

**Table S2. Functional categorization of the upregulated and downregulated genes in opsX mutant based on GO annotation**

Expression level	Level	GO ID	Term	Type	NodeScore	%Seq	#Seqs	Sequences
	4	GO:0070727	cellular macromolecule localization	Biological Process	0.22	2.94	1	XOO2619
	6	GO:0015031	protein transport	Biological Process	0.36	2.94	1	XOO2619
	4	GO:0008104	protein localization	Biological Process	0.22	2.94	1	XOO2619
	3	GO:0044710	single-organism metabolic process	Biological Process	0.16	5.88	2	XOO3409, XOO2685
	4	GO:0044281	small molecule metabolic process	Biological Process	0.26	5.88	2	XOO3409, XOO2685
	4	GO:0050794	regulation of cellular process	Biological Process	1.8	8.82	3	XOO2787, XOO3763, XOO1721
	3	GO:0051641	cellular localization	Biological Process	0.13	2.94	1	XOO2619
	4	GO:0051649	establishment of localization in cell	Biological Process	0.22	2.94	1	XOO2619
	2	GO:0065007	biological regulation	Biological Process	1.01	11.76	4	XOO2787, XOO3763, XOO4149, XOO1721
	3	GO:0065008	regulation of biological quality	Biological Process	0.6	2.94	1	XOO4149
	5	GO:0046907	intracellular transport	Biological Process	0.36	2.94	1	XOO2619
	5	GO:0048646	anatomical structure formation involved in mor	Biological Process	1	2.94	1	XOO2621
	8	GO:0006605	protein targeting	Biological Process	1	2.94	1	XOO2619
	2	GO:0023052	signaling	Biological Process	1.08	8.82	3	XOO2787, XOO3763, XOO1721
	7	GO:0019752	carboxylic acid metabolic process	Biological Process	1.2	5.88	2	XOO3409, XOO2685
	5	GO:0034613	cellular protein localization	Biological Process	0.36	2.94	1	XOO2619
	2	GO:0040011	locomotion	Biological Process	10.8	26.47	9	XOO2572, XOO2836, XOO2858, XOO2859, XOO2607, XOO2849, XOO2568, XOO2833, XOO2850
	3	GO:1902578	single-organism localization	Biological Process	0.22	2.94	1	XOO2619
	4	GO:0009653	anatomical structure morphogenesis	Biological Process	0.6	2.94	1	XOO2621
	2	GO:0044699	single-organism process	Biological Process	2.32	29.41	10	XOO2619, XOO2572, XOO3409, XOO2607, XOO2849, XOO2787, XOO2685, XOO3763, XOO1721, XOO2621
	6	GO:1902582	single-organism intracellular transport	Biological Process	0.6	2.94	1	XOO2619
	4	GO:0006790	sulfur compound metabolic process	Biological Process	1	2.94	1	XOO3409
	5	GO:0043412	macromolecule modification	Biological Process	1.44	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
	3	GO:0006950	response to stress	Biological Process	1	2.94	1	XOO4481
	4	GO:0005975	carbohydrate metabolic process	Biological Process	2	5.88	2	XOO1603, XOO1781
	3	GO:0051674	localization of cell	Biological Process	1.8	8.82	3	XOO2572, XOO2607, XOO2849
	3	GO:0051716	cellular response to stimulus	Biological Process	1.8	8.82	3	XOO2787, XOO3763, XOO1721
	3	GO:0071704	organic substance metabolic process	Biological Process	2.44	23.53	8	XOO1603, XOO1207, XOO1781, XOO2857, XOO2836, XOO3409, XOO2685, XOO2228
	5	GO:0071702	organic substance transport	Biological Process	0.22	2.94	1	XOO2619
	5	GO:0006082	organic acid metabolic process	Biological Process	0.43	5.88	2	XOO3409, XOO2685
	6	GO:0036211	protein modification process	Biological Process	2.4	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
	8	GO:0006520	cellular amino acid metabolic process	Biological Process	2	5.88	2	XOO3409, XOO2685
	3	GO:0044238	primary metabolic process	Biological Process	3.26	23.53	8	XOO1603, XOO1207, XOO1781, XOO2857, XOO2836, XOO3409, XOO2685, XOO2228
	7	GO:0006886	intracellular protein transport	Biological Process	0.6	2.94	1	XOO2619
	3	GO:0044237	cellular metabolic process	Biological Process	3.52	26.47	9	XOO1207, XOO2857, XOO2836, XOO3409, XOO2685, XOO2228, XOO3763, XOO2566, XOO2621
	1	GO:0008150	biological_process	Biological Process	40.39	79.41	27	XOO2619, XOO1603, XOO1207, XOO2857, XOO2836, XOO2858, XOO2859, XOO3409, XOO2936, XOO4481, XOO2787, XOO2568, XOO2685, XOO2228, XOO4149, XOO2621, XOO2566, XOO2607, XOO2849, XOO2572, XOO1781, XOO2230, XOO2114, XOO2833, XOO2850, XOO3763, XOO1721
	2	GO:0008152	metabolic process	Biological Process	7	35.29	12	XOO1603, XOO1207, XOO2857, XOO1781, XOO2836, XOO3409, XOO2936, XOO2685, XOO2228, XOO3763, XOO2566, XOO2621
	3	GO:0044763	single-organism cellular process	Biological Process	2.78	26.47	9	XOO2572, XOO3409, XOO2607, XOO2849, XOO2787, XOO2685, XOO3763, XOO1721, XOO2621
	4	GO:0006810	transport	Biological Process	3.22	8.82	3	XOO2619, XOO2114, XOO4149
	5	GO:0044765	single-organism transport	Biological Process	0.36	2.94	1	XOO2619
	3	GO:0044767	single-organism developmental process	Biological Process	0.36	2.94	1	XOO2621
	6	GO:0043436	oxoacid metabolic process	Biological Process	0.72	5.88	2	XOO3409, XOO2685
	5	GO:0045184	establishment of protein localization	Biological Process	0.22	2.94	1	XOO2619
	2	GO:0051179	localization	Biological Process	2.29	17.65	6	XOO2619, XOO2572, XOO2607, XOO2849, XOO2114, XOO4149
	3	GO:0006807	nitrogen compound metabolic process	Biological Process	2.52	14.71	5	XOO3409, XOO2685, XOO3763, XOO2566, XOO2621
	4	GO:0006928	movement of cell or subcellular component	Biological Process	1.8	8.82	3	XOO2572, XOO2607, XOO2849
	4	GO:0042592	homeostatic process	Biological Process	1	2.94	1	XOO4149
	3	GO:0016043	cellular component organization	Biological Process	0.6	2.94	1	XOO2619
	2	GO:0071840	cellular component organization or biogenesis	Biological Process	0.36	2.94	1	XOO2619
	5	GO:0019538	protein metabolic process	Biological Process	1.44	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
	4	GO:0007154	cell communication	Biological Process	1.8	8.82	3	XOO2787, XOO3763, XOO1721
	7	GO:0006464	cellular protein modification process	Biological Process	4	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
	3	GO:0048856	anatomical structure development	Biological Process	0.36	2.94	1	XOO2621
	4	GO:1901564	organonitrogen compound metabolic process	Biological Process	1.2	5.88	2	XOO3409, XOO2685
	3	GO:0009058	biosynthetic process	Biological Process	6	17.65	6	XOO1603, XOO2936, XOO3409, XOO3763, XOO2566, XOO2621
	4	GO:0043170	macromolecule metabolic process	Biological Process	0.86	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
	5	GO:0044260	cellular macromolecule metabolic process	Biological Process	1.44	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228

downregulation

3	GO:0033036	macromolecule localization	Biological Process	0.13	2.94	1	XOO2619
4	GO:0034641	cellular nitrogen compound metabolic process	Biological Process	3	8.82	3	XOO3763, XOO2566, XOO2621
2	GO:0032502	developmental process	Biological Process	0.82	2.94	1	XOO2621
2	GO:0050896	response to stimulus	Biological Process	1.68	11.76	4	XOO4481, XOO2787, XOO3763, XOO1721
4	GO:0061024	membrane organization	Biological Process	1	2.94	1	XOO2619
5	GO:0007165	signal transduction	Biological Process	3	8.82	3	XOO2787, XOO3763, XOO1721
6	GO:0044267	cellular protein metabolic process	Biological Process	2.4	11.76	4	XOO1207, XOO2857, XOO2836, XOO2228
3	GO:0044700	single organism signaling	Biological Process	1.8	8.82	3	XOO2787, XOO3763, XOO1721
2	GO:0009987	cellular process	Biological Process	4.42	44.12	15	XOO2619, XOO1207, XOO2857, XOO2836, XOO3409, XOO2607, XOO2849, XOO2572, XOO2787, XOO2685, XOO2228, XOO3763, XOO1721, XOO2566, XOO2621
4	GO:0048869	cellular developmental process	Biological Process	0.6	2.94	1	XOO2621
5	GO:0048870	cell motility	Biological Process	3	8.82	3	XOO2572, XOO2607, XOO2849
3	GO:0051234	establishment of localization	Biological Process	1.93	8.82	3	XOO2619, XOO2114, XOO4149
5	GO:0030154	cell differentiation	Biological Process	1	2.94	1	XOO2621
3	GO:0050789	regulation of biological process	Biological Process	1.08	8.82	3	XOO2787, XOO3763, XOO1721
6	GO:0043229	intracellular organelle	Cellular Component	0.36	2.94	1	XOO1473
2	GO:0043226	organelle	Cellular Component	5.22	14.71	5	XOO2572, XOO2583, XOO1473, XOO2607, XOO2849
3	GO:0043228	non-membrane-bounded organelle	Cellular Component	0.36	2.94	1	XOO1473
2	GO:0005623	cell	Cellular Component	24.75	52.94	18	XOO2619, XOO1847, XOO1207, XOO2836, XOO2859, XOO2607, XOO2849, XOO2583, XOO2572, XOO2463, XOO1473, XOO2787, XOO2568, XOO2228, XOO3763, XOO4149, XOO1721, XOO2621
7	GO:0043232	intracellular non-membrane-bounded organelle	Cellular Component	0.6	2.94	1	XOO1473
7	GO:0044444	cytoplasmic part	Cellular Component	0.6	2.94	1	XOO1473
5	GO:0005886	plasma membrane	Cellular Component	3	8.82	3	XOO2619, XOO1847, XOO2463
1	GO:0005575	cellular_component	Cellular Component	41.64	61.76	21	XOO2619, XOO1847, XOO1207, XOO2836, XOO2859, XOO2607, XOO2849, XOO2572, XOO2583, XOO2463, XOO1473, XOO2230, XOO2787, XOO2568, XOO2558, XOO2228, XOO3763, XOO4149, XOO1721, XOO2830, XOO2621
6	GO:0030529	ribonucleoprotein complex	Cellular Component	0.6	2.94	1	XOO1473
3	GO:0044464	cell part	Cellular Component	11.26	47.06	16	XOO2619, XOO1847, XOO1207, XOO2836, XOO2859, XOO2607, XOO2849, XOO2572, XOO2463, XOO1473, XOO2787, XOO2568, XOO2228, XOO3763, XOO1721, XOO2621
4	GO:0005622	intracellular	Cellular Component	14.66	38.24	13	XOO1207, XOO2836, XOO2859, XOO2607, XOO2849, XOO2572, XOO1473, XOO2787, XOO2568, XOO2228, XOO3763, XOO1721, XOO2621
6	GO:0005737	cytoplasm	Cellular Component	4.36	11.76	4	XOO1473, XOO2836, XOO2859, XOO2621
4	GO:0071944	cell periphery	Cellular Component	1.8	8.82	3	XOO2619, XOO1847, XOO2463
8	GO:0005840	ribosome	Cellular Component	1	2.94	1	XOO1473
2	GO:0032991	macromolecular complex	Cellular Component	0.36	2.94	1	XOO1473
5	GO:0044424	intracellular part	Cellular Component	2.76	11.76	4	XOO1473, XOO2836, XOO2859, XOO2621
2	GO:0016020	membrane	Cellular Component	1.8	8.82	3	XOO2619, XOO1847, XOO2463
2	GO:0060089	molecular transducer activity	Molecular Function	6	29.41	10	XOO1207, XOO2836, XOO2859, XOO2568, XOO2558, XOO2833, XOO2860, XOO2228, XOO2850, XOO3147
3	GO:0022892	substrate-specific transporter activity	Molecular Function	0.6	2.94	1	XOO2830
3	GO:0016491	oxidoreductase activity	Molecular Function	5	14.71	5	XOO3807, XOO2593, XOO4481, XOO2849, XOO4149
4	GO:0016772	transferase activity, transferring phosphorus- $\alpha$	Molecular Function	4.2	20.59	7	XOO1207, XOO2836, XOO2860, XOO2228, XOO3147, XOO2621, XOO3611
2	GO:0000988	protein binding transcription factor activity	Molecular Function	1	2.94	1	XOO2621
2	GO:0005488	binding	Molecular Function	6.65	38.24	13	XOO2619, XOO3807, XOO1207, XOO1603, XOO2836, XOO2849, XOO4095, XOO4481, XOO3763, XOO2228, XOO1721, XOO4149, XOO2621
4	GO:0016765	transferase activity, transferring alkyl or aryl (o	Molecular Function	1	2.94	1	XOO2936
4	GO:0016746	transferase activity, transferring acyl groups	Molecular Function	2	5.88	2	XOO1473, XOO2597
3	GO:1901363	heterocyclic compound binding	Molecular Function	1.08	8.82	3	XOO3763, XOO1721, XOO2621
4	GO:0008565	protein transporter activity	Molecular Function	1	2.94	1	XOO2830
5	GO:0008168	methyltransferase activity	Molecular Function	1	2.94	1	XOO2857
1	GO:0003674	molecular_function	Molecular Function	48.44	100	34	XOO3807, XOO2619, XOO1847, XOO1207, XOO1603, XOO2836, XOO2857, XOO2836, XOO2858, XOO2936, XOO2859, XOO3409, XOO1473, XOO2463, XOO4481, XOO2568, XOO2860, XOO2228, XOO2685, XOO4149, XOO2621, XOO3611, XOO2849, XOO2593, XOO4095, XOO1781, XOO2230, XOO2558, XOO2833, XOO2597, XOO3763, XOO2850, XOO3147, XOO1721, XOO2830
2	GO:0005215	transporter activity	Molecular Function	1.56	8.82	3	XOO1847, XOO2463, XOO2830

2	GO:0003824	catalytic activity	Molecular Function	7.86	61.76	21	XOO3807, XOO1603, XOO1207, XOO2857, XOO2858, XOO2836, XOO2936, XOO3409, XOO2849, XOO2593, XOO1473, XOO1781, XOO4481, XOO2860, XOO2597, XOO2685, XOO2228, XOO3147, XOO4149, XOO2621, XOO3611
3	GO:0022857	transmembrane transporter activity	Molecular Function	2	5.88	2	XOO1847, XOO2463
4	GO:0003676	nucleic acid binding	Molecular Function	1.8	8.82	3	XOO3763, XOO1721, XOO2621
5	GO:0003677	DNA binding	Molecular Function	3	8.82	3	XOO3763, XOO1721, XOO2621
3	GO:0016740	transferase activity	Molecular Function	4.68	32.35	11	XOO1207, XOO1473, XOO2857, XOO2836, XOO2936, XOO2860, XOO2597, XOO2228, XOO3147, XOO2621, XOO3611
4	GO:0016741	transferase activity, transferring one-carbon gr	Molecular Function	0.6	2.94	1	XOO2857
5	GO:0042578	phosphoric ester hydrolase activity	Molecular Function	0.6	2.94	1	XOO1603
2	GO:0001071	nucleic acid binding transcription factor activity	Molecular Function	1	2.94	1	XOO2621
3	GO:0004871	signal transducer activity	Molecular Function	10	29.41	10	XOO1207, XOO2836, XOO2859, XOO2568, XOO2558, XOO2833, XOO2860, XOO2228, XOO2850, XOO3147
4	GO:0016788	hydrolase activity, acting on ester bonds	Molecular Function	0.36	2.94	1	XOO1603
3	GO:0043167	ion binding	Molecular Function	10	29.41	10	XOO2619, XOO3807, XOO1207, XOO1603, XOO4095, XOO2836, XOO4481, XOO2849, XOO2228, XOO4149
3	GO:0016829	lyase activity	Molecular Function	2	5.88	2	XOO3409, XOO2685
6	GO:0016791	phosphatase activity	Molecular Function	1	2.94	1	XOO1603
4	GO:0016798	hydrolase activity, acting on glycosyl bonds	Molecular Function	1	2.94	1	XOO1781
4	GO:0016810	hydrolase activity, acting on carbon-nitrogen (t	Molecular Function	1	2.94	1	XOO2858
5	GO:0016779	nucleotidyltransferase activity	Molecular Function	1	2.94	1	XOO2621
3	GO:0097159	organic cyclic compound binding	Molecular Function	1.08	8.82	3	XOO3763, XOO1721, XOO2621
5	GO:0016301	kinase activity	Molecular Function	6	17.65	6	XOO1207, XOO2836, XOO2860, XOO2228, XOO3147, XOO3611
3	GO:0016787	hydrolase activity	Molecular Function	1.42	8.82	3	XOO1603, XOO1781, XOO2858
3	GO:0044710	single-organism metabolic process	Biological Process	16.82	19.13	22	XOO1848, XOO0878, XOO4628, XOO0937, XOO2290, XOO1370, XOO2990, XOO2093, XOO0482, XOO4065, XOO2434, XOO0453, XOO0892, XOO0694, XOO1734, XOO4488, XOO0512, XOO1018, XOO1733, XOO0435, XOO0831, XOO2424
4	GO:0044281	small molecule metabolic process	Biological Process	22.04	18.26	21	XOO1848, XOO0878, XOO4628, XOO0937, XOO2290, XOO1370, XOO2093, XOO0482, XOO4065, XOO2434, XOO0453, XOO0892, XOO0694, XOO1734, XOO4488, XOO0512, XOO1018, XOO1733, XOO0435, XOO0831, XOO2424
4	GO:0050794	regulation of cellular process	Biological Process	2.4	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
2	GO:0065007	biological regulation	Biological Process	1.22	4.35	5	XOO1559, XOO3646, XOO1188, XOO0643, XOO0951
3	GO:0065008	regulation of biological quality	Biological Process	0.6	0.87	1	XOO3646
2	GO:0002376	immune system process	Biological Process	1	0.87	1	XOO0867
4	GO:0006725	cellular aromatic compound metabolic process	Biological Process	1.6	6.09	7	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO0831, XOO0567
2	GO:0023052	signaling	Biological Process	1.44	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
7	GO:0019752	carboxylic acid metabolic process	Biological Process	4.8	6.96	8	XOO2093, XOO0937, XOO0694, XOO2290, XOO4488, XOO0435, XOO0831, XOO2424
5	GO:1901361	organic cyclic compound catabolic process	Biological Process	0.6	0.87	1	XOO2737
4	GO:1901360	organic cyclic compound metabolic process	Biological Process	1.6	6.09	7	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO0831, XOO0567
2	GO:0040011	locomotion	Biological Process	6.2	4.35	5	XOO2605, XOO2838, XOO2842, XOO2579, XOO0644
3	GO:1902578	single-organism localization	Biological Process	2.16	5.22	6	XOO0847, XOO4188, XOO0745, XOO0849, XOO2644, XOO0336
2	GO:0044699	single-organism process	Biological Process	14.73	30.43	35	XOO1848, XOO0878, XOO0937, XOO1370, XOO4188, XOO0482, XOO4065, XOO2644, XOO1734, XOO4488, XOO1018, XOO1733, XOO0643, XOO2424, XOO0847, XOO0745, XOO1559, XOO4628, XOO2605, XOO0849, XOO2290, XOO2990, XOO2093, XOO2434, XOO3029, XOO0453, XOO2579, XOO0892, XOO0694, XOO1188, XOO0512, XOO0336, XOO0435, XOO0831, XOO0951
4	GO:0046483	heterocycle metabolic process	Biological Process	1.6	6.09	7	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO0831, XOO0567
7	GO:0016070	RNA metabolic process	Biological Process	0.72	1.74	2	XOO2710, XOO0831
3	GO:0071554	cell wall organization or biogenesis	Biological Process	1	0.87	1	XOO1371
2	GO:0051704	multi-organism process	Biological Process	0.36	0.87	1	XOO1713
6	GO:0055085	transmembrane transport	Biological Process	6	5.22	6	XOO0847, XOO4188, XOO0745, XOO0849, XOO2644, XOO0336
4	GO:0006790	sulfur compound metabolic process	Biological Process	1	0.87	1	XOO2093
9	GO:0006399	tRNA metabolic process	Biological Process	2	1.74	2	XOO2710, XOO0831
5	GO:0043412	macromolecule modification	Biological Process	1.8	4.35	5	XOO4009, XOO0682, XOO1734, XOO1733, XOO0642
3	GO:0006950	response to stress	Biological Process	4	3.48	4	XOO0867, XOO0690, XOO3646, XOO2339

4	GO:0005975	carbohydrate metabolic process	Biological Process	8	6.96	8	XOO2990, XOO4420, XOO4628, XOO1371, XOO1078, XOO0512, XOO1018, XOO4115
3	GO:0051674	localization of cell	Biological Process	1.2	1.74	2	XOO2605, XOO2579
5	GO:0051276	chromosome organization	Biological Process	2	1.74	2	XOO0867, XOO0567
3	GO:0051716	cellular response to stimulus	Biological Process	2.4	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
4	GO:0071941	nitrogen cycle metabolic process	Biological Process	1	0.87	1	XOO4488
3	GO:0071704	organic substance metabolic process	Biological Process	13.6	26.09	30	XOO1848, XOO0878, XOO2737, XOO0937, XOO4420, XOO1371, XOO4009, XOO1078, XOO0682, XOO4488, XOO1734, XOO1018, XOO0567, XOO1733, XOO2424, XOO0642, XOO0867, XOO4628, XOO0609, XOO2290, XOO2990, XOO2093, XOO2710, XOO3029, XOO0694, XOO0892, XOO0831, XOO0512, XOO4115, XOO0435
5	GO:0006082	organic acid metabolic process	Biological Process	1.73	6.96	8	XOO2093, XOO0937, XOO0694, XOO2290, XOO4488, XOO0435, XOO0831, XOO2424
6	GO:0036211	protein modification process	Biological Process	3	4.35	5	XOO4009, XOO0682, XOO1734, XOO1733, XOO0642
5	GO:0019439	aromatic compound catabolic process	Biological Process	0.6	0.87	1	XOO2737
4	GO:0022607	cellular component assembly	Biological Process	2	1.74	2	XOO1713, XOO2579
8	GO:0006520	cellular amino acid metabolic process	Biological Process	8	6.96	8	XOO2093, XOO0937, XOO0694, XOO2290, XOO4488, XOO0435, XOO0831, XOO2424
3	GO:0044238	primary metabolic process	Biological Process	16.09	26.09	30	XOO1848, XOO0878, XOO2737, XOO0937, XOO4420, XOO1371, XOO4009, XOO1078, XOO0682, XOO4488, XOO1734, XOO1018, XOO0567, XOO1733, XOO2424, XOO0642, XOO0867, XOO4628, XOO0609, XOO2290, XOO2990, XOO2093, XOO2710, XOO3029, XOO0694, XOO0892, XOO0831, XOO0512, XOO4115, XOO0435
3	GO:0044237	cellular metabolic process	Biological Process	24.41	31.3	36	XOO0935, XOO0917, XOO2737, XOO0937, XOO1370, XOO4065, XOO1510, XOO4009, XOO2367, XOO0682, XOO1870, XOO4488, XOO1734, XOO0567, XOO1733, XOO2029, XOO2424, XOO0642, XOO0268, XOO0867, XOO0448, XOO1559, XOO0609, XOO2290, XOO1380, XOO2093, XOO0692, XOO2710, XOO3029, XOO2434, XOO0453, XOO0694, XOO1188, XOO0831, XOO0435, XOO1369
3	GO:0044085	cellular component biogenesis	Biological Process	1.2	1.74	2	XOO1713, XOO2579
6	GO:0090304	nucleic acid metabolic process	Biological Process	3.43	6.09	7	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO0831, XOO0567
1	GO:0008150	biological_process	Biological Process	135.39	79.13	91	XOO0935, XOO0855, XOO0937, XOO2838, XOO4188, XOO4101, XOO4420, XOO4065, XOO2765, XOO2842, XOO2644, XOO0861, XOO2368, XOO1510, XOO1432, XOO1993, XOO2367, XOO1992, XOO1078, XOO1870, XOO1359, XOO0268, XOO0847, XOO1419, XOO0448, XOO0609, XOO0849, XOO1260, XOO1380, XOO2990, XOO0692, XOO0690, XOO2434, XOO2710, XOO1345, XOO0970, XOO0453, XOO3646, XOO0892, XOO0694, XOO1188, XOO0336, XOO2994, XOO1848, XOO0878, XOO0917, XOO2737, XOO1370, XOO0482, XOO1371, XOO0761, XOO4009, XOO3119, XOO0682, XOO1734, XOO4488, XOO1018, XOO1733, XOO0644, XOO0567, XOO2029, XOO0643, XOO1335, XOO2424, XOO0642, XOO0884, XOO0704, XOO0867, XOO0745, XOO1713, XOO1559, XOO4628, XOO2605, XOO2290, XOO2093, XOO2452, XOO0394, XOO0590, XOO1360, XOO3029, XOO2579, XOO2612, XOO2733, XOO2339, XOO0512, XOO0831, XOO4115, XOO0435, XOO1369, XOO0951, XOO0950
4	GO:0006091	generation of precursor metabolites and energy	Biological Process	1	0.87	1	XOO4065
8	GO:0034660	ncRNA metabolic process	Biological Process	1.2	1.74	2	XOO2710, XOO0831
2	GO:0008152	metabolic process	Biological Process	51.55	46.09	53	XOO0935, XOO0937, XOO4420, XOO4065, XOO2368, XOO1510, XOO1432, XOO1993, XOO2367, XOO1078, XOO1870, XOO0268, XOO0448, XOO0609, XOO1380, XOO2990, XOO0692, XOO2434, XOO2710, XOO0453, XOO0892, XOO0694, XOO1188, XOO1848, XOO0878, XOO0917, XOO2737, XOO1370, XOO0482, XOO1371, XOO4009, XOO0682, XOO1734, XOO4488, XOO1018, XOO1733, XOO0567, XOO2029, XOO2424, XOO0642, XOO0884, XOO0867, XOO1559, XOO4628, XOO2290, XOO2093, XOO3029, XOO2733, XOO0512, XOO0831, XOO4115, XOO0435, XOO1369

5	GO:0046700	heterocycle catabolic process	Biological Process	0.6	0.87	1	XOO2737
							XOO0847, XOO0745, XOO1559, XOO2605, XOO0849, XOO0937, XOO2290, XOO4188, XOO2093, XOO2644, XOO3029, XOO2579, XOO0694, XOO1188, XOO4488, XOO0336, XOO0435, XOO0831, XOO0643, XOO0951, XOO2424
3	GO:0044763	single-organism cellular process	Biological Process	7.4	18.26	21	
7	GO:0006259	DNA metabolic process	Biological Process	5	4.35	5	XOO0867, XOO0609, XOO2737, XOO3029, XOO0567
4	GO:0044249	cellular biosynthetic process	Biological Process	0.36	0.87	1	XOO0831
4	GO:0044403	symbiosis, encompassing mutualism through p	Biological Process	1	0.87	1	XOO1713
5	GO:0044765	single-organism transport	Biological Process	3.6	5.22	6	XOO0847, XOO4188, XOO0745, XOO0849, XOO2644, XOO0336
							XOO1419, XOO0847, XOO0855, XOO0745, XOO0849, XOO1260, XOO4188, XOO0394, XOO0861, XOO1345, XOO2644, XOO2612, XOO1992, XOO3119, XOO1359, XOO0336, XOO0950
4	GO:0006810	transport	Biological Process	19.16	14.78	17	
5	GO:0006139	nucleobase-containing compound metabolic pr	Biological Process	2.66	6.09	7	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO0831, XOO0567
4	GO:0044248	cellular catabolic process	Biological Process	0.36	0.87	1	XOO2737
6	GO:0043436	oxoacid metabolic process	Biological Process	2.88	6.96	8	XOO2093, XOO0937, XOO0694, XOO2290, XOO4488, XOO0435, XOO0831, XOO2424
7	GO:0006412	translation	Biological Process	1	0.87	1	XOO0831
							XOO0847, XOO1419, XOO0745, XOO0855, XOO2605, XOO0849, XOO1260, XOO4188, XOO0394, XOO2644, XOO0861, XOO1345, XOO2612, XOO2579, XOO1992, XOO3119, XOO0336, XOO1359, XOO0950
2	GO:0051179	localization	Biological Process	8.14	16.52	19	
							XOO0935, XOO0917, XOO2737, XOO0937, XOO1370, XOO4065, XOO1510, XOO2367, XOO1870, XOO4488, XOO1734, XOO0567, XOO1733, XOO2029, XOO2424, XOO0268, XOO0867, XOO0448, XOO1559, XOO0609, XOO2290, XOO1380, XOO2093, XOO0692, XOO2710, XOO3029, XOO2434, XOO0694, XOO1188, XOO0831, XOO0435, XOO1369
3	GO:0006807	nitrogen compound metabolic process	Biological Process	20.04	27.83	32	
4	GO:0006928	movement of cell or subcellular component	Biological Process	1.2	1.74	2	XOO2605, XOO2579
4	GO:0042592	homeostatic process	Biological Process	1	0.87	1	XOO3646
3	GO:0016043	cellular component organization	Biological Process	1.92	3.48	4	XOO0867, XOO1713, XOO2579, XOO0567
6	GO:0034655	nucleobase-containing compound catabolic pr	Biological Process	1	0.87	1	XOO2737
5	GO:0010467	gene expression	Biological Process	0.6	0.87	1	XOO0831
2	GO:0071840	cellular component organization or biogenesis	Biological Process	1.15	3.48	4	XOO0867, XOO1713, XOO2579, XOO0567
5	GO:0019538	protein metabolic process	Biological Process	2.16	5.22	6	XOO4009, XOO0682, XOO1734, XOO0831, XOO1733, XOO0642
3	GO:0044419	interspecies interaction between organisms	Biological Process	0.6	0.87	1	XOO1713
							XOO1370, XOO0482, XOO2737, XOO1371, XOO2368, XOO2733, XOO0892, XOO0512, XOO2424
3	GO:0009056	catabolic process	Biological Process	9.22	7.83	9	
4	GO:0007154	cell communication	Biological Process	2.4	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
4	GO:0032196	transposition	Biological Process	1	0.87	1	XOO3029
7	GO:0006464	cellular protein modification process	Biological Process	5	4.35	5	XOO4009, XOO0682, XOO1734, XOO1733, XOO0642
4	GO:1901564	organonitrogen compound metabolic process	Biological Process	4.8	6.96	8	XOO2093, XOO0937, XOO0694, XOO2290, XOO4488, XOO0435, XOO0831, XOO2424
5	GO:0009059	macromolecule biosynthetic process	Biological Process	0.36	0.87	1	XOO0831
							XOO0935, XOO0878, XOO0937, XOO1510, XOO1432, XOO1993, XOO2367, XOO1870, XOO1734, XOO4488, XOO0567, XOO1733, XOO2029, XOO0268, XOO0884, XOO2424, XOO0448, XOO1559, XOO1380, XOO2990, XOO2093, XOO0692, XOO0453, XOO0694, XOO1188, XOO0831, XOO1369
4	GO:0043170	macromolecule metabolic process	Biological Process	3.5	10.43	12	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO4009, XOO0682, XOO1734, XOO0831, XOO0567, XOO1733, XOO0642
5	GO:0044260	cellular macromolecule metabolic process	Biological Process	5.59	10.43	12	XOO0867, XOO0609, XOO2737, XOO2710, XOO3029, XOO4009, XOO0682, XOO1734, XOO0831, XOO0567, XOO1733, XOO0642
4	GO:0051186	cofactor metabolic process	Biological Process	5	4.35	5	XOO0453, XOO2367, XOO1734, XOO1733, XOO2424
							XOO0935, XOO0917, XOO2737, XOO1370, XOO4065, XOO1510, XOO2367, XOO1870, XOO1734, XOO1733, XOO0567, XOO2029, XOO0268, XOO2424, XOO0867, XOO0448, XOO1559, XOO0609, XOO1380, XOO0692, XOO2434, XOO2710, XOO3029, XOO1188, XOO0831, XOO1369
2	GO:0050896	response to stimulus	Biological Process	3.84	6.96	8	XOO0867, XOO1559, XOO0690, XOO3646, XOO1188, XOO2339, XOO0643, XOO0951
6	GO:0034645	cellular macromolecule biosynthetic process	Biological Process	0.6	0.87	1	XOO0831

upregulation

5	GO:0007165	signal transduction	Biological Process	4	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
6	GO:0044267	cellular protein metabolic process	Biological Process	3.6	5.22	6	XOO4009, XOO0682, XOO1734, XOO0831, XOO1733, XOO0642
4	GO:1901576	organic substance biosynthetic process	Biological Process	0.22	0.87	1	XOO0831
4	GO:1901575	organic substance catabolic process	Biological Process	0.36	0.87	1	XOO2737
4	GO:0006996	organelle organization	Biological Process	1.2	1.74	2	XOO0867, XOO0567
3	GO:0044700	single organism signaling	Biological Process	2.4	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
2	GO:0009987	cellular process	Biological Process	21.08	41.74	48	XOO0935, XOO0917, XOO2737, XOO0937, XOO1370, XOO4188, XOO4065, XOO1371, XOO2644, XOO1510, XOO2367, XOO4009, XOO1870, XOO0682, XOO4488, XOO1734, XOO0567, XOO1733, XOO2029, XOO0643, XOO0268, XOO2424, XOO0642, XOO0847, XOO0867, XOO0448, XOO0745, XOO1713, XOO1559, XOO0609, XOO2605, XOO0849, XOO2290, XOO1380, XOO2093, XOO0692, XOO2710, XOO2434, XOO3029, XOO0453, XOO2579, XOO0694, XOO1188, XOO0336, XOO0831, XOO0435, XOO1369, XOO0951
5	GO:0048870	cell motility	Biological Process	2	1.74	2	XOO2605, XOO2579
5	GO:0044270	cellular nitrogen compound catabolic process	Biological Process	0.6	0.87	1	XOO2737
3	GO:0051234	establishment of localization	Biological Process	11.5	14.78	17	XOO0847, XOO1419, XOO0745, XOO0855, XOO0849, XOO1260, XOO4188, XOO0394, XOO2644, XOO0861, XOO1345, XOO2612, XOO1992, XOO3119, XOO0336, XOO1359, XOO0950
4	GO:0006629	lipid metabolic process	Biological Process	6	5.22	6	XOO1848, XOO0878, XOO2990, XOO4628, XOO0892, XOO1018
3	GO:0050789	regulation of biological process	Biological Process	1.44	3.48	4	XOO1559, XOO1188, XOO0643, XOO0951
6	GO:0043229	intracellular organelle	Cellular Component	0.36	0.87	1	XOO0567
2	GO:0043226	organelle	Cellular Component	3.22	2.61	3	XOO2605, XOO2579, XOO0567
3	GO:0043228	non-membrane-bounded organelle	Cellular Component	0.36	0.87	1	XOO0567
2	GO:0005623	cell	Cellular Component	51.9	32.17	37	XOO0834, XOO0917, XOO2737, XOO0937, XOO1510, XOO0861, XOO4009, XOO1992, XOO0682, XOO1870, XOO4488, XOO0567, XOO0644, XOO1359, XOO0643, XOO0268, XOO0642, XOO0847, XOO1559, XOO2605, XOO0849, XOO1260, XOO2093, XOO0692, XOO0394, XOO2434, XOO2710, XOO1345, XOO3646, XOO0453, XOO2579, XOO3846, XOO1188, XOO0876, XOO0831, XOO0951, XOO0950
7	GO:0043232	intracellular non-membrane-bounded organelle	Cellular Component	0.6	0.87	1	XOO0567
3	GO:0043234	protein complex	Cellular Component	5	4.35	5	XOO0847, XOO2737, XOO0849, XOO0937, XOO0567
7	GO:0044444	cytoplasmic part	Cellular Component	0.6	0.87	1	XOO0937
5	GO:0005886	plasma membrane	Cellular Component	2	1.74	2	XOO0453, XOO3846
8	GO:0005694	chromosome	Cellular Component	1	0.87	1	XOO0567
2	GO:0005576	extracellular region	Cellular Component	1	0.87	1	XOO0855
1	GO:0005575	cellular_component	Cellular Component	97.35	48.7	56	XOO0855, XOO0937, XOO2838, XOO4188, XOO4064, XOO2644, XOO2842, XOO1510, XOO0861, XOO1992, XOO1870, XOO0469, XOO2762, XOO1359, XOO0268, XOO0847, XOO0449, XOO0849, XOO1260, XOO2990, XOO0692, XOO2434, XOO2710, XOO1345, XOO3646, XOO0453, XOO3846, XOO1188, XOO0336, XOO0955, XOO0834, XOO0917, XOO2737, XOO2980, XOO2788, XOO4009, XOO3119, XOO0682, XOO4488, XOO0567, XOO0644, XOO0643, XOO0642, XOO0745, XOO1559, XOO2605, XOO2093, XOO0394, XOO0596, XOO2612, XOO2579, XOO2377, XOO0876, XOO0831, XOO0951, XOO0950
3	GO:0044464	cell part	Cellular Component	24.83	28.7	33	XOO0834, XOO0917, XOO2737, XOO0937, XOO1510, XOO0861, XOO4009, XOO1992, XOO0682, XOO1870, XOO4488, XOO0567, XOO0644, XOO1359, XOO0643, XOO0268, XOO0642, XOO1559, XOO1260, XOO2093, XOO0692, XOO0394, XOO2434, XOO2710, XOO1345, XOO0453, XOO2579, XOO3846, XOO1188, XOO0876, XOO0831, XOO0951, XOO0950
4	GO:0005622	intracellular	Cellular Component	29.03	20.87	24	XOO0834, XOO1559, XOO0917, XOO2737, XOO0937, XOO2093, XOO0692, XOO1510, XOO2434, XOO2710, XOO2579, XOO4009, XOO0682, XOO1188, XOO1870, XOO0876, XOO4488, XOO0567, XOO0644, XOO0831, XOO0643, XOO0951, XOO0268, XOO0642

6	GO:0005737	cytoplasm	Cellular Component	13.36	11.3	13	XOO0834, XOO0917, XOO2737, XOO0937, XOO2093, XOO1510, XOO2434, XOO2710, XOO1870, XOO0876, XOO4488, XOO0644, XOO0831
4	GO:0071944	cell periphery	Cellular Component	5.4	7.83	9	XOO1260, XOO0394, XOO0861, XOO1345, XOO0453, XOO1992, XOO3846, XOO1359, XOO0950
8	GO:0005829	cytosol	Cellular Component	1	0.87	1	XOO0937
2	GO:0032991	macromolecular complex	Cellular Component	3	4.35	5	XOO0847, XOO2737, XOO0849, XOO0937, XOO0567
5	GO:0044424	intracellular part	Cellular Component	8.38	12.17	14	XOO0834, XOO0917, XOO2737, XOO0937, XOO2093, XOO1510, XOO2434, XOO2710, XOO1870, XOO0876, XOO4488, XOO0567, XOO0644, XOO0831
2	GO:0016020	membrane	Cellular Component	1.2	1.74	2	XOO0453, XOO3846
5	GO:0030312	external encapsulating structure	Cellular Component	7	6.09	7	XOO1260, XOO0394, XOO0861, XOO1345, XOO1992, XOO1359, XOO0950
8	GO:0016887	ATPase activity	Molecular Function	5	4.35	5	XOO2062, XOO1071, XOO0388, XOO3846, XOO0567
2	GO:0060089	molecular transducer activity	Molecular Function	4.8	6.96	8	XOO1828, XOO2838, XOO2842, XOO4009, XOO0682, XOO0336, XOO0644, XOO0642
2	GO:0005198	structural molecule activity	Molecular Function	1	0.87	1	XOO2579
8	GO:0004386	helicase activity	Molecular Function	1	0.87	1	XOO0567
3	GO:0022892	substrate-specific transporter activity	Molecular Function	1.2	1.74	2	XOO0847, XOO0849
5	GO:0003723	RNA binding	Molecular Function	2	1.74	2	XOO0917, XOO2710
3	GO:0016491	oxidoreductase activity	Molecular Function	18	15.65	18	XOO1848, XOO3729, XOO2290, XOO4046, XOO0482, XOO0690, XOO4065, XOO0486, XOO3646, XOO1734, XOO2218, XOO2339, XOO2338, XOO2762, XOO4115, XOO4335, XOO2424, XOO3633
4	GO:0016772	transferase activity, transferring phosphorus- $\alpha$	Molecular Function	4.2	6.09	7	XOO1828, XOO4009, XOO4549, XOO0682, XOO0336, XOO0512, XOO0642
4	GO:0016757	transferase activity, transferring glycosyl group	Molecular Function	1	0.87	1	XOO1056
2	GO:0000988	protein binding transcription factor activity	Molecular Function	1	0.87	1	XOO0448
4	GO:0008233	peptidase activity	Molecular Function	2	1.74	2	XOO0834, XOO0444
2	GO:0005488	binding	Molecular Function	21.07	38.26	44	XOO0935, XOO0834, XOO0917, XOO2062, XOO1071, XOO0482, XOO1510, XOO0388, XOO0861, XOO1992, XOO1870, XOO0682, XOO4488, XOO0567, XOO1359, XOO1733, XOO2762, XOO2029, XOO1358, XOO0268, XOO2424, XOO0847, XOO1419, XOO0867, XOO0448, XOO1559, XOO0609, XOO1380, XOO0692, XOO0690, XOO1360, XOO2710, XOO2434, XOO3646, XOO2377, XOO0694, XOO1188, XOO3846, XOO0435, XOO0512, XOO0831, XOO1369, XOO2994, XOO2874
4	GO:0016765	transferase activity, transferring alkyl or aryl (o	Molecular Function	1	0.87	1	XOO0453
4	GO:0016746	transferase activity, transferring acyl groups	Molecular Function	5	4.35	5	XOO0878, XOO2093, XOO0596, XOO0595, XOO1881
3	GO:1901363	heterocyclic compound binding	Molecular Function	6.12	14.78	17	XOO0935, XOO0867, XOO0448, XOO1559, XOO0917, XOO0609, XOO1380, XOO0692, XOO2710, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874
4	GO:0008565	protein transporter activity	Molecular Function	2	1.74	2	XOO0847, XOO0849
5	GO:0008168	methyltransferase activity	Molecular Function	6	5.22	6	XOO0702, XOO0826, XOO2710, XOO4565, XOO0644, XOO4038
3	GO:0008289	lipid binding	Molecular Function	1	0.87	1	XOO2377

1	GO:0003674	molecular_function	Molecular Function	153.48	100	115	XOO0935, XOO0937, XOO2838, XOO4101, XOO1071, XOO4065, XOO0388, XOO1510, XOO2842, XOO1993, XOO1992, XOO1870, XOO1078, XOO1359, XOO1358, XOO0268, XOO1345, XOO2710, XOO2434, XOO3646, XOO0892, XOO1188, XOO0898, XOO4335, XOO1848, XOO0878, XOO0917, XOO4046, XOO0482, XOO0761, XOO0486, XOO2788, XOO03119, XOO1056, XOO1734, XOO4565, XOO0644, XOO1733, XOO2029, XOO1335, XOO2424, XOO3633, XOO0642, XOO0884, XOO0868, XOO0867, XOO1559, XOO2093, XOO0590, XOO0596, XOO0595, XOO2377, XOO4038, XOO0512, XOO1828, XOO3729, XOO4420, XOO2765, XOO0861, XOO2368, XOO1432, XOO2367, XOO4549, XOO0469, XOO2762, XOO0847, XOO1419, XOO0448, XOO0609, XOO0849, XOO1260, XOO1380, XOO0692, XOO0690, XOO0970, XOO0453, XOO0694, XOO3846, XOO0336, XOO2994, XOO2874, XOO0834, XOO0955, XOO2737, XOO1370, XOO2062, XOO2980, XOO1371, XOO4009, XOO0682, XOO4488, XOO1018, XOO0567, XOO0444, XOO0704, XOO0702, XOO4628, XOO2605, XOO0826, XOO2290, XOO2452, XOO0394, XOO1360, XOO3029, XOO2579, XOO2733, XOO1881, XOO2218, XOO2339, XOO2338, XOO4115, XOO0831, XOO0435, XOO1369, XOO0950
2	GO:0005215	transporter activity	Molecular Function	4.92	7.83	9	XOO0847, XOO0955, XOO2980, XOO0849, XOO2788, XOO2377, XOO3846, XOO0469, XOO2762  XOO0937, XOO1828, XOO3729, XOO1071, XOO4420, XOO4065, XOO0388, XOO2368, XOO1993, XOO2367, XOO4549, XOO1078, XOO2762, XOO0690, XOO2710, XOO2434, XOO3646, XOO0453, XOO0694, XOO0892, XOO3846, XOO0898, XOO4335, XOO0336, XOO1848, XOO0834, XOO0878, XOO2737, XOO1370, XOO2062, XOO4046, XOO0482, XOO1371, XOO0486, XOO4009, XOO1056, XOO0682, XOO1734, XOO4565, XOO4488, XOO0567, XOO0644, XOO2424, XOO3633, XOO0444, XOO0884, XOO0642, XOO0868, XOO0702, XOO0867, XOO0826, XOO2290, XOO2093, XOO0596, XOO2733, XOO0595, XOO1881, XOO2218, XOO2339, XOO2338, XOO4115, XOO4038, XOO0831, XOO0435, XOO0512
2	GO:0003824	catalytic activity	Molecular Function	25.35	56.52	65	XOO0868, XOO0867, XOO2737  XOO0955, XOO2980, XOO2788, XOO2377, XOO3846, XOO0469, XOO2762  XOO0935, XOO0867, XOO0448, XOO1559, XOO0917, XOO0609, XOO1380, XOO0692, XOO2710, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874  XOO0935, XOO0867, XOO0448, XOO1559, XOO0609, XOO1380, XOO0692, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874
5	GO:0004518	nuclease activity	Molecular Function	3	2.61	3	XOO0868, XOO0867, XOO2737
3	GO:0016874	ligase activity	Molecular Function	2	1.74	2	XOO4488, XOO0831
3	GO:0022857	transmembrane transporter activity	Molecular Function	7	6.09	7	XOO0955, XOO2980, XOO2788, XOO2377, XOO3846, XOO0469, XOO2762
4	GO:0003676	nucleic acid binding	Molecular Function	10.2	14.78	17	XOO0935, XOO0867, XOO0448, XOO1559, XOO0917, XOO0609, XOO1380, XOO0692, XOO2710, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874
5	GO:0003677	DNA binding	Molecular Function	15	13.04	15	XOO0935, XOO0867, XOO0448, XOO1559, XOO0609, XOO1380, XOO0692, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874
6	GO:0016462	pyrophosphatase activity	Molecular Function	2.16	4.35	5	XOO2062, XOO1071, XOO0388, XOO3846, XOO0567
3	GO:0016740	transferase activity	Molecular Function	8.88	17.39	20	XOO0878, XOO0702, XOO1828, XOO0826, XOO2093, XOO2710, XOO0453, XOO0596, XOO4009, XOO0595, XOO4549, XOO1056, XOO1881, XOO0682, XOO4565, XOO0644, XOO4038, XOO0336, XOO0512, XOO0642
4	GO:0016741	transferase activity, transferring one-carbon gr	Molecular Function	3.6	5.22	6	XOO0702, XOO0826, XOO2710, XOO4565, XOO0644, XOO4038
5	GO:0042578	phosphoric ester hydrolase activity	Molecular Function	0.6	0.87	1	XOO2434
2	GO:0001071	nucleic acid binding transcription factor activity	Molecular Function	6	5.22	6	XOO0935, XOO1380, XOO0448, XOO0692, XOO1369, XOO0268
3	GO:0016853	isomerase activity	Molecular Function	1	0.87	1	XOO0694
3	GO:0004871	signal transducer activity	Molecular Function	8	6.96	8	XOO1828, XOO2838, XOO2842, XOO4009, XOO0682, XOO0336, XOO0644, XOO0642
4	GO:0016788	hydrolase activity, acting on ester bonds	Molecular Function	2.16	3.48	4	XOO0868, XOO0867, XOO2737, XOO2434



3	GO:0043167	ion binding	Molecular Function	28	24.35	28	XOO0834, XOO2062, XOO1071, XOO0482, XOO0388, XOO0861, XOO1992, XOO0682, XOO4488, XOO0567, XOO1359, XOO1733, XOO2762, XOO1358, XOO2424, XOO0847, XOO1419, XOO0867, XOO0690, XOO1360, XOO2434, XOO3646, XOO0694, XOO3846, XOO0435, XOO0512, XOO0831, XOO2994
3	GO:0016829	lyase activity	Molecular Function	4	3.48	4	XOO0937, XOO0892, XOO1078, XOO0884
6	GO:0016791	phosphatase activity	Molecular Function	1	0.87	1	XOO2434
4	GO:0016798	hydrolase activity, acting on glycosyl bonds	Molecular Function	3	2.61	3	XOO4420, XOO1371, XOO0898
4	GO:0016810	hydrolase activity, acting on carbon-nitrogen (t	Molecular Function	6	5.22	6	XOO1370, XOO2368, XOO1993, XOO2367, XOO2733, XOO0435
4	GO:0016817	hydrolase activity, acting on acid anhydrides	Molecular Function	0.78	4.35	5	XOO2062, XOO1071, XOO0388, XOO3846, XOO0567
5	GO:0016818	hydrolase activity, acting on acid anhydrides, ii	Molecular Function	1.3	4.35	5	XOO2062, XOO1071, XOO0388, XOO3846, XOO0567
3	GO:0097159	organic cyclic compound binding	Molecular Function	6.12	14.78	17	XOO0935, XOO0867, XOO0448, XOO1559, XOO0917, XOO0609, XOO1380, XOO0692, XOO2710, XOO1510, XOO1188, XOO1870, XOO0567, XOO1369, XOO2029, XOO0268, XOO2874
7	GO:0017111	nucleoside-triphosphatase activity	Molecular Function	3.6	4.35	5	XOO2062, XOO1071, XOO0388, XOO3846, XOO0567
5	GO:0016301	kinase activity	Molecular Function	7	6.09	7	XOO1828, XOO4009, XOO4549, XOO0682, XOO0336, XOO0512, XOO0642
3	GO:0016787	hydrolase activity	Molecular Function	8.36	17.39	20	XOO0868, XOO0834, XOO0867, XOO2737, XOO1370, XOO2062, XOO1071, XOO4420, XOO1371, XOO0388, XOO2434, XOO2368, XOO1993, XOO2367, XOO2733, XOO3846, XOO0898, XOO0567, XOO0435, XOO0444

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