

**Table S1. Details of the distributions of the KOG (EuKaryotic Orthologous Groups) annotations of the protein sequences in the LymcCNS-PDB shown in Figure 4.** Proteins were annotated and grouped into 25 functional categories (A-Z) using the RPSBLAST 2.2.15 program on NCBI KOG 2/2/2011 database using an e-value <1E-5 cutoff for prediction (<http://weizhong-lab.ucsd.edu/webMGA/server/kog>).

#Class	No_families	Coverage	Abundance	Sum	%	Description
A	25	1	0.008411	1.295565	0.649	RNA processing and modification
B	19	1	0.012752	1.295565	0.984	Chromatin structure and dynamics
C	258	0.341085	0.046007	1.295565	3.551	Energy production and conversion
D	72	0.555555	0.060892	1.295565	4.700	Cell cycle control, cell division, chromosome partitioning
E	270	0.407407	0.063512	1.295565	4.902	Amino acid transport and metabolism
F	95	0.621052	0.025505	1.295565	1.969	Nucleotide transport and metabolism
G	230	0.347826	0.042989	1.295565	3.318	Carbohydrate transport and metabolism
H	179	0.312849	0.020367	1.295565	1.572	Coenzyme transport and metabolism
I	94	0.606382	0.044557	1.295565	3.439	Lipid transport and metabolism
J	245	0.783673	0.068816	1.295565	5.312	Translation, ribosomal structure and biogenesis
K	231	0.38961	0.092849	1.295565	7.167	Transcription
L	238	0.411764	0.09508	1.295565	7.339	Replication, recombination and repair
M	188	0.24468	0.020782	1.295565	1.604	Cell wall/membrane/envelope biogenesis
N	96	0.072916	0.002937	1.295565	0.227	Cell motility
O	203	0.546798	0.087016	1.295565	6.716	Posttranslational modification, protein turnover, chaperones
P	212	0.240566	0.029134	1.295565	2.249	Inorganic ion transport and metabolism
Q	88	0.340909	0.031203	1.295565	2.408	Secondary metabolites biosynthesis, transport and catabolism
R	702	0.307692	0.32041	1.295565	24.731	General function prediction only
S	1347	0.111358	0.0435	1.295565	3.358	Function unknown
T	152	0.282894	0.107492	1.295565	8.297	Signal transduction mechanisms
U	158	0.335443	0.023904	1.295565	1.845	Intracellular trafficking, secretion, and vesicular transport
V	46	0.195652	0.012166	1.295565	0.939	Defense mechanisms
W	1	1	6.80E-05	1.295565	0.005	Extracellular structures
Y	2	1	0.000608	1.295565	0.047	Nuclear structure
Z	12	1	0.034608	1.295565	2.671	Cytoskeleton