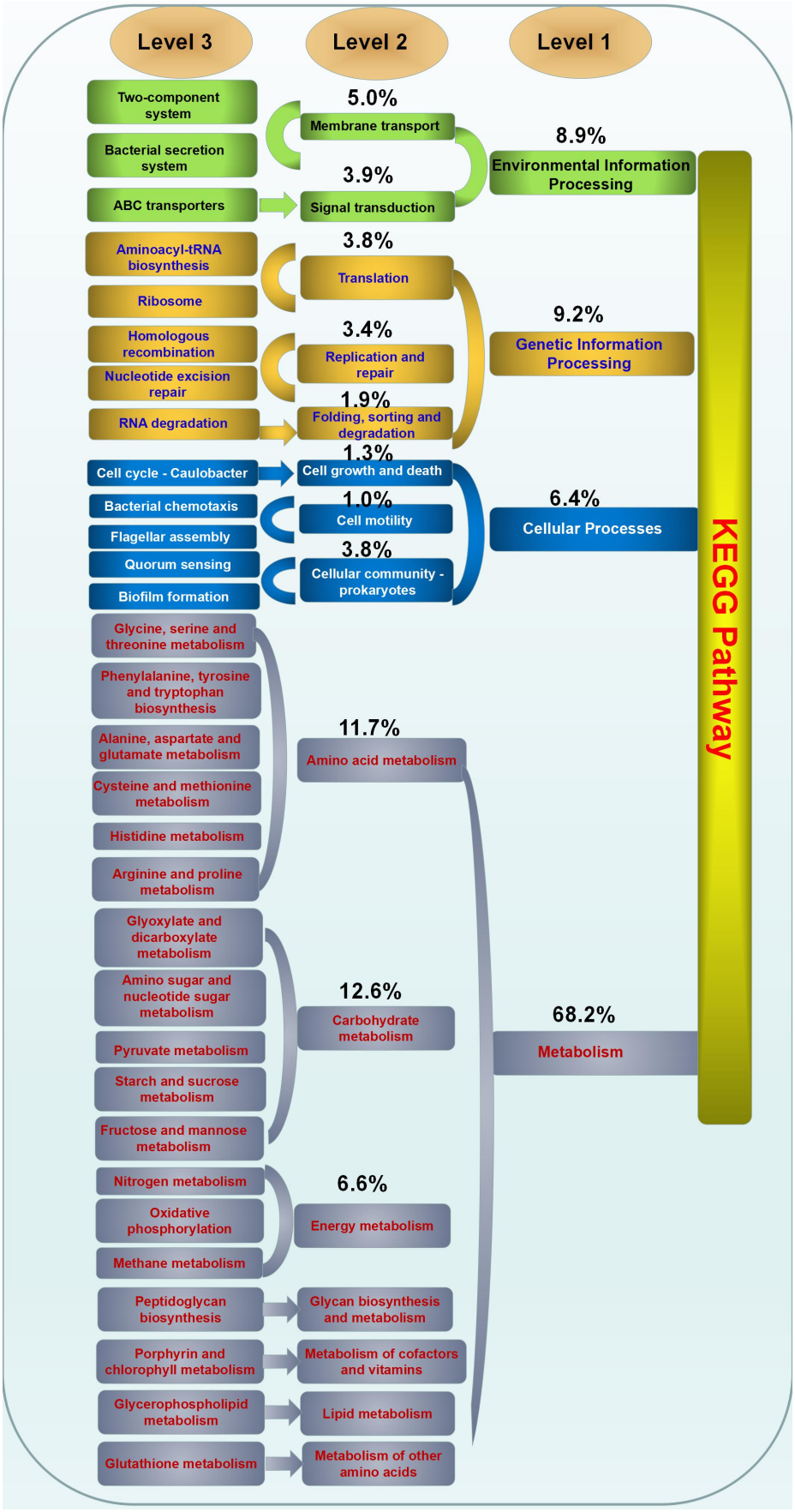

Fig. S7. The main KEGG pathways of the intestinal flora

Table S1. COG analysis of gut microbes.

Category	Description	PUU_1	PUU_2	PUU_3	SUU_1	SUU_2	SUU_3
J	Translation, ribosomal structure and biogenesis	6370013.84	6343994.62	5879031.78	7023972.67	6195628.42	6762214.02
A	RNA processing and modification	18091.12	17927.96	19475.64	26628.3	25059.74	25597.45
K	Transcription	4801195.21	5015393	4900682.02	6722825.26	5413592.84	5649489.07
L	Replication, recombination and repair	4158283.8	4163167.45	3954371.54	5301820.62	4279302.89	4570272.5
B	Chromatin structure and dynamics	35482.69	32245.65	29232.36	55051.16	30050.85	33581.3
D	Cell cycle control, cell division, chromosome partitioning	929511.27	940172.94	884318.9	1127370	944123.29	1018357.72
V	Defense mechanisms	1403704.97	1449502.61	1377145.85	1596379.45	1386801.9	1494740.36
T	Signal transduction mechanisms	3077009.74	3143294.82	2984129.6	3952062.18	3155651.73	3364182
M	Cell wall/membrane/envelope biogenesis	5884397.71	5780708.58	5418009.19	7031674.02	5775948.14	6097026.76
N	Cell motility	940843.85	927787.58	948397.47	1334686.45	1014050.11	1156332.14
Z	Cytoskeleton	3945.9	6686	4375.87	3459.5	5508.5	5946.5
W	Extracellular structures	593.46	435	898.5	6784.34	1179.34	1276.5
U	Intracellular trafficking, secretion, and vesicular transport	1840113.17	1794529.01	1803583.51	2565461.57	2129167.73	2264430.85
O	Posttranslational modification, protein turnover, chaperones	3779239.97	3799758.6	3624290.29	4644595.06	3900201.21	4171159.18
C	Energy production and conversion	5802205.03	5892176.5	5743724.24	7933666.85	6264488.72	6521141.4
G	Carbohydrate transport and metabolism	4305950.69	4389489.48	4382945.48	6049309.71	4353851.51	4558021.18
E	Amino acid transport and metabolism	8539206.37	8692751.62	8359401.9	11427532.09	8987154.52	9451710.46
F	Nucleotide transport and metabolism	2760096.78	2766765.58	2599175.05	3293459.85	2778414.06	2973558.38
H	Coenzyme transport and metabolism	3760103.46	3712623.71	3450154.57	4466889.99	3705905.69	3941114.92
I	Lipid transport and metabolism	3395554.29	3464691.68	3413813.54	4249182.49	3813841.59	4006074.58
P	Inorganic ion transport and metabolism	5377428.33	5548735.21	5474246.75	7742383.46	6140535.02	6339479.98
Q	Secondary metabolites biosynthesis, transport and catabolism	1462051.03	1506319.2	1531656.05	2149286.68	1747099.15	1772429.23
S	Function unknown	15943306.34	16526338.1	16562397.59	22431191.97	18250131.14	19120143.07

Table S2. KEGG analysis of gut microbes on level 1.

Pathway level1	PUU_1	PUU_3	PUU_2	SUU_2	SUU_1	SUU_3
Metabolism	58412063.37	56940931.5	59069403.19	60890768.73	74827307.28	64607932.97
Genetic Information Processing	8473611.36	7700396.51	8373256.37	8015791.69	9208075	8777685.58
Environmental Information Processing	6932298.91	7234078.66	7103542.24	8034894.47	11070962.07	8496293.96
Cellular Processes	5219313.94	5325562.99	5342888.5	5661817.8	7761051.16	6113664.92
Human Diseases	4170512.77	4145119.11	4227226.29	4522692.16	5543104.23	4816999.35
Organismal Systems	1901406.22	1856769.01	1958393.98	2005758.5	2510001.89	2158356.41

Table S3. KEGG analysis of gut microbes on level 2.

Pathway level1	Pathway level2	PUU_1	PUU_3	PUU_2	SUU_2	SUU_1	SUU_3
Metabolism	Carbohydrate metabolism	10755652	10655800.63	10944100.79	11141937.01	14126924.62	11839934.1
Metabolism	Global and overview maps	10397271.89	10017551.19	10471339.4	10655078.69	12919901.94	11381931.6
Metabolism	Amino acid metabolism	9968162.84	9732305.55	10150800.62	10556676.44	12831028.25	11302085.35
Metabolism	Energy metabolism	5688464.34	5433225.18	5710215.83	5840392.47	7180018.83	6145871.41
Metabolism	Metabolism of cofactors and vitamins	5286076.1	4990518.96	5279443.84	5335986.05	6439384.96	5707274.78
Environmental Information Processing	Membrane transport	3872209.79	4067482.44	3981215.93	4463706.37	6473264.39	4693598.45
Metabolism	Nucleotide metabolism	4100453.87	3849881.79	4084284.93	4014721.66	4705933.75	4338779.31
Environmental Information Processing	Signal transduction	3059252.12	3165796.22	3120706.31	3570419.6	4597027.18	3801190.51
Genetic Information Processing	Translation	3533145.82	3180169.39	3469450.1	3297878.98	3784215.93	3624773.09
Cellular Processes	Cellular community - prokaryotes	2950508.65	3095925.22	3059314	3384960.58	4705514.01	3522394.6
Metabolism	Lipid metabolism	3135894.98	3153655.52	3197068.74	3424649.17	4163240.29	3604567.78
Metabolism	Xenobiotics biodegradation and metabolism	2554042.76	2921099.77	2668446.08	3384645.43	4374934.41	3322515.25
Genetic Information Processing	Replication and repair	3056340.51	2814614.98	3039151.42	2945770.76	3367131.41	3228528.28
Metabolism	Metabolism of other amino acids	1994515.42	2019375.27	2053265.36	2195419.34	2822775.86	2317974.27
Genetic Information Processing	Folding, sorting and degradation	1711103.33	1553652.44	1699163.44	1609959.69	1866572.77	1742629.87
Metabolism	Metabolism of terpenoids and polyketides	1472871.46	1443843.4	1507492.33	1559249.62	1902985.42	1644870.75
Metabolism	Glycan biosynthesis and metabolism	1559824.38	1390529.61	1523847.64	1406542.65	1660802.7	1509059.36
Metabolism	Biosynthesis of other secondary metabolites	1498833.33	1333144.63	1479097.63	1375470.2	1699376.25	1493069.01
Human Diseases	Drug resistance: Antimicrobial	1087541.9	1103619.99	1098789.07	1156461.32	1438743.21	1226524.15
Cellular Processes	Cell motility	1031325.96	1025900.78	1030905.36	1040875.63	1581035.5	1243651.32
Cellular Processes	Cell growth and death	869167.24	856390.17	879039.49	871370.84	1020363.65	951027.77
Organismal Systems	Endocrine system	711704.69	709488.16	726203.3	770313.22	964064.21	823115.31
Human Diseases	Infectious diseases: Bacterial	631501.58	657457.52	646163.93	698412.97	882732.77	743969.01
Human Diseases	Cancers: Overview	600575.25	592366.56	627001.48	655455.72	812669.21	696157.95
Organismal Systems	Aging	496509.7	482425.79	503068.24	533978.14	664826.21	581136.54
Human Diseases	Neurodegenerative diseases	444901.07	419785.33	436909.43	486264.86	613471.79	538695.64

Human Diseases	Drug resistance: Antineoplastic	427005.98	428561.58	438059.71	493136.85	561535.37	518434.16
Cellular Processes	Transport and catabolism	367057.92	347035.82	372926.98	364241.25	453378.5	395796.73
Human Diseases	Cardiovascular diseases	322144.32	326396.82	336115.07	378262.58	430023.5	392105.63
Human Diseases	Endocrine and metabolic diseases	245280.12	223288.71	239794.8	238268.4	313771.7	264056.67
Organismal Systems	Immune system	237130.65	213083.67	238985.9	225969	266129.87	242406.51
Organismal Systems	Nervous system	181613.42	191479.68	208448.24	186632.45	247308.93	201588.36
Genetic Information Processing	Transcription	173021.7	151959.7	165491.41	162182.26	190154.89	181754.34
Organismal Systems	Environmental adaptation	132841.86	132907.4	141770.14	138303.06	159555.24	150296.63
Human Diseases	Cancers: Specific types	140216.5	128124.83	135045	140531.99	167176.97	142037.86
Human Diseases	Infectious diseases: Viral	99993.42	89087.23	88464.91	98891.08	133269.53	99047.79
Human Diseases	Infectious diseases: Parasitic	82042.03	80128.53	86141.2	79109.63	89227.54	93294.62
Human Diseases	Immune diseases	62952.33	60985	63274.33	72378.1	79654.11	73986.4
Organismal Systems	Excretory system	51829.59	50679.47	50777.96	63405.94	70884.88	62884.37
Organismal Systems	Digestive system	48557.88	43154.61	50739.83	47564.08	81620.04	46893.78
Organismal Systems	Circulatory system	40389.43	33297.73	37848.37	38967.61	55109.01	49487.91
Human Diseases	Substance dependence	26358.27	35317.01	31467.36	25518.66	20828.53	28689.47
Environmental Information Processing	Signaling molecules and interaction	837	800	1620	768.5	670.5	1505
Cellular Processes	Cellular community - eukaryotes	1254.17	311	702.67	369.5	759.5	794.5
Organismal Systems	Development	571	250	552	349	243.5	547
Organismal Systems	Sensory system	258	2.5	0.25	276	260	0.25

Table S4. KEGG analysis of gut microbes on level 3.

Pathway level1	Pathway level2	Pathway level3	Description	PUU_1	PUU_3	PUU_2	SUU_2	SUU_1	SUU_3
Metabolism	Global and overview maps	ko01230	Biosynthesis of amino acids	4366112.29	4096598.56	4378638.78	4300961.41	5130516.39	4660349.72
Metabolism	Global and overview maps	ko01200	Carbon metabolism	3539604.36	3439059.23	3601384.37	3618841.5	4476403	3884016.28
Environmental Information Processing	Membrane transport	ko02010	ABC transporters	2766986.28	2910725.87	2867179.66	3169474.75	4748507.36	3292271.59
Environmental Information Processing	Signal transduction	ko02020	Two-component system	2278467.35	2431719.63	2336692.17	2746220.9	3627620.59	2910135.8
Metabolism	Nucleotide metabolism	ko00230	Purine metabolism	2372410.02	2265447.89	2375153.2	2393568.42	2762869.42	2566871
Genetic Information Processing	Translation	ko03010	Ribosome	2303301.56	2069628	2266125.4	2149701.38	2415462.96	2371081.32
Cellular Processes	Cellular community - prokaryotes	ko02024	Quorum sensing	1643662.07	1730235.91	1716725.12	1802763.85	2573359.23	1877227.51
Metabolism	Nucleotide metabolism	ko00240	Pyrimidine metabolism	1728043.85	1584433.9	1709131.73	1621153.24	1943064.33	1771908.31
Metabolism	Energy metabolism	ko00190	Oxidative phosphorylation	1576756.07	1403005.59	1532166.3	1521719.92	1796523.94	1662991.9
Metabolism	Carbohydrate metabolism	ko00620	Pyruvate metabolism	1346134.76	1339481.05	1366170.62	1460246.08	1760589.9	1540063.85
Metabolism	Amino acid metabolism	ko00260	Glycine, serine and threonine metabolism	1259167.65	1197547.24	1267864.93	1263788.09	1567439.96	1361648.65
Metabolism	Carbohydrate metabolism	ko00630	Glyoxylate and dicarboxylate metabolism	1151215.61	1145180.16	1178736.55	1263014.46	1672695.48	1340725.86
Metabolism	Carbohydrate metabolism	ko00010	Glycolysis / Gluconeogenesis	1159740.06	1116451.14	1177424.52	1148468.85	1458340.1	1250490.5
Metabolism	Energy metabolism	ko00720	Carbon fixation pathways in prokaryotes	1154853	1128496.89	1171740.21	1188477.35	1394341.8	1261088.39
Metabolism	Global and overview maps	ko01212	Fatty acid metabolism	1060517.87	1055171.48	1077099.57	1133766.06	1349717.73	1196253.34
Metabolism	Carbohydrate metabolism	ko00640	Propanoate metabolism	1002041.07	1051114.69	1038893.08	1149264.44	1335039.17	1206547.46
Genetic Information Processing	Translation	ko00970	Aminoacyl-tRNA biosynthesis	1090013.58	986673.16	1071188.71	1018602.46	1204955.06	1114610.37
Metabolism	Amino acid metabolism	ko00270	Cysteine and methionine metabolism	1021492.52	997895.31	1040129.79	1046827.95	1238196.86	1138440.96
Metabolism	Carbohydrate metabolism	ko00520	Amino sugar and nucleotide sugar metabolism	1055685.7	1001097.01	1068773.79	995676.85	1252296.88	1071700.75
Environmental Information Processing	Membrane transport	ko03070	Bacterial secretion system	934579.11	918160.21	937722.92	1072511.52	1386695.87	1170455.74

Metabolism	Carbohydrate metabolism	ko00650	Butanoate metabolism	914047.46	961231.36	951521.46	1065377.93	1291733.8	1100806.77
Metabolism	Global and overview maps	ko01210	2-Oxocarboxylic acid metabolism	1027076.22	946531.28	1009208.5	993604.13	1207175.49	1069683.13
Metabolism	Amino acid metabolism	ko00280	Valine, leucine and isoleucine degradation	895670.22	924583.97	953147.12	1017875.04	1200996.15	1101285.96
Metabolism	Amino acid metabolism	ko00250	Alanine, aspartate and glutamate metabolism	980733.37	925841.81	991478.5	972827.81	1151207.88	1036355.07
Metabolism	Carbohydrate metabolism	ko00020	Citrate cycle (TCA cycle)	913081.38	855732.11	918816.83	927648.47	991862.77	1011291.73
Metabolism	Energy metabolism	ko00680	Methane metabolism	848609.15	815306.94	844995.07	845594.88	1203656.89	885874.73
Metabolism	Amino acid metabolism	ko00400	Phenylalanine, tyrosine and tryptophan biosynthesis	882422.06	807588.89	877867.69	875587.29	991200.38	950323.65
Genetic Information Processing	Replication and repair	ko03440	Homologous recombination	880191.61	815169.08	881141.66	849457.94	961236.23	927928.22
Metabolism	Metabolism of cofactors and vitamins	ko00860	Porphyrin and chlorophyll metabolism	845216.37	778281.68	858356.91	826745.17	1108216.91	886171.85
Metabolism	Energy metabolism	ko00920	Sulfur metabolism	700352.57	754275.76	725556.31	880091.99	1038465.56	871156.11
Metabolism	Lipid metabolism	ko00061	Fatty acid biosynthesis	797820.22	743316.84	787840.34	775725.5	889638.39	826623.25
Metabolism	Glycan biosynthesis and metabolism	ko00550	Peptidoglycan biosynthesis	765924.77	720138.44	777569.28	756253.28	886557.44	825340.06
Metabolism	Carbohydrate metabolism	ko00030	Pentose phosphate pathway	747902.07	720370.49	758681.91	733809.11	961174.58	802415.56
Metabolism	Xenobiotics biodegradation and metabolism	ko00362	Benzoate degradation	604775.72	684484.09	624869.14	856408.96	936929.01	835105.81
Metabolism	Lipid metabolism	ko00071	Fatty acid degradation	611851.67	666204.14	651557.67	746216.4	956912.16	773776.29
Genetic Information Processing	Replication and repair	ko03430	Mismatch repair	725788.53	667031.96	718035.39	691419.66	788322.02	752687.31
Metabolism	Amino acid metabolism	ko00360	Phenylalanine metabolism	583819.53	614892.48	587963.81	731852.55	930788.59	735361.61
Metabolism	Amino acid metabolism	ko00330	Arginine and proline metabolism	630480.51	617039.92	659240.16	658962.35	870731.73	722314.93
Metabolism	Metabolism of cofactors and vitamins	ko00760	Nicotinate and nicotinamide metabolism	630217.18	617310.9	634210.45	675832.2	826072.16	711435.22
Metabolism	Metabolism of cofactors and vitamins	ko00770	Pantothenate and CoA biosynthesis	652968.54	616650.05	649878.74	636878.67	791458.66	690111.23
Metabolism	Lipid metabolism	ko00564	Glycerophospholipid metabolism	625490.18	611086.56	619425.02	654257.55	785663.93	691820.26

Metabolism	Carbohydrate metabolism	ko00500	Starch and sucrose metabolism	608122.31	645937.36	638060.97	587664.87	851138.47	614358.73
Metabolism	Metabolism of cofactors and vitamins	ko00790	Folate biosynthesis	641310.94	599719.24	633991.76	640048.74	725809.85	683952.36
Genetic Information Processing	Folding, sorting and degradation	ko03060	Protein export	650434.74	598694.12	645073.71	621791.15	705415.49	688380.48
Genetic Information Processing	Replication and repair	ko03030	DNA replication	650830.16	591326.46	641412.27	619748.56	684989.56	678210.89
Metabolism	Amino acid metabolism	ko00220	Arginine biosynthesis	602995.79	584341.49	614050.82	628200.08	748152.88	662255.65
Metabolism	Amino acid metabolism	ko00340	Histidine metabolism	603120.59	561250.7	606123.59	613740.75	743567.9	669189.31
Cellular Processes	Cell motility	ko02040	Flagellar assembly	575629.08	566423.66	569571.01	566028.18	823300.3	694064.9
Cellular Processes	Cellular community - prokaryotes	ko05111	Biofilm formation - Vibrio cholerae	541023.15	572675.75	558723.09	641571.3	771167.25	681781.65
Metabolism	Amino acid metabolism	ko00300	Lysine biosynthesis	578044.16	547862.15	579654.19	576491.85	697532.97	621218.53
Cellular Processes	Cell growth and death	ko04112	Cell cycle - Caulobacter	571635.65	566641.71	591989.31	573764.35	624687.99	652426.18
Genetic Information Processing	Folding, sorting and degradation	ko03018	RNA degradation	611664.17	541066	609561.38	546324.89	639002.32	606411.82
Metabolism	Amino acid metabolism	ko00290	Valine, leucine and isoleucine biosynthesis	579299.25	539029.83	575970.59	556625.29	682800.4	608962.23
Metabolism	Amino acid metabolism	ko00380	Tryptophan metabolism	489533.75	528436.22	511912.47	596913.15	757566.5	641950.47
Metabolism	Metabolism of terpenoids and polyketides	ko00900	Terpenoid backbone biosynthesis	560640.37	536101.2	559162.43	574742.79	658579.56	619514.91
Metabolism	Metabolism of other amino acids	ko00480	Glutathione metabolism	504390.65	524459.25	529417.52	590578.89	706388.66	624865.48
Metabolism	Energy metabolism	ko00710	Carbon fixation in photosynthetic organisms	556259.8	527017.71	561808.52	532918.17	641642.16	567159.67
Metabolism	Metabolism of cofactors and vitamins	ko00780	Biotin metabolism	529085.87	509059.58	522636.98	557724.99	623740.67	584983.73
Human Diseases	Drug resistance: Antimicrobial	ko01501	beta-Lactam resistance	492110.78	516122.28	504362.32	550384.58	675697.63	578860.98
Metabolism	Global and overview maps	ko01220	Degradation of aromatic compounds	403961.15	480190.64	405008.18	607905.59	756089.33	571629.13
Metabolism	Metabolism of cofactors and vitamins	ko00670	One carbon pool by folate	526556.57	483122.59	532601.56	509229.54	599264.1	562359.6
Metabolism	Carbohydrate metabolism	ko00051	Fructose and mannose metabolism	501482.87	501749.09	507293.11	483271.04	667258.03	500051.28
Cellular Processes	Cell motility	ko02030	Bacterial chemotaxis	455224.88	459224.62	460791.35	474586.45	757491.7	549058.42

Metabolism	Amino acid metabolism	ko00310	Lysine degradation	452906.02	471803.84	472901.97	538090.83	644301.04	563345.03
Metabolism	Glycan biosynthesis and metabolism	ko00540	Lipopolysaccharide biosynthesis	527410.8	462631.35	481707.57	501071.85	591728.64	517350.04
Metabolism	Energy metabolism	ko00910	Nitrogen metabolism	449435.01	475993.65	469044.63	517010.52	648051.09	518463.42
Cellular Processes	Cellular community - prokaryotes	ko02026	Biofilm formation - Escherichia coli	397292.56	409273.74	400822.76	463857.79	694310.05	468060.98
Metabolism	Amino acid metabolism	ko00350	Tyrosine metabolism	408477.42	414191.7	412494.99	478893.41	606545.01	489433.3
Cellular Processes	Cellular community - prokaryotes	ko02025	Biofilm formation - Pseudomonas aeruginosa	368530.87	383739.82	383043.03	476767.64	666677.48	495324.46
Metabolism	Metabolism of cofactors and vitamins	ko00730	Thiamine metabolism	444580.46	423244.77	436884.35	457087.5	509805.16	491726.09
Genetic Information Processing	Replication and repair	ko03410	Base excision repair	426605.09	403033.93	427340.86	427257.12	490570.94	469469.03
Metabolism	Metabolism of other amino acids	ko00410	beta-Alanine metabolism	360050.1	385379.9	381203.78	449845.01	590211.75	463287.56
Metabolism	Carbohydrate metabolism	ko00052	Galactose metabolism	419438.94	423856.84	425309.44	385846.22	529830.21	409409.38
Metabolism	Metabolism of other amino acids	ko00450	Selenocompound metabolism	378419.7	360694.1	377944.98	365624.1	463171.02	403920.89
Human Diseases	Drug resistance: Antimicrobial	ko01503	Cationic antimicrobial peptide (CAMP) resistance	357460.07	364800.74	352663.95	375239.35	495278.8	395385.21
Genetic Information Processing	Folding, sorting and degradation	ko04122	Sulfur relay system	375077.01	359936.57	378414.62	378960.51	432802.53	383750.31
Metabolism	Metabolism of cofactors and vitamins	ko00130	Ubiquinone and other terpenoid-quinone biosynthesis	373468.38	342505.79	364747.05	374590.71	461484.71	390435.71
Metabolism	Energy metabolism	ko00195	Photosynthesis	389769.24	325517.64	391881.79	346644.14	433805.39	373902.69
Metabolism	Lipid metabolism	ko00561	Glycerolipid metabolism	331299.18	327907.12	340431.19	345365.53	454724.67	371498.29
Genetic Information Processing	Replication and repair	ko03420	Nucleotide excision repair	350414.97	315981.25	346481.39	328685.53	397541.43	363358.13
Metabolism	Carbohydrate metabolism	ko00660	C5-Branched dibasic acid metabolism	342305.99	314886.47	337806.74	317735.83	391500.39	347883.9
Cellular Processes	Transport and catabolism	ko04146	Peroxisome	302385.99	300400.03	311293.35	328755.43	410824.05	354582.91
Metabolism	Metabolism of terpenoids and polyketides	ko00281	Geraniol degradation	264735.6	307878.53	291819.51	364915.3	399296.34	372133.16
Metabolism	Biosynthesis of other secondary metabolites	ko00261	Monobactam biosynthesis	320329.72	302753.44	320829.29	319873.98	378551.7	338114.51

Human Diseases	Cardiovascular diseases	ko05418	Fluid shear stress and atherosclerosis	287574.33	292141.57	302338.6	341522.47	383573.66	351754.57
Metabolism	Lipid metabolism	ko01040	Biosynthesis of unsaturated fatty acids	284038.79	288025.45	289110.93	309919.13	346736.36	323628.94
Metabolism	Xenobiotics biodegradation and metabolism	ko00627	Aminobenzoate degradation	221486.01	274545.05	236534.13	295349.24	390192.08	293028.6
Metabolism	Metabolism of cofactors and vitamins	ko00740	Riboflavin metabolism	272859.38	254024.74	267793.27	280249.67	331172.83	298149.95
Metabolism	Biosynthesis of other secondary metabolites	ko00521	Streptomycin biosynthesis	292449.51	231680.34	282568.22	229944.71	318793.82	249024.81
Organismal Systems	Aging	ko04212	Longevity regulating pathway - worm	256489.49	234539.68	253052.49	260004.6	319247.32	281008.66
Human Diseases	Drug resistance: Antineoplastic	ko01524	Platinum drug resistance	219570.71	234874.09	228618.08	284741.7	324445.63	286924.29
Metabolism	Lipid metabolism	ko00072	Synthesis and degradation of ketone bodies	219746.11	233490.28	228969.9	279145.65	315549.37	296058.22
Metabolism	Xenobiotics biodegradation and metabolism	ko00982	Drug metabolism - cytochrome P450	201207.13	241928.32	224911.18	280720.57	335619.77	284094.43
Metabolism	Carbohydrate metabolism	ko00040	Pentose and glucuronate interconversions	246281.57	239912.71	238366.93	224496.25	341469.7	230476.05
Metabolism	Xenobiotics biodegradation and metabolism	ko00980	Metabolism of xenobiotics by cytochrome P450	194604.69	232157.39	215989.06	272879.52	329734.3	275248.44
Human Diseases	Drug resistance: Antimicrobial	ko01502	Vancomycin resistance	237971.05	222696.97	241762.8	230837.39	267766.78	252277.96
Organismal Systems	Endocrine system	ko03320	PPAR signaling pathway	203545.32	215899.85	213172.23	234737.87	302952.71	242042.26
Metabolism	Xenobiotics biodegradation and metabolism	ko00983	Drug metabolism - other enzymes	237599.36	213880.15	241362.67	214117.2	255922.6	231537.76
Environmental Information Processing	Membrane transport	ko02060	Phosphotransferase system (PTS)	170644.4	238596.36	176313.35	221720.1	338061.16	230871.12
Metabolism	Metabolism of cofactors and vitamins	ko00750	Vitamin B6 metabolism	222560.13	213322.15	225539.42	215583.85	248785.77	235930.43
Metabolism	Carbohydrate metabolism	ko00562	Inositol phosphate metabolism	187434.2	177512.5	188515.93	212892.77	300626.01	228506.29
Human Diseases	Drug resistance: Antineoplastic	ko01523	Antifolate resistance	206956.1	193684.99	209337.96	208306.65	236847.74	231309.37
Human Diseases	Cancers: Overview	ko05204	Chemical carcinogenesis	164649.73	193427.79	183672.21	234103.32	265016.65	237929.14
Metabolism	Metabolism of other amino acids	ko00460	Cyanoamino acid metabolism	198262.52	193505.91	202621.4	194281.58	260817.83	205681.07
Human Diseases	Infectious diseases: Bacterial	ko05134	Legionellosis	201914.52	186680.75	201614.35	199955.29	239047.87	223866.16

Metabolism	Xenobiotics biodegradation and metabolism	ko00625	Chloroalkane and chloroalkene degradation	162918.34	181336.76	168292.59	189941.08	323626.01	195916.02
Human Diseases	Cancers: Overview	ko05230	Central carbon metabolism in cancer	190340.25	171432.26	195141.99	173590.4	238209.04	200641.07
Metabolism	Carbohydrate metabolism	ko00053	Ascorbate and aldarate metabolism	160738.01	161287.65	149728.91	186523.84	321369.13	185205.99
Metabolism	Metabolism of other amino acids	ko00430	Taurine and hypotaurine metabolism	172667.81	169466.1	172284.75	173563.73	255650.58	184830.48
Metabolism	Xenobiotics biodegradation and metabolism	ko00930	Caprolactam degradation	145845.84	178173.91	161956.18	206072.56	223443.03	202647.5
Metabolism	Metabolism of other amino acids	ko00471	D-Glutamine and D-glutamate metabolism	178371.5	168436.38	180008.58	186416.86	199539.84	194016
Human Diseases	Infectious diseases: Bacterial	ko05152	Tuberculosis	181541.57	162601.74	174747.37	174525.44	214310.28	183745.4
Organismal Systems	Aging	ko04213	Longevity regulating pathway - multiple species	157773.94	165727.24	166002.32	177111.72	220506.3	193437.5
Metabolism	Metabolism of terpenoids and polyketides	ko00903	Limonene and pinene degradation	140940.42	161568.08	153009.21	172329.48	244760.44	180177.86
Environmental Information Processing	Signal transduction	ko04066	HIF-1 signaling pathway	174015.66	155052.18	176554.95	163315.33	178885.95	182546
Organismal Systems	Endocrine system	ko04922	Glucagon signaling pathway	159815.83	152466.31	163958.29	157598.32	204602.83	181321.11
Genetic Information Processing	Transcription	ko03020	RNA polymerase	168147.19	150208.64	162516.65	159021.76	181171.14	176721.53
Metabolism	Xenobiotics biodegradation and metabolism	ko00643	Styrene degradation	127853.33	142685.94	136499.03	155652.53	239559.14	158952.92
Metabolism	Biosynthesis of other secondary metabolites	ko00401	Novobiocin biosynthesis	160115.08	139837.65	155506.93	153232.65	173573.72	166542.52
Human Diseases	Neurodegenerative diseases	ko05016	Huntington's disease	136421.44	124541.98	131596.06	144760.31	183117.79	161581.16
Organismal Systems	Environmental adaptation	ko04626	Plant-pathogen interaction	132780.86	132907.4	141770.14	138232.56	159490.24	150296.63
Metabolism	Biosynthesis of other secondary metabolites	ko00960	Tropane, piperidine and pyridine alkaloid biosynthesis	136791.28	126357.2	134615.95	139809.86	165262.49	152452.37
Human Diseases	Neurodegenerative diseases	ko05010	Alzheimer's disease	134956.23	123880.29	132184.79	133874.45	164571.85	148265.58
Environmental Information Processing	Signal transduction	ko04016	MAPK signaling pathway - plant	126281.39	116739.12	122425.06	137644.73	175489.92	149445.57
Organismal Systems	Immune system	ko04621	NOD-like receptor signaling pathway	133680.99	124256.14	139559.59	129445.26	152905.16	145578.31

Metabolism	Xenobiotics biodegradation and metabolism	ko00364	Fluorobenzoate degradation	99175.05	113777.51	100957.9	148160.48	151267.31	136837.55
Metabolism	Metabolism of terpenoids and polyketides	ko00523	Polyketide sugar unit biosynthesis	147209.25	103564.12	137645.33	100204.39	144583.7	106155.38
Environmental Information Processing	Signal transduction	ko04070	Phosphatidylinositol signaling system	117985.48	112118.56	120920.09	118266.56	138845.48	125660.93
Human Diseases	Infectious diseases: Bacterial	ko05133	Pertussis	95601.26	111790.64	95412.49	134735.67	169783.34	124955.83
Metabolism	Metabolism of other amino acids	ko00473	D-Alanine metabolism	109704.58	106702.77	110521.2	116649.59	145850.39	125158.85
Metabolism	Xenobiotics biodegradation and metabolism	ko00361	Chlorocyclohexane and chlorobenzene degradation	90200.07	100740.92	83393.38	122829.78	183224.71	117852.33
Environmental Information Processing	Signal transduction	ko04068	FoxO signaling pathway	96941.62	97455.75	98068.59	118879.6	145933.94	130934.35
Metabolism	Metabolism of other amino acids	ko00440	Phosphonate and phosphinate metabolism	81831.36	98632.29	87999.07	104694.06	178650.47	98336.73
Human Diseases	Neurodegenerative diseases	ko05014	Amyotrophic lateral sclerosis (ALS)	84361.57	88831.26	86936.11	109522.2	139580.03	117768.37
Environmental Information Processing	Signal transduction	ko04152	AMPK signaling pathway	105854.61	96407.16	103460.48	100595.03	111991.68	106827.28
Metabolism	Xenobiotics biodegradation and metabolism	ko00622	Xylene degradation	75268.71	90100.4	69688.05	120943.07	153287.83	110243.73
Human Diseases	Cancers: Overview	ko05200	Pathways in cancer	100578.08	91351.6	97805.07	99514.92	116012.83	102650.44
Metabolism	Biosynthesis of other secondary metabolites	ko00940	Phenylpropanoid biosynthesis	99739.87	92084.25	101331.93	88703.88	115108.78	94616.04
Cellular Processes	Cell growth and death	ko04216	Ferroptosis	95968.65	93084.24	94852.21	93038.99	117853.72	94312.46
Organismal Systems	Endocrine system	ko04920	Adipocytokine signaling pathway	95903.09	92147.1	93932.36	92948.81	115586.24	98344.18
Metabolism	Xenobiotics biodegradation and metabolism	ko00626	Naphthalene degradation	74220.11	91624.81	83708.82	93894.04	139499.05	95663.49
Organismal Systems	Aging	ko04211	Longevity regulating pathway	82246.27	82158.87	84013.43	96861.82	125072.59	106690.38
Organismal Systems	Nervous system	ko04727	GABAergic synapse	83004.1	86024.42	94777.97	85708.26	118326.13	92031.04
Metabolism	Metabolism of cofactors and vitamins	ko00785	Lipoic acid metabolism	91822.27	84459.14	91538.13	91135.03	98913.96	100132.85
Organismal Systems	Nervous system	ko04724	Glutamatergic synapse	80504.14	81616.25	92253.53	83601.25	114291.28	89903.14

Human Diseases	Endocrine and metabolic diseases	ko04931	Insulin resistance	81856.52	79354.28	84227.99	83760.72	107794.39	92021.07
Metabolism	Xenobiotics biodegradation and metabolism	ko00623	Toluene degradation	69162.93	70701.65	59299.57	100167.9	128004.4	91808.21
Metabolism	Xenobiotics biodegradation and metabolism	ko00791	Atrazine degradation	68338.33	80968.97	73738.66	97463.55	110500.61	87875.62
Metabolism	Biosynthesis of other secondary metabolites	ko00950	Isoquinoline alkaloid biosynthesis	82509.81	80828.12	83705.21	85862.21	89411.59	88524.3
Metabolism	Metabolism of terpenoids and polyketides	ko01051	Biosynthesis of ansamycins	77696.08	79041.26	79423.06	79774.08	101477.92	80806.21
Metabolism	Xenobiotics biodegradation and metabolism	ko00633	Nitrotoluene degradation	64222.36	86744.16	69206.15	72016.93	135250.54	62198.49
Metabolism	Biosynthesis of other secondary metabolites	ko00405	Phenazine biosynthesis	83057.7	72881.93	80547.09	74516.58	84415.72	84511.27
Cellular Processes	Cell growth and death	ko04214	Apoptosis - fly	73749.52	64907.21	68129.22	75233.78	104672.44	76902.9
Human Diseases	Endocrine and metabolic diseases	ko04932	Non-alcoholic fatty liver disease (NAFLD)	71982.89	62924.64	66837.72	71324.97	98618.52	81759.34
Metabolism	Biosynthesis of other secondary metabolites	ko00332	Carbapenem biosynthesis	77305.38	66107.72	76909.37	70187.94	82471.1	79957.75
Human Diseases	Neurodegenerative diseases	ko05012	Parkinson's disease	71621.72	63146.14	66739.05	71293.47	98376.52	81601.84
Human Diseases	Infectious diseases: Bacterial	ko05132	Salmonella infection	61156.48	68745.59	71709.51	71068.14	91922.35	79953.72
Metabolism	Metabolism of cofactors and vitamins	ko00830	Retinol metabolism	55430.01	68818.33	61265.22	70879.98	114660.18	71885.76
Metabolism	Glycan biosynthesis and metabolism	ko00511	Other glycan degradation	92604.47	72882	93632.09	50836.59	65278.25	54898.86
Organismal Systems	Endocrine system	ko04910	Insulin signaling pathway	63773.91	64826.57	66033.85	70101.34	84514.17	73220.1
Genetic Information Processing	Translation	ko03008	Ribosome biogenesis in eukaryotes	69071.93	60395.79	65344.22	67347.99	83524.55	75729.06
Human Diseases	Immune diseases	ko05340	Primary immunodeficiency	62622.84	60613	63094.83	72242.1	79429.11	73693.07
Metabolism	Metabolism of terpenoids and polyketides	ko00981	Insect hormone biosynthesis	61450.92	55234.87	60345.93	61042.19	104213.71	68062.45
Genetic Information Processing	Translation	ko03013	RNA transport	69751.74	63462.94	66581.43	61900.65	79676.86	62895.34
Organismal Systems	Endocrine system	ko04918	Thyroid hormone synthesis	59972.94	62798.13	64092.34	70209.06	72441.22	74693.65

Metabolism	Lipid metabolism	ko00590	Arachidonic acid metabolism	58030.29	62576.92	62779.75	72930.59	70815.18	73441.09
Metabolism	Biosynthesis of other secondary metabolites	ko00525	Acarbose and validamycin biosynthesis	83635.49	57292.88	76581.04	50761.48	69989.72	55520.53
Human Diseases	Infectious diseases: Bacterial	ko05120	Epithelial cell signaling in Helicobacter pylori infection	54007.7	61529.12	60023.95	65615.76	81847.98	63894.3
Genetic Information Processing	Folding, sorting and degradation	ko04141	Protein processing in endoplasmic reticulum	68369.23	51483.58	60729.22	59401.3	85420.43	59216.59
Metabolism	Lipid metabolism	ko00600	Sphingolipid metabolism	61395.76	60896.8	62949.55	48695.88	76195.15	52363.31
Metabolism	Metabolism of terpenoids and polyketides	ko01053	Biosynthesis of siderophore group nonribosomal peptides	50522.78	57794.99	54779.83	69050.11	61864.32	68112.07
Organismal Systems	Excretory system	ko04964	Proximal tubule bicarbonate reclamation	51779.75	50673.47	50656.96	63343.94	70771.38	62826.17
Metabolism	Glycan biosynthesis and metabolism	ko00531	Glycosaminoglycan degradation	57931.18	51909.25	58457.55	46338.36	52469.33	51360.82
Metabolism	Lipid metabolism	ko00565	Ether lipid metabolism	36319.59	38882.21	34585.4	57842.11	88497.53	55479
Metabolism	Lipid metabolism	ko00592	alpha-Linolenic acid metabolism	46076.76	45710.77	47793.56	51529.97	66302.31	53010.94
Human Diseases	Endocrine and metabolic diseases	ko04940	Type I diabetes mellitus	50702.57	47690.02	49883.76	49022.62	57410.17	52277.11
Metabolism	Metabolism of terpenoids and polyketides	ko00906	Carotenoid biosynthesis	57654.57	46032.97	63046.35	40933.6	53649.33	45273.37
Environmental Information Processing	Signal transduction	ko04151	PI3K-Akt signaling pathway	48765.45	44658.14	46597.27	53548.58	56058.58	55923.99
Cellular Processes	Cell growth and death	ko04210	Apoptosis	49556.73	45710.22	46504.76	49689.75	63423.32	48891.82
Metabolism	Xenobiotics biodegradation and metabolism	ko00624	Polycyclic aromatic hydrocarbon degradation	36519.36	53164.69	39729.04	51045.99	70564.72	46075.43
Environmental Information Processing	Signal transduction	ko04011	MAPK signaling pathway - yeast	35736.83	39955.19	38773.51	50330.91	68650.92	56585.25
Environmental Information Processing	Signal transduction	ko04013	MAPK signaling pathway - fly	46567.44	42231.68	45267.92	46540.91	56504.67	50138.13
Human Diseases	Infectious diseases: Bacterial	ko05150	Staphylococcus aureus infection	28595.75	50259.45	36265.3	41318.91	68600.41	56972.86
Metabolism	Biosynthesis of other secondary metabolites	ko00966	Glucosinolate biosynthesis	44450.97	37979.59	41916.78	41839.31	56502.72	46596.2
Human Diseases	Cancers: Overview	ko05206	MicroRNAs in cancer	34516.11	37996.57	41516.21	43104.67	62880.54	43023.37

Metabolism	Metabolism of terpenoids and polyketides	ko00908	Zeatin biosynthesis	44066.07	40099.78	44602.2	40826.16	45993.65	44840.57
Human Diseases	Cancers: Overview	ko05205	Proteoglycans in cancer	44278.98	39046.19	43762.48	40660.1	47002.07	44724.86
Organismal Systems	Circulatory system	ko04260	Cardiac muscle contraction	40214.76	33289.73	37793.37	38812.61	54970.01	49484.91
Human Diseases	Cancers: Overview	ko05203	Viral carcinogenesis	42647.15	33144.77	38950.34	34557.59	50886.12	38793.45
Metabolism	Biosynthesis of other secondary metabolites	ko00524	Neomycin, kanamycin and gentamicin biosynthesis	44417.66	34159.95	42787.57	31148.77	48177.29	34789
Human Diseases	Endocrine and metabolic diseases	ko04930	Type II diabetes mellitus	40738.14	33319.77	38845.33	34160.09	49948.62	37999.15
Metabolism	Xenobiotics biodegradation and metabolism	ko00642	Ethylbenzene degradation	34478.59	31977.08	35938.74	35414.84	52966	36559.15
Human Diseases	Cancers: Specific types	ko05211	Renal cell carcinoma	36226.19	32861.1	37112.28	35891.76	38017.26	39826.91
Organismal Systems	Endocrine system	ko04919	Thyroid hormone signaling pathway	23887.28	24138.58	20646.71	40447.64	68539.55	37548.25
Cellular Processes	Transport and catabolism	ko04142	Lysosome	48006.34	33914.36	45072.12	24994.27	31982.58	28631.51
Metabolism	Metabolism of terpenoids and polyketides	ko01055	Biosynthesis of vancomycin group antibiotics	44755.71	31303.43	40918.04	26882.84	37284.91	30201.61
Metabolism	Xenobiotics biodegradation and metabolism	ko00621	Dioxin degradation	24490.01	23416.62	17749.4	35437.88	72101.94	31625.06
Human Diseases	Infectious diseases: Viral	ko05164	Influenza A	32038.46	30022.91	29913.35	32976.36	43855.51	32901.43
Human Diseases	Infectious diseases: Viral	ko05168	Herpes simplex infection	32093.97	29525.91	28977.02	32608.86	43787.51	32260.93
Human Diseases	Cardiovascular diseases	ko05416	Viral myocarditis	31139.63	30910.41	29080.68	32581.86	43452.51	31786.93
Metabolism	Biosynthesis of other secondary metabolites	ko00311	Penicillin and cephalosporin biosynthesis	27159.27	29610.14	29441.9	33250	41902.27	36497.28
Human Diseases	Infectious diseases: Viral	ko05161	Hepatitis B	31477.8	29520.91	28836.35	32475.36	43428.51	31928.43
Human Diseases	Infectious diseases: Parasitic	ko05145	Toxoplasmosis	31020.63	29522.41	28736.68	32438.86	43224.51	31757.93
Human Diseases	Cancers: Specific types	ko05222	Small cell lung cancer	31040.63	29542.41	28770.68	32386.86	43219.51	31727.93
Cellular Processes	Cell growth and death	ko04115	p53 signaling pathway	30998.63	29518.41	28732.68	32386.86	43186.51	31759.93
Cellular Processes	Cell growth and death	ko04215	Apoptosis - multiple species	30998.63	29518.41	28732.68	32386.86	43186.51	31727.93
Human Diseases	Cancers: Specific types	ko05210	Colorectal cancer	30998.63	29518.41	28732.68	32386.86	43186.51	31727.93
Organismal Systems	Endocrine system	ko04915	Estrogen signaling pathway	33249.93	28843.09	31890.44	31235.8	34803.73	30958.52
Organismal Systems	Immune system	ko04659	Th17 cell differentiation	33332.93	28843.09	31894.94	31171.3	34738.73	30968.02

Organismal Systems	Immune system	ko04657	IL-17 signaling pathway	33230.93	28867.09	31928.44	31171.3	34771.73	30958.52
Organismal Systems	Immune system	ko04612	Antigen processing and presentation	33188.93	28843.09	31890.44	31171.3	34738.73	30958.52
Organismal Systems	Endocrine system	ko04914	Progesterone-mediated oocyte maturation	33188.93	28843.09	31890.44	31171.3	34738.73	30958.52
Human Diseases	Cancers: Specific types	ko05215	Prostate cancer	33188.93	28843.09	31890.44	31171.3	34738.73	30958.52
Genetic Information Processing	Replication and repair	ko03450	Non-homologous end-joining	20843.97	22067.3	24495.51	28910.45	43647.73	36218.7
Organismal Systems	Digestive system	ko04978	Mineral absorption	18734.54	17798.35	18800.02	28609.99	61649.65	26804.77
Organismal Systems	Endocrine system	ko04614	Renin-angiotensin system	22711.91	26168.58	25512.96	30086.31	29279.13	38312.32
Metabolism	Lipid metabolism	ko00591	Linoleic acid metabolism	23672.57	27369.52	24434.99	35106.24	26172.24	33122.39
Human Diseases	Cancers: Overview	ko05231	Choline metabolism in cancer	23564.95	25967.38	26153.18	29924.72	32661.96	28395.62
Environmental Information Processing	Signal transduction	ko04072	Phospholipase D signaling pathway	23286.28	25899.71	26004.93	29696.05	32558.29	28250.29
Metabolism	Lipid metabolism	ko00140	Steroid hormone biosynthesis	22270.82	24660.25	22922.13	25326.09	42902.57	26957.14
Metabolism	Biosynthesis of other secondary metabolites	ko00965	Betalain biosynthesis	25186.53	24634.27	25344.29	29337.14	29338.39	31099.69
Metabolism	Glycan biosynthesis and metabolism	ko00603	Glycosphingolipid biosynthesis - globo and isoglobo series	36801.05	27903.17	35833.16	16367.72	23287.51	17757.08
Human Diseases	Infectious diseases: Parasitic	ko05143	African trypanosomiasis	24704.09	24623.02	28387.41	24929.3	23216.31	28590.17
Human Diseases	Neurodegenerative diseases	ko05020	Prion diseases	17540.11	19385.66	19453.42	26814.43	27825.6	29478.69
Metabolism	Metabolism of terpenoids and polyketides	ko01054	Nonribosomal peptide structures	16295.38	21179.32	18895.11	24198.94	32788.96	24668.67
Metabolism	Xenobiotics biodegradation and metabolism	ko00984	Steroid degradation	9167.86	9185.37	14988.5	16275.46	64098.12	14478.87
Metabolism	Glycan biosynthesis and metabolism	ko00510	N-Glycan biosynthesis	25630.97	22295.14	26009.96	15680.94	17620.59	20098.66
Cellular Processes	Cell growth and death	ko04113	Meiosis - yeast	15561.26	27004.97	19990.46	14711.25	23020.16	14796.55
Human Diseases	Infectious diseases: Parasitic	ko05142	Chagas disease (American trypanosomiasis)	18745.91	16759.99	21096.2	14093.28	14933.04	22104.43
Metabolism	Glycan biosynthesis and metabolism	ko00513	Various types of N-glycan biosynthesis	27144.09	16477.13	25446.1	10270.04	12157.97	11292.67
Metabolism	Glycan biosynthesis and metabolism	ko00604	Glycosphingolipid biosynthesis - ganglio series	26373.25	16293.13	25191.93	9723.87	11702.97	10961.17

Metabolism	Biosynthesis of other secondary metabolites	ko00404	Staurosporine biosynthesis	9787.14	15961.5	14058.86	15691.75	13616.5	25130
Organismal Systems	Digestive system	ko04974	Protein digestion and absorption	21234.46	14885.6	21386.16	12105.54	10485.9	14022.72
Metabolism	Metabolism of other amino acids	ko00472	D-Arginine and D-ornithine metabolism	10817.2	12098.57	11264.08	13765.52	22495.32	17877.21
Metabolism	Xenobiotics biodegradation and metabolism	ko00365	Furfural degradation	5046.3	1743.8	977.56	11236.68	51095.83	8597.27
Metabolism	Lipid metabolism	ko00120	Primary bile acid biosynthesis	8490.37	12595.56	12591.6	11505.01	18485.34	14842.12
Metabolism	Xenobiotics biodegradation and metabolism	ko00363	Bisphenol degradation	7462.66	17762.18	8656.33	8617.17	28047.41	6168.57
Metabolism	Biosynthesis of other secondary metabolites	ko00945	Stilbenoid, diarylheptanoid and gingerol biosynthesis	7316.16	16349.35	8496.83	8284.17	27742.91	6139.76
Cellular Processes	Transport and catabolism	ko04138	Autophagy - yeast	14211.25	10846.1	14164.17	8736.55	8191.37	9945.98
Metabolism	Energy metabolism	ko00196	Photosynthesis - antenna proteins	12429.5	3611	13023	7935.5	23532	5234.5
Metabolism	Lipid metabolism	ko00121	Secondary bile acid biosynthesis	6630.52	9390.26	9311.55	8507.34	15730.42	8928.21
Organismal Systems	Endocrine system	ko04917	Prolactin signaling pathway	11080.35	9603.36	10332.72	6687.52	12688.07	6725.61
Human Diseases	Substance dependence	ko05031	Amphetamine addiction	8907.09	11773.17	10492.12	8531.72	6964.51	9569.49
Organismal Systems	Nervous system	ko04728	Dopaminergic synapse	8776.09	11819.17	10487.62	8578.72	6964.51	9586.99
Human Diseases	Substance dependence	ko05034	Alcoholism	8763.09	11773.17	10487.62	8525.72	6964.51	9559.99
Human Diseases	Substance dependence	ko05030	Cocaine addiction	8688.09	11770.67	10487.62	8461.22	6899.51	9559.99
Organismal Systems	Nervous system	ko04726	Serotonergic synapse	8627.09	11570.67	10520.62	8405.22	6932.51	9526.99
Human Diseases	Infectious diseases: Parasitic	ko05146	Amoebiasis	7482.4	9138.11	7882.91	7573.19	7746.68	10802.09
Human Diseases	Cancers: Specific types	ko05219	Bladder cancer	8578.79	7254.82	8507.25	8559.71	7912.63	7659.49
Organismal Systems	Digestive system	ko04973	Carbohydrate digestion and absorption	6885.78	9287.26	8550.98	5710.71	8280.53	4522.79
Metabolism	Metabolism of terpenoids and polyketides	ko00909	Sesquiterpenoid and triterpenoid biosynthesis	5795.31	3933.85	3159.33	4000.2	18085.33	4176.35
Human Diseases	Infectious diseases: Bacterial	ko05100	Bacterial invasion of epithelial cells	3220.34	6857.74	3489	4464	7712.54	5026.79
Genetic Information Processing	Transcription	ko03022	Basal transcription factors	4748.84	1520.06	2969.76	3076.5	8913.75	4937.81

Genetic Information Processing	Folding, sorting and degradation	ko03050	Proteasome	5558.18	2472.17	5384.51	3481.84	3932	4870.67
Human Diseases	Cardiovascular diseases	ko05410	Hypertrophic cardiomyopathy (HCM)	2864.36	2844.84	3609.79	3628.25	2483.33	7476.13
Organismal Systems	Endocrine system	ko04924	Renin secretion	2786.36	2594.84	3071.29	3423.75	2277.83	6925.63
Human Diseases	Infectious diseases: Bacterial	ko05130	Pathogenic Escherichia coli infection	1844	5626	1153	3430	5969	2724
Metabolism	Lipid metabolism	ko00100	Steroid biosynthesis	2235.16	1164.84	1457.16	1942.18	8667.17	2383.33
Organismal Systems	Immune system	ko04622	RIG-I-like receptor signaling pathway	1825.37	1335.43	1627.49	1922.84	7991.52	2484.81
Environmental Information Processing	Signal transduction	ko04071	Sphingolipid signaling pathway	1144.17	1627.67	2093.33	2569.67	1968	1804
Human Diseases	Infectious diseases: Bacterial	ko05110	Vibrio cholerae infection	2899.46	1494.49	1373.96	2159.76	1324.5	1931.45
Metabolism	Biosynthesis of other secondary metabolites	ko00944	Flavone and flavonol biosynthesis	1366.94	2071.46	1418.12	1595.72	2067.33	2254.22
Cellular Processes	Transport and catabolism	ko04144	Endocytosis	962	1592.33	1619	1281	1545	1643.33
Environmental Information Processing	Signal transduction	ko04024	cAMP signaling pathway	1284.17	1004	1652.33	1405.33	1036.5	1300.5
Human Diseases	Infectious diseases: Bacterial	ko05131	Shigellosis	720.5	1872	375	1140	2214.5	898.5
Metabolism	Biosynthesis of other secondary metabolites	ko00901	Indole alkaloid biosynthesis	1785.82	1691.17	1374.5	388	868.58	491
Organismal Systems	Endocrine system	ko04916	Melanogenesis	721	826.33	733.5	907.5	860	1578.83
Human Diseases	Infectious diseases: Viral	ko05169	Epstein-Barr virus infection	2199.51	7.5	282.01	431.5	1113	1013.5
Organismal Systems	Digestive system	ko04972	Pancreatic secretion	578.67	495	1132	521	436	976
Environmental Information Processing	Signaling molecules and interaction	ko04080	Neuroactive ligand-receptor interaction	554	492	1077	501	427	973
Organismal Systems	Digestive system	ko04976	Bile secretion	953.09	682.4	760.67	441.84	596.96	561.5
Cellular Processes	Transport and catabolism	ko04145	Phagosome	1013.17	280.5	674.67	385.5	593.5	792.5
Genetic Information Processing	Replication and repair	ko03460	Fanconi anemia pathway	1666.18	5	244.34	291.5	823.5	656
Metabolism	Lipid metabolism	ko00062	Fatty acid elongation	526.99	378	908	634	247.5	635
Metabolism	Biosynthesis of other secondary metabolites	ko00232	Caffeine metabolism	667.5	290.5	727.75	422.55	803.12	313

Human Diseases	Infectious diseases: Viral	ko05166	HTLV-I infection	1225.34	5	248.84	222	601	542.5
Organismal Systems	Immune system	ko04640	Hematopoietic cell lineage	300.5	322	797	319	365.5	550
Genetic Information Processing	Translation	ko03015	mRNA surveillance pathway	1007.01	9.5	210.34	326.5	596.5	457
Organismal Systems	Nervous system	ko04723	Retrograde endocannabinoid signaling	419.5	446.67	393	178	596	419.5
Cellular Processes	Cell motility	ko04810	Regulation of actin cytoskeleton	472	252.5	543	261	243.5	528
Environmental Information Processing	Signal transduction	ko04015	Rap1 signaling pathway	344	250	543	325.5	308.5	528
Organismal Systems	Development	ko04380	Osteoclast differentiation	427	250	547.5	261	243.5	537.5
Metabolism	Biosynthesis of other secondary metabolites	ko00941	Flavonoid biosynthesis	511.5	297.17	632.5	282	258.5	272.76
Human Diseases	Cardiovascular diseases	ko05414	Dilated cardiomyopathy	283	250	543	269	270.5	560
Organismal Systems	Endocrine system	ko04912	GnRH signaling pathway	158	252.33	659	502.5	300	273.33
Environmental Information Processing	Signaling molecules and interaction	ko04512	ECM-receptor interaction	283	279	543	261	243.5	530
Environmental Information Processing	Signal transduction	ko04014	Ras signaling pathway	158	252.33	659	496.5	300	273.33
Cellular Processes	Cellular community - eukaryotes	ko04510	Focal adhesion	297	252.5	543	261	243.5	528
Organismal Systems	Immune system	ko04611	Platelet activation	297	252.5	543	261	243.5	528
Organismal Systems	Immune system	ko04666	Fc gamma R-mediated phagocytosis	272	252.33	659	432	235	273.33
Human Diseases	Cardiovascular diseases	ko05412	Arrhythmogenic right ventricular cardiomyopathy (ARVC)	283	250	543	261	243.5	528
Metabolism	Biosynthesis of other secondary metabolites	ko00943	Isoflavonoid biosynthesis	250	276	303.5	337.5	520	222
Organismal Systems	Endocrine system	ko04921	Oxytocin signaling pathway	740.17	29	146.17	159	340	210
Environmental Information Processing	Signal transduction	ko04020	Calcium signaling pathway	462	119.5	536	155	131.5	184.13
Human Diseases	Immune diseases	ko05322	Systemic lupus erythematosus	329.49	372	179.5	136	225	293.33
Cellular Processes	Cellular community - eukaryotes	ko04530	Tight junction	712.17	30.5	131.67	98.5	325	233.5

Metabolism	Metabolism of terpenoids and polyketides	ko01057	Biosynthesis of type II polyketide products	353	111	320	232.01	251	128.57
Environmental Information Processing	Signal transduction	ko04371	Apelin signaling pathway	540.17	2.5	103.67	153	307	200.5
Cellular Processes	Cell growth and death	ko04110	Cell cycle	479.17	2.5	103.67	88.5	255	200.5
Cellular Processes	Transport and catabolism	ko04140	Autophagy - animal	479.17	2.5	103.67	88.5	242	200.5
Human Diseases	Drug resistance: Antineoplastic	ko01521	EGFR tyrosine kinase inhibitor resistance	479.17	2.5	103.67	88.5	242	200.5
Human Diseases	Infectious diseases: Viral	ko05160	Hepatitis C	479.17	2.5	103.67	88.5	242	200.5
Human Diseases	Infectious diseases: Viral	ko05162	Measles	479.17	2.5	103.67	88.5	242	200.5
Environmental Information Processing	Signal transduction	ko04150	mTOR signaling pathway	479.17	2.5	103.67	88.5	242	200.5
Metabolism	Metabolism of terpenoids and polyketides	ko01056	Biosynthesis of type II polyketide backbone	399	0.05	120	55.85	20	270
Metabolism	Metabolism of terpenoids and polyketides	ko00253	Tetracycline biosynthesis	260	0.05	152	44.68	56	254.57
Genetic Information Processing	Transcription	ko03040	Spliceosome	125.67	231	5	84	70	95
Environmental Information Processing	Signal transduction	ko04310	Wnt signaling pathway	205.33	105	36.17	37	10.33	110.58
Environmental Information Processing	Signal transduction	ko04022	cGMP-PKG signaling pathway	243.67	5.5	59.5	84.5	74	12.5
Organismal Systems	Immune system	ko04624	Toll and Imd signaling pathway	58	112	68	41	88	6
Organismal Systems	Nervous system	ko04720	Long-term potentiation	219	2.5	4.5	70.5	65	9.5
Cellular Processes	Cell growth and death	ko04114	Oocyte meiosis	219	2.5	4.5	70.5	65	9.5
Organismal Systems	Immune system	ko04623	Cytosolic DNA-sensing pathway	193	0.05	0.05	34	52	63
Human Diseases	Cancers: Specific types	ko05220	Chronic myeloid leukemia	61.33	105	31.67	31	10.33	101.08
Environmental Information Processing	Signal transduction	ko04330	Notch signaling pathway	61.33	105	31.67	31	10.33	101.08
Organismal Systems	Circulatory system	ko04261	Adrenergic signaling in cardiomyocytes	99.67	5.5	55	90.5	74	3
Organismal Systems	Digestive system	ko04971	Gastric acid secretion	85.67	3	55	90.5	74	3

Organismal Systems	Digestive system	ko04970	Salivary secretion	85.67	3	55	84.5	74	3
Human Diseases	Infectious diseases: Parasitic	ko05144	Malaria	47	61	0.05	75	74	40
Environmental Information Processing	Signal transduction	ko04370	VEGF signaling pathway	186	24	42.5	0.05	33	9.5
Cellular Processes	Cellular community - eukaryotes	ko04540	Gap junction	58	28	28	10	83	33
Organismal Systems	Sensory system	ko04750	Inflammatory mediator regulation of TRP channels	75	2.5	0.05	70.5	65	0.05
Organismal Systems	Circulatory system	ko04270	Vascular smooth muscle contraction	75	2.5	0.05	64.5	65	0.05
Organismal Systems	Endocrine system	ko04925	Aldosterone synthesis and secretion	61	0.05	0.05	70.5	65	0.05
Organismal Systems	Environmental adaptation	ko04713	Circadian entrainment	61	0.05	0.05	70.5	65	0.05
Human Diseases	Cancers: Specific types	ko05214	Glioma	61	0.05	0.05	70.5	65	0.05
Organismal Systems	Nervous system	ko04722	Neurotrophin signaling pathway	61	0.05	0.05	70.5	65	0.05
Organismal Systems	Sensory system	ko04740	Olfactory transduction	61	0.05	0.05	70.5	65	0.05
Organismal Systems	Sensory system	ko04745	Phototransduction - fly	61	0.05	0.05	70.5	65	0.05
Organismal Systems	Sensory system	ko04744	Phototransduction	61	0.05	0.05	64.5	65	0.05
Organismal Systems	Excretory system	ko04962	Vasopressin-regulated water reabsorption	0.5	0.05	11	22	95.5	52.2
Cellular Processes	Cellular community - eukaryotes	ko04520	Adherens junction	175	0.05	0.05	0.05	0.05	0.05
Organismal Systems	Immune system	ko04062	Chemokine signaling pathway	175	0.05	0.05	0.05	0.05	0.05
Organismal Systems	Development	ko04360	Axon guidance	144	0.05	4.5	6	0.05	9.5
Organismal Systems	Immune system	ko04662	B cell receptor signaling pathway	144	0.05	4.5	0.05	0.05	9.5
Environmental Information Processing	Signal transduction	ko04010	MAPK signaling pathway	144	0.05	4.5	0.05	0.05	9.5
Organismal Systems	Immune system	ko04650	Natural killer cell mediated cytotoxicity	144	0.05	4.5	0.05	0.05	9.5
Organismal Systems	Immune system	ko04660	T cell receptor signaling pathway	144	0.05	4.5	0.05	0.05	9.5
Organismal Systems	Immune system	ko04658	Th1 and Th2 cell differentiation	144	0.05	4.5	0.05	0.05	9.5

Human Diseases	Cancers: Specific types	ko05212	Pancreatic cancer	61	0.05	0.05	34	27	36
Human Diseases	Infectious diseases: Parasitic	ko05140	Leishmaniasis	42	24	38	0.05	33	0.05
Environmental Information Processing	Signal transduction	ko04064	NF-kappa B signaling pathway	42	24	38	0.05	33	0.05
Organismal Systems	Endocrine system	ko04913	Ovarian steroidogenesis	42	24	38	0.05	33	0.05
Organismal Systems	Endocrine system	ko04923	Regulation of lipolysis in adipocytes	42	24	38	0.05	33	0.05
Environmental Information Processing	Signal transduction	ko04668	TNF signaling pathway	42	24	38	0.05	33	0.05
Metabolism	Metabolism of terpenoids and polyketides	ko01052	Type I polyketide structures	42	0.05	10	0.05	10.5	62
Organismal Systems	Endocrine system	ko04911	Insulin secretion	24.67	3	55	26	9	3
Cellular Processes	Cellular community - eukaryotes	ko04550	Signaling pathways regulating pluripotency of stem cells	12	0.05	0.05	0.05	108	0.05
Metabolism	Metabolism of terpenoids and polyketides	ko00902	Monoterpenoid biosynthesis	13	0.05	74	0.05	28	0.05
Organismal Systems	Excretory system	ko04960	Aldosterone-regulated sodium reabsorption	24.67	3	55	20	9	3
Organismal Systems	Excretory system	ko04961	Endocrine and other factor-regulated calcium reabsorption	24.67	3	55	20	9	3
Organismal Systems	Nervous system	ko04721	Synaptic vesicle cycle	0.5	0.05	11	14	68.5	20.2
Organismal Systems	Nervous system	ko04725	Cholinergic synapse	2	0.05	0.05	6	0.05	91
Organismal Systems	Development	ko04320	Dorso-ventral axis formation	0.05	0.05	0.05	82	0.05	0.05
Metabolism	Metabolism of terpenoids and polyketides	ko01059	Biosynthesis of enediyne antibiotics	12	0.05	0.05	0.05	40	12
Environmental Information Processing	Signal transduction	ko04075	Plant hormone signal transduction	0.05	10.6	0.05	29	0.05	8.8
Metabolism	Metabolism of terpenoids and polyketides	ko00905	Brassinosteroid biosynthesis	17	0.05	10	0.05	0.05	18
Metabolism	Metabolism of terpenoids and polyketides	ko00522	Biosynthesis of 12-, 14- and 16-membered macrolides	13	0.05	0.05	17	1.75	3
Environmental Information Processing	Signaling molecules and interaction	ko04514	Cell adhesion molecules (CAMs)	0.05	29	0.05	0.05	0.05	2

Organismal Systems	Digestive system	ko04975	Fat digestion and absorption	0.05	0.05	0.05	0.05	23	0.05
Environmental Information Processing	Signal transduction	ko04390	Hippo signaling pathway	14	2.5	0.05	0.05	0.05	0.05
Cellular Processes	Cell growth and death	ko04111	Cell cycle - yeast	0.05	0.05	0.05	0.05	13	0.05
Environmental Information Processing	Signaling molecules and interaction	ko04060	Cytokine-cytokine receptor interaction	0.05	0.05	0.05	6.5	0.05	0.05
Environmental Information Processing	Signal transduction	ko04012	ErbB signaling pathway	0.05	0.05	0.05	6	0.05	0.05
Metabolism	Glycan biosynthesis and metabolism	ko00601	Glycosphingolipid biosynthesis - lacto and neolacto series	3.8	0.05	0.05	0.05	0.05	0.05