0 Oxidoreductase 14995 992 376.63 -29.54 0 1 Transferase 26525 1606 445.17 -24.25 0 2 Lyase 7262 347 377.92 -22.64 0 3 Hydrolase 20464 1995 430.68 -21.75 0 4 Isomerase 4487 220 383.98 -14.18 0 5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293	Top 20 MF kw with strongest correlatio predicted order (Xie et. al. 2007)											
1 Transferase 26525 1606 445.17 -24.25 0 2 Lyase 7262 347 377.92 -22.64 0 3 Hydrolase 20464 1995 430.68 -21.75 0 4 Isomerase 4487 220 383.98 -14.18 0 5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 <td< td=""><td>#</td><td>пате</td><td>n prot</td><td>n families</td><td>avg_len</td><td>Z-score</td><td>P-value</td></td<>	#	пате	n prot	n families	avg_len	Z-score	P-value					
2 Lyase 7262 347 377.92 -22.64 0 3 Hydrolase 20464 1995 430.68 -21.75 0 4 Isomerase 4487 220 383.98 -14.18 0 5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 <t< td=""><td>0</td><td>Oxidoreductase</td><td>14995</td><td>992</td><td>376.63</td><td>-29.54</td><td>0</td></t<>	0	Oxidoreductase	14995	992	376.63	-29.54	0					
3 Hydrolase 20464 1995 430.68 -21.75 0 4 Isomerase 4487 220 383.98 -14.18 0 5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminoacyl-tRNA synthetase	1	Transferase	26525	1606	445.17	-24.25	0					
4 Isomerase 4487 220 383.98 -14.18 0 5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360	2	Lyase	7262	347	377.92	-22.64	0					
5 Glycosidase 1826 244 444.73 -13.98 0 6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase <td< td=""><td>3</td><td>Hydrolase</td><td>20464</td><td>1995</td><td>430.68</td><td>-21.75</td><td>0</td></td<>	3	Hydrolase	20464	1995	430.68	-21.75	0					
6 Glycosyltransferase 2950 261 437.53 -12.51 0 7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	4	Isomerase	4487	220	383.98	-14.18	0					
7 Acyltransferase 2239 179 402.83 -10.85 0 8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	5	Glycosidase	1826	244	444.73	-13.98	0					
8 Methyltransferase 3524 224 349.60 -10.53 0 9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	6	Glycosyltransferase	2950	261	437.53	-12.51	0					
9 Kinase 7017 322 448.29 -10.22 0 10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	7	Acyltransferase	2239	179	402.83	-10.85	0					
10 Ligase 8010 230 529.41 -10.06 0 11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	8	Methyltransferase	3524	224	349.60	-10.53	0					
11 Decarboxylase 1293 63 345.26 -9.66 0 12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	9	Kinase	7017	322	448.29	-10.22	0					
12 Monooxygenase 1668 73 444.87 -9.26 0 13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	10	Ligase	8010	230	529.41	-10.06	0					
13 Metalloprotease 1100 109 553.73 -7.89 0 14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	11	Decarboxylase	1293	63	345.26	-9.66	0					
14 Aminopeptidase 452 39 509.17 -7.55 0 15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	12	Monooxygenase	1668	73	444.87	-9.26	0					
15 Dioxygenase 360 66 433.20 -7.32 0 16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	13	Metalloprotease	1100	109	553.73	-7.89	0					
16 Aminoacyl-tRNA synthetase 3402 37 571.83 -7.15 0	14	Aminopeptidase	452	39	509.17	-7.55	0					
	15	Dioxygenase	360	66	433.20	-7.32	0					
17 Protease 4423 380 549.70 -7.1 0	16	Aminoacyl-tRNA synthetase	3402	37	571.83	-7.15	0					
1.20 555 5.576 7.11 6	17	Protease	4423	380	549.70	-7.1	0					
18 Aminotransferase 955 28 420.27 -6.02 0	18	Aminotransferase	955	28	420.27	-6.02	0					

Order related MF keywords (z-skor > 0.2)										
#	name	n	avg_len	avg_dis	Z	p				
0	Oxidoreductase	4126	472.25	0.28	-41.35	0				
1	Hydrolase	7564	614.81	0.51	-26.99	0				
2	Lyase	1431	481.37	0.30	-23.62	0				
3	Monooxygenase	555	503.36	0.20	-20.29	0				
4	Transferase	8846	631.95	0.55	-19.72	0				
5	Ligase	995	693.30	0.46	-18.05	0				
6	Glycosyltransferase	1134	551.26	0.40	-17.04	0				
7	Glycosidase	697	570.50	0.37	-16.81	0				
8	Isomerase	931	422.72	0.35	-13.60	0				
9	Protease	1863	674.42	0.54	-13.20	0				
10	Transducer	1703	482.28	0.41	-12.56	0				
11	G-protein coupled receptor	1385	465.62	0.39	-12.45	0				
12	Acyltransferase	867	531.58	0.42	-11.28	0				
13	Decarboxylase	195	488.21	0.25	-10.70	0				
14	Aminotransferase	202	451.05	0.24	-10.23	0				
15	Aminopeptidase	130	668.72	0.37	-9.10	0				
16		460	700.07	0.50	-8.87	0				
17	Metalloprotease	507	688.25	0.56	-8.43	0				
18	Methyltransferase	874	611.22	0.47	-8.33	0				
19	Carboxypeptidase	116	631.16	0.37	-8.25	0				
20	Threonine protease	138	246.88	0.18	-7.50	0				
21	Dioxygenase	366	622.32	0.48	-7.39	0				
22	-	141	423.09	0.28	-7.21	0				
23	Receptor	3424	647.92	0.59	-7.09	0				
24	Nucleotidyltransferase	600	969.68	0.63	-6.18	0				
25	<u> </u>	221	457.61	0.40	-5.50	0				
26	Serine protease inhibitor	182	497.66	0.38	-4.92	0				
27	Porin	63	318.84	0.21	-4.55	0				
28	Dipeptidase	22	522.27	0.23	-4.43	0				
29	Integrin	71	1038.25	0.70	-4.29	0				
30	Protease inhibitor	284	446.29	0.41	-4.15	0				
31	RNA-directed RNA polymerase	62	2506.11	0.87	-4.11	0				
32		66	209.62	0.17	-3.80	0				
33	Hemagglutinin	23	281.22	0.13	-3.37	0				
34	+	47	384.06	0.28	-3.37	0				
35	1	185	1275.20	0.72	-3.29	0				
36	<u> </u>	77	540.68	0.47	-3.02	0.01				
37	Prenyltransferase	39	376.21	0.31	-2.59	0.01				
38	<u>, </u>	106	467.68	0.48	-2.59	0.01				
39	<u> </u>	443	728.14	0.60	-2.59	0.01				
40	Toxin	214	412.51	0.39	-2.56	0				
41	Bacteriolytic enzyme	35	434.66	0.31	-2.53	0.01				
42	<u> </u>	703	668.54	0.60	-2.49	0.01				
43	Ion channel impairing toxin	60	74.92	0.15	-2.47	0				
44	1 6	22	79.55	0.05	-2.42	0.01				
45	<u> </u>	120	942.30	0.64	-2.39	0.01				
46	1 7 1	55	297.55	0.35	-2.10	0.02				
47	Thiol protease inhibitor	63	411.06	0.35	-2.04	0.03				
48	<u> </u>	119	575.46	0.56	-2.01	0.03				
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