

**Supplementary data S1:
datasets information**

List of markers used in this study

Gene name	Gene description	Refseq ID	Marker used in		Number of conserved positions	
			Derelle and Lang 2012	He <i>et al.</i> 2014	ALPHA-PROT dataset	EUBAC dataset
atp3	ATP synthase F1 subunit gamma	NP_001001973	X		84	--
cox11	Protein involved in heme biosynthesis	NP_004366	X		110	--
grpE	Mitochondrial cochaperone grpE	NP_079472	X		60	--
HslVU	Heat shock protein HslVU	XP_636662	X		264	--
Hsp78	Mitochondrial Hsp 78	XP_636444	X		544	--
mHsp60	Mitochondrial Hsp 60 kDa	NP_002147	X		434	--
mrl3	Mitochondrial ribosomal protein L3	NP_009139	X		95	--
mtif2	Translation initiation factor IF-2	NP_002444	X		146	--
nad7	NADH dehydrogenase subunit 7	NP_004541	X		358	--
nad8	NADH dehydrogenase subunit 8	NP_002487	X		119	--
nad10	NADH dehydrogenase subunit 10	NP_077718	X		133	--
nad11	NADH dehydrogenase subunit 11	NP_004997	X		290	--
ndufv1	NADH dehydrogenase flavoprotein 1	NP_001159574	X		397	--
ndufv2	NADH dehydrogenase flavoprotein 2	NP_066552	X		75	--
odpB	Pyruvate dehydrogenase E1 component, beta sub.	NP_000916	X		276	--
sdh2	Succinate dehydrogenase subunit 2	NP_002991	X		177	--
CLPP	Caseinolytic peptidase, proteolytic subunit	NP_006003			168	--
ETFDH	Electron-transferring-flavoprotein dehydrogenase	NP_004444			320	--
ndufaf5	NADH dehydrogenase complex I, assembly factor 5	NP_077025			102	--
NifU	Iron-sulfur cluster scaffold homolog, mitochondrial	NP_056515			104	--
PCCA	Propionyl CoA carboxylase, alpha polypeptide	NP_000273			388	--
PCCB	Propionyl CoA carboxylase, beta polypeptide	NP_000523			424	--
PET112	glutamyl-tRNA amidotransferase subunit B	NP_004555			198	--
TypA	Tyrosine phosphorylated protein A	XP_643254			313	--
atp1	ATP synthase F1 subunit alpha	NP_001001937	X	X	409	
atp2	ATP synthase F1 subunit beta	NP_001677	X	X	428	
cytc1	Cytochrome c1	NP_001907	X	X	134	
DLDH	Dihydrolipoyl dehydrogenase	NP_000099	X	X	313	
DLST	Dihydrolipoamide S-succinyltransferase	NP_001924	X	X	234	
etfB	Electron transfer flavoprotein, beta subunit	NP_001976	X	X	141	
mHsp70	Mitochondrial Hsp 70 kDa	NP_004125	X	X	492	
nsf1	Cysteine desulfurase, mitochondrial	NP_066923	X	X	290	
odpA	Pyruvate dehydrogenase E1 component, alpha sub.	NP_005381	X	X	199	
sdh1	Succinate dehydrogenase subunit 1	NP_004159	X	X	484	
SUCLG1	SuccinylCoA ligase, alpha subunit	NP_003840	X	X	248	
tufA	Translation elongation factor Tu	NP_003312	X	X	324	
ndufa9	NADH dehydrogenase 1 alpha subcomplex, 9	NP_004993		X	82	
UQCRC1	Mitochondrial-processing peptidase subunit beta	NP_004270		X	198	
UQCRFS1	Cytochrome b-c1 complex subunit Rieske	NP_005994		X	86	
prot_10	ATP-dependent molecular chaperone HSC82	NP_523899		X	--	495
prot_11	Cytosolic Fe-S cluster assembly factor NBP35	NP_002475		X	--	122
prot_13	Aspartyl aminopeptidase 4	NP_036232		X	--	200
prot_14	2-oxoglutarate dehydrogenase	NP_060715		X	--	433
prot_15	Ribonucleoside-diphosphate reductase large chain 1	NP_001024		X	--	551
prot_17	Protoheme IX farnesyltransferase	NP_001294		X	--	97
prot_18	Respiratory chain complexes assembly YTA12	NP_006787		X	--	330
prot_21	Adenylate kinase 1	NP_037543		X	--	145
prot_24	ATP-dependent RNA helicase PRP43	NP_001349		X	--	427
prot_25	Dihydrolipoyllysine-residue acetyltransferase	NP_001922		X	--	140
prot_26	methylcrotonoyl-CoA carboxylase beta chain	NP_071415		X	--	361
prot_32	Aminomethyltransferase	NP_000472		X	--	121
prot_33	Glycerol-3-phosphate dehydrogenase	NP_001076581		X	--	187
prot_34	Branched-chain-amino-acid aminotransferase	NP_001171564		X	--	137
prot_35	Protein SCO2	NP_004580	X	X	--	67
prot_36	Isocitrate dehydrogenase subunit 2	NP_005521		X	--	263
prot_37	Iron-sulfur clusters transporter ATM1	NP_004290		X	--	342
prot_4	Elongation factor G1	NP_079272		X	--	404
prot_5	S-adenosylmethionine synthase 1	NP_005902		X	--	280
prot_6	Pyruvate kinase 1	XP_639190		X	--	243
prot_7	Threonyl tRNA synthetase	NP_689508		X	--	305
prot_9	Aspartate aminotransferase	NP_002071		X	--	250

List of species used in this study

	Species	Origin of data	% data	
			ALPHA-PROT dataset	EUBAC dataset
EUKARYOTA	<i>Karenia brevis</i>	CAMERA 2.0 portal	51.7	66.9
	<i>Lingulodinium polyedrum</i>	CAMERA 2.0 portal	50.6	33.6
	<i>Perkinsus marinus</i>	NCBI Refseq	53.8	76.5
	<i>Plasmodium falciparum</i>	NCBI Refseq	46.0	73.7
	<i>Toxoplasma gondii</i>	NCBI Refseq	56.8	90.6
	<i>Oxytricha trifallax</i>	NCBI Refseq	76.4	84.3
	<i>Paramecium tetraurelia</i>	NCBI Refseq	74.5	94.2
	<i>Platyophrya macrostoma</i>	CAMERA 2.0 portal	63.8	38.1
	<i>Tetrahymena thermophila</i>	NCBI Refseq	73.7	93.3
	<i>Acanthamoeba castellanii</i>	NCBI Refseq	93.6	81.8
	<i>Dictyostelium discoideum</i>	NCBI Refseq	93.5	95.8
	<i>Filamoeba nolandi</i>	CAMERA 2.0 portal	77.4	84.4
	<i>Physarum polycephalum</i>	NCBI Refseq	71.0	60.3
	<i>Polysphondylium pallidum</i>	NCBI Refseq	92.4	94.0
	<i>Stereomyxa ramosa</i>	CAMERA 2.0 portal	77.1	85.6
	<i>Collodictyon triciliatum</i>	Zhao <i>et al.</i> 2013 dataset	62.0	36.2
	<i>Thecamonas trahens</i>	BROAD Institute	76.6	91.0
	<i>Cryptomonas paramecium</i>	CAMERA 2.0 portal	68.4	76.8
	<i>Goniomonas avonlea</i>	new data	77.1	71.1
	<i>Guillardia theta</i>	JGI	83.8	88.1
	<i>Acrasis kona</i>	He <i>et al.</i> 2014 dataset	35.5	82.2
	<i>Eutreptiella gymnastica</i>	CAMERA 2.0 portal	71.1	35.0
	<i>Leishmania major</i>	NCBI Refseq	79.3	80.9
	<i>Naegleria gruberi</i>	NCBI Refseq	89.4	93.9
	<i>Andalucia godoyi</i>	new data	96.4	99.0
	<i>Jakoba libera</i>	TBestDB + NCBI	40.6	34.1
	<i>Reclinomonas americana</i>	TBestDB + NCBI	44.6	44.7
	<i>Seculamonas ecuadoriensis</i>	TBestDB + NCBI	37.6	48.5
	<i>Malawimonas californiana</i>	new data	95.1	87.3
	<i>Malawimonas jakobiformis</i>	new data	95.7	84.5
	<i>Batrachochytrium dendrobatidis</i>	JGI	91.9	96.5
	<i>Gonapodya prolifera</i>	JGI	82.4	84.2
	<i>Mortierella verticillata</i>	BROAD Institute	93.9	96.5
	<i>Phanerochaete chrysosporium</i>	JGI	80.0	36.3
	<i>Rhizopus oryzae</i>	BROAD Institute	93.6	97.2
	<i>Spizellomyces punctatus</i>	JGI	93.7	97.5
	<i>Tuber melanosporum</i>	NCBI Refseq	80.6	37.7
	<i>Ustilago maydis</i>	NCBI Refseq	76.4	92.2
	<i>Yarrowia lipolytica</i>	NCBI Refseq	83.5	97.5
	<i>Acropora digitifera</i>	http://marinegenomics.oist.jp	71.5	86.0
	<i>Amphimedon queenslandica</i>	NCBI Refseq	84.7	91.7
	<i>Capsaspora owczarzaki</i>	BROAD Institute	91.5	91.6
	<i>Ephydatia muelleri</i>	Compagen	86.1	96.6
	<i>Homo sapiens</i>	NCBI Refseq	88.3	97.5
	<i>Lottia gigantea</i>	JGI	84.4	95.0
	<i>Monosiga brevicollis</i>	NCBI Refseq	84.7	78.1
	<i>Monosiga ovata</i>	NCBI dB EST	67.2	62.2
	<i>Nematostella vectensis</i>	NCBI Refseq	85.7	93.4
	<i>Salpingoeca rosetta</i>	BROAD Institute	86.8	92.1
	<i>Bigelowiella natans</i>	JGI	91.2	82.8
	<i>Chondrus crispus</i>	NCBI Refseq	78.0	92.6
	<i>Galdieria sulphuraria</i>	NCBI Refseq	92.8	91.8
	<i>Aplanochytrium kerguelense</i>	JGI	94.0	88.6
	<i>Schizochytrium aggregatum</i>	JGI	91.0	92.4
	<i>Phytophthora infestans</i>	NCBI Refseq	94.1	91.3
	<i>Saprolegnia parasitica</i>	BROAD Institute	94.9	92.2
<i>Bolidomonas pacifica</i>	CAMERA 2.0 portal	80.8	93.9	
<i>Ectocarpus siliculosus</i>	NCBI Refseq	87.3	86.1	
<i>Thalassiosira pseudonana</i>	NCBI Refseq	95.8	87.1	
<i>Heterosigma akashiwo</i>	CAMERA 2.0 portal	76.2	77.3	
<i>Chlorella variabilis</i>	JGI	74.6	89.5	

	Micromonas sp	NCBI Refseq	79.0	89.1
	Ostreococcus lucimarinus	JGI	71.7	88.1
	Tetraselmis astigmatica	CAMERA 2.0 portal	75.6	86.5
	Arabidopsis thaliana	NCBI Refseq	74.9	94.4
	Oryza sativa	NCBI Refseq	80.8	97.1
	Physcomitrella patens	NCBI Refseq	83.7	99.9
ALPHA-PROTEOBACTERIA OUTGROUP	Maricaulis maris	NCBI Refseq	88.9	--
	Parvularcula bermudensis	NCBI Refseq	84.9	--
	Parvibaculum lavamentivorans	NCBI Refseq	96.6	--
	Starkeya novella	NCBI Refseq	96.7	--
	Azospirillum sp	NCBI Refseq	93.6	--
	Rhodospirillum centenum	NCBI Refseq	90.3	--
	Roseomonas cervicalis	NCBI Refseq	91.1	--
	Granulibacter bethesdensis	NCBI Refseq	87.8	--
	Magnetospirillum magneticum	NCBI Refseq	99.8	--
	Rhodospirillum rubrum	NCBI Refseq	95.7	--
	Magnetococcus sp	NCBI Refseq	73.5	--
EUBACTERIA OUTGROUP	Solibacter usitatus	NCBI Refseq	--	61.1
	Agrobacterium tumefaciens	NCBI Refseq	--	87.0
	Magnetospirillum magneticum	NCBI Refseq	--	80.1
	Pelagibacter ubique	NCBI Refseq	--	52.7
	Puniceispirillum marinum	NCBI Refseq	--	67.3
	Rhodopirellula baltica	NCBI Refseq	--	81.7
	Rickettsia conorii	NCBI Refseq	--	68.3
	Burkholderia ambifaria	NCBI Refseq	--	86.9
	Desulfovibrio vulgaris	NCBI Refseq	--	59.9
	Geobacter metallireducens	NCBI Refseq	--	68.0
	Escherichia coli	NCBI Refseq	--	79.2
	Myxococcus xanthus	NCBI Refseq	--	72.2
	Planctomyces limnophilus	NCBI Refseq	--	70.2
AVERAGE			79.8 %	79.8 %

Removal of fast evolving sites

We performed a removal of fast evolving sites from both matrices using a tree independent approach (i.e. the evolutionary rate of each sites were estimated without reference phylogenetic tree) and with a stopping criterion derived from Goremykin *et al.* 2010.

In practice, we applied the following successive steps:

_ Evolutionary rates of each sites were estimated by their similarity score calculated by trimAl (Capella-Gutiérrez, Silla-Martínez and Gabaldón 2009).

_ Fast-evolving sites were repeatedly removed from the original matrices with a 1% increment. At each shortening step (n), 2 partitions were created: the shortened alignment (referred to hereafter as A_n) and all deleted positions (referred to hereafter as B_n).

_ Species that have more than 30% of missing data in the two original matrices were removed from all A_n and B_n alignments (because missing data affect corrected distances calculated from short alignments).

_ The best evolutionary model were estimated using ProtTest (option '-S 1'; Darriba *et al.* 2011) for each A_n and B_n alignments

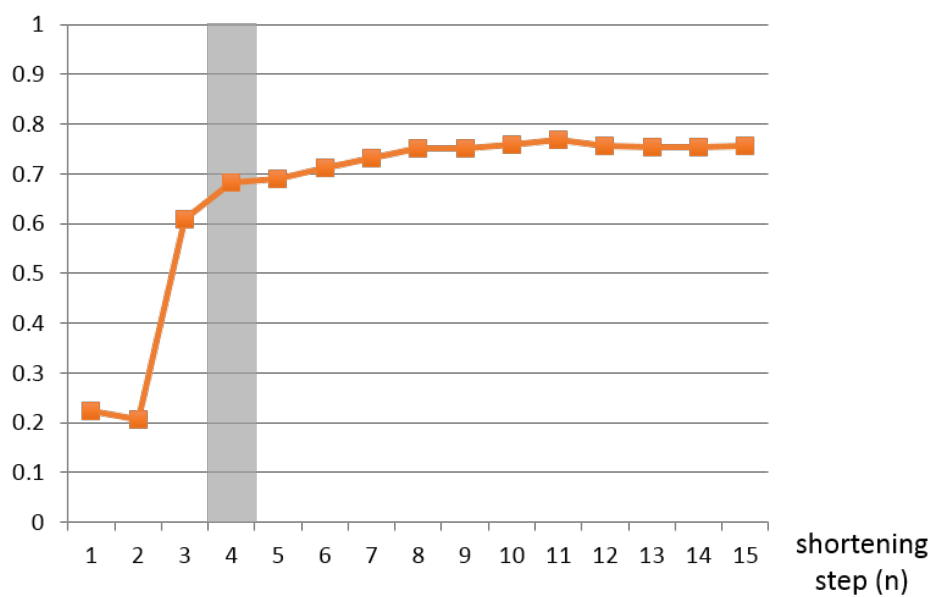
_ Pair-wise ML distances were calculated from all A_n and B_n alignments using RAxML (option '-f x'; Stamatakis 2006) under their corresponding evolutionary models.

_ At each shortening step, pair-wise ML distances inferred from A_n and B_n alignments were compared by calculating the Pearson product-moment correlation coefficient. Results are shown in the two graphics below.

_ For each matrices, the best shortening step corresponds to the step where the Pearson product-moment correlation coefficient reach a plateau (gray bars in the two graphics below)

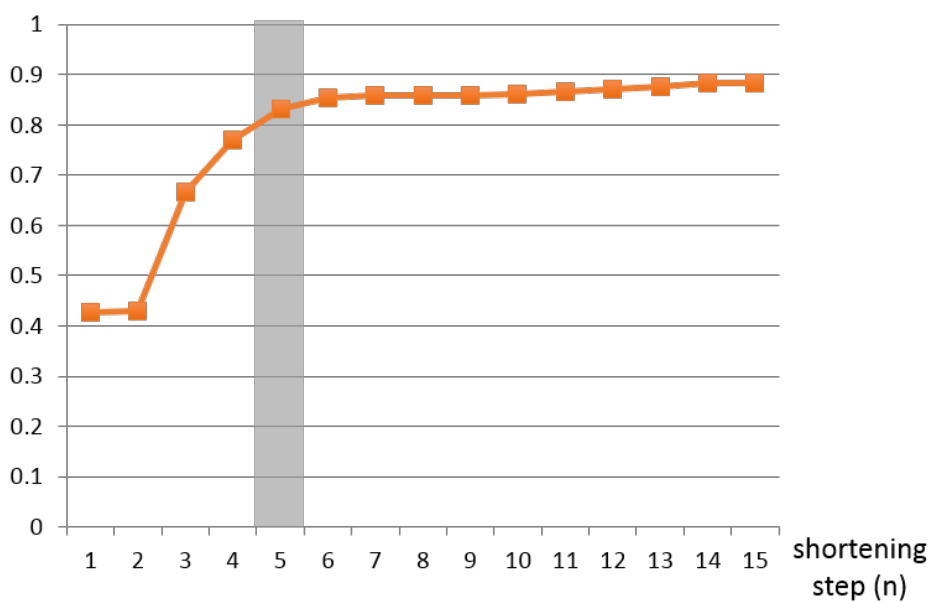
Pearson
product-moment
correlation coefficient

ALPHA-PROT dataset



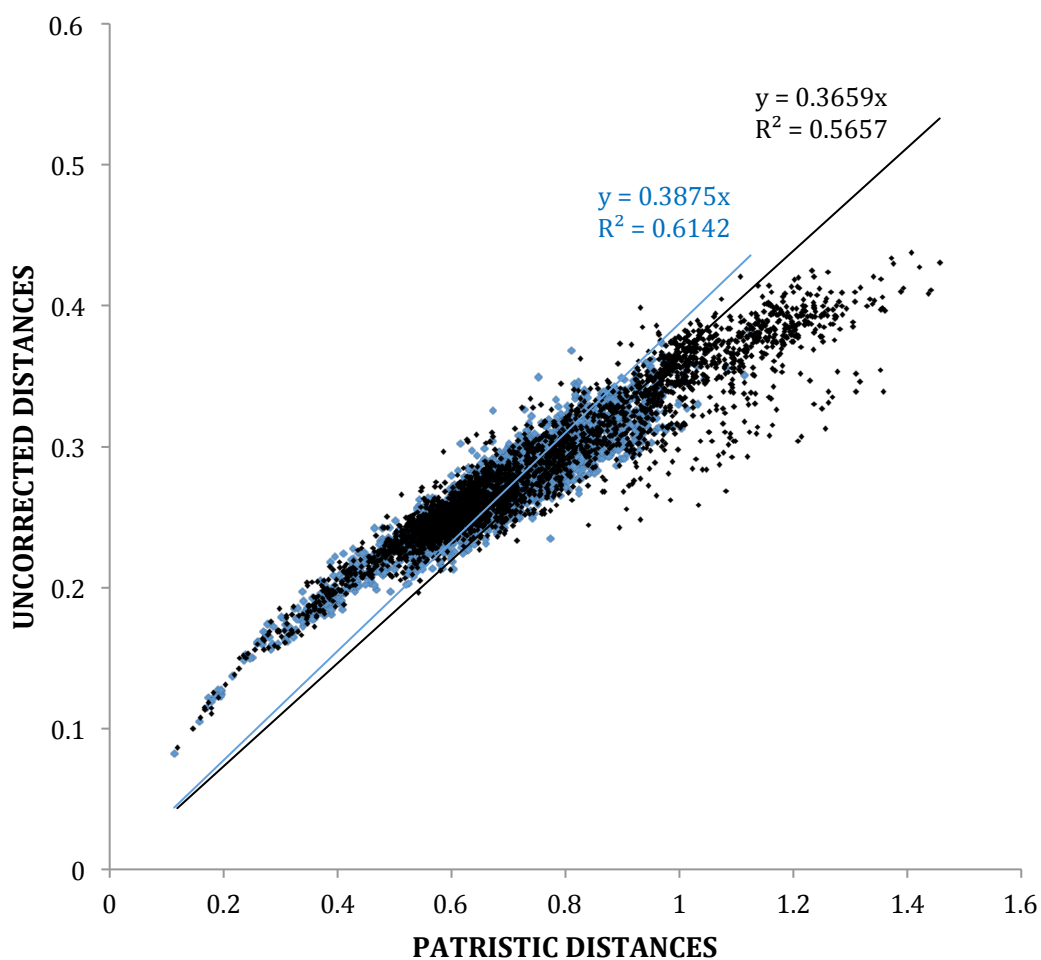
Pearson
product-moment
correlation coefficient

EUBAC dataset



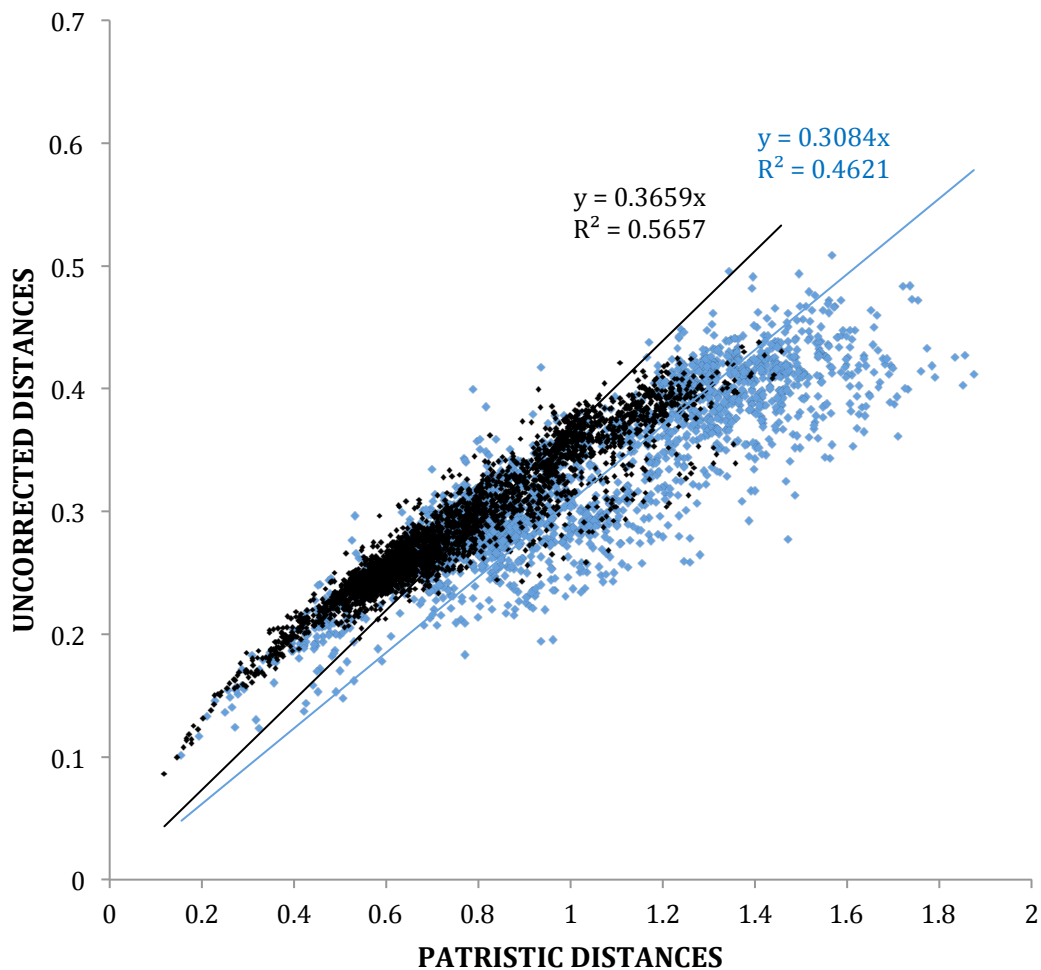
Saturation plot of the two datasets analyzed in this study

Saturation plots of the ALPHA-PROT (blue dots and blue regression line) and EUBAC (black dots and black regression line) datasets. See Supplementary Material for method details.



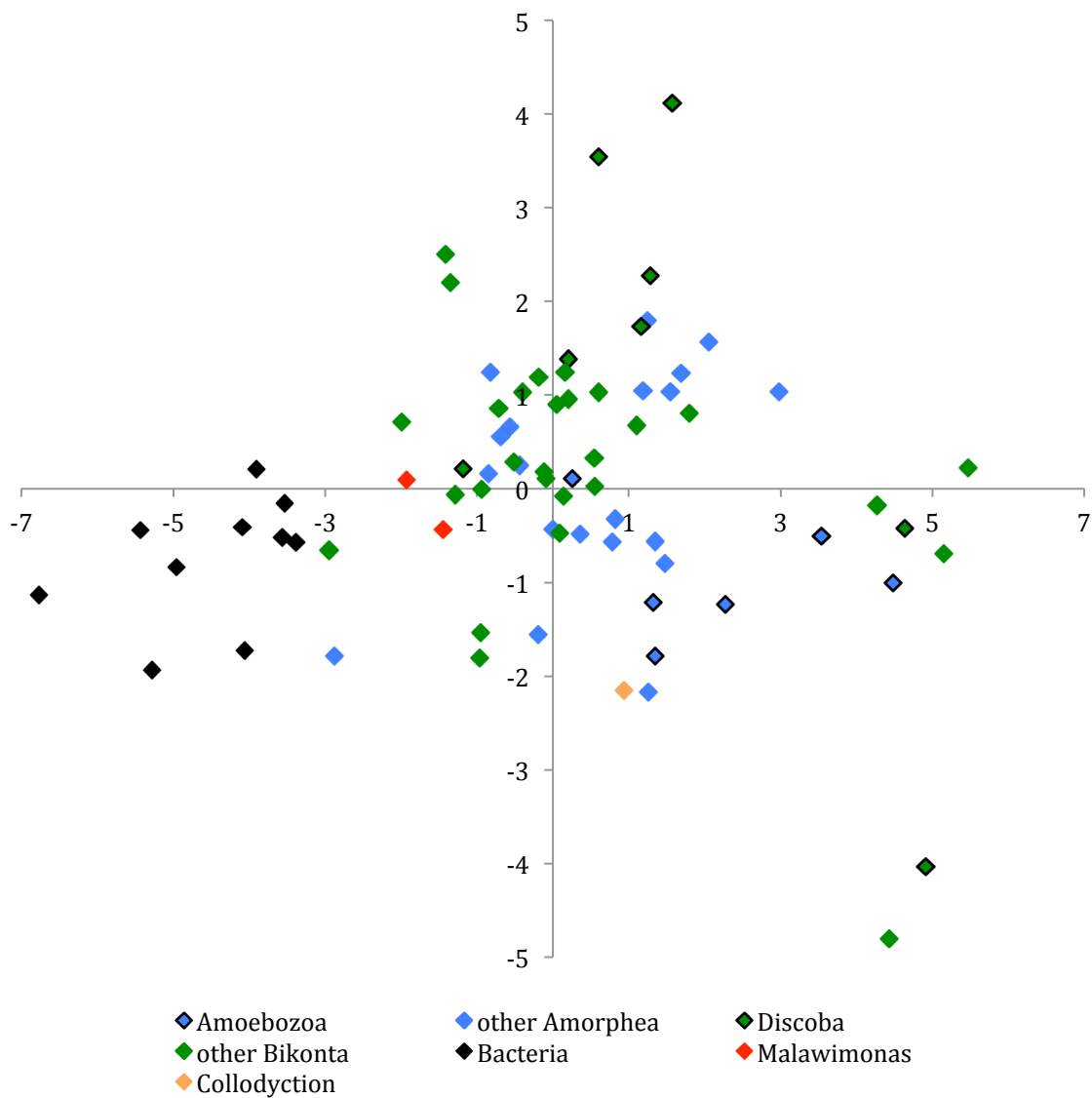
Saturation plot of the EUBAC and He *et al.* 2014 datasets

Saturation plots of the EUBAC dataset analyzed in this study (black dots and black regression line) and the EUBAC dataset analyzed in He *et al.* 2014 (blue dots and blue regression line) datasets. See Supplementary Material for method details.



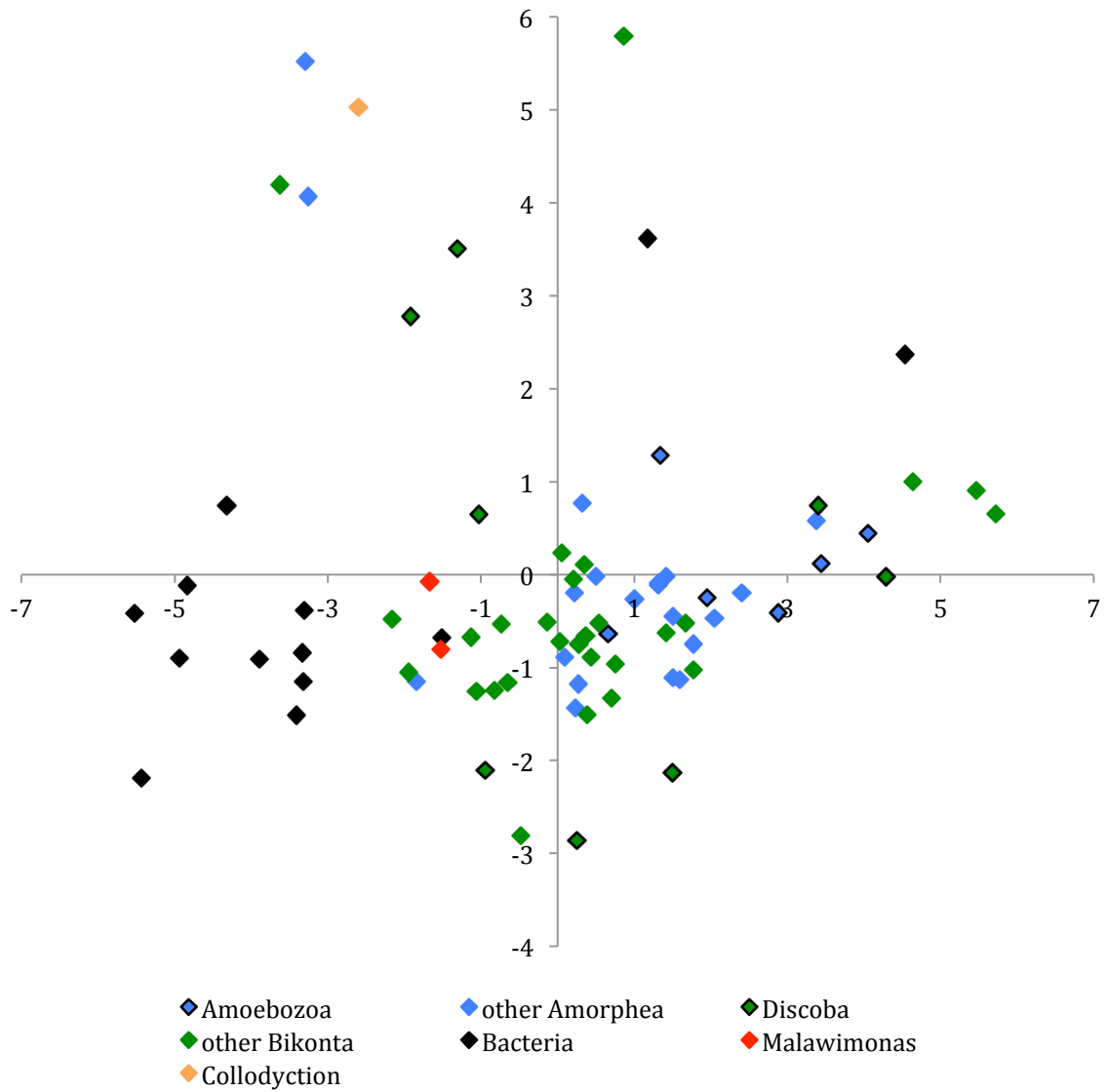
Principal component analysis of amino-acid frequencies of the ALPHA-PROT dataset

The contribution of each axis are 32% and 11% for the X-axis and the Y-axis respectively.



Principal component analysis of amino-acid frequencies of the EUBAC dataset

The contribution of each axis are 31% and 17% for the X-axis and the Y-axis respectively.



Supplementary data S2:
outparalogs found in He *et al.* 2014
dataset

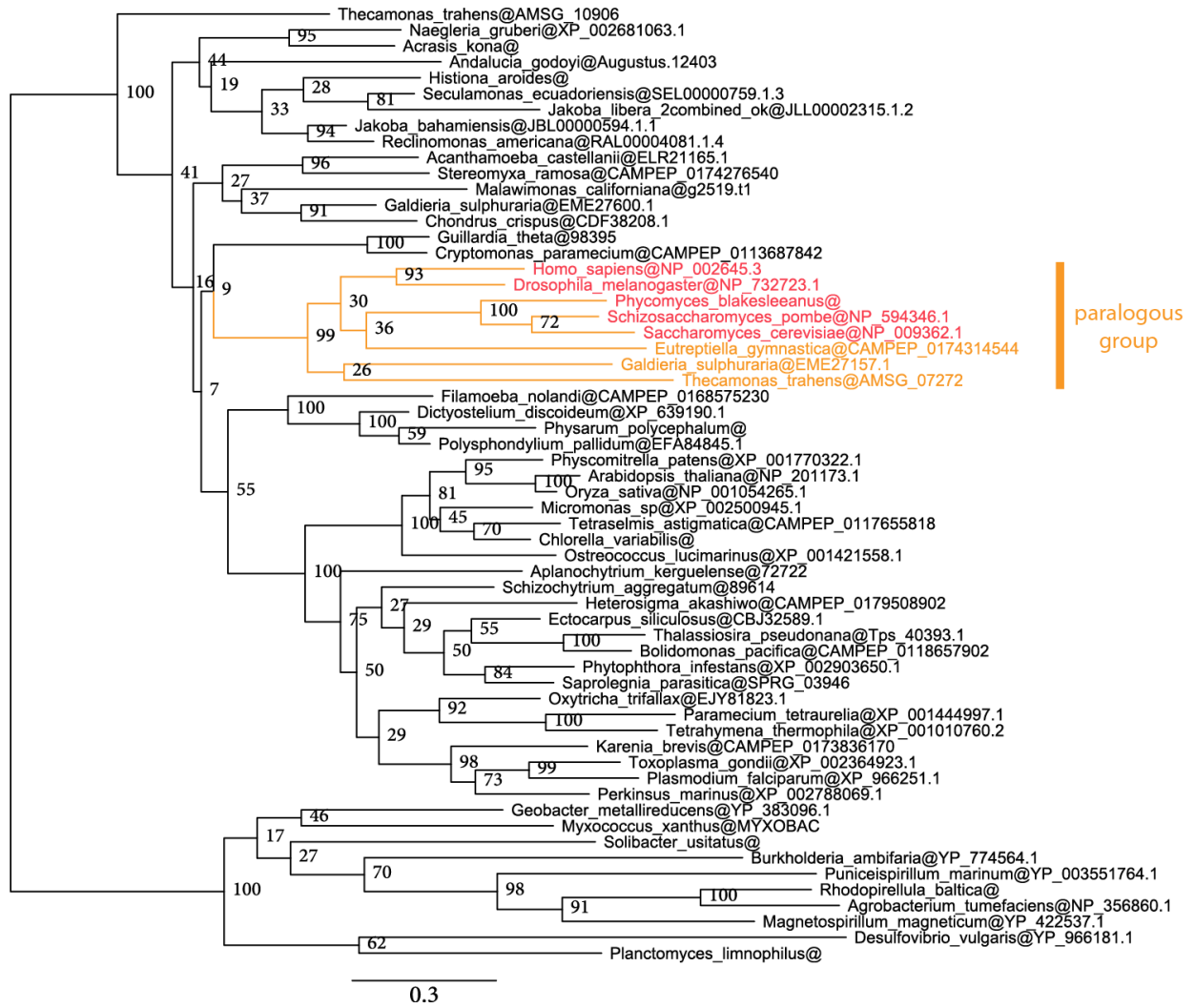
List of outparalogs found in He *et al.* 2014 dataset

marker	outparalogs
Protein 6	_ all opisthokonts
Protein 7	_ <i>Seculamonas ecuadoriensis</i> _ <i>Acanthamoeba</i>
Protein 9	_ <i>Seculamonas ecuadoriensis</i>
Protein 11	_ <i>Euglena gracilis</i>
Protein 14	_ <i>Jakoba bahamiensis</i> _ <i>Seculamonas ecuadoriensis</i>
Protein 24	_ <i>Naegleria gruberi</i> _ <i>Reclinomonas Americana</i> _ <i>Seculamonas ecuadoriensis</i> _ <i>Jakoba libera</i>

The following RAxML trees show, for each of these six phylogenetic markers, the eukaryotic orthologous group used by He *et al.* 2014.

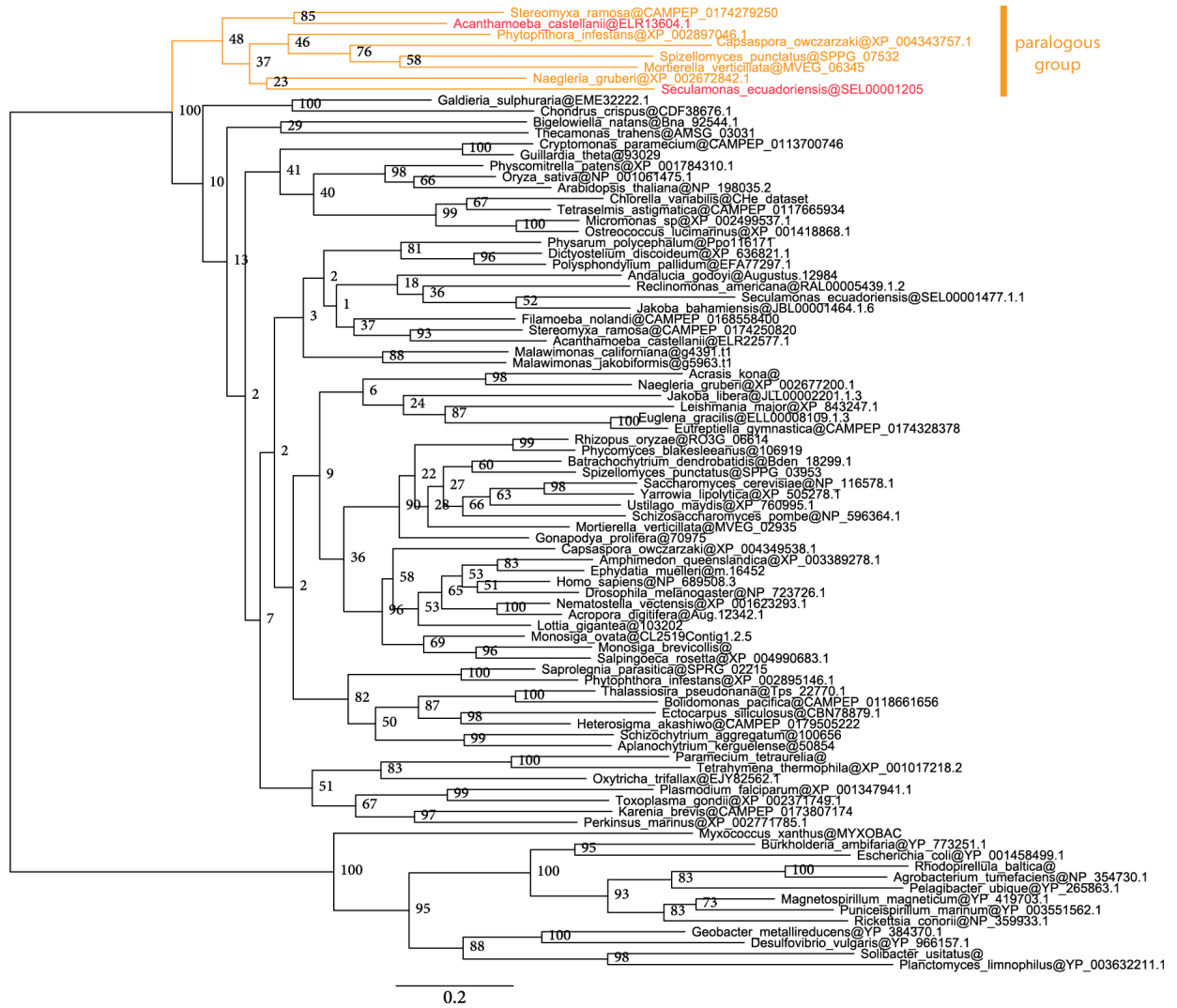
Paralogous group(s) are highlighted in orange and outparalogs detected in the He *et al.* 2014 dataset are highlighted in red.

The taxonomic sampling of paralogous groups has been reduced (we only kept few species representing most of eukaryotic supergroups). Alignments have been created and analyzed following the methods described in Materials and Methods.

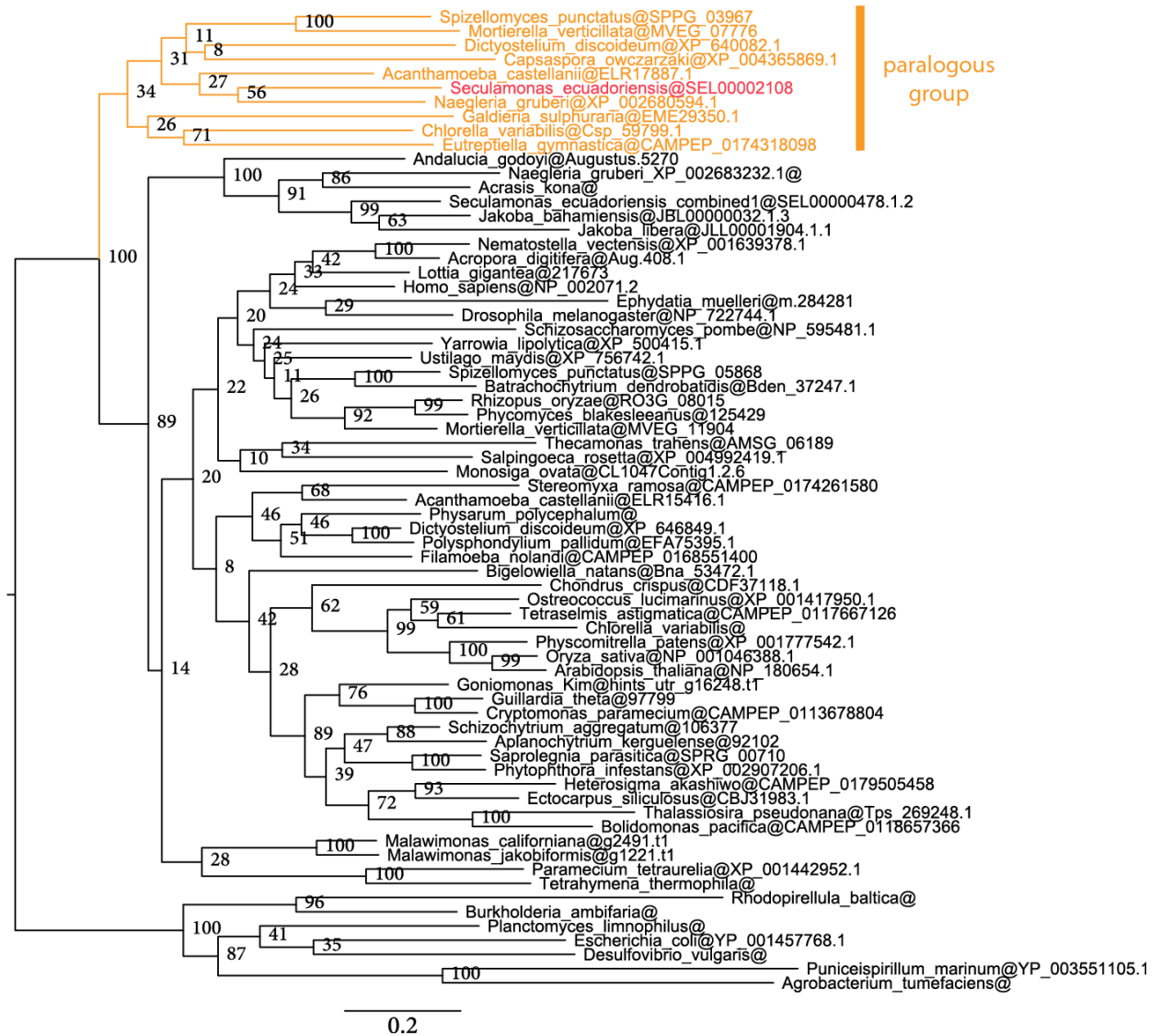


RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 6** (325 positions).

Only a few representatives of opisthokonts have been kept in the alignment.

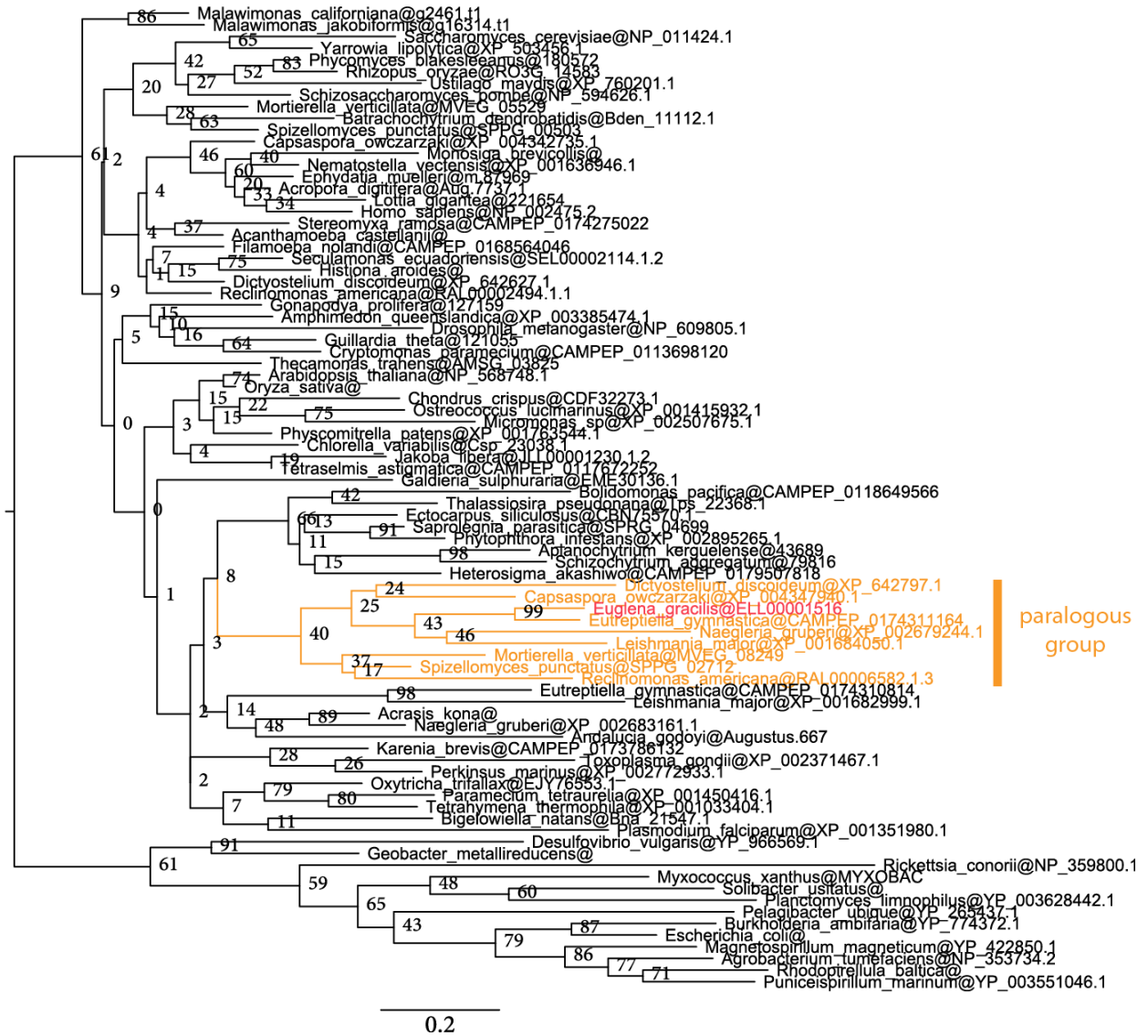


RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 7** (520 positions).

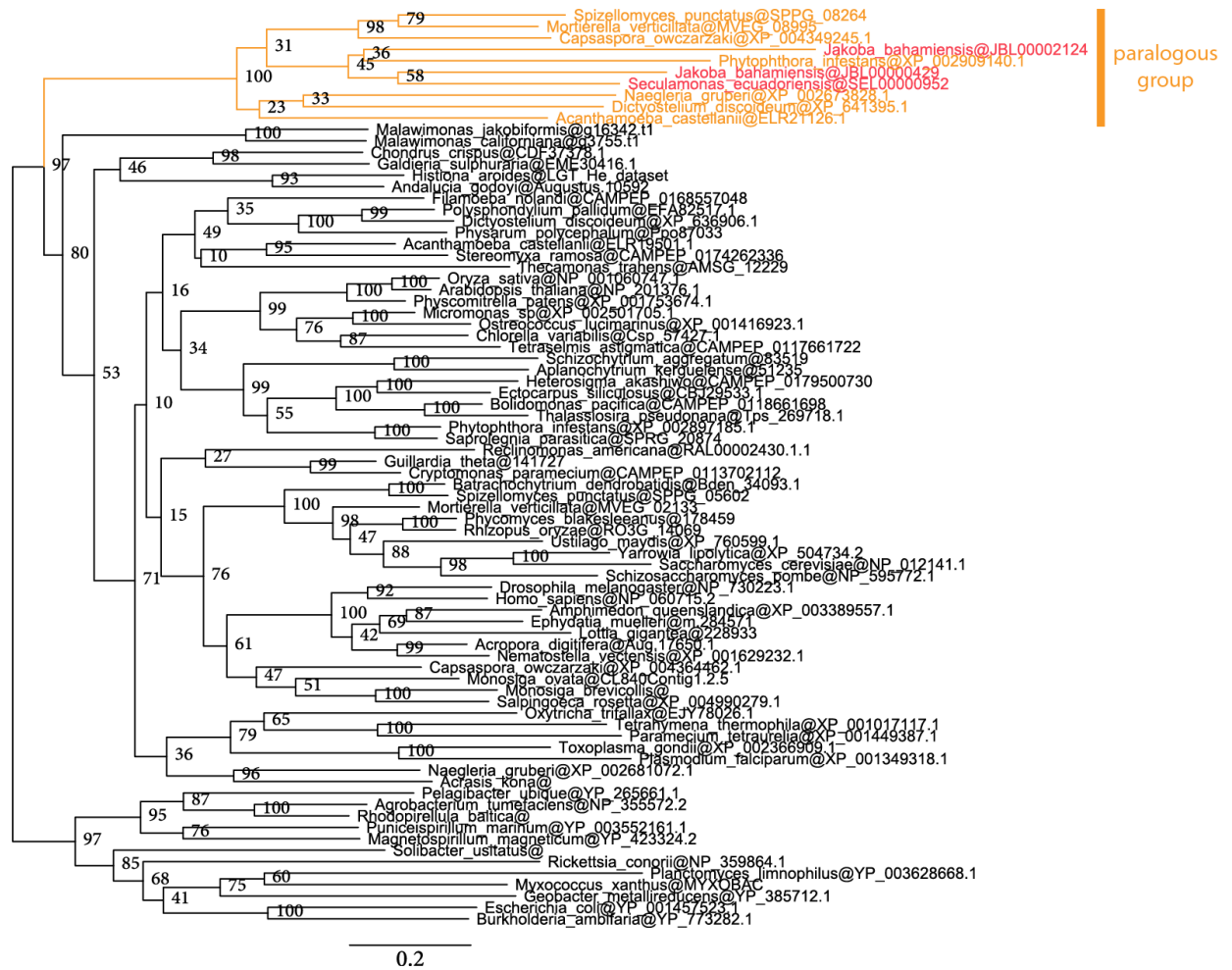


RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 9** (357 positions).

The two *S. ecuadoriensis* sequences (the ortholog SEL00000478 and the outparalog SEL00002108) have been combined into a chimeric sequence in He *et al.* 2014.



RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 11** (176 positions).



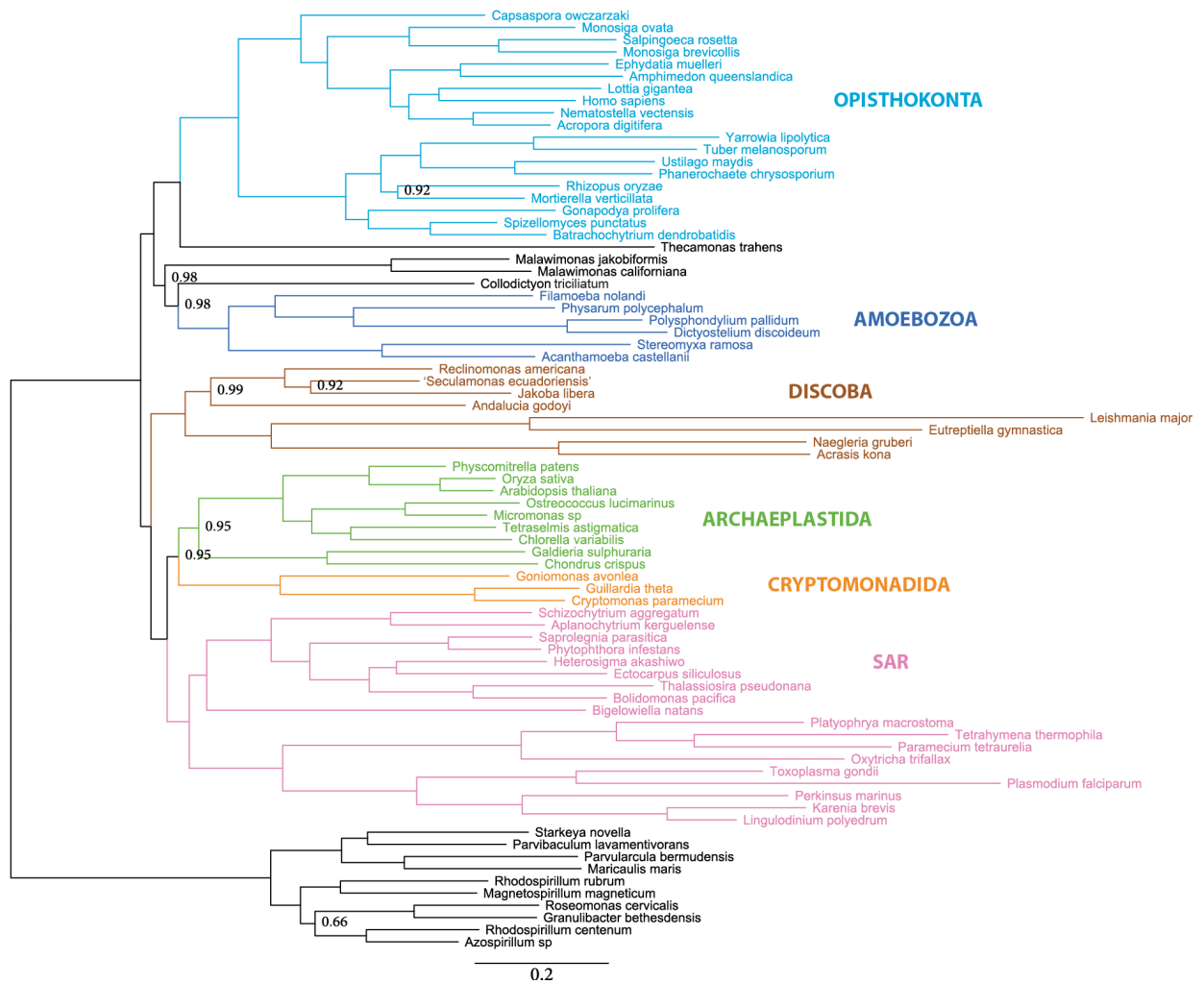
RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 14** (668 positions).

The two *J. bahamiensis* outparalogs have been combined into a chimeric sequence in He *et al.* 2014.

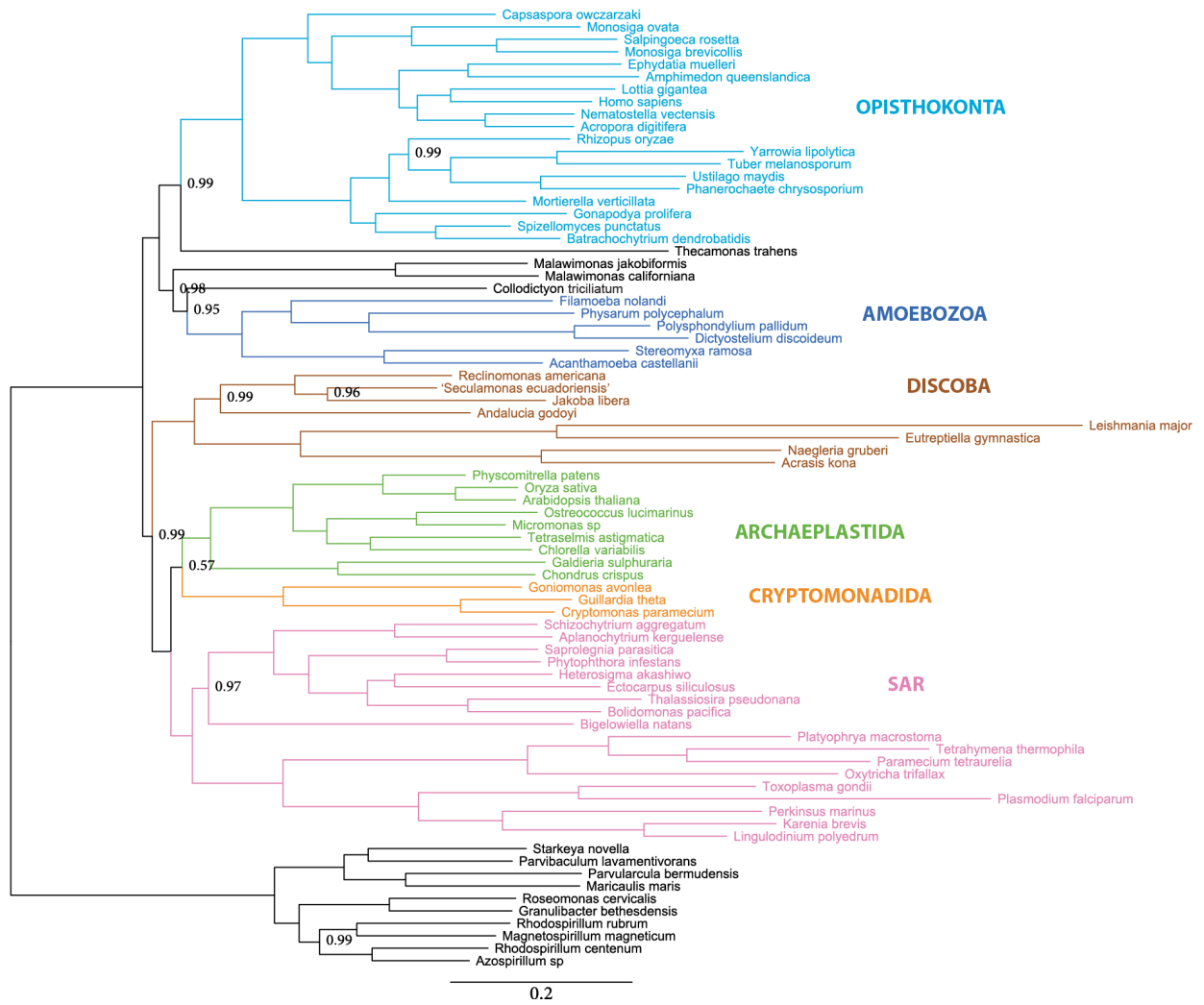


RAxML tree (LG model; 100 bootstrap replicates) obtained from the EUBAC marker **Protein 24** (554 positions).

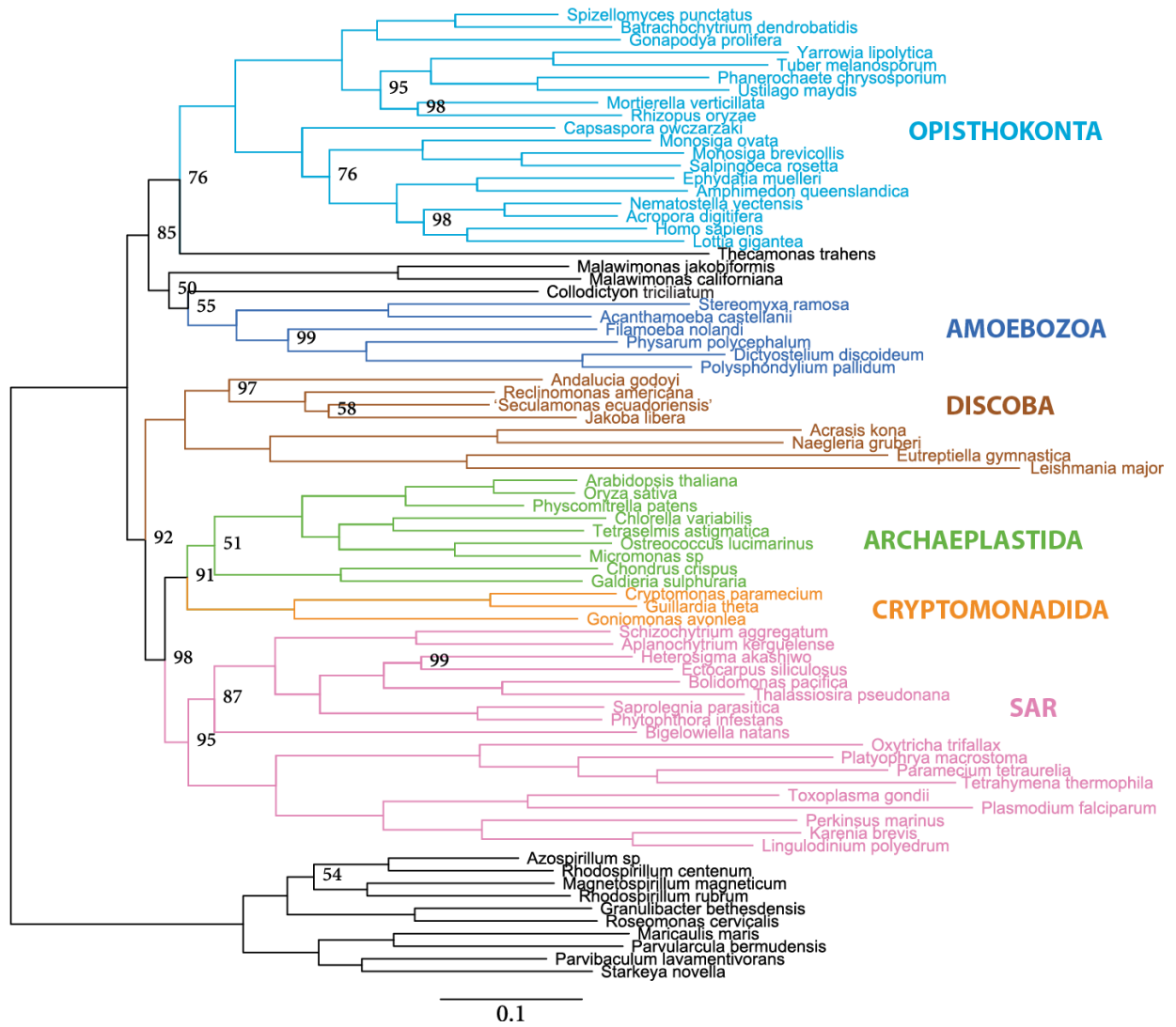
Supplementary data S3:
phylogenetic trees



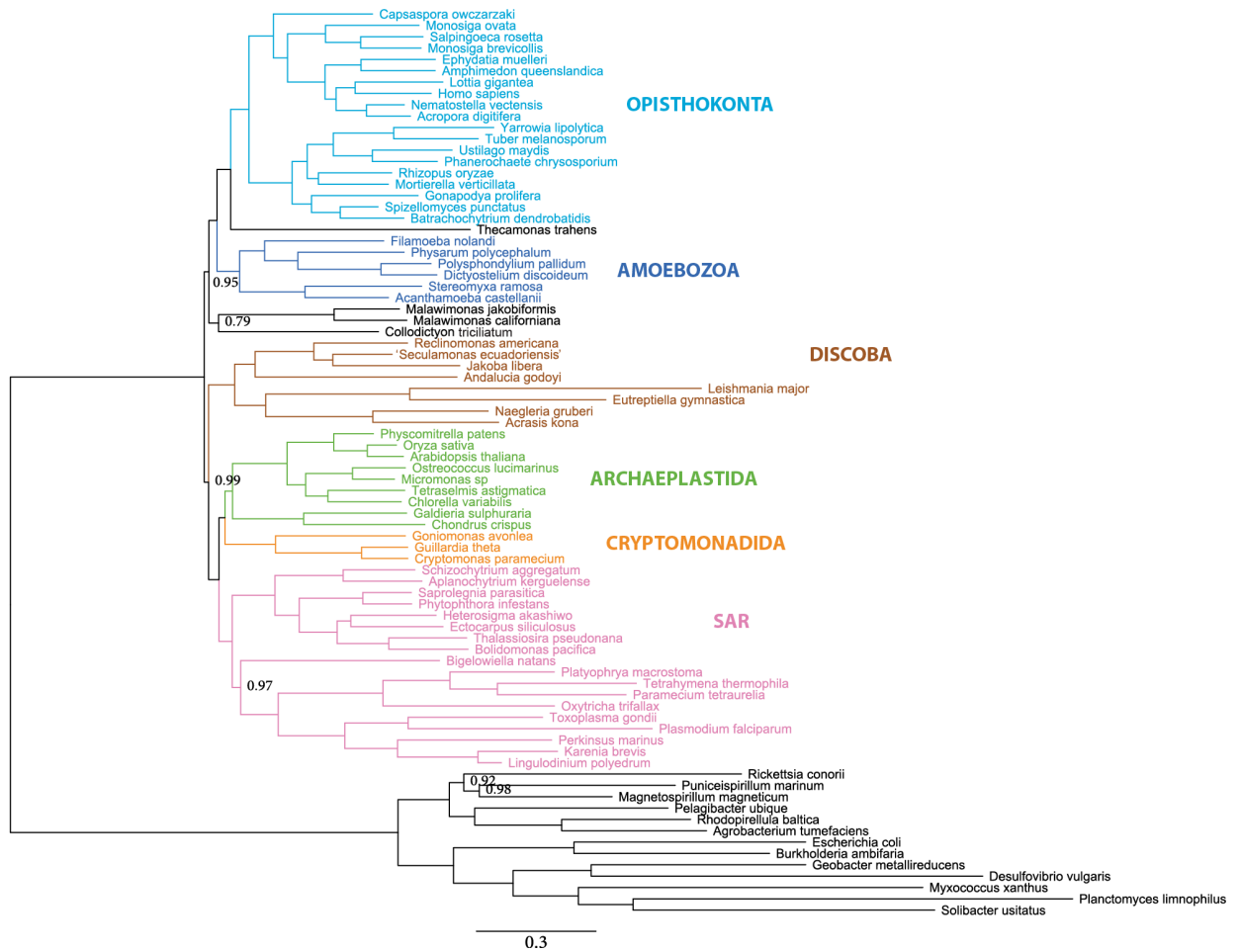
Bayesian consensus tree obtained from the **ALPHA-PROT** dataset under the **CAT-GTR + Γ 4** model. Branch support values equal to 1 are not displayed.



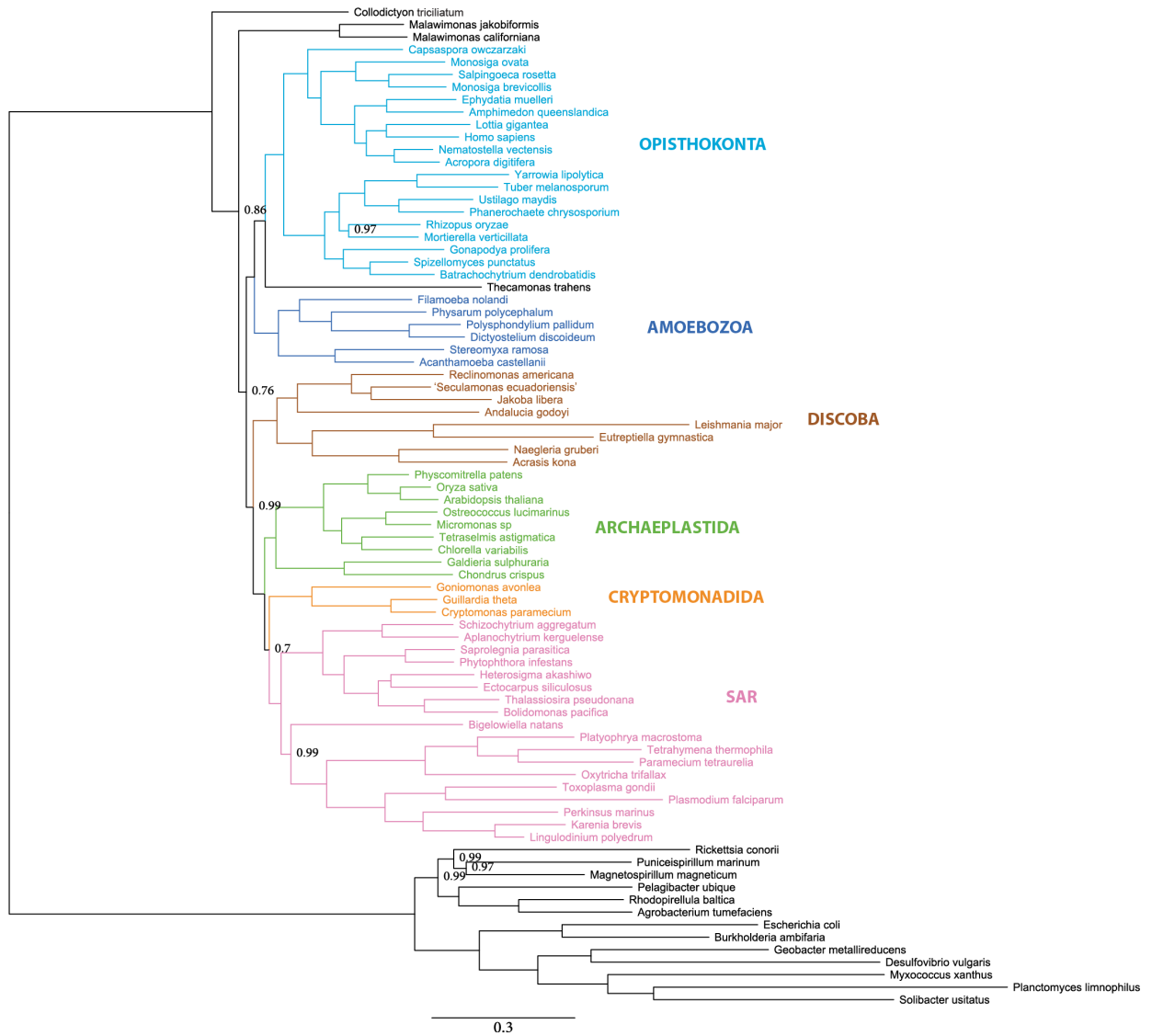
Bayesian consensus tree obtained from the **ALPHA-PROT** dataset under the **CAT + F4** model. Branch support values equal to 1 are not displayed.



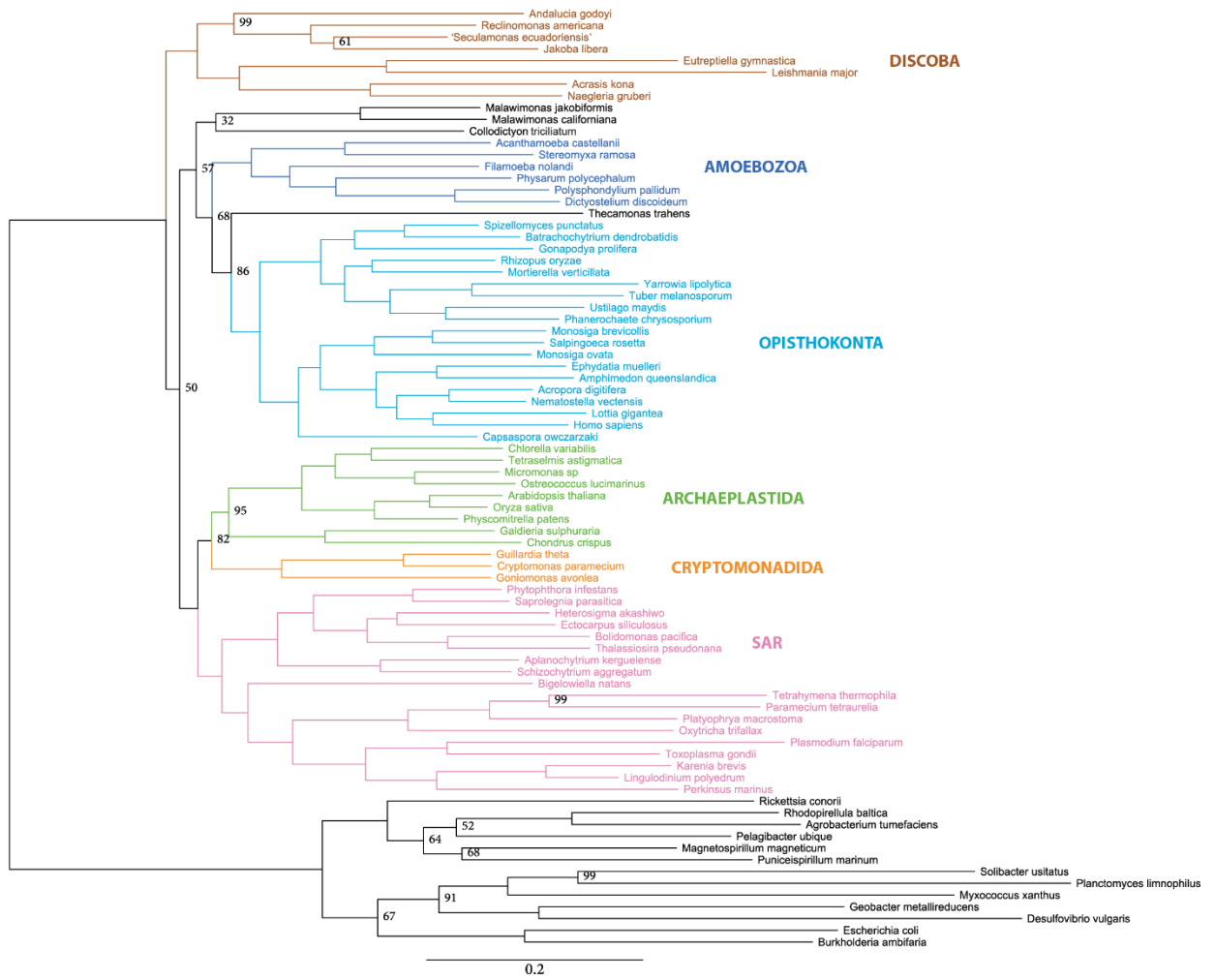
Best RAXML tree obtained from the **ALPHA-PROT** dataset under the **GTR + Γ 4** model. Branch support values equal to 100 are not displayed.



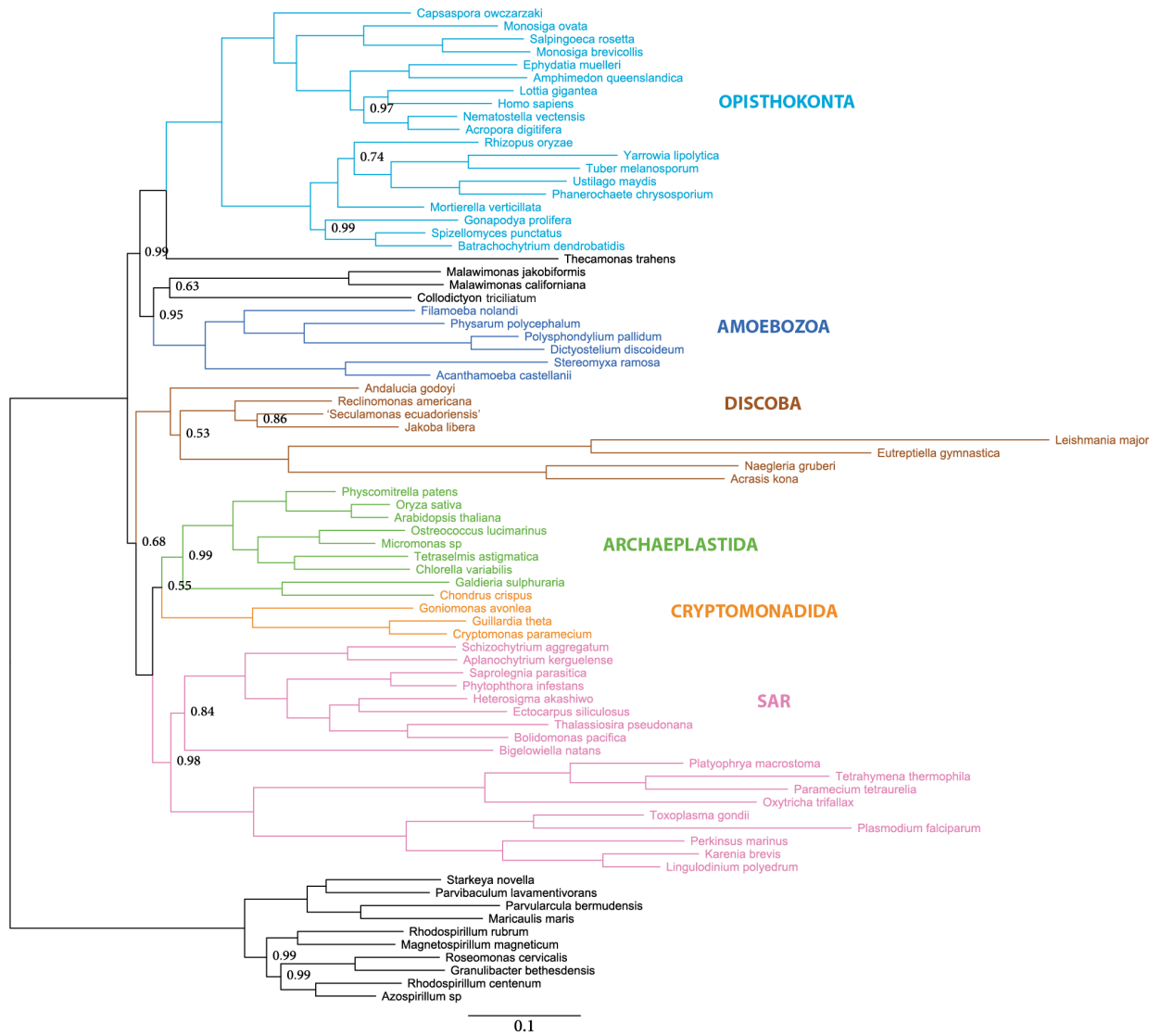
Bayesian consensus tree obtained from the **EUBAC** dataset under the **CAT-GTR + Γ_4** model. Branch support values equal to 1 are not displayed.



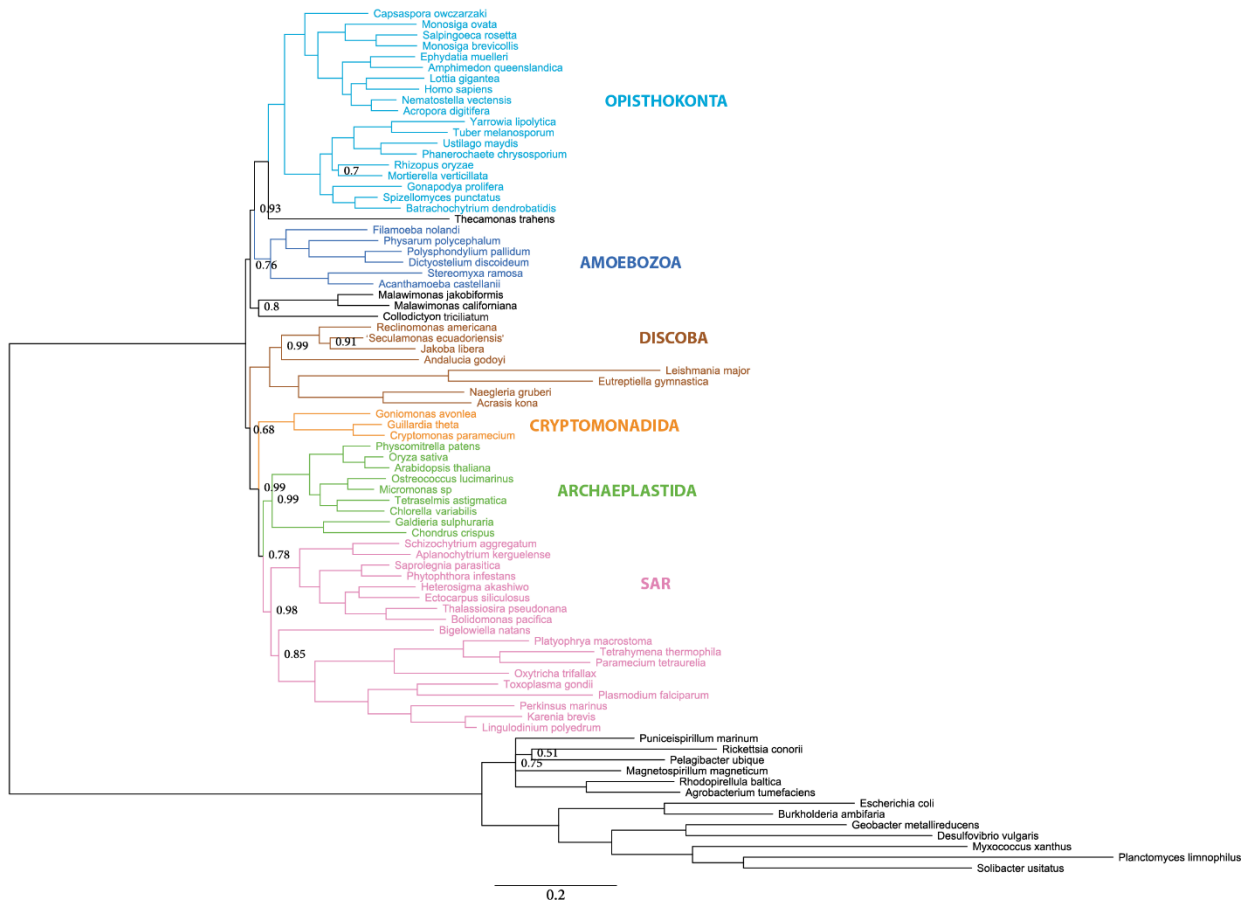
Bayesian consensus tree obtained from the **EUBAC** dataset under the **CAT + Γ 4** model. Branch support values equal to 1 are not displayed.



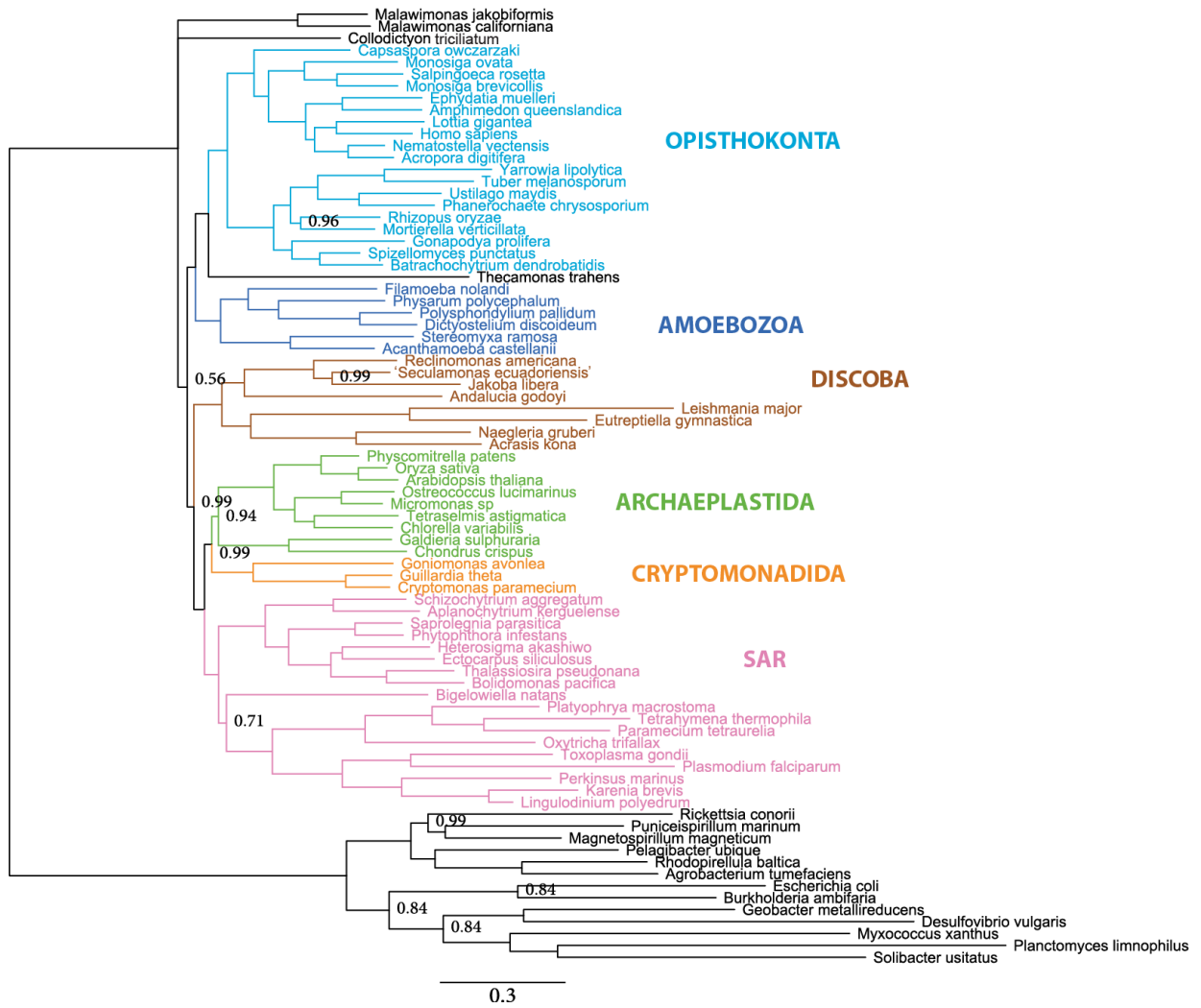
Best RAXML tree obtained from the **EUBAC** dataset under the **GTR + Γ 4** model. Branch support values equal to 100 are not displayed.



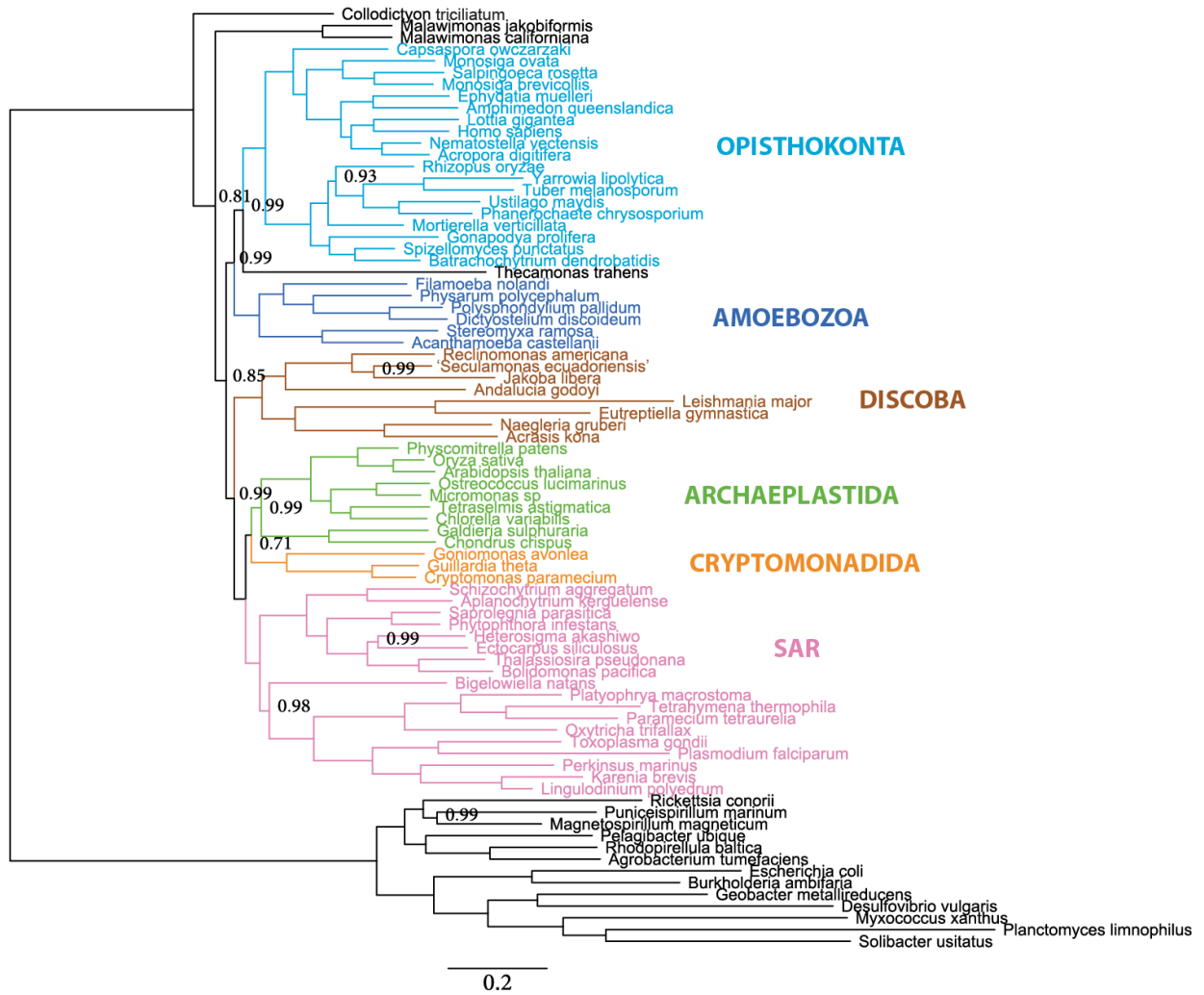
Bayesian consensus tree obtained from the **ALPHA-PROT** dataset recoded by the **dayhoff6 recoding scheme** under the **CAT-GTR + Γ 4** model. Branch support values equal to 1 are not displayed.



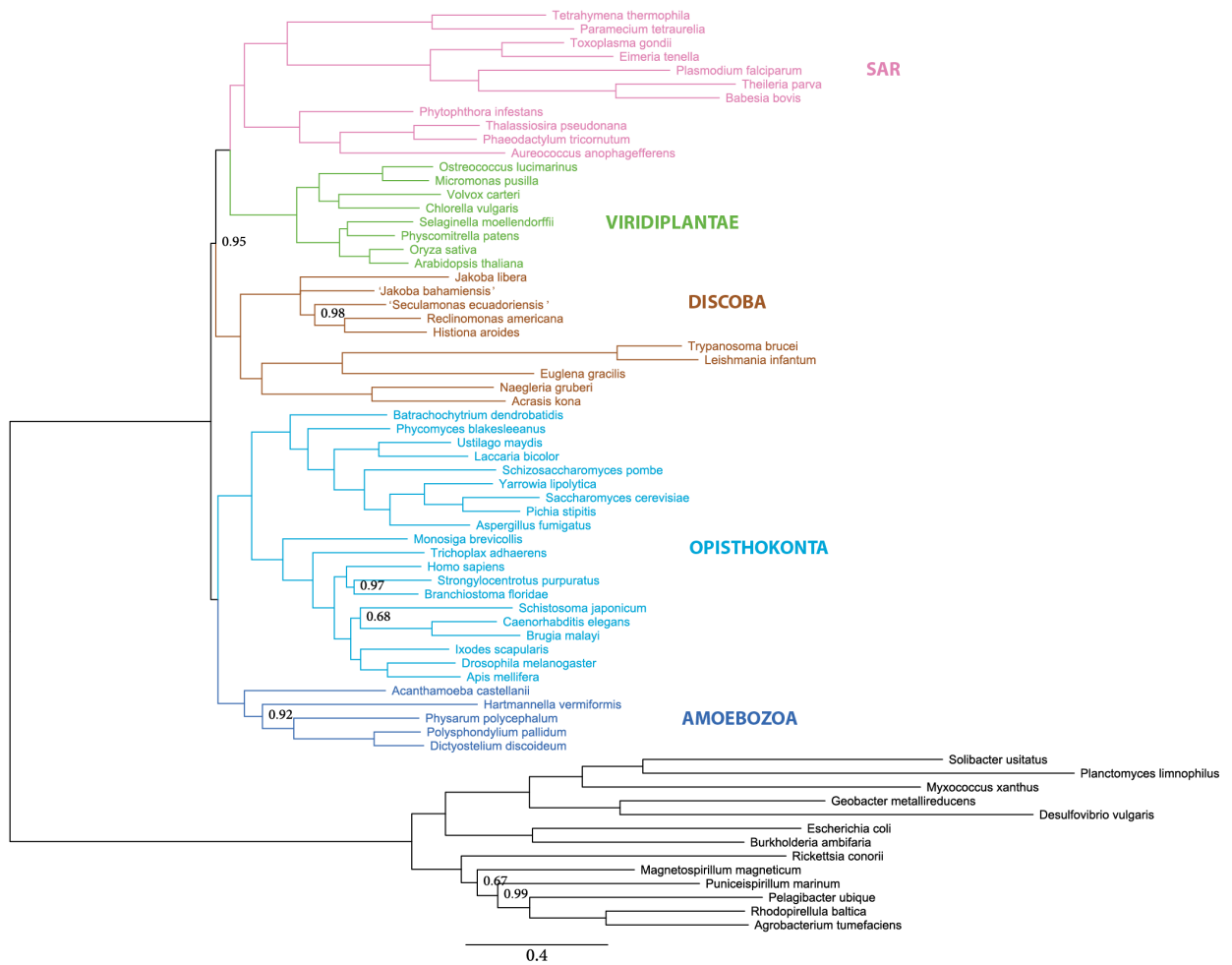
Bayesian consensus tree obtained from the **EUBAC** dataset recoded by the **dayhoff6 recoding scheme** under the **CAT-GTR + Γ 4** model. Branch support values equal to 1 are not displayed.



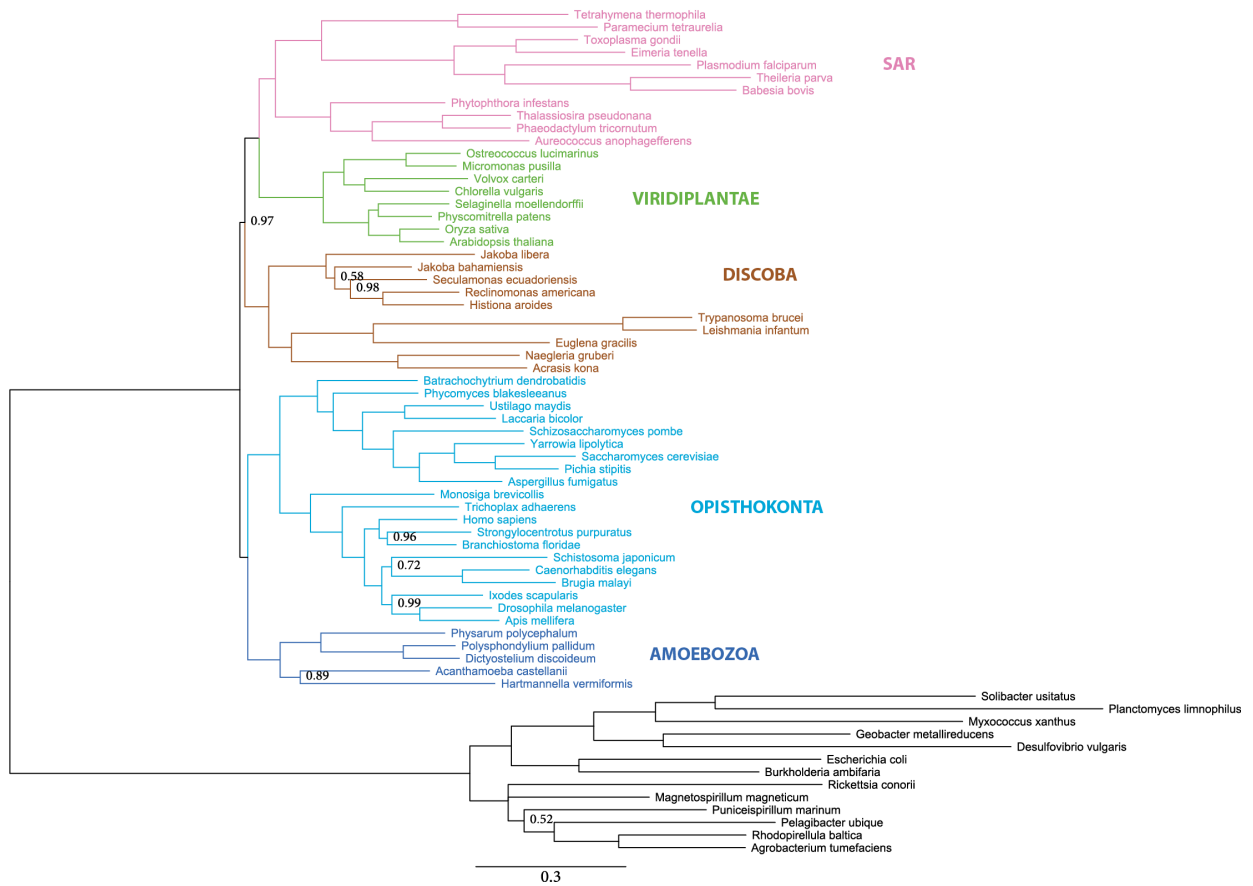
Bayesian consensus tree obtained from the **EUBAC reduced** dataset (i.e. minus the 10 most divergent markers) under the **CAT-GTR + Γ_4** model. Branch support values equal to 1 are not displayed.



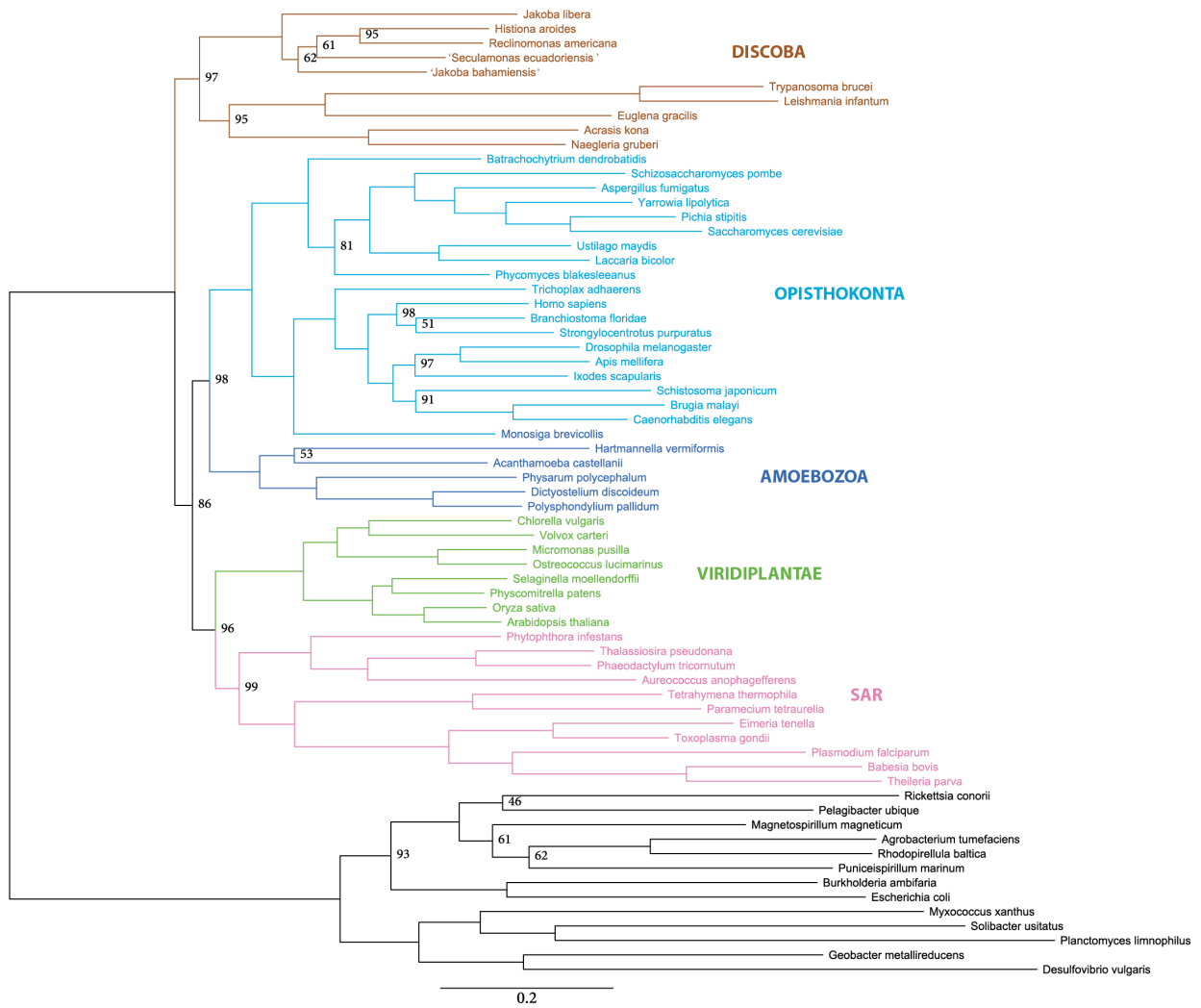
Bayesian consensus tree obtained from the **EUBAC reduced** dataset (i.e. minus the 10 most divergent markers) under the **CAT + Γ 4** model. Branch support values equal to 1 are not displayed.



Bayesian consensus tree obtained from the **EUBAC He *et al.* 2014** dataset with distant paralogs replaced by “X” under the **CAT-GTR + Γ 4** model. Branch support values equal to 1 are not displayed.



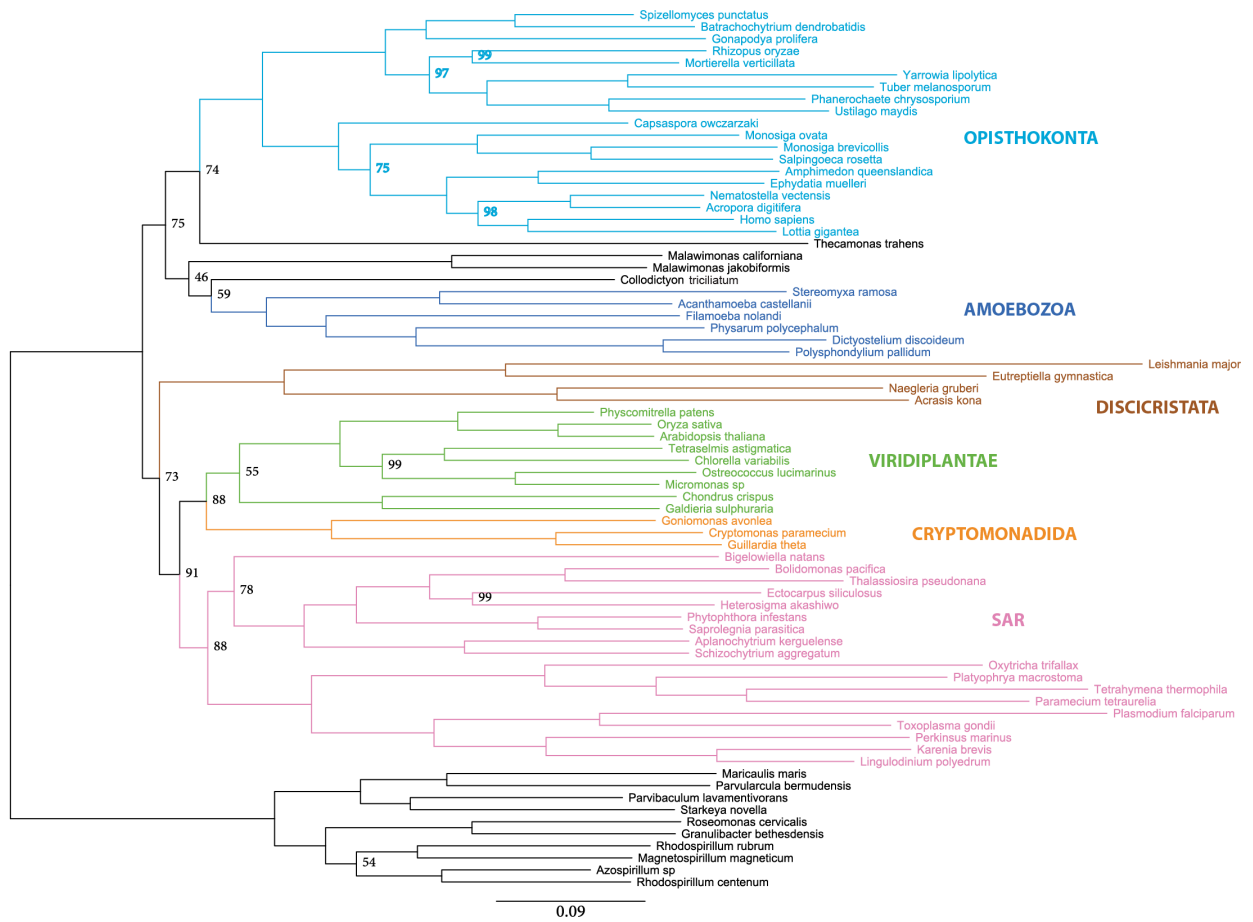
Bayesian consensus tree obtained from the **EUBAC He *et al.* 2014** dataset with distant paralogs replaced by “X” under the **CAT + Γ 4** model. Branch support values equal to 1 are not displayed.



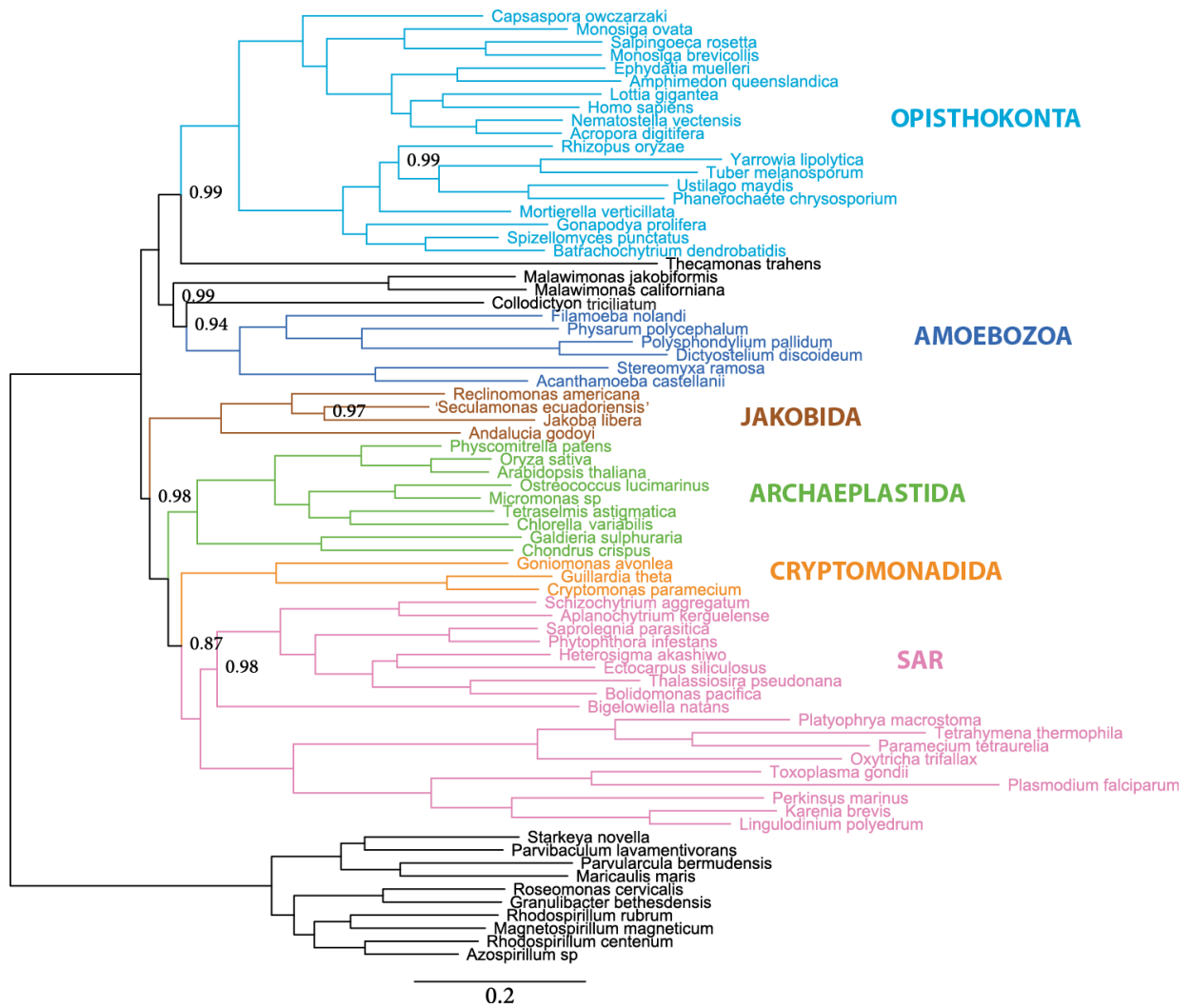
Best RAXML tree obtained from the **EUBAC He et al. 2014** dataset with distant paralogs replaced by "X" under the **GTR + Γ 4** model. Branch support values equal to 100 are not displayed.



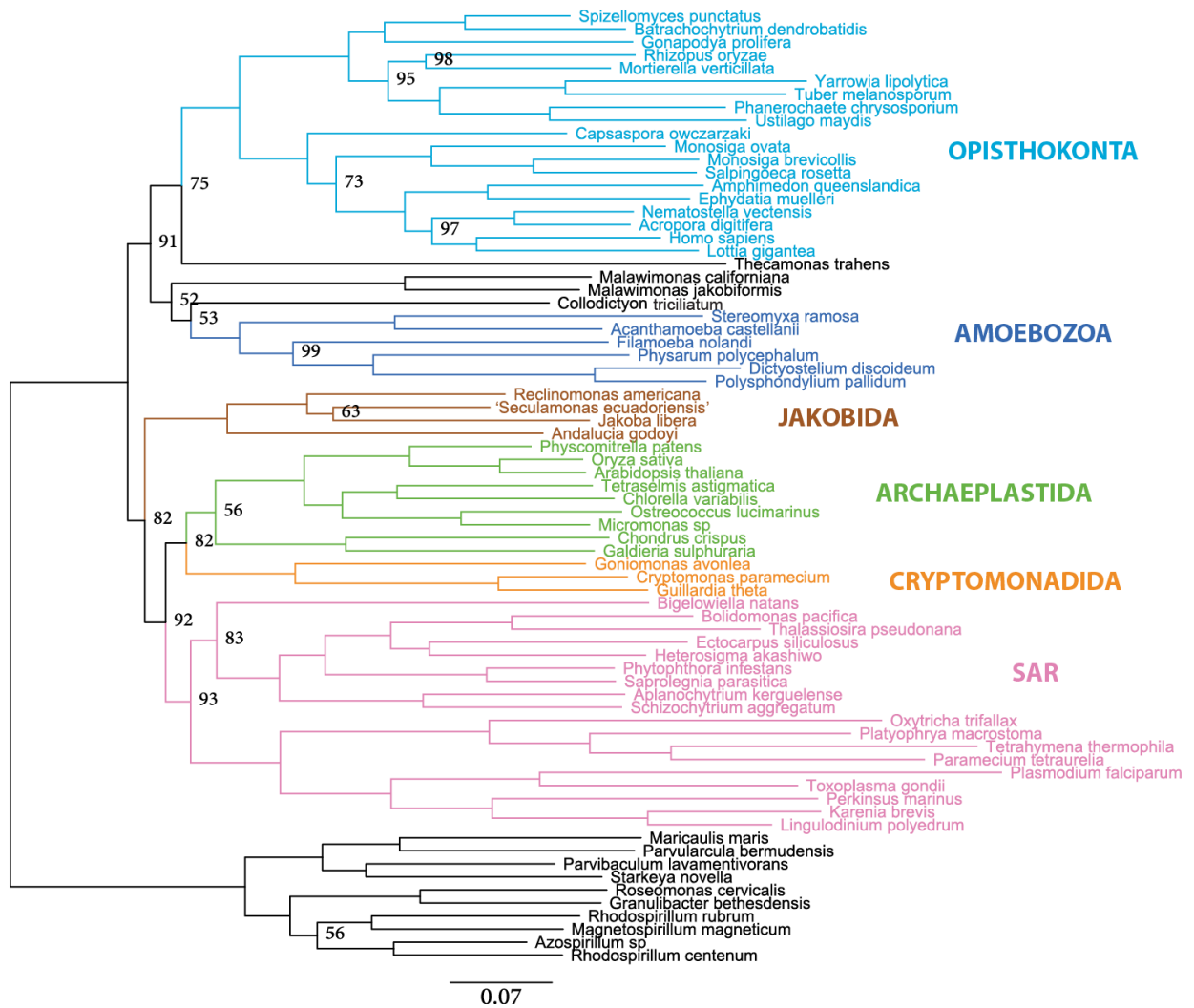
Bayesian consensus tree obtained from the **ALPHA-PROT** dataset **without Jakobida** under the **CAT + Γ 4** model. Branch support values equal to 1 are not displayed.



Best RAXML tree obtained from the **ALPHA-PROT** dataset **without Jakobida** under the **GTR + Γ 4** model. Branch support values equal to 100 are not displayed.



Bayesian consensus tree obtained from the **ALPHA-PROT** dataset **without Discicristata** under the **CAT + Γ 4** model. Branch support values equal to 1 are not displayed.



Best RAXML tree obtained from the **ALPHA-PROT** dataset **without Discicristata** under the **GTR + Γ 4** model. Branch support values equal to 100 are not displayed.

**Supplementary data S4:
single-gene congruence tests**

Congruence tests using Conclustador applied on the datasets built in Derelle and Lang 2012 and He *et al.* 2014 reveal an absence of incongruence of phylogenetic signal.

In contrast, Conclustador clusters the ALPHA-PROT and EUBAC datasets in two clusters of genes. However, two independent observations demonstrate that this incongruence of phylogenetic signal is quantitative (i.e. different amounts of phylogenetic signal) rather than qualitative (i.e. conflicting phylogenetic signals), a common artefact affecting algorithms aiming to compare the phylogenetic signal between genes (Leigh *et al* 2011; Leigh *et al* 2011):

_ we estimated the distribution of alignment sizes, approximated by the number of characters contained in the alignments (i.e. the product of the number of positions by the number of species), among clusters. This analysis reveals that, concerning both the ALPHA-PROT and the EUBAC datasets, the cluster0 is composed of large single-gene matrices while the cluster1 is composed of small single-gene matrices. The alignment sizes are significantly different between the two clusters as indicated by the two-tailed Mann-Whitney U-Test. In other words, Conclustador has clustered the genes into two groups according the size of their matrix.

_ we then have independently performed ML GTR and CAT analyses (same parameters as those described in Material and Methods) of cluster0 and cluster1 of the ALPHA-PROT dataset to test the presence of conflicting phylogenetic signals between the two cluster of genes. As expected, the large cluster0, representing two thirds of the ALPHA-PROT dataset, gives a very similar topology as the one shown in Figure 1 (the only exception are the deep Opimoda relationships, which are unsupported here) while the small cluster1, representing only one third of the ALPHA-PROT dataset, recovers all consensual eukaryotic supergroups but fails to infer their deep relationships.

Importantly enough, (i) we can not observe any supported difference between the cluster0 and cluster1 topologies, indicating that there is no conflicting phylogenetic signal between the two clusters, and (ii) the Discoba group is found monophyletic in all four phylogenetic trees, indicating that Conclustador did not detect any conflicting phylogenetic signal between these species.

Leigh JW, Schliep K, Lopez P, Baptiste E. 2011. Let them fall where they may: congruence analysis in massive phylogenetically messy data sets. *Mol Biol Evol.* 2011 Oct;28(10):2773-85.

Leigh JW, Lapointe FJ, Lopez P, Baptiste E. 2011. Evaluating phylogenetic congruence in the post-genomic era. *Genome Biol Evol.* 2011;3:571-87.

Summary of congruence tests performed using Conclustador

For each dataset, the table indicates how many clusters were detected by Conclustador. When more than 1 cluster were identified (i.e. cases of incongruence), the value of the CH index is indicated within brackets.

dataset	Conclustador analyses	
	Number of clusters	CH index value
Derelle and Lang 2012	1	/
He <i>et al.</i> 2014	1	/
ALPHAPROT	2	7.6428
EUBAC	2	8.3325

ALPHAPROT

cluster0

atp1
atp2
DLST
DLDH
ETFDH
Hsp78
HslVU
mHsp60
mHsp70
nad7
nad11
odpA
tufA
ndufv1
SUCLG1
UQCRC1
sdh1
TypA

ALPHAPROT

cluster1

atp3
cytc1
mrl3
nad8
ndufv2
odpB
PET112
CLPP
etfB
mtif2
ndufa9
NifU
PCCA
sdh2
cox11
grpE
nad10
ndufaf5
nsf1
PCCB
UQCRFS1

EUBAC

cluster0

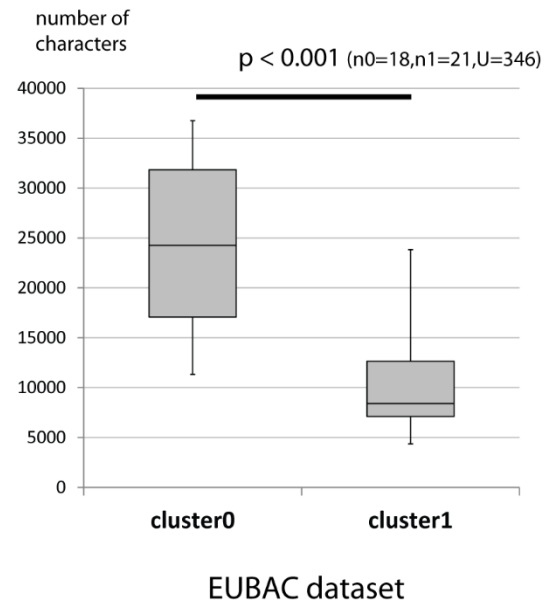
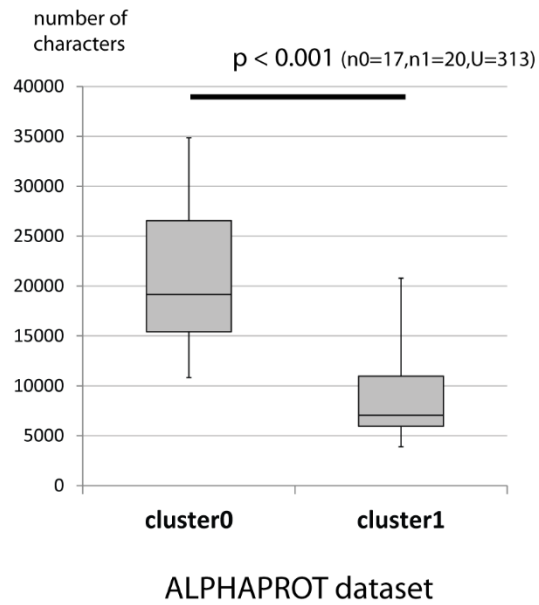
prot_1
prot_2
prot_3
prot_4
prot_5
prot_6
prot_7
prot_8
prot_10
prot_14
prot_15
prot_16
prot_18
prot_19
prot_20
prot_24
prot_27
prot_23
prot_30
prot_37

EUBAC cluster1

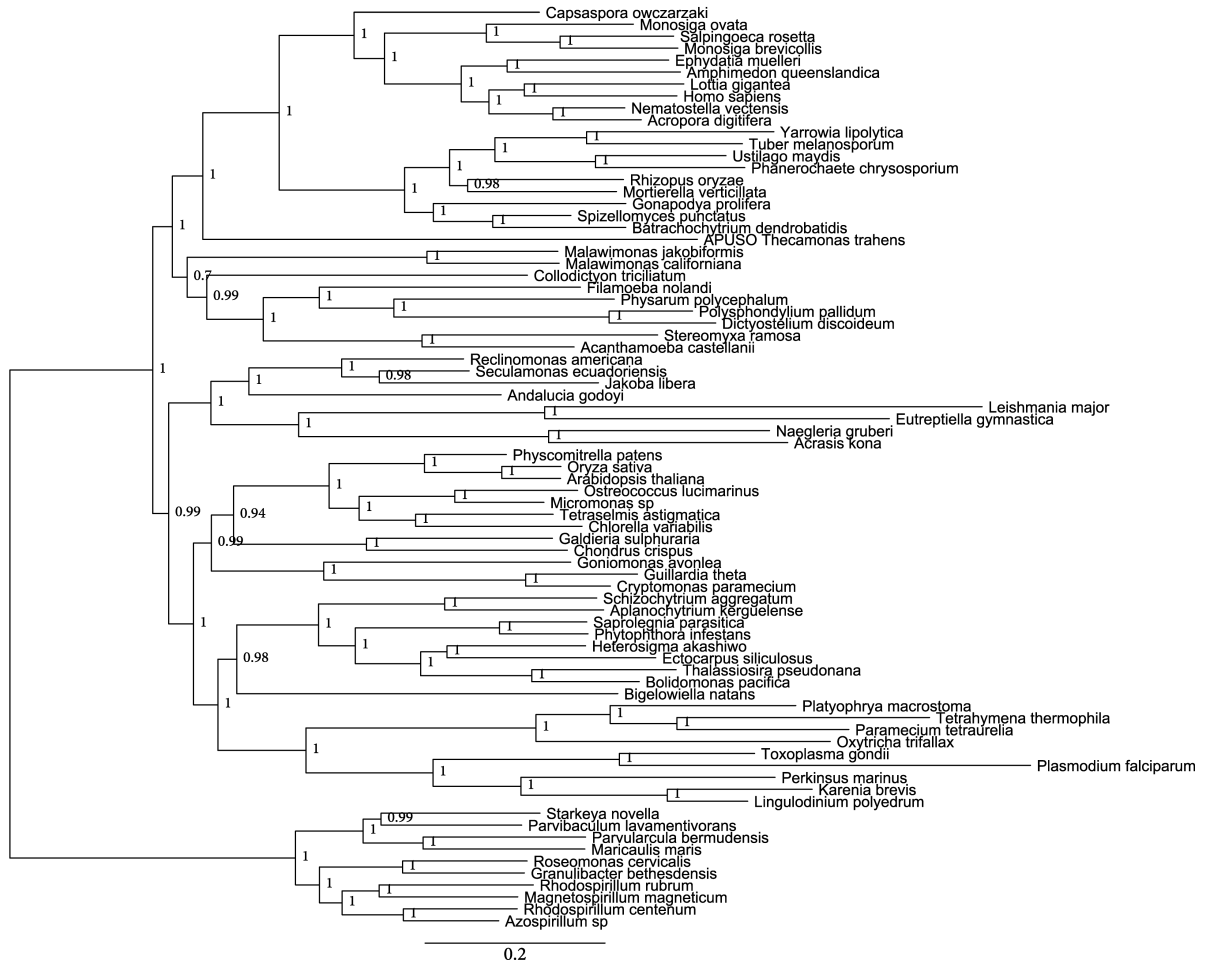
prot_9
prot_11
prot_12
prot_13
prot_17
prot_21
prot_22
prot_25
prot_26
prot_28
prot_29
prot_31
prot_32
prot_33
prot_34
prot_35
prot_36

Distributions of alignment sizes among clusters

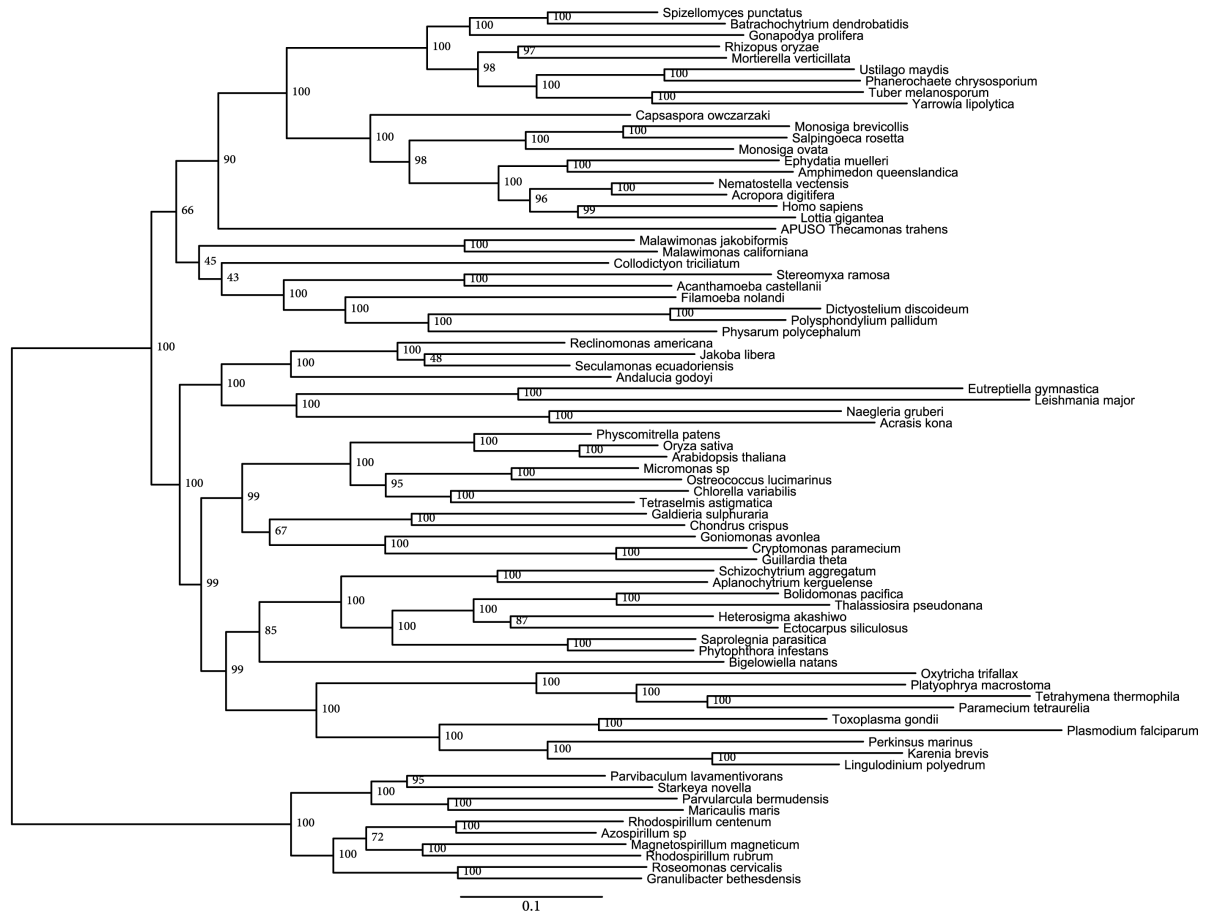
The results of the two-tailed Mann-Whitney U-Tests are indicated on top of the box plot graphics.



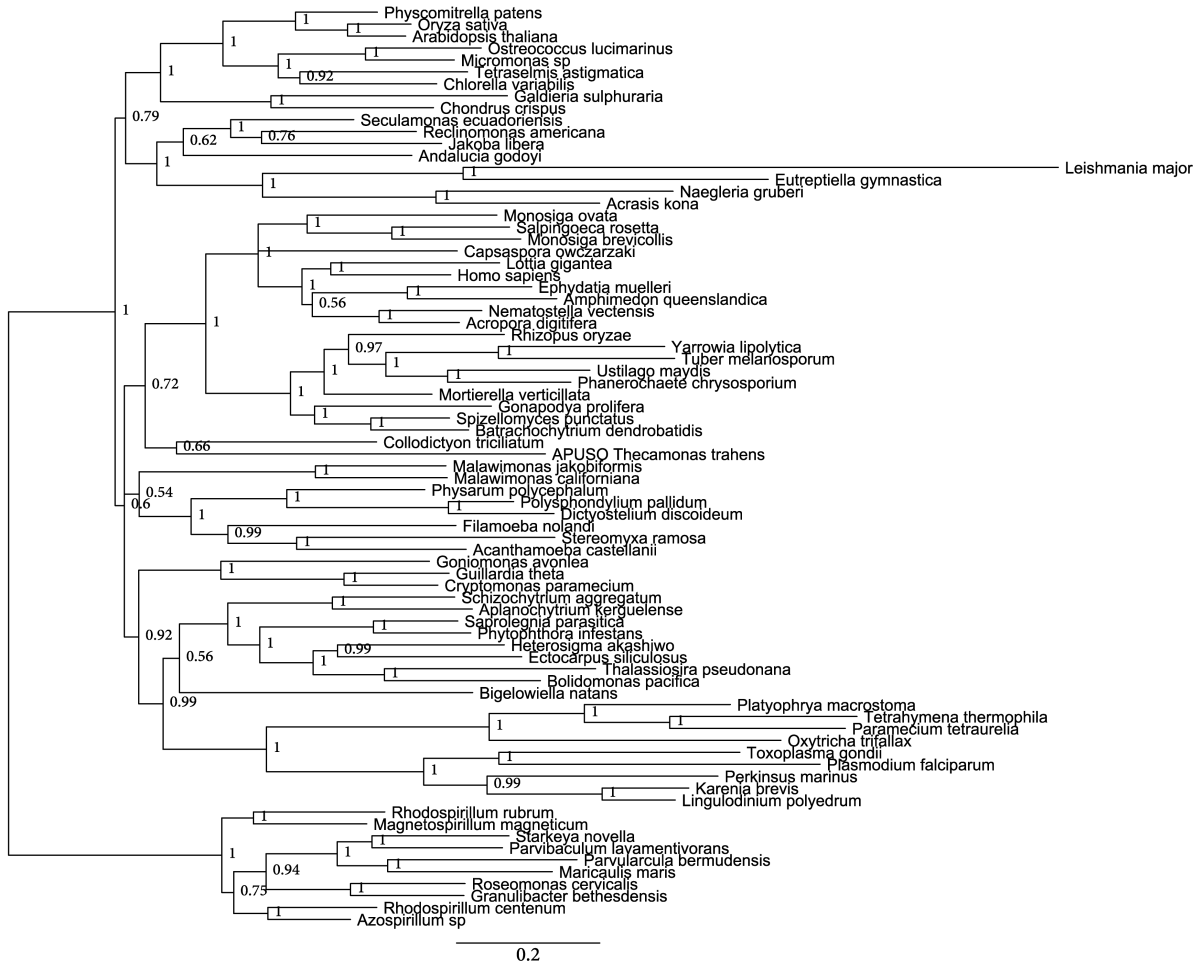
Consensus Bayesian tree obtained under the CAT model from the ALPHA-PROT cluster0



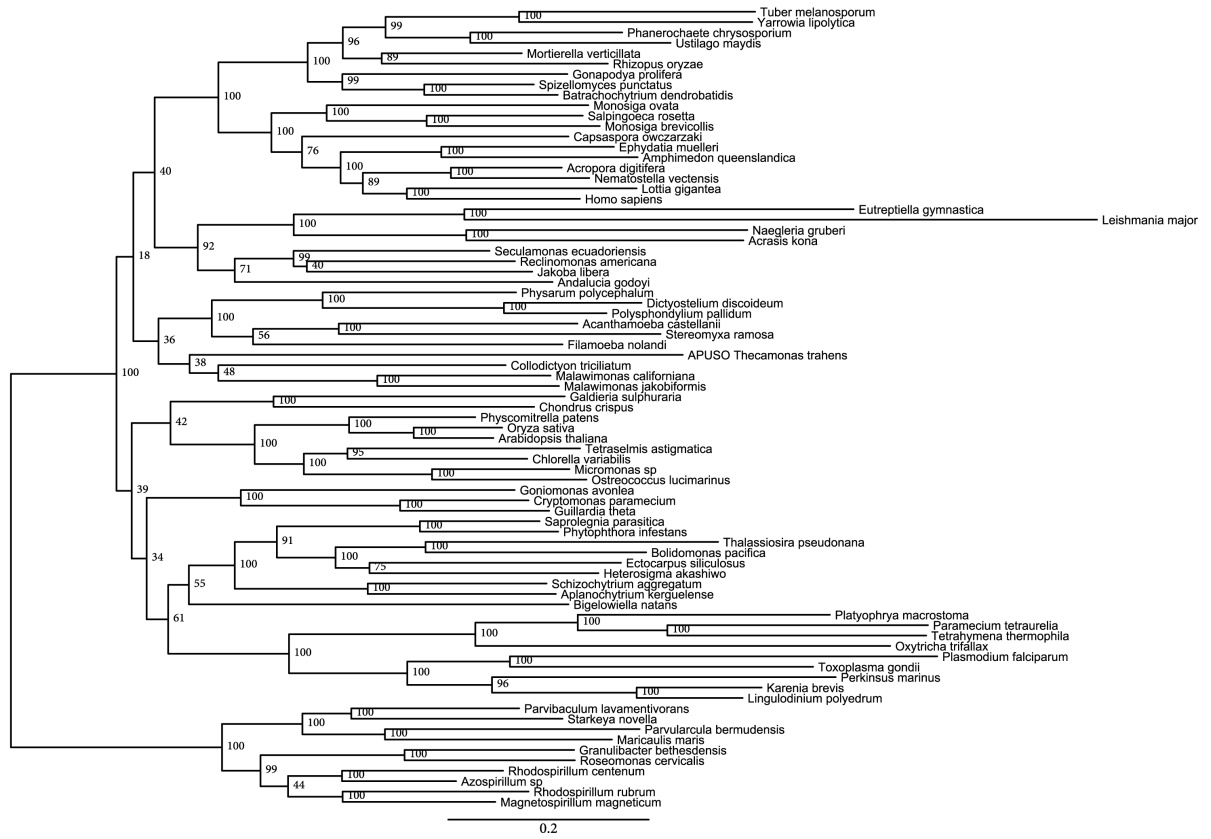
ML tree obtained under the PROTGAMMAGTR model from the ALPHA-PROT cluster0



Consensus Bayesian tree obtained under the CAT model from the ALPHA-PROT cluster1



ML tree obtained under the PROTGAMMAGTR model from the ALPHA-PROT cluster1



**Supplementary data S5:
new sequences used in this study**

>Andalucia_godoyi@atp1

MNLSAAELSHLEERITNSYKELNIDEKGRVLSVGDGIARVYGLNNIQAGEMVEFSSGIRGMALNLENDNVGIVIFGNDR
VIKEDGVVVRTGTIVDVPVGKELLGRVIDALGNPIDGKGPINGNRRRIEVKAPGIIARKSVSEPMQTGLKAVDSLVPIGR
GQRELIIGDRQTGKTAVAIDAMINQKSVNQAAAGSDDKKKLCFIYVAIGQKRSTVAQIVRTLEEAGALEYSVIVAATASE
AAPLQFLAPYTGCTIGEFRRDNGMHALITYDDLSKQAVAYRQMSLLRRPPGREAFPGDVVYLSRLLERAAKMSDAE
GAGSLTALPVIEQAGDVSAYIPTNVISITDGGQIFLETFLYRGRVPAINVGLSVSRVGSAAQVKAMKQVAGTLKLDLQ
YREVAFAAQFGSDDLASTQQLSRGARMTELLKQGQFTPMVVEEQVIVLYAGTRGYLDKIKVNEIHAFEESSLKLFKT
QHSDDLAKIRQEKQISKELDQNLAKIFGDFATANFVASKA

>Andalucia_godoyi@atp2

MAGRRTFAAAVHGRVTVQVIGAVVDVQFDEQLPILNALEVPLADNQRVLVLEVAQHLGENTVRTIAMESTDGLTRGLA
VKDTGAPIMVPPVGRECLGRIMNVIGEPIDGRGPSTKMRAPHAEPFAFSEQSTSQEILITGIKVVDLLAPYARGGKIGLFG
GAGVGTVMIMELINNIKKHGGFSVFGGGERTRGNDLYREMIESGVIKLDNDQSKAALVYGMNEPPGARARV
LTALTVAEYFRDQENQDVLVFDNIFRFTQANSEVSALLGRIPSAVGYQPTLATDLGGLQERITTTKKSITSVQAIYVP
ADDLTDAPATTFSHLDATTVLSRQIAELGIYPVDPLDSTSRMMDPRIIQQEHYDVARGVQKILQDYKSLQDIIAILGM
DELSEEDRLVSRARKIQRFLSQPFVHAEVFTGRHGKVELKDTISGFKGVMKGDYDDIPEPAFYMCGNIAEVLANAQK
MANA

>Andalucia_godoyi@atp3

MVAASKLRQAQRSCGVRPFQSSLLQQLPGSVSNFTGSKHLIIAITDRGLCGGVNSVVKTKKVLKELVANGSEVSIV
CVGEKGRDALVRECGKSMVKIINDVTRKPVNFLAASALSEEILSYPFDRCTIVYNEFKSVIAQVVTGNIPSYDAYVADP
AGWGEYFSDQASLLYNFEEFSMATRILSALLENATSEQGARMSAMDSAARNAGDMINKLSLSYNKARQAAITSELI
DIISAAGAVSK

>Andalucia_godoyi@cox11

MRIEKKTIFLYLIAMILFMFALSASVPLYRVFCQVTGYGGTAQILDYVPLVDEELPKRILTIRFNADVGVEMPWKFAP
QKEMKVLVGESALAFYEATNPETHDLIGISTYNVTPQQAGIYFNKIQCFDEQMLKSQESIDMPVFFIDPFDLEPRM
NEIDTITLSYTFVADHA

>Andalucia_godoyi@eyt1

MLAGRLLSRALPFAAVVPMMSATLVASDDAVPAPSYPWDHLSPFSSFDHSSIRRLQVYREICASCHSLSRVAYRNLV
VAMTEEEAKAFASSVEVQDGPNDAGEMFMRPGKLSDFVAPYPNEQAARAMNGGSYPDLSLIVKARPHEDYLFAL
LTGYGHASPAQVSLREGLHYNPYFAGGAIGMPQLYDGSIEYEDGTPNPLQLSRDVATFLAWASEPEHDERKLMGIK
YMGIMTVVAATAFFYKRHKWALLKSRRIEFRQPGK

>Andalucia_godoyi@DLDH

MFSISTVARRFSTSASHDLVVIGGGPGGYVAAIRAAQLGLKVACVEKRGSLGGTCLNVGCIPIKALLHASHLYHEAQHD
FSKYGVKVSGLVELDLSTMMKQKGTAVTGLTRGIEMLFKKNKVDYKSGRIESATSVAVAPTVENGSASNASEVVLN
TKNILIATGSIPTLPLKFKDEKTVVSSGTALSLDKVPKLLAVVGGVIGLELGSVWARLGAETVIEAAARCAPFLDEEI
GDQFVKIMKKQGLNIATNTKVLGADRTAAGIKLKLDSKDLGDSLEADVVLVSVGRKPFRTGGLGLEKAGVELDRQGRV
VVDHFRKTVPSIWAIGDVIAGPMLAHKAEEDGIAAENMAGKAGHVNYDTPVNIYTFPEVAWVGKSEQQLKAEGV
KYRVGKFPFVANSRARTNDQPDGLVKVVDAETDKLLGMHIIGSLAGEQIAEGLALEYGAASEDIARTCHAHTLSE
AIKEACM

>Andalucia_godoyi@DLST

MSMAMSPMSVSSPSLFAAPRCARRFFSSSPAIEDIVVPKMGDSITEGTVMGWLKNPGDAVKVDDVLVQLETDKITVE
VRSHVGGALQSQLANKGDAVKVGAIIAKVKVGAAGSTLTPAAPAAAAAATAAATAAATKASESAAEKKSEAKKT
AVTEKKASAGQVIMVAGALETRTPMSRMRKRIERLKAQNTYALLTTFNEDMSALIERKVVYGESFEKKGHTKL
GFMSPFVKASANALKNQPLINAVIDGTDIVYRSYVDVSVAVATPTGLVVPVLRNCQDMGFADVEKELGKLEKARTGQ
LSMDDMQGGFTISNGGVFGLSFGTPIVPPQSAILGMHATKPRPVAVDGKVEVRPMMYLALTYDHRLIDGREAVTFL
KSIKEQIEDPRRIIDL

>Andalucia_godoyi@etfB

MKLLVGVKRVIDYAVKIRVRPNLGVVTENVKMSMNPFDIEAVEECVRLKEKGVAKEVVAVTIGPKPSSEILRTALAM
GADRAIHVEVADGSTVEPLAVAKVLRALVAKEQPSAVLLGKQAIIDDANQTAQILAGLLRWPQAAAFASKIAVAQDKA
SADIVREIDGGLETVSVKLPAVMSVDLRLNEPRYVTLPLNLMKARKKALETVTPDSLGDVITPRLEILRVEEPKIRIGR
VESVDDLVLHKLKNEAKVI

>Andalucia_godoyi@grpE

MSVFPTRRWFNSNETSTPANNDQSKPTPSSSSSSSSSANGSANANGNGNGNGNEVMEGLKKQLEESAACLKECESKY
LYALAEETENVTRARRDVENANKYGISKFAQSLLDVADNLQRALTAVSESDKSSSLFTGVQMTEKVLTKAFEVNGLV
KMSAMGESFNPEVHQAMFEMPQDKPGTIAAVLRDGYVLHGRTRIPAQVGVIAKD

>Andalucia_godoyi@prot_10

MSNAETYKQSDITQLMSLIINTFYSNKEIFLRELISNASDALDKIRHIGLTKAALDTEPDLRIDHDPKESNTLTIRDGTGIG
MTKADLNNLGTIARSGTKQFMEALQAGADISLIGQFVGFYSAYLVAERTVVISKHNDQDHIWESSAGGTFEVTHTDP
EGSVSGKLTTRGSMILHMKEDQADYNDEKKVRDLVKKHSEFIGYPIYLFVKKTVEKEVEEEEEAAEKKPEGDEAKIE
DVTDAEKKKSKKKVSETEEKFEHLNTPKIWTRDPKDVTKEEYASFYKAISNDWEEHLAVKHFSVEGQLEFKAVI
YVPRAPFDMFDTKKNQNNIKLYVRRVFIMDDCAEIIPEWLSFVKGVDSEDLPLNISREMLQONKILKVIKRLVKKCI
DLFFEISENAEDYKFFYESFSKLNKLGIHEDTANRTKLAELLRYHSTKSSEEMTTLKDYISRMKESQKDIYITGESKAA
VEKSPFLEACKKRDLVLFMVEPIDEYCVQQLREFEGKLVCVTKGLVFPDETEDEKKSKEERKAQFEGGLCKSVKEVL
GDKVEKVLGDRMVESPCILVTGEFGWSANMERIMKAKALRDSSMSTYMASRKTMLNPNHPIVDELKRKCAESVDK
TAKDLIFLFFETALLVSGFLDNPADYANRIHRMIKLGSLDGSSSSSSSSSAAPEVSAVDSEMESVD

>Andalucia_godoyi@prot_11

VPEHCPGSPSETAGQTSACAGCPNQLCASGAVRQPKDDPDIPIHRMSSVKHRVLVMSGKGGVKGSTLSTQLSLWLA
LLPASQLGAILAGQSASTPVSSAVGGNWWESYEALADSEKVVQGLCDLDICGSPSPTMLRLPPNPSVHASNAGVTPIYPT
IPVSLDDAHDATDVYLDNLAVMSIGALLPSESTAVIWRGDRKSAMVTRFLRDVDWGDLDLFDITPPGTSDEHITVSTT
LRDVGALDGLLVTTPQAVACADVRRQISFCKKVGIPILGIVENMSGYVCKKCKTETAIFRASEGGGEALAEFGIPFLG
RIPLDGNVVRAGDAGVPLPDGIVARALHVSVCNLLHQIAAHQVASA

>Andalucia_godoyi@prot_13

MAKLTATSEEVLAATAKKWIRFVNASPTPFHAVSNVSTQLAAAGFTRLDERSEWSIQAGGKYFVSRNQSSLIAFCIGSKF
TPSQNSGFQVIATHTDSPVLKLLKASDVRRAGYQTVSVEVYGGVLLHTWDRDLGVAGRIVRKEGEDGLSSALQKH
LVCIDEPIARLSSLAHNLNREVNSDGFKFNAETHLHPVLHTLAEDLNRPISPLEGITQNHPPALMALLAAKIGCDAKEIV
DFDLSLFDTQAAALGGLLKEVFTARIDNLLSTFCAVEALTGSLSVADSDGVRLVAMFDHEECGSQSSHGADSQMLP

TMERIVESLVGAAPAAPATPAAQAGVKSGLQSVRQQAFAKSLVLSVDCAHAVHPNYAEKHHELLRPMINKGVVIKVN
 NNQRYATNDLGVAAVVECAQRATQGSVALQLVQVKNDSPCGTTVGPILSSRLGVRTVDIGCPQLSMHSIREMCGTVDI
 VHMERLMOQSFIDHYPTVDKLLSSE

>Andalucia_godoyi@prot_14

LMDSAESFLSGSSSVLENMYEQWQKDPSSVHPSWKRYFESFHATPLVRPAPKGVHVSSTSTSQISEAALRDSIKMM
 QLIRAYRICGHLAADLDPLGLTLPQRHPELDPHSYGFSSTADDDHKIFIGTELGSSSLEQYAYQNFQDGLVRKLLKTTYTGR
 IGVEYFHITDVQOREWISHQMEHGKPHDISKEEKRNISYLAQAEGFENFLAQKFNTAKRFGLEGGESTIPCLEVSLETA
 AQLGVEAAVIGMAHRGRNLVGNVMKPPAQIFHEFKGEGNKGESTFFGSGDVKYHLGTSADRLIGGNSFHVSMATAN
 PSHLEFVNPVVEGKTRAKQHFSGDTNRSRNMILIHGDASFAGQGVVETLSMSDLTHYSTGGTIHVIINNIQIGFTTDPK
 SARSSPHPSDAKTVGAPIFHVNGDDPEAVAFVSRVAVAWRQRFQKDVVIDIVCYRRHGHNEVDQPMFTQPVMYKRIK
 DLPSTLNLYTQRLIASGVFSEAEELSSIRSEYARLEADWAASKSYKPKASDWLEKNWQGFKMAQLEGRAPTGPVLE
 VLRVAVGKIVSTLPEGFAAHAGVARVYNNRLAAMQSGKNIDWALGETLAYATLVREGYPVRLSGQDCERGFTHSRHSV
 IHDQNGAQYIPLRHISDQAFRRVTNSHLEAAVLFELGYSLEHPKLLVLEWAQFGDFANGAQVIIDQFITSGEAKWY
 RQSGLTMLLPHGYDQGQPEHSSARLERFLQMSDEDPYIFQSDPWKQEQAINYSVANITTPANFFHLLRRQVVRDRKPL
 VVMTPKLLRLKECASNIEDFAPNQAFRRVIPNTVSDATKVVQDDKIRRVILCSGQVYYDLAEARSKRELESTIAIVRVEQ
 IAPFPFLEVRDHAIAKYPNAEVMWLQEEPANMGWSVFEPRRLTILREMGVVELTVRREPKEYVGRKVAASPATGFSKV
 HEEEQAAIINAALTI

>Andalucia_godoyi@prot_15

MSSSLVTKRDGSSVDFDREVLRSRIVPLCDGLDLTWVSIDLILDKVASGAPSLVTTTKIDELLAETAAYLTPQHPDYSLV
 AGRIVTALHKTTTPSKFSETTLLRNYPNPQTGTPAPLVSQELFEYVLEHKDVLDEAVDDSRDLGYDFGFKTLEKSYL
 LRDGRVAERPQHLLMRVACGLNLSVSEVLSTYDMLSRRLYTHATPTLNFAGTPRPQLSSCFLVMSDDSDIVGIYDIL
 KECAMISKYAGGIGLSVHPHAKGSYIAGTNGVSNGLVPMPLRVFNDTARYVDQGGRRKGSFAVYLEPWHADIFDFLD
 LKKGTGKEEMRARDLFYAMWIPDLFMKRVANATWSLFCHECPGLYESWGSTFETLYEKYEAAGKARRVKAQEL
 WFAILESQMETGTPYMLYKDAANAKSNQNLGTIRSSNLCTEIIQYSSEETAVCNLSIALPRFVSQIKNESEELSFDFE
 QLYNVTRLVVRNLNRVIDVNYYPVEKASRSNFRHRPVGLGVQGLADVFMLLKMPFESEVARNLNREIFECLYFAALSE
 SCALAEQSGPYETYPGSPVSKGILQFDMWAKDRVVLVSGRWDWDGLRQRIHTFGVRNSLLVAPMPTASTSQILGNNECF
 EPYTSNIYLRVLAGFPPVNNHLVRDLIRLNLWSEKMRSNIIASSGSIQNISGIPDSIKEIYKTAWEIKRIIVDYAADRG
 CFIDQSQSLNIFMASPNSKLSLHFYAWKLGKTMGYLRTPAADAIAKFTVDSSVVVSNVKNADSSNTAENPAA

>Andalucia_godoyi@prot_17

AIRSQWRIYQCLSKYKLSLVLVSAGFGFFSAGGSLLSVALPSLILGTGFQASSANTLNQLLEVQDSVMMRTRKRPLPT
 GAVSPRAALGYAIASAGVGSALLFAGTNLVTALLGVSTIVLYAGLYTPMKMMSKWNWTWIGAVVGAIPPVMGYVATQ
 ATSADAWAVLSTDPAPWILGAVLLFWQMPHFYAISWMCKKDYASAGYKMISVTDPASTGASLRNTLALFPVFAAV
 AVGMCDPWFAATSSIVNGYYTWKAWFSRQFGENAEESTRDQAARSLFKASIMHPLLLLALLVIHDNRKTKESAKND
 GEAKDPDE

>Andalucia_godoyi@prot_18

MFGAFSKKFTAKNERVAKVTFQVAGMDEAKQEVMEFVEFLKTPERFRKVGAKIPKGAILMGPPGTGKTLAKATAG
 ESGVPFFSISGDFMEMFVGVGPARDLDFKEARSQAPCIVIDEIDAIGKPRGRGGGFGGNDERENTLNQLLVEMDGF
 GENSGVVVLASTNVPLDGLDRALTRPGRFDRIHWDRPEKSERVQIFMVHLKGIKLNPEVSVDRIANRNLSELTPGFAGAEI
 ANVVNEGALIAARRSAAVLDLDFEAAIDRVVGGLEKRSVLSPEEKKIVAYHEAGHAVTGWFLSNCDPLLVKTVIVPR
 GVAALGYAQLPKEDFYIRTEQQLLDSLCMALGGRAAEKISFNHLSTGAQDDLRRVTDMAYNVVSQFGMARDDDH
 RLANLSFRRPQSGQMETQKPYSEDTAARIDHNKVSIVNAAAAKTENLLREKQYQYLVNVAEHLLEKLVHFDLLEKMLG
 PRPRPSASFPIIN

>Andalucia_godoyi@prot_21

MTIKLVLMGAPGSGKGTQAPKIKEEFCLCHLSTGDMRLRAAVAAGSALGQKVKATLESALVSDDLVDLIKDNHSTE
 CKNGFILDGFPRTVVQAQKLDLSDMLGADKLDVIELKANDELVIKRISGRLLHPASGRVYNFAFFNPPKSPMTDDVTEPLI
 VRKDDAEPVVRKRLEAFHAQTVPVLDYYHKKGILTTLDADQGVNKKVYSIQIKILNSCKNNQAKKHA

>Andalucia_godoyi@prot_24

DPAHAHTHTHATNNPMTGEVYSSRYHELLATRKRLPVYEHQSTVLSLVSQNRATVIVGETGSGKTTQIPQFLALDPQFL
 SSSPSVSPASPHFSNGAAAGPMCVACTQPRRVAAMSVA TRVAEEMDVELGTA VGYSVRFEDRSTPGVTRKLYLTDGM
 LLREAMFDPLLRLSRYSVIDEAHERTVATDILMGLLGLLFGSNGDANGKGRKAARPDRLRVVMSATLEARKFQYF
 GGAPLLSIPGRMFPVQVYAPEPVRDYFQEAVRTVLSIHRTEPVDGGDILLFLTGEDEIEDACRRLEGESGSLCLPLYS
 SLPPAQQQKVFRTGPGVRKVIVATNIAETSITIDGVVVFVDPGFVKQKIFNPRTRVESLQVTPISQAAADQRKGRAGRT
 RPKCYRMYTEASYASDLMPQSFPEILRTNLAMVVLQKKGIVDDLVHFDIDPPAPEVMMRALELHSLGALDDDCN
 LTHDGLLAEFLLDPQLSKMIVASPKFHCNSNEAVILASMLSVQPPFVRPKEKDREREADESHRDFQIAGESDHLTLLEVY
 TAYKSQPRSSVDVWCRRLYLNRSLRMAADDICTQLVRLMQLKRLPLLSPRDSRELYASVQKTVAHGFMMQVAHLERAG
 FWMVVKDNQPVLLHPSTISITYKPEWVYNEFVWTSQKYIRTVTAVSPEWLIEAAPHFVAVNEDEFPEGEAKRILARIWK
 KVHDKQLAAVTWIDRMLRLAFERYPIV

>Andalucia_godoyi@prot_25

MPALSPTMTKGNLARWRKKEGDKFKPGDILCEIETDKATLEFEMTESGYLAKILAVEGTQEVSVGSAIAVAVDSEAEIA
 GAKNYSNTASSASASASAPAPAPAPAPASSAAATAASTPASSIPSTVAASSNASAGDRVFASPYAKKIAGENNVN
 IAEVKLNSGPRIVSADVNAHLASRSSAAQETAGAASTASSISAAAGAGNVFTDVSLNAIRKRIAQRLFESKSTIPHYL
 TVEIEMDALLAVRSALNESLNSNLLKDKKAKLSVNDVFIKAASLANKLVEANSSWQGSFIRTFHNVDNTNIAIATPNGL
 VAPLIKGTDTKGLVDISSAVRELAADKAKDGKLSPEELQPGFTTISNLGMFGVSAIINPPQSCILAVGSAKKAVLVNE
 DAAKNSAERFREATVLNATLSCDHRVVDGAVGAQWLQHFKRLLNPSQMLL

>Andalucia_godoyi@prot_26

HPFLSEASNVIDGSVDTSEAYRKNYAYNHGLAQLTQQRIAHVKLGGDEKAREKHVERGKLLPRQRVELLLDPGSPFL
 ELSQMAAYNVNEDVPAAGIITGIGRIHGRECMMVANDATVKGTTYPLTVKKHVRAQEAHTNNLPCVYLVDSSGA
 NLPNQAEVFPDRDHGRIFFNQANMSSAGIPQIAVVMGSGTAGGAYVPAMADESVIVRKNGTIFLGGPPLVRAATGEV
 SAEDLGGADLHCRTSGVTDHYAYDDRHALYLARRIVSNLNTYGGQSGKKVDFMRRDSEAPLYDAAELYGVIPQDVRQP
 YDCKRIISRLVDGSRDFEFKAMYGDTLVTGFSKIYGMVPGIANNVLFSESVAVKGAHFIELCAQRRIPLFFLQNTIFMV
 GRKYEAGGIAKDGAALVMAVACAKVPKITLVTGGSFGAGNYGMCGRAYDPRFMYMWPNSRISVMGGEQAASVLAQ
 VKRDNIEKAGKQWTAEEEEAFKNPIREKEYEREGDPYYSARLWDDGVIDPAHTRQILGLSLACYNAPIEQTTFGVFRM

>Andalucia_godoyi@prot_32

DVQLEVREGQSLVALQGPFAHRYLKPILSATGAPALEKVSFLQSFITIPRLDKNARITVSRLGYTGEDGFEISVPDKFV
 NQFCQMLLDKALQDTSKVEWAGLGARDVLRLEAGLCLMGHDMNPEINPWEANLGLWIGKRRRQEKGFLGDAVLF

GEQAQPKQIRVGLVVDGMPAREGAVILGEGNGKITSGPCSPCAKLNIAMGYVDTKQAVAGTKLKVQVRNKELDAVVT
EMPFVPTRYRAPKE

>Andalucia_godoyi@prot_33

MWEALRKKPEVDVVVIGGGATGSGIALDASLRGLKTLLEADDFGCGSSSRSTKLVHGGVRYLEKAVKDLDMGQYH
LVREALAERGVLRIAPHLAEALPIMTPLYSWLEVPYVYAGLKVYDWLWLSGSASLHSSYYLSADEARKTFPALRAHDLK
GAVVYDQFNDSDRMNVSIALTAAAHGALVFNHMFVSDLLVREVATDGSKMFQRGGAKGAKNIVDFEKKPGDAGD
GGEAIVPKYRKEVSGVLRDPETNATLAVSAKVINAAGSFSSSIRNMDPTSATREEALSNAKEKSKERIGSVGIHVLD
KEYSPSTMGLIPKADGRVLFVLPWMGKTLAGTTDRPMKITDNPSPNEDVAYILEYINKYLDVSAGPKDVRSAWAG
VRPLAHLDEKSVVDGTANVSREHAIDVSAAGLVSITGGKWTYRRMAEESLDEALRVAGNKIAYPASCCTTKYQIIGA
HGYSVDLAGHLEKEHLEKEVARHLAQAYGDRAVEVLSMDPSGKRAKITSQALPALEAEVLYAVRKEWASNAIDVLCR
RTRVAFDRAGAMSADRVAIMGNELKWSASRRKEEAATRYSIATMTGLSD

>Andalucia_godoyi@prot_34

MLEVDWTAAGGWGAPRIVPYHNLSPASSSLHYALQCFEGLKAYVDDQNRQLRFRPEKNMERMISSCARLSLPTFDGK
ELLESKLLVLEKSWPKARGYSYLRPTCISTDTLGVGSPQAAKLFILSPVGPYKKEGFNPVRLFADDKNVRACVGG
TGGYKIGGNYGGTIPQKQAASKGFAQVWLYGDRQYVSEVGTMNFVWLKNEKGERELVAPLDDGTILPGVVRD
SILALARKEHADEMKVSERLFTIADLTKAIDEGRVEECFAGATAAIVSPVKGIHFAGKDYIVPIDEKLNAGKFTSLLANKI
MDIQYGRKPSVSVVQ

>Andalucia_godoyi@prot_35

ADGKEAAWNTGGSGNGSGSSERGPLSWKSAALQLGLMTIAGGGLYYWDQEKRQKATASSKVQSYGGVKIGGPFSL
DITMKRTVTEEDKGFALYFGFTMCPDVCPTMMDKLTAAVNRIEKRYGSGIVQPVFISVDPKRDSPERIKAYLADFHP
SFIGLTGTDYQIADVTKFRVYWSKPDSSAGDDYVVDHSIIMVYLHPSGFEIDYYGKNLNADEVYQKLTAHIEKYMDS
KK

>Andalucia_godoyi@prot_36

MISRRLFSTAVAAGSRVTLPFGDIGREISSALQKVFATAASVPVWDTYDVGAEAAERTGSLITKEALDSVLRGTGVL
KGPTATPIGKGHKSLNVTLRQTLDIYANVRPAKTIAAVPTRYEKVDIVVRENTEDLYAGQEAVIDGVSISLKIITEKAS
TRIAKYAFEYAVANGRKKVSAIHKANIMKLTDLGFLECCRKVAKEYPQITYDERIIDATCMMLVQDPTKFDVMVLPNL
YGDIVSDLAAGLIGLGLTASSNYGQKAVLFEAVHGTAPDIAGKDLANPSALLFSGAMMLRHLGLKTHADQIENAVLK
TLKGSVKTDLGGNSTCSEFTNHVIKLN

>Andalucia_godoyi@prot_37

MLLSRFLWPPTASAAATGTGTSPSPRKRFLVCSIIALLTSSKLVAVCIPLSLKYAIDSLSAAPTSTVTLTALAAVACY
GGLRILSSLFSELRSALFSRVSEHSSAVLLAASHAHLSTLPSPLAATSPALLFRTIERGVDGLSFLLSATALHLFPFLELS
LACIVLSSLLSPFYAIGALASVGIYGGFTLVWTKARTVIRRRMNEADNRATTAAMDSVTNYETVRYFNELLEKGRIG
ALLKAYQKEAIAAHESLAVLNFQGAVMALAVASMMGASVVGANGTCSVGDVVLVNGLLMQIAVPLGFLGSLYRE
IRQSIVDLEALIVLLKMEPAVAAQQQQWFLGGEKEETARIFATREMAESSNVTLSHLSFAYPSPSPSTSSSTSSNPSSSSS
SSSSSSAPSSSLPERMVLTDVTFVSVEAGTSVGVGPSGSGKSTLTRLLYGLLTPTSGDLLGSASLRTIDADSRRFVGV
VPQDIVLFDNLLHNILYGDAEYRQRRENGDACTTLGSLPAAMKDRLEDVLRARLLELVQRLPMGVESVVGGERGM
GLSGGERQVVAIARMLKADAPILVCEATSALDSATERAVMDALRDLAKNRTAVVIAHRLSTVVMCDKIVVLDQGRIV
EEGPHHELLANGGLYARLWKQHQHDLRPTVDKKHESF

>Andalucia_godoyi@prot_4

FRLLSRRLFSSNSFTPSDVLNRNTRNIGISAHIDSGKTLTERILFYTGRIHEIHEVKGDGKDVGAKMDSMDLEREKGITIQSA
ATYCTWKGQVNIIDTPGHVDFTEVERALRVLDAIMVLCGVSGVQSQSYTVDRQMRRYGVPRVAFVKNLDRQGS
PFRVTQQLRDKLKLNASLLQVPVGVVEENFRDIVDVIREQTMHFEGDRGEKLVSDTIPTVEVRVCKDIRQELVDRLDGID
DAIAEQILNEEHPSAEQIEAAIRRQTLALKFTPVFCGSFAKNGIQPLLDGVLKYLPSPEKAINALRITQGNDELGNPSTV
ETPITLSDPSLDCVALAFKLDGGRFQGLTYVRVYQGLTRRGDNLVNVSSGKFKVPRLVRMHSNEMEDVEELSSGEIG
AMFGVDCSTGDTFLSGNSAEKIAMSSMFVDPVMSLAVAPTCKDTASNFSKALQRFSKEDPTFRVSDPEAKTTMIAG
MGLHLEIYVERMKREYKCDVTTSAFYVAYREAITGKVTFDYTHKKQSGGAGQFGRVAGYVEPLPNAETKFEFVNGI
VGNAIPPAFFPAIEKGFREAVTKGPLIGHVPVWGRVVLTDGAAHSVDSNEMAFRMAAMGAFRSVFAATSGEARPVILE
PVMKVQVSAPVEFQGVVMGGLNRRKGTITNATTESDFVQIDCDVPLAAMFGYSTDLRSATQGGKGEFSMEYKQHSPPV
QSSQEELINEYKKKRDEAA

>Andalucia_godoyi@prot_5

MSNERVYDNETFLFTSESVTEGHPDKLDCQVSDAVLDACLAQDPNSKVACETASKTGMVMVFEITTSVLDYQKIVR
EAVKNIGFDSSDKGFYKTCNVLVAIEQQSPDIAQGVHVGKDEELGAGDQGMFGYATDETPPELMPLSHLLATKIAA
RLAEVRKNGTLPWLRPDGKTQVTVEYTKDAQTKALTPVRIHNILISTQHAPEVDNETIRAAIEHIIKVVVPAKYLDNET
IFHINPSGRFVIGGPDAGLTKRKIIVSYGGWAGHGGAFSGKDPKVDRSACYMARWIAKSVVASKLARRALIQLS
YAIQVADPLSINIETYGTNAIPEAKILEIHKNFNCRPYQIHKELNLRPIYSKTAAYGHFGRELPFTWEHPKQLNVE

>Andalucia_godoyi@prot_6

DFDFFSNDESARTRTSPWRRTRIICTIGPKTQSVDMKLQLLDSGMNCRNLNFSHGSHEYHQQTVDNIKIARQEANKICSIL
LDTKGEPIRTGNVDPSIEGGEFVLKKGQKLTVEAGKEAVKPKCTPERIAIDYENAVKRLKAGGSILINDGMLGLKLVLEFV
PDENRCVCEVMNTSVFSSKGVNLPGEVVDLPAMSEQDKLDIAFASKNWLVDYVAASFIRCADDVHAIRKLLSSDKERH
GHNVKIIAKIENQQGLDNFDEILAAADGIMVARGDLGVEIPFEKVCLAQKMMIAKCNAAAGKLVVTTATQMLETMIYSPY
PTRAEATDVANAVFDGTDVMSAETAKGAYPLEAVDRMARICAGAEAVFDNQGVFHS�HDRASKLQSLDEAIALS
AVKTDNDLGASLIVTYTNSGRARLVAKYRPSALVFCMTPFDRTARQILAYRGL

>Andalucia_godoyi@prot_7

MAAVPGYISDRVSIFERLWAEHEKEIAAAKERNVAITITLPGDSAKQGIKDVTTPEIAAQISKKLGQEAAILAHVVFEGDA
QAAPPADFDDATDTAGAAGAAGEKDAEAKGIEWDVQVPLPASCCKLTLFTYDSEEGKEVFWHSSSLLGAALAVYP
DVKLNRGPPLEDGGFFYEGGMSGVREEDFAKIEKYVEGFTAGRHPFQRLLVKKSDAVELFKYNNPYKMHILTRVAD
DGFCTVYRCGSFVDPCKGPHIPATNLVRAFVKVTKNASAYWLNDATKDSLQRVYGISFPQKMLKEWITFQEEAAKRD
HRKIGKDQELFFFHNLSPGSCFWLPHGGRIYDRMLDYIKGLYRVKGFDFLVVTPNVYVNDLWKQSGHWQNYQEHMFA
FEVEKEVFALKPMNCPGHCLMFAHRTRSWRELPIRFADGVLHRNEFSGALSGLTRVRRFQDDAHIFCMSSQITSEIRG
ALQFMKEYVYGFGLGFELRLSTRPAKFLGDVELWNRADQLREALGFEFGEPPVSNPGDGAFAFYGPKIDVTVLDALKRKH
QCATIQLDFQLPIRFNLEFQGESSVERPVMIHRAIFGVSVERFIAVLTEHTAGKWPFWVSPRQVILVPSVEHYLEYAMEINT
RLLEKGFVSTVDTTDRTLSSKVRQAQLSQHNFILVVGKEELEAKTVNVRTRDNVHVHGSKTIDDLVADFKQLCAEYK

>Andalucia_godoyi@prot_9

MLRFASSSVRRRGFASSSFWKYVEEGPLDANKATTVALKADPNPNKVNNGEGIYKDDTGKCPVLPICIREAEARLAKAN
ADHEYCPISGIPSFCKSASQFAFGADSSLFKENRIATVQTLSTGALRIGADFAKFLPKATPVFISDPTVWNHRLAFQTA

GCEVRTYKWDKAKNALDIDGCLKDLRNPALRSVILLHACAHNPTGIDPTMEQWKKISDACLERNHIVFFDNAYQGFA
SGDPDKDAAGFRHFQGHQLIVAQSFQAKNMGMYGERVAGALNIMTGSQETTAVDSQLKIIIRANYSSPPLFGARLVDM
VLSEPALKKQWVFDVKEMADRIALMRSSLVQNLGKAGSKLDWSHITNQIGMFAFSGLGEKQVMKLRSDFSVYMNKD
GRMSIAGINSRNVVEYLAKAIEVTRS

>Andalucia_godoyi@HsIVU

MKPKDIVAELDRFIVGQHEAKRAVAIALRNRWRRQQLTDKLAQEVSPKNILMIGPTGVGKTEIARRLARIAQAPFIKTE
ATKYTEVGFHGRDQIIRDLVDVSIQTRNLIKDQKPKIHKIERRILDKLVGEDASPATVDAFRKVLADGDLENREI
EIVVTEKVAQANPEPQGGMMNVNDLVVKKLGLAGPRMSKKLPIKDCRALLEEEELDKMLNHETVVRKAVRNVEENGI
VFLDEVKIVTKSEYRYGTDASSEGVQRDLPLIEGTTISTKYGNVKTDLHILFIASGAFHHVKPSDMLAELQGRPLIRVEL
KGLNQQDLYRVLTEPEFNLIKQQIALINSEVSLFTDDAIREIAAVAFEVNSTVENIGARRLATILERIMEDISFNASEYA
GQGMTVSKESVRQKVGDMLLKTDLSKFI

>Andalucia_godoyi@Hsp78

MIMLRVCKRAFFSVPKRPIASLAQPWLHACAGVPDVLAVRYAPVKGRRFYSQSPSGPNMNAWVSPDAQPAGANLK
KFTVDLTKAKDGILDPVIGRDEEIRRMIIQLSRRTKNNPVLIGSAGVGKTALAEGLATRIVDGLVPDSMKNKIVLSLDV
GSLVAGTSMRGEFEARLKGIKLDIEKDKQYILFIDELHLLVGAGQAEGGNMDAGNMLKPALARGEIRCVGATTLDEY
RYIEKDAALARRFQSVVVAEPTVEDAISLRGIKERVEVHHGVRIADGALVAAAQLSHRYITDRFLPDKAIDLIDEAAS
RLRLQQESKPEQVEAQEKKIIQLKIEREALRQESDKASKQRLTTLESDLAAREKEFNQLVGQWQAEKRKLEAKSFKQK
IEARRELDNAQRMGWTRVAELNYSVIPHFQQLAEELEQQQVAAASAGGRLVSVSTVAEDIAAVIARQTGIPVAS
MVQTERDKILHLEDTLRSQVVGQEEAIHAVANAIRLSRAGLKSASRPISNFMFVQSGTGKTLTVRAIAQALFNSADAM
TVINMAELGDPQLSAGSAGYVGYEGLLTPVRRRPPYQVVLDFEFKAHRNVQHVLLRIMDEGFTDGHGRK
VDFRNTLIVLTSNLGSEALAAAMPENTPRKQKDAVMEAVREHCAPEFINRIDEIILFNRLTMKDMHAITELRIKEVAANL
SDRGIGLKVDSLAKDWLSRRGFDPAYGARPLRRVLLQSSLLSPLAVKMLNGDVPEGSTVQVTCNPVTADVVLEQALQ
FTISPP

>Andalucia_godoyi@mHsp60

MLRRTVASNLRFATGKDIKYGVEARDLMLRGINKLADAVQITMGPGRNVIIIEQAYGSPKITKDGVTVAKNIEFRDRH
ENLGASLVRGVASKTNDAAAGDGTATVLTTRAIFFSEGCKAVAAGMNPMDIKRIGDKAVASVVAHLKSQSKSISKA
AQVATISANGDTAIGDLIATAMERVGKEGVITVSDGKTLVDELEVVEGKMFDRGRFISPYFINNPKTQKVEFENPLIFVTD
KLLSSLQSLGVLEEVVRMQRSLVIAEDVDAEALTTLVNKLRRGLKVAAVKAPGFGDNRKANLQDIAVLTGAQVLS
EEVGMKVEEANLGTCKKITISKDDTILNNGGDAQRERVEQIKDANLTTSEYEKEKLVQDMLAKLNGGVAVIV
GGASEVEVGEKKDRIIDALNATRAAVEEGIVAGGGSALLYASRELDKLQGENFDQGVGLKVRNIRVVPARTICDNAGH
EGAVVVQNILSHQGSFSYGFNAATGEYVDMIKNGIIPVKVVRTALSDAASVSSLLTTTECMIVDLPEEKTAAPAAGM
GGMGGMGGMGDMF

>Andalucia_godoyi@mHsp70

MFRASSRFISRTGLRPRVFSAAKSDIIGIDLTTNSCVAVMENGTNPRVIENAEGMRTTPSIVAFKTDGQRLVGGPQAKRQA
VTNPENTVYSAKRLIGRAFDDAEVQKEKKMVPFKISRHTNGDAWVEVMGKGYSPSQIGAFVLMKMKETAETYLQRPV
TQAVITVPAFYNDSSQRQATKDAGAIAGLEVLRINEPTAAALAYGLEKGSNKTVAVYDLGGGTFDISILEMGNVGFV
STNGDITLGGEDFDQTLMIYLNDFKQHQHIDLSGDRLAMQRLKEAAEKAKIELSSAMTNEINLPFITADASGPKHLM
SLTRAQFEKLSLMDRTVEPCQKALKDAKLSPADINEVLVGGMTRMPKVAEVVRKIFNREPKGVNPDVEVAVGA
AIQGGVLKGEVKDVLVLDVTPSLGIEITLGGVFTPLISRNTTIPTKKSQVFSTAADNQTQVSIKVLQGEREMAADNKVLA
QFDLIDLPPAPRGVPIEIVTEITPDSIVEVSARDKATGNVQKVVQIQSSGGLRKEEIERMREAESHKDADKKRKLVEV
KNEAESIIHTTEKNINQYKDKVDAAVVDGCRKAVAALREAMTKDDLEAVRQATTAVQQASMKIGEAFYKATGGSQST
GTAQEQQKNTMDAEFKKK

>Andalucia_godoyi@mr13

MSTSAFPRRTGLLATKIGMTAEWDANGTRVPLTVLRVPHAVSQQVKTEDTADGYTALQVGVTVGVSKHISKPVTHGL
AKAGIAPRGAIAEFRVTEGELLVPGSMLSVLHFVPGQAVDLRGVTTGKGFQGVGMKRWGFGGLAASHGVSVSHRSHGA
TGQRDPGRVFKGKKMAGHMGHEWRTIQNLRVYKVDPSRGLLYVKGVPDRAVVHVEDAIKNRDQLSLLPFPTRI
LADGEDLASMKPEVMSKILTTRIIQTQVRSAPKIPGQAKTAQKGTAEKK

>Andalucia_godoyi@mtif2

MFRLLSALVCSRFIGDVGISKPLLRVGGAAARFFASTGGFASRRGGPAASKNNNDDDGYDGPYHSGSKSNRVQKMK
SAATSKSSRSAPRHGHSSKREEVAPEKTVRIVDSMSIREFAVALGIRPKILLKNLTSNAKSQYYNQKVKEEDIMNPYEA
EIAMDMVMPIRAFATAAETLQGVSSSFTTKESPFSAHNVANGTSGAPAATHNQSSHGSSALSYGELLQKYNPVFTS
EQVSQFPLRAPVTVMGHVDHGKTSLLDALRNTNIVSHEAGGITQHIGAFRCSPDSAGGTYITFIDTPGHAAFSAMR
AKGAQCTDIVILVVAADDGVMPQTVVAISHAKAAKVPPIVAVNKIDKSGAEKNLSRVYQELMEHGLVPEYGGDTTV
LVSAKRLNLDKLLAEIDFQAEILNLKAPVQGRARGVLEARLHKSMGPIATVLRMGTLKVDVAVGAFGKVR
MRDPSASELLVSHAHAHQHDLAECSPSPVCSISGFKELPNAGDVMVVESEQEAEREIAERSKGAIEQRKQYQFDLSKL
SSVADGASESMQKKEIPCIVKADVSGSVEAVVAGALAKLNHPEITLKVHAGVGPVSASDIALSEACMADLPAVVIAFNV
RVLARSPGVVVRPYRVIYHLVDDMKQHLADFLDPRTEESILGKAAVLEIFNISKRTNAAAANANVQGRVLLVVGCKVV
DGMLWGGKADALYRIYRKGSLLAEGLRVTLKRFQDDVDKVAKGNCEGLLELDGSGIEPQRDDEVICVELKNVVR
TWDEDVVPQSAASVKEELVRKHR

>Andalucia_godoyi@nad10

MTVNNKAEFVVSQMDQLVNWARTGSLWPMTFGLACCAREMMHSAASRYDLDRFGIIFRPSRQSDVMIVAGTLTNK
MAPALRKVYDQMSEPRVVSMGSCANGGGYHYHSYSVVRGCDRTI

>Andalucia_godoyi@nad11

MVIVFVDGHQVNVEKGGSTILQACAQVGVVEIPRCYHERLSIAGNCRMCLVEVEKSAKPVASCAMPVMEGMKVFTNTN
LVKKAREGVLEFLINHPDLCPICDQGGEDLQDQAMAYGSDRGRFYEFKRGVDDKNIGPLVKTIMTRCIHCTRCIRFA
AEIAGVEDLGTVGRGRDTEVGTIYIEKAFQSELSGNVIDLCPVGALTSKPYAFTARSWELKSTESIDVLDALGNSRIDVR
GSEIMRILPRLNDDVNEEWISDKTRFAVDGLKRQRLTPMIRQNDQFIQVSWEDAFETIRKLSQSKVQAFAGDLADT
ESLVVLRDLFHLGTQKQVSLAIPHTLSPDLRVNYLANTTLAGLESDVCLLLGINPRFEATLVNTRLRKSVLLNQLSVY
SIGNEVDLTYPHTHLGNDAVFAQIVGGRHPFCQVLRKAKKPTLLIGKAFLETQSFSLVEELTRYLPLVQKDWNGVNV
HLHASSVGLSDVGYQSHSSDYFKNDSVQMTYLLGVDDAEFVRQVRQQSEFVVYQGHGVDVGLYADVILPGSAYTE
KTSLYVNLGRPQKTKLAFYPAGEARQDWKILRALSEYLVNSLPHYDDEAALEKRLSEIAPHLSSIGIKQAD

>Andalucia_godoyi@nad7

MNFGPQHPAAHGVRLVLELNGEVIQRADPHIGLLHRGTEKLIYKYTYLQALPYFDRLDYVSMMSQEQAYSLAVEKLL
QCQVPLRAQYIRVLFGEITRLLNHLAVTCHALDVGAMTPMLWGFEEKLMFEYERVSGARMHAAAYVRPGGVSQDL
PLGLCDDLFTFAEQFSSRLDEEMLTNNRIWRQLVDIGIVSLDEAMA WGFSGVMLRASGLPWDLRKHQPYDAYHLV

DFDVPVGTNGDCYDRYLIRVEEMRQSLRIIMQCLNQLPEGVVKVDDKKISPPSRSDMKQSMESLIHFFKLYSEGYSVPA
GETYTAIEAPKGEFVYLVSDGNGKPYRCKIKAPGFSHLQGLDMMSKGHMIADVVTIIGTQDIVFGEVDR

>Andalucia_godoyi@nad8

MKLMERSAHLVFLSELVRGLVVTLLQYFFKEKVTLYNYPHEKGVLSRFRGEHALRRYSTGEERCIACKLCEAICPAQAITI
EAEPREDGSRRTTRYDIDMTKCIYCGFCQACPVDAIVEGPNFEFATETHEELLYNKEKLENGDRWETEISANLSSEYL
YR

>Andalucia_godoyi@ndufv1

SLFSTAPPTAASTTPAAPAAPVKTGFGLDSEDRIFTNLYGERDVIYEGALKRGDWYRTKDLLSKGVDWILGEMK
ASGLRGRGGAGFPSGLKWSFMPKVS DGRPSYLVVNADESEPGTCKDREIMRHPHKLVEGCLVAGFAMRAKAAAYIYI
RGEFYNEALVLEKAVAEAYAKGFLGKNACGSGYDFDVIYHRGAGAYICGEETALIESLEGKQKPRKPPFPANVGLY
GCPTTVTNVETVAVSPTILRRGSSWFASFGRKNNAGTKLFAISGHVNRPCVVEEEMSIPLRELIEKHAGGVRGGWDLNL
AVIPGGSSVPLLPRKVCDDVLMDFDALRDVRSGLGTAAMVMMDKSTDVVKAIARLSKFYKHESCGQCTPCREGTGWL
MNLMDRMVAGNAEMEEIDMLEEVSRIEGHTICALGDAAPVQGLIRHFRPEMEARIRQYKTSQQATLSAKH

>Andalucia_godoyi@ndufv2

MHVDTDPDNNANTPFDFSPELYKRIDQILAKYPPNRKRSATLPLDLAQRQCGGWVPLAAMNKIAQLLEVAPIRVYEVA
DFYSMVNRKPVGKYHLQVCVTSPCMVKGSDLELHLEKHLGIHLGETTADGVFTLGEMECMGCCVNAPMIAVADYSN
PPEWRYDYEDLTTETAIVVEALRKGDKTLKIGPQNGRKNCEPQGGKTSLFGEPGPY

>Andalucia_godoyi@nsf1

MTRLFSPVIRSSSSLLSKRLLSTLSSSVVTTDEGRSIYLDLQATTPVDPRVLDAMIPLYTFQYGNPHSRTHMYGWETQ
DLVEQSRQVATLIGASPTDVVFTSGATESNNAKLAGFYGQKRRHIITQIEHKCVLDSRHLQKQGFVYTLVPSA
SGIVDLKLLKRSIQPDLTVSVMAVNNEIGAIQDMPAIGKLCRENKVFHVDAQAQVKGKIPVDVNEWNCDLMSISGHK
VYGPKGIGALYVRRKPRVRLPIIHGGGQERGLRSGTIPAPLVVGFGTACKVAKEEMTRDSAHTKLARRLYDGMTQRI
QHVQLNGPPLGDPMPRYCGNVNLSFSFVEGESLLMALRGIAVSSGSACTSASLEPSYVLRALGVEEELAHTSIRFGRFT
TEREVDFAIACAGQVDRLRQMSPLWEMVQEGIDLKSIQWSGH

>Andalucia_godoyi@odpA

MPATALAEPSTTVTTSRDELFTFLRMTSLIRRVEIVSDQOYKARMIRGFCHLYSGEEAICTGMEALDQSRDAMITAYR
DHGNHIVRGGSAEEVFAELFGRATGMSKGGKSMHFYNACKLFFGGNGIVGAQCPVAGLAFGAQRLGTGGVSVSC
YGDGAANQGGQIFEAMNMAALWKLPAIFVCENNQYGMGTSTRRGSADDNYYSRGHYIPGIKVDGMNVLAVKEATRVA
REYAVNHGPIVMEMSTYRYSGHSMSPGVSYRTRDEVQKVRERDPIERLKGIMLEAKAATEADLEAVEKEIKIQVDE
ALAKALAAPEPEPSQLTADIYVGKYEGETIRMVEKS

>Andalucia_godoyi@odpB

MSILSRRVSSFFLRRSFSSAPASPTATITVRDALNQAALDEELSRDPRVFMGEEVARYNGAYKITKGLHDKYGDSRIIDT
PITEAGFAGITVGAALMGMRPVCEFMTFNFSMQAIDHIVNSAAKARYMSGGQLGAPIVFRGPNSSAAGVGAQHSQCF
AWYGSVPGLKVLSPFNALDARGLLKAIRDDNPVVFLENELMYGTAFARTPEFDDVDFTLPIGKANVEREGSHVTVA
HSRAVHTALEAAKLLAEKDGISVEVINLRSIRPLDIPTVIASVKKTNRLVTVVEGWPLFGVGAIEVAQIMESPADFLLDAP
IERITGADIMPYAKNLEAMA VPPQPNVNAVKRTLGLK

>Andalucia_godoyi@PCCB

MFRFSPFLRSAGAHRAVAFPERLATIRSTAQLGGGQARIDTQHSKGLTARERLQVLLDPPSFRETDALALHRCDFGM
DKQKFYGDVSVTGSHTIHRVYVFSQDFTVFGGSLSAVHAEKICKIMDAAVKVGAPVIGINDSGGARIQEGVDSL
ADVFQRNVLSSGVVPLSLITGPCAGGAVVSPALDFVLMRSGTSMFVTGPDVVKVTGETVTQEELGGASTHTAKS
GVAHAADFNEFELLTATRELLSYLSSNKDQPPVVPSTDPWNRSCDALRFAVPDDPNASYNMKDVISQVVDNRNSIFEIM
PDFARNMITAFARIEGKTVGIVANMQPELAGTLDIDSSVKGARVRFCDAFNIPVTFVDVPGFLPTAQQYGGIIRHGAK
LLYAYAEATVPKVTVITRKYGGAYDVMSKHLRGDSNYAWPSAEIAMGAKGAVEIIFRGKNVEEETANYTERFAN
PLKAAERGFIDDIAPEDTRKRIAEDLRGLRARKDVKNLCKRHGNIPL

>Andalucia_godoyi@sdh1

MGLAQKGYDVACISKLFPTRSHTVAAQGGINAALGNMGRDDWRYHMYDTPVKGSDWLGDDAIHYMCKEAPSTVRE
LEHMGVFPFRTDEGKIYQRPFGGQSLDYKGGQAQRCAAAADRTGHAILHTMYGQALKYNTKFFIEYFALDLLMDQD
GACRGLVAMCMEDGSIHRFRANETILATGGYGRAFYFCTSAHTCTGDGNAMVSRAGLPLSDLEFVQFHPTGIYAGCL
ITEGSRGEGGFLNGLGERFMERYAPTAKDLASRDVVSRA MPTVEILEGRGVGPNKD HILLQLSHLPAEVLRLRPLGISE
AAIFAGVDVTKPIPLVPTVHYNMGGIPIWTGEAVTMKNGNPSIIPGLMAAGEASCASVHGANRLGANSLLDIVVFG
RACADTVERKHKPGDKQAPLPADAGMQSLENLDRLRHSNGKYTVAEVRTSMQKTMQNHA AVFRRQDLLEEGVRKM
YDIYGLDQHVRLRDRSMTYNTDLIEALELQNLMINAVQTMVGAERKESRGAHARDDFKERDDATWMKHTMSWVD
LQTGKVKLGYRPHVNVNLDTDGVPFPQKRVY

>Andalucia_godoyi@sdh2

MTKMMHFQIYRWDPEKNEKPYLATYPIHLNECGPMVLDALIKIKNEQDSTLTFRRSREGICGSCAMNIDGTNSLACK
RIDTTQSSMKIYPLPHMYVVKDLVPDLSNFYAQHSIEPVMKKKTELHDSIEMHQTKDQRAHLDGLYECILACCSSSC
PSYWWNSDKYLGPAILLQAYRWIHDRDDFTKERLSNLEDPFKLYRCHTIMNCARTCPKHLNPGKAIKIKKSISLFS

>Andalucia_godoyi@SUCLG1

MLSSVTRRFHSSAKVFNAKTKVICQGFQTKQGTFFHSQQALEYGTRMVGVTGPKGGSTHLGLPVFNVM DARKATD
CDASVIYVPPPYAAAAIEEVA AAEVPLVVCITEGIPQHD MVRVKS VLRDAGGRTRLIGPNCPGIKPGECKIGIMPGYIHK
KGRIGVSRSGTLTYEAVAQTTAAGLGQSTCVGIGGDPFNGT NFDVLD RFLVDPETE GIIMIGEIGGQAE EEAQFLIDK
KNTKPVVGFIAGTAPPGRRMGHAGAVISGGKGD AQTMRALRDAGIEVVNSPAQMGRAMKQLFEKKGML

>Andalucia_godoyi@tufA

MAAKQKFERNKPHCNIGTIGHVDHGKTSLTAATKVLAE TGGALYTPYDQIDKAPEEKARGITINSSHVEYETVNRHYA
HIDCPGHADYVKNMGTGAAQMDGAILVVSAAADGMPQTR E HILLARQVGVPSLVVFLNKVDMVTDPEMLEI VELEIRE
LLDSYEYPGETPIIRGSALMALEGNPELGRNAILKLMETVDQYIPLPNRPVLDL PFLMPVEDVFSISGRGTVA TGRIEQG
TVKVGEEVEILGLGKNTKTTCTGIEMFRKLLDSSQAGDNVGLLLRGLKREIIRGQVICKPGSIKPSYKFEAQVYVLSKE
EGGRHTAFLSNYRQPFYFR TADITGNIQLPEGVQMVMPGDNVKVVLDIAPVAMVEGLRFAIREGGRTV GAGVVS KLIS

>Andalucia_godoyi@TypA

MMTTTTMTIMAAVGSASRRCFSSSVVRDISKIRNLSIIAHVDHGKTSLVDCLLKESLSQRSGSTESERVMDSNQLEKERGI
TILAKATELTFNGYTFNICDTPGHADFGGEVERSLSMVDGVALVDATEGPM AQTKFVLKALQAGKLPV VINKVD
RPTARVGGPVENEIFDLFCQLDANDEQLDYVLYASARQGWCR TDWKDESVDVTAFFAAA VKRFPSPNDPTAAAFQ
MLVSQLESNSYFGKCLLGRVQSGTVKVGQRIHSIAPNGDIVEDNRIMKILKRRQGM TQIAVDEAVAGDIVSIAGLPKSTV
NSTLADLSIVDPPIPIDPPTISMMAFVNDSP LSGKDAKSKVSTMIRERLEKEVESNIALNLTISPNGEAFVVRGRGELQ
LGILIETMRREGFEMSIYPPKCLFKDDGSEPIEEAVIDVEADYAGTVIEKLT LRKLGELKDYTT HQRSRLPF

>Andalucia_godoyi@Coq7
 VSRLLRVDMAGEIGA VYICRGQLA VL RDSAARSTVSHILSQEQTHLSAFEELVRAKRARPSVLNPLWKRLAFGIGVVTA
 ALGPQAAMACHEAVETVIASHYNDQLRELHRMDATSTTRTQSLNEDAGEGVGELRETVRRFRDEEEAHRELGTAGG
 AASAPMY PILSNVIRAGCKIAIQIAQKL

>Andalucia_godoyi@ETFDH
 MFRIFSNPVKIKISCSAVSKRFLALAPNVDREVMFEFDVLIVGAGPAGLATALRLKQLDSNLNVCVIEKGAEIGAHTLSGA
 CIEMQAMNELIPDWKSLGAPIHQEAKNDYFVWLLNDKXHVRLPTPPMQNHGNYIVSLGAVVQWLKQCEDAGVDV
 FPGFAAADVIVEDGQLRGVITSDSGIAKDGTVKDSFAPGVQLRARQTVLGEGRGSLTKNLDFKFLRKNADPQTYGL
 GVKEVWEVVPKFEAGKIVHTVWGPMDMKTGGSWLYHWENNKVS LGFVVGLDYENTYLSPFQELQRWKKHPFIQS
 LLEGRCISYGARTISEGGLQSLPKVSFPGGVLVGDSAGFVNVPKIKGTHNAMKSGMLAAEAVEAFNSGSSEATSYD
 RLKNSVWVEDLHKVRNIRPAFQWGLPALAYSAVDTYLFRGRAPWTLHMKHADHECTKPAEACEKIAYPKPDGVISF
 DLLTQLARSGTNHEHDQPAHLTLKDPAPVQKVNLPVYDGPESRFPKAVYEVYEGRLVINAQNCLHCKACDIKDPTQN
 INWVVEGSGGPAYAAQM

>Andalucia_godoyi@ndufaf9
 MSHLTRGVVGRGGRSSVSGITATVFGATGFLGRYVVRNLGKMGSRVIVPFRGDEQGYRHLKLMGDLGQIVPVKYDPL
 DPASIRNVLSRNLVISLVGASRNAHSSLDANVRLPEEIAIQAKQSGNVQRLVHVSALGASYDAESLFLRLKKGEDA
 VRGSFDGATVIRPAAMYGVEDEFNSMAAAPKILGGFTPVWTQGHLLQPVVWGDVAQGHASVEDSAAGKVEEAA
 GLEALSRIALMKRVFNWIGRPTDKIVPIPDVVDAALFSIKYLPRRYAPVTTEEIEYMRSNVVASKDALSLRDLGVAQ
 APIEIAHQFLAMTYKRGGVFFDPELQK

>Andalucia_godoyi@ndufaf5
 MSQAALDRAVRVMQDEQLLPASKEIVSRLVDRLEDISRAFPKVLNLGGPADLVAPALAGSRSSVAEAVSTDMSQAALD
 RAVRVMQDEQLLPASFHSTLVVDEESLPFEENTFDAVLSPLCLHWVNDIPGSLIQUIERSLKPDPGLFLGAMLGGDTLKL
 RISLTLAQQERESGLAA YISPMAGFRDAGNLLSRAAFSLPGVDVDTITVPYPAFTLMQHLWFMEESNISKHRRGFISRD
 TLMSAAAIYQSMFGNPEAAEGEEVLATFQVMYLIGWKFDASQPHAKRRGTAQVSMQELAKGLGSKIGEVH

>Andalucia_godoyi@NifU
 MFIQTEVTPNDLAKFKPGREVMGKRGRSNYSSPLETFNSLLAKRFLAIDGVHVSFLGPDFVTITKPKDATWATMKPDV
 YASIMDFFNANIPHADDVEQPRDTAAQEGDSEVLLIKELLETRIRPVVQEDGGDIEYRGEAGIVKLVGACSTCSS
 SATLKHGIENMLMHIPEVVAEVPVVDKEEAAGNKAFFDFEKSQNK

>Andalucia_godoyi@PCCA
 MFRTLDFSRFFSSDNLFGKILIANRGEIACRVIKTCRKLGI RTVA VYSEADGRSKHVRLADEAVCIGPAASKLSYLNMD
 AIVAACETTGAEA VHPGYGFLSENNHFASKLDSRKAIFIGPPASAIAMGDKINSKIAKRAGVNTIPGFLGEVATPQDV
 LRISNEIGYVMIKASAGGGGKGMRIAFNDKEALDGFRLSKEEAAASFGDDRMLIEKFVEQPRHIEIQVIGDKLGNLTL
 PERECIQRNRQKVLLEAPSPFLDPATRKAMGEQAVMLAKAVGYYSAGTVEMLVDAKKNFYFLEMNTRLQVEHPVTE
 MITGLDLVEEMIRCAAGKLSRTTQDQVINGWAMEARVYAEDPARNFLPSIGTLKTYVEPVGPGIRCDSGITEGAEISV
 HYDPMICKLITHGKNREESIDILRAALDQYVIQGVTHNIPFLRDVMDHKRYKDGRIIDTKFIEVEYPPGFKGHVLTVEVAQ
 EISKAAAVVEFLREENRYSAFSSGVSHEPSSDQYVSVVDSGLPAAVVKVSRCSRTGNLLVNDKPSNAKWLIDSVFYQ
 DGDVTLQVLERHVTGGSVIQVMAQTRVYELDVKRSVAVKDLFVHMVVISKPDLSKMLVSPMPGTVIQVAVKPGDKVVIQ
 EIVVVEAMKMRNLLRSPVDGIVKEIRCKAGKSVKVEEILVEFE

>Andalucia_godoyi@PET112
 MKAQSIKALDKTRFGVVKWDVVIGIEVHAQILSRKTLFSRSPSVTSAANENVSLFDAAIPGTLPRTNMHCVFQGIRTA
 NVMNSVQPIKDRKHIFADLPYQITQFMPLSRGGALMIGAGDSRKRIGIERIQLEQDSGQSLHDEHPHFSFINLRA
 GCGLMEIIEPGLIACASEAVEYVKKLQYLLRHAGTCDGSMENSLRADVNVSVRSAGSSALGTRCEIKNLNSFRSIRAI
 EAEARQIELLESKGTVDQATMAFDVASGQTRVLRSKENAPDYRYPMPDPLPLRITEGVLEAALRDAAEHPETQISRL
 RSTFGLSTYDVEVLMTDPATVHFFETCMQLGPKRDPKDISGSPVSPENLGNLIDAVEDRVVSGKTGKGMMLDMVSGD
 TRSVKEMISSGNLRISFEPERVAEYLRSLIKDHPAEVSEYKAGRTRVFGFFVGSAMRQFKGKVDPHLVNSLARELLEES

>Andalucia_godoyi@UQCRC1
 MSSANLPSHILRYPSTKMTLPSGLRVATQERHGNTASLGWIDTGSRFENANNNGVAHFLEHVLFKGTASRPQAAL
 EIESLGAHLNAYTSREMTAFYARAFANDVPKAVDIIADILQRSASEAAVDAERQVILREKQEVENNHYEAVFDHLHAV
 AFQGSLLARNILGNEKNIRNMKRDDIVNYVNAFYTAPRMVVAAGNIQHEKIVELVSRAFEKVPTVSGSPLLDASGHA
 SAGKVRVFGADVRVRNDEMHEAHVAIGFEGASVWNPDSVPLMVAQTMGLGWSRASAAGANMGSKLVQALVADDL
 VSHVSAFNTCYKDTGLFGVYVVGKPGRLDDVAYEVMHELTRMCMKTTEEDVERAKAQLKAQAMMALDDNAAVCD
 DIGREVLA YGRRISPAEMFALIDNVDAKVLRETMMKYVYDQEVSLAAIGPTESPLDNRFRRLTYMLRY

>Andalucia_godoyi@UQCRC1
 ETEAETDKTTGGQHEHGVLEQEEADDQNDAAVRRSFSGSSIQARSFSTEPVALYPASETRNAGYNPADYHVHVVGH
 AHSQDPSKRALSYAVLTGGRFVYASMIRLLALKFIYSMSASADVLALASLEVDISGIAVQAVTVKWRGKPVFIRHRTA
 AEIEEARRENSVPMRDQKDEDVQRPEWLVLVGVCTHLGCVPINNAGDHNGWFCPCGHSHYDISGRIRKGPAPLNLE
 VPEYKFTTDTTIVVG

>Goniomonas_avonlea@atp1
 MAISASELTSILEARIKNYASKIDLKEVGTVVSVGDGIARVYGLDKIQAGEMVEFAASGIKGMALNLENDNVGVVIFGD
 DSSIKEGDLVNRTRFIVDVPVGESLLGRVVDPLGQPIDGRGPLTSAATTISRRRVELKAPGHPQSVNEPMQTGLKSVDSL
 PIGRGQRELIIGDRQTGKTAVIDTINQKTINANASTASGRLYCVYVAIGQKRSTVAQIVNLLDRNAALSITYIIVAA
 DPAPLQFLAPFSGCTMGEFFRDNGMHCLIIYDDLKQAVAYRQMSLLLRPPGREAYPGDVVFLYHSRLLERAAMNDK
 LQGGSLTALPIIETQAGDVSAIYPTNVISITDQFLFETELFYRGIRPAMNVGISVSRVGSAAQVKAQKQIAGKLELAQ
 YREVAFAAQFGSDLDASTLHLLGRGARTELLKQSQFPLAVEEQVFLVYAGVVRGFLDALDLKIKDYETELAEIRSE
 HSFNNGHALLTLVGEELAISESTEKDLWEFFSWFTSKFSGRKQS

>Goniomonas_avonlea@atp2
 SRSALRASQKALKLNASVVATRPSRGMEEAASGTAKPAAAGVKNKGRITQIIGAVVDVQFEAGLPKILDALVQDSELRI
 VLEVAQHLGESTVRTVAMESTEGLTRGQAVIDTGEPIPIVPEGLGRIINVI GEPIDERGPVITRMKYPIHRAAPLFEQS
 VEQEILVTGKVVDDLAPYAKGGKIGLFGGAGVGTVLIMELINNAKAHGGFVSFAGVGERETREGNDLYHEMITSV
 QLGEKSSKAALVYQGMNEPPGARARVGLTGLAVAEYFRDEEGQDVLFDINFRFTQACSEVSALLGRIPSAVGYQPT
 LATDLGALQERITTTKKSITSVQAIYVPADDLTDPAPATFAHLDATTVLSRGAELGIYPAVDPLDSTSRMLDPRIVGD
 EHYNMQVQKILQDYKQNLQDIIAILGMDLSEEDRMTVARARKIQRFLLSQPFHVAEIFTGSPGKVFVLEDITIKGFTSIVQ
 GAYDDL PENAFYMGDINEVTOKAEMEAAELANKRT

>Goniomonas_avonlea@atp3

MLGIVGRNSLQGSRALALTRVVPQVPRDRGMAANAKVLKARLKTIGSIKRITSTMKMVAASKLRGFQTRMEQSRPLQQS
IASVFDRIPEAEV AEGAAAAKPDGAHLIIGMASDRGLCGGINSIVKAIIRITKDNVEVEKKIVTVGDKPRALTRTHGK
MFQFVNEVSKAPPTFLVAALLAEELNQIEYASCTLVYNNKFISAIAIYETTEIEMGTPAGLLARLPKFGQEYEFEGEDTNIM
SDLIQMRIA VQLFNMSLESATCEQSARMAAMDGASKNCGEMIDKLTVMNRRARQAAITTELCEIVAGAEIAAS
>Goniomonas_avonlea@cox11
RSKNKAGAA YAVAVVVAVGGLSYAAVPLYRFLCAKTGYAGTVKTDVDYSARAKPVSDSRLLVRFASQVSEGMPPWR
FWPQQSEVYVQPGEAALAFYKAQNL TDEPIGVSTYNVMPDQAGNYFNKIQCFCFEEQRLNPHE TVDMPVFFFDPDFL
EDPLLSGVDATLSYTFKATDTERIHEQLAQQAQPHVLKLLAKHSLDAKAQADA
>Goniomonas_avonlea@cytc1
MASRLANAARAAVSRVPSAGGYATLAAAAGAAAAGTTLAFSDDALHFVNQPVSHSGPFEAFDTASIRRGYQVFSEVC
ASCHGLKLIAYRNLVGTICTEAKAKELAAEKEYTDGPDDQGMFERPGLSDYIKSPYPNSEAAKAANNGAEPDLSLI
TKGRHGGADYIFALLTGYREPPGVTVGEGQHYNYPFPGGKLAMPPPLICSGQVEYEDGTEASLSQMAKDCSTFLAWC
AEPEQDVRKQMGIKVAALLFAMAGAGYYKFRFRWSPKRNKRLFFH
>Goniomonas_avonlea@DLDH
MLRISRHTAFLSLRRTTGLRAFAAAAAGGKQDVVVVGGGPGGYVAAIKAAQLGLKVTCVEKRGALGGTCLNVGCIPSKA
LLHSSDMFEASQKDFKHHGIIVDGVKIDLNAMMAQKDGAVKGLTTGIEGLFKKNKVITYAKGYGRLSGPNTVEVTKAD
GTTESIDTKNIIAAGSEPVLPFLKYDEKVICSN TGILALDKVPKLLIVIGAGVIGLEMGSVWRRLGAEVEVVEFMDGVT
PGVDREIANNFHKLLVKQGLKFLHSTKVTA AEIRADGATLTV EPAAGGPAKKMEADVVLAVGRRARTE DLGLEALGI
ELDKAKRVIDDHFRTKLPNVY AIGDCVRGAMLAHKA EDEGVAVAEILAGKPGHVNYDAIPXXXXXXXXXXXXXXXXXX
XX
ARTCHAHP TLSEAVKEAAMACYDKPIHF
>Goniomonas_avonlea@DLST
KSTALPTRFSVNTIALRTFAVKVIPVPSMGESITEGSISAWLKEVGDQVEVDEVVCEVATDKVNVEIRSPDAGVIKELFA
DIDTVEVSGKLFSLDVGATGGKKKEAAPAPEPKVETTP EAPKQAPAPPKEAPKKEAPPSTKEAPKPAQPPVSFS
ERATEFRVAMTRMRKRIAERLKASQTTAATLTTFN EIDMHTIMAMRRTKYKDEFEKQHGVKLGFM SAFVKAASNALLAA
PQINAVIDGDDVFRNYVDISVAVSSPTGLVVPVLRNVHEMSFVDIERAIAEYGEKAKKGTAL EMDMAGGTFTVSNNG
VFGSLLSTPIINQPQSAVMGMHAVNQKPWV
>Goniomonas_avonlea@etfB
MRLLVGVKRVVDYSVKVRVKADKTGVD TNNVKMSMNPFCIEAVEEA VRMKDQKLASEVVAVTIGPTQSQETLRTAM
AMGADRGVHIKCDQELQPLTVAKLLKAVAEKEK PDMVLLGKQAI DDDANQTGQMLSALLGWSQGSFASKVTATKES
LEVREIDGGTETLSLKMPAVVTADLRLNEPRYATLPNIMKARKKPVETMSPEDLGVSIDTKLKT VSVAEPPTRQAGA
MVADVNELVAKIKAAGFA
>Goniomonas_avonlea@grpE
MMKRHLLCATGRVLAASRTAAGSRRAPINAASIWA TRARPALHARSFAEEAAAAA APEQPAEPVEEPVKDEKDARIE
QLEKETKDLQDKCLRTMAESENMRTRSMKNVDDAKKFALQKFATSLLEVADNLGMALASVPEQDRKQDQKLNAFLE
GIEGTDRLHLKILSAHGVT RVWPLNEKFDPHKHEALFEMPKTGEAEPGTCGQVVKAGYCLNDRLLRPAQVGVVQEA
>Goniomonas_avonlea@prot_10
MAEEVETFAFQAEINQLLSLIINTFYSNKEIFLRELISNSSDALDKIRYQSLTDKSVLESQPDFFIHIQPDKTNNTLSITDSGI
GMTKSDLVNNLGTIAQSGTKAFMEAVSAGADVSMIGQFVGVFYSAYLVAEQVTVTSKHCDDEQYIWESSAGGSFTVR
RDTQSEQLGRGTRITLTKEDQLEYLEERRL KDLVKKHSEFINYPISLVWEKTT EKEVSDDDPEAEAEKPEGDEPKIEEV
DEESEKKEKTKKIKEVSHWEMV NKQKPIWTRPPEEVTKEEYTA FYKYSISNDWEDHLAVKHFSVEGQLEFRSVL FVP
KRAPFDMFKKRNKRIALYVRRVFMNDNCEELCP EYLSFIKIGVDEIDLPLNISRESLQQNKILK VIRKNVVKKCLEMF
AEIAENAEDYKTYEQFSKNLKLGIHEDTANRAKLA ELLRFHSTKSGEDQTS LKDYVSRMQENQKV IYIYITGESKKAL
ENAPFLEALRKRNLVLLMVDPIDEY MVQQLKEYDGK KLT SVTKEGLQLDDSEEEKRKEEVKARTEGLCKLIKETLG
DKVEKVVVSDRIVDPCVLVTGEFGWSANMERIMRA QALRDSASQMYMVSKTMEINPDHAIIR ELVVKADQAKGDK
TVKDLVLLFETSLLTSGFALDDPNQFAGRLHRMIK LGLSIDEGDDEDDGGDIPPLEEDDATATAGGGMMEEVD
>Goniomonas_avonlea@prot_13
MQTAREFLKFVDSSPTAFHAVEEVRKVLVSSGFNLLREDEPWDLKNGSSYFTRNQSTIVAF TVGKEYRPGNGFKILAG
HTDSPHFVKPKSLIKEKSGYNQIGVECYGGGLWHTWFDRLTLA GRAVVQTGPSKFEHKL MHIKRPILRIPSLAIHLD
REANEAFKFNKEEQRLRPV FATSIKSSLESPA VAEGRHHPA VLA AIAEELGCKPEDV RDFELGVVDCQPAIAGLHNEFI
LAPRLDNLMSCFVCLNGLIASNTPASLADDVDRMVAF FDDHEEIGSSSAQGAASSLLRHTMSRITATSAGGAARPD IHE
CAISKSFLVSMDMAHAIHPCYSGKHEENHAPAIHKGMV IKTNQNRQYATNAVTA FALREVARRLDIPLQDFVVRNDTA
CGSTIGPILAHNCGMRTIDVGPQLSMHSIREQC GIDDVESSTKLVTGFLQMFREIDDSLRVD
>Goniomonas_avonlea@prot_15
MYVIKRDGRRESVKFDKVTARIERLCYGLDPNFVQPVEVAMKVVS GIYDGVSTSQLDSLAAETAASMTTKHPDYAQL
AARVAISNLHKNTLKSFGTMMKMLYQYEDPKTGENASLI AKDVWKVIQKNAALLDSTIHYDRDYGYDYFGYK TLEKSY
LLKLNKGKIVERPQHMLMRVAVGIHG EADK VLETYELLSDRWFTHATPTL FNAGTPK PQLSSCFLLTMKDDSIDGIYDT
LKQCAKISQSAGGIGLSIHNVRAKGSYIKGTNGTSNGIVPMLRVYNDTARYVDQGGGKRKGSFAIYLEPWHADIDDFLD
LRKNHGKDEMRARDLFYAMWISDLFMKRVEADA EWSLFCPHECPGLADAYGDDFEKLYEKFESGKARKQVKAQQL
WFKILESQIETGTPYILYKDACNKKSNQKNLGTIKSSNLCTEII EFTSPDEVAVCNLASIALPKYVEMDDFGNGIKFDHQK
LYEITKVVTRNLNKIIDVNYYPVKEAENS NRHRPIGIGIQLADTFIHLRMPFDSAE AQQLNKEIFETIYFASMETS MEL
AIEEGTYETWEGSPISKGIFQFDMWDVKPESNRWDWEDLRKKVIKNGVRNSLL LAPMPTASTSQILGNNECFEPYTSNI
YSRRVLSGFEFAIVNKHLLRDLVKINMWNEG MKNKLIANGSGVQHIDEIPIQTLKDL YKTSWEIKQKVIIIDMAADRGA YIC
QSQSMNIFMQDPNFGKLTSMHFYA WKAGLKTGMYYLRTKAAVDAVKFTVDKQALQQT KPTTEKINEKPLDYKEYAV
KNEELAKAASSFVEMSEEEQKFAA
>Goniomonas_avonlea@prot_17
LQHWGGIYFELGKGRLSALVACTGATG FVLGSAGMPMDWGNFVLLAGTYLSACA ANGINQWREIHNDLSMERTAN
RPLPSGRITPNHALTAALVAATSGAGLLAVQINPLCAGLCVLNLGIYTM IYTPMKQTSHLNTWAGAVVGAIPPLMGWA
AATGSLPPAAPFLAALLFSWQLPHFMALAHMLRSDYLAGGYQMLPSFDTPKTANVILRNSLYLFP IAASFPLLGVCXAS
ALSMGFVYLAI RFRNSHKDEDAKKVFLFSLMYLP AVMAAMMFHRTSTEEAVHD
>Goniomonas_avonlea@prot_18
DGTREGAAASATPSYYSFISGSVESFERKIEESQRQLGVDPDRDYVPITYASQTSWGGELLRLVPALLMVGIALLMRSMS
GGAAGGGRNIFQIGKAKPTIIRPDMNVNTTFKDVAGLDEAKIEIMEFVEFLRAPERFRKLGAKIPK GALLVGPPTGKT L
MARAVAGEANVFFSISGSDFIEMFVGVGPSRVRDLFQQARQNAPCIIFIDEIDA VGRARGKGGFSGGNDERENTLNQM
LVEMDGFNPTSGVVLAGTNRADVLDPALLRPRGRFDRQVSIDKPIDKGRFQIFKVHLKLNKLLADDDLEEVARRMSSLTP

GFSGADIANVCNESALVAARRAKEAVDISDFEAATERVIGGMEKKSIMSLERRTVAFHEAGHAIAGWFLHADPLL
 KVSIVPRGVAALGYNQFLPRELSLYSEPMDDMMCMALGGRVAEELCFDGVVTTGASDDLNRVTKIAVQQVAIYGM
 NKKVGLLSYQEGYNQFTKPYSEATAALIDSEVRDLNRAERYTKELLTSKREFLDRVGNHLLERETMTHDDVQLLG
 PRPFPMSPSYAEFVRSQSEWADRAAAAHKELMDTAAKLKAAADDVAASAAKKAADKKPEVQSQDKDESQDKKKE
 >Goniomonas_avonlea@prot_24
 MTDKRKRKIDLEDDAAQKRRTEPAINFLTGRPYSKHYFDLLATRKNLPVNDFKQGFDIAVNKNQTTVLVGETGSGKTT
 QMPQFLVEAGYIRDKMMVACTQPRRVAAMSVAKRVAEMDVTLGEEVGYTIRFEDMTSPKTVLKYMTDGMMLREA
 MTDPLLERYSAVLLDEAHERTVATDVLFLIKEVAKQRPDLRLVMSATLDAGKFQQYFEGAPRVDPVGRMFPVEIFY
 TQEPERDYLEAAIRTVVQLHLCEPAGDILLFLTGEEIEQACKQIEKECAQAGPEVGPVKCWPLYSSLPQAQQRVFDAA
 PSPRTPDGPGRKIVVSTNIAETSLTIDGIVYVDPGFSKQKQVYNPRIRVESLLVTAISKASANQRAGRAGRTRPGKCFRL
 YTSKAFNKELQEQTPEMLRSNLGSSVVLTKKLGIEDLVHFDMDPPAPETLMRALELLNYLGALDDEGEMTEMGAM
 MAEFPLDPQLAKLLVDSPKYKCSNEILSIAAMLSPNIFMRPKEASRAADEAKQQFAHVDGDHLLSNAYYAWKSNRE
 DQKWAYDNFLNHRSLKSGDSVRTQLSRIMVRFNLPVSTDFGDRDYINIRKALVSGFFMQVAHLDPGSHYLTAKDNQ
 PVALHPSCCLDHKPEWVLYHEFVLTTKNFIRTCDDVRGEWLEAAEHYDLRNFAPGRKTALERLVRVGTGAPPL
 >Goniomonas_avonlea@prot_32
 HAVLRVSPKAVRFMSSEDKTVLFDTHVKHGGKMPFCGWSMPLQYDSQGIMASVQHVRSKCGLFDVSHMGQLRFT
 GKDRVRFIESLVVGDVAGLDVDGARLSLITNENGGIKDDTIITRREDHLYVVVNAAGCFDKDMAHFAEHLERFKKNGGD
 CTIEVLNNERALYAVQGPATQNLQRHVKEDELSKMAFMTGHWKVVAGHDCIVTRCGYTGEDGFEISMPAGKAAELT
 EIFLNEPEVEPAGLGARDSLRLAAGLCLYGNLDNEDTSPVEGALMWTISKRRREEANFLGAETILRQIKEGVARKRVGL
 LVDGAPARDHADVDFMAGNKIGEVTSGAYSPLMKAPIAMAYVSTPNSKLTTEVQVSVRGKLGKATVTKMPFYPYNY
 TPA
 >Goniomonas_avonlea@prot_34
 RSGVFMRGVSARLVSTLQHQKLTVTTHKSSLPKLEDLKFQTSDHMLECPWNVKSQWAAAPKISPLHPLQLHPASTS
 LHYGVQCFEQKAYKDKQGRARLFRPDMNARLQSRGLRCLPDFDKNELLECVELVRVERKWIPDVGDFSLYLRP
 TYIGNTPALGVGPGSEALLYVICSPVGYPTGFNPIKLAETRYVRAYPGGTGDCKVGGNYGPTVMPQVEAQKKGYQ
 QVWLFGDEKLVTEVGTMTNQFFIKNKQGE
 >Goniomonas_avonlea@prot_35
 NSSHYLRRSEHGGRRTTSGSSESSDKGKGPLGWRSLLLIVPIGAGCLAYAEYLKHQQEQRQEQTKVLPSVGRPSLGGD
 WILDKNHKIVTSDLLRGWLLMYFGFTFCPDICPNELAKITDAINLLDKRLGGPLVTPVFISIDPERDTPQVGEYIKDW
 HPRFVALTGSTAQVSEVCKFRVYVYKAPTGDAPTDYLDVHSIITYLMNPQGSFVDFGKNKSAPEIVDDIVKYVQQY
 GAQEK
 >Goniomonas_avonlea@prot_4
 MNLEKVRNIGISAHIDSGKTTLSERILFYSGRHIEDVRGGGDGATMDHMELEKERGITITSAATSVTHNGYHINLIDTP
 GHVDFTVEVERSLRVLGDGAVLVLCVGGVQSQSVITVDRQMKRYQIPRLAFINKMDRTGANPRRVVEQLREKLGADAF
 AQPIGAENFRGVVVDLIEMVAYTFEGDQGEKVVTEGIPADLDEAEARVAMLDLSNYSDEVMELLSEEVSKDMI
 YRVMREAVLNGATPVYMGSAKNGKGVQPLLNAVYQYLPSPDLREIYGRDPSDEEKIELSPDPDKPFVGMFAFKIVEDP
 FGQLTFMRYIQTIKKGEAYTNQRSQKRFSRIVRMHSEKREIDEAGPDHIAVMGIDCASGDYTCSEYDYLATLESM
 YVPEPVKIAVNPRLGDDGDKMSKALQRFKEDPTFSVYDEETNEILISGMGELHLEIYIERIRREYGEVEVYATLESY
 RESPTREVEFNKHKKQTTGGSGQYAHIVGKLIPIESESEDSFEFEKVVGGRIKQYIPAVEKGRDILGKPIADYVVG
 TRIELLDGSHYHDVDSSEKAFYTAAGQCFREYFKQAAPKLEPIMKVEIEVPEDFQGTVTGDVIRRRGLMSTNDTNEGMT
 VILAEPALAEFTGYATDLRSMTOGQGTFTMELAAAYRQTPSNIQEEIIAERKKDELAR
 >Goniomonas_avonlea@prot_5
 MADGSTFLFSSESVEGHPDKMCDVISDSVLDACLAQDPDSKVACETCTKTGMVMVFGEITTKAVLDYQAIVREAVKG
 IGFDDSNKGFYKTCNVLVAVEQQSPDIAQAVHVDKKEEDIGAGDQGLMFGYATDETPELHPLSHLLATKLARRLSEA
 RNDKTLPLWRPDGKTQVTVEYKLEGGACVPQRVHTILISTQHAEVGNVIREKLSKSEIDKVVDAKLLDDKTIYHLNP
 SGRFVGGPQDAGLTGRKIIVDTYGGWGAHGGGAFSGKDPKVDRAAAYAARVWAKSIVAAGLARRCLVQYAYAI
 VARPLSVNNTYGSQTKPDAEILAMVEKTFDLRPGCLGRQLDLKRIYAKTAAFGHFGRTDKEFTWEQPKAFA
 >Goniomonas_avonlea@prot_9
 MVPARPKSYFAEVPMPGADPILGLTDAYNKDTDTKVNLGVGAYRGDDGKPYLPSVRAAEKAIMDANVNHEYAGIT
 GIKQFVDCSLEFAYGKNSQALKEGRIAGAQLVSGTGACRVAGEFYRFLGRNTPLYHTNPTWANHIPFKDAGLDVRSF
 RYYDANTCGLDFKGMDDIKAAPTGSVFLHACAHNPTGVDPTTEQWKEISALMKKCGHVPFLDMAYQGFASGDAE
 RDAAVRIFVDDGHLIGLAQSYAKNFGLYGERVGLSFGADKTEAQRIESQMKIMIRPMYSNPPVYGARLVAHILND
 PTLNPQWYAEK
 >Goniomonas_avonlea@HslVU
 LKPREVVAELDRHIVGQQAACKAVANALRNRWRMIDSPLEEMPKNILMIGPTGVGKTEVARRLAKLANAPFIK
 VEATKYTEVGFHGKDVDSIVRDLVETAISMVKAIVRERSKAKVLEAVEERILDGLVGAKAGSSLDRESFRYLXXXXX
 XXVKECRPILEDDEISKLYNQDQIHKMA
 VDSVERDGIWFIDEIDKIARSKTVYQGADASAEGVQRDLLPIEG
 >Goniomonas_avonlea@mHsp60
 MQRLASFAFRSAVRARPALVSSRIFRGLATGKDIRFGVDARALLQGVDRDLADAVQVTLGPKGRNVVIEQSFSGPKIT
 KDGVTVAKSIEFKDPHLNMGAQLVRSVASKTNDVAGDGTATVLTTRAFREGCKSVAAGMNPTDLRKGIDLAMRAV
 VKDLQARAKNISSKEEIAQVATISANGETGIGQLISEAMEKVGKEGVITVQDGKTLDDLEVEVEGMKFDGRYISPYFISN
 PKNQKCEFEDAMVLLCEKVVSSFSIFPILEHCAKVGKPLVVAIEDVESEALALIVNKLRRGLKVAVKAPGFGDNRK
 ANMQDMAVLTGGTVIDEDLGLKMESVEPSMLGQVKKATISKDDTILLDGGQSKAAIEERCQHIRSIEATTSEYEREKLG
 ERLAKLSGGIAVIKVGGAEEVEVEGKDRDLTALNATRAAVEEIVPGGGTALLYASMVR
 >Goniomonas_avonlea@mHsp70
 AATGRAAGRKVAGSLRRARKFTPVARFHASARRMDGVQGDVIGIDLGTNSCVAVMEGKAPKVIENAEGARTTPSMV
 AFDKDGNNMLVGMMPAKRQSVTNTNTFYATKRLIGRSFSDETIKADQSNMPYKLVKADNGDAWVARADGQKYSQV
 GAFILQMKMETAEAYLGRPVKQAVVTPAYFNDSQRQATKDAGKIAGLEVLRINEPTAAALAYGLDKTDGQTIAVYD
 LGGGTDFVSILEISGGVFEVKSTNGNTHLGGEDFDIRIMQHFVAEFKESGIDLTKDNLAVQRLREAAERAKCELSSTSA
 TDINLPFITADATGPKHMNYKLRTRAKMEGLVEDLIEKTKQPKSALKDAGISTSQINEVILVGMTRMPRVQEVVKTFLF
 GRDPSKGVNPDDEVVAMGAALQGGVLRGDVVDKIDLLDVTPLSLGIELTGGVFTRLIPRNTTIPTKSSVFSTAANDQTV
 SIKVLQGEREMAAANKMLGNFDLVGIPPAPRGMPQIEVTFDIDANGIVNVSADKATGKEQSIQISSGGLEDQINSMI
 HEAEQHAEDARAKEAAEARNEAETLVYSSERSLNEYRDLRDLKEDIDAIETALTNLRAVLGNDDVEAIREKANELQTA
 SMRIGEALNKASAGSSSSSEGADDDKSGDKQ

>Goniomonas_avonlea@mrl3
MPLALHRTGLIAVKRGM TALWDSWGV RVPLTVLEVRDCQVTVQVKT V GKEMTNAVQV GCDNVSRIQRITRPLVGHFA
AQQVPAKRKLTEFRLWNKEALLPVGTVLNARHFVPGQYVDVQGT SKGKGYCGVMKRWGFSGGPASHGNSKTHRSA
GSTGQRKTPGRVFKGKMGAGRMGHETTTVHSLLVFKIDNRHNLVLVKGAVPGPNGSYVRITDAVFKPRRDLPFPTADP
DPAEEVPGEMFAPRGPDPFAAPP

>Goniomonas_avonlea@nad10
MQRIQYFISKVDQLVTWAQRSSLWPMTFGLACCAVEMMHTAASRYDLDRFGIILRASPROQSDVMIVAGTLTNKMAPA
LRKVYDQMPEPRWVISMAGSCANGGGYYHYSYAVVRGCDRIVPVDIFVPGCPPTAEALLFGILQLQKK

>Goniomonas_avonlea@nad11
VVINNDEIQVPDGTLLQACEKLNIVIPRCFYHTGLSIAGNCRMCLVEVVGSPKLAASCAMPVLNLRVLTDTTAVRKA
REGIMEFLLANHPLDCPICDQGGECDLQDQAITYGSDHGRYNEYKRAVADKDFGPLIRTSMNRCIHCTRCVRFSSIGN
AGDLGTIGRGNIEQISXXXXXXXXXXSELGNLVDVCPV GALTSVSYAFSSRPWELRSIESIDVFDGVCNKIRFDTRGVAILR
VLPRTNNTCDSTWITDKTRFSFDGLKVQRLTKPLLRSRFTFXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
NLDVANCFVFIGVNRVEANLINLYLRRKLLAVGKSLKISISSFFDPTFFVDYAGHSTRSLEFIEGRHILCRSFFFLSIFII
GQSVWSRDPGSEEKYFAGTISESDRFVNSRLCYLSASAGQVGSCLGL

>Goniomonas_avonlea@nad7
MNQNVLSLVDLVENTSVQFNLTRLREIKNLSLNFQPHPAAHGVLRLILELSGEVVEKADPHIGLLHRGTEKLIETYKY
LQALPYFDRLDYVSMMSSEHAFSLAVERLSNVCVPIRAKYRVLVFEITRILNHLLAITCHALDVGALTPLLWGFEEK
LMEFYERVSGARMHAAFIRPGGVAADLPLGLCDDIYSFCVQFSSRIDEMEEMLTNNRIWKQRLVDVGIPTPEEASAWG
LTGVLLRSGSISWDLRKTQPYEYVSSDFNIPVSSGDCYDRYLIRVEEMRESLRIIQQCLNLLPPGAILTDGKVAPPSRR
KLKSSMEGLIHQFKLFSEGFILQSGETYTAVEAPKGEFVFLVSDNTNRPYRCKIRAPGVCHLQAVDFM SKGHLLADV
TVIGTLDIVFGEIDR

>Goniomonas_avonlea@nad8
MNIKSFLLIELCRGMWALQYFFRKKVTLNYPLEKGPLSPFRGEHVLRRYPTGEERCIACKLCEAICPAQAITIEAEMRE
DSSRRITRYDIDMTKCIFCGFCQEACPVDIAIVEGPNFEFATETHEELLYNKEKLLSNGDRWEREQASL

>Goniomonas_avonlea@ndufv1
MLAVGARTRAFRLARPLTALVSSRSQKTSFGNLSQDRIFTNIEYGEHDRVKGSMKRGDWYRTKDLIGKGDWDMID
EFKKSGLRGRGGAGFPTGLKYSFMPKKS DGRPSYLVINADESEPGACKDREIMRNDPQKIEGCLVVGFSMRKAAAYY
IRGEFADEAITLNQAI AEAYKEGLIGKNACGTGYDFDVYVHRGAGAYICGEETGLIESLEGGKQKPRKPPFPANVGLY
GCPTVTNVTETVA VCPTILRRGSAFFAGLGRKNNSGTKLYNIIGCVNNPTTVEEEMSIPLRELIERHGGGVTTGGWDLNLLC
VIPGGVSVVVPASLNCDAIMDYDGLKEYASGLGTASVIVFDKSCDIHGIARIAQFFKHESCGQCTPCREGCSWMSIM
MRMVEGNADIAEINMLDSISRQIEGHTICALGDAAWPVQGLIRHYRPELEERINAYKARAASAGPH

>Goniomonas_avonlea@ndufv2
LSSQVFSHKDSSHNHISTVFEFTPENYKLIKWHMSKYPPAYKRSVIPMLHIAQE QNDGWIPLAAMNKIARILEINPMRV
YEVATFYTMFRREPIGKNHVQVCTTTPCMIRGAYDILKVVQDYTGCKVGESSKDGLWHVSEAECLGACVNAPMVQVA
GEICQDSYFEDLTPETIKMLDITKSGKPTVGPQNGRVGCGIQGKTC LHGEPPGPAFFRTD GAL

>Goniomonas_avonlea@nsf1
MDPRVLDAMMPLYTWQFNGPHSRSHLYGWETEALVENARASV GKLIGADAKEIIFTSGATESNNLAKGIAHFYGGK
KKHLITTQTEHKCVLDSRQLQAE GFVTYLPVLKDGLVDMNVLRAIREDTALVSIMAVHNEIGVIQPLAEIGKLCRE
KKVFFHTDGAQAAGKIDIDVNEMNIDLLSISGHKLYGPKGIGALYVRRRPRVLEAIISSGGQERGLRSGTLPAPLVVG
MGRAAEVCLQEKENDLAHIKRLADRLYDGITASVDHVFNLNGHRHQRYPGNLSFAYVEGESLLMALKEIIVSSGSAC
TSASLEPSYVLRALDVGEDLAHSSIRFGLGRFTTE

>Goniomonas_avonlea@odpA
SRVAPLRVVAPRLLHNFVVDGENLTADLPPIKTHLV DGVPTSTKTNKTELLEYRITLLMRRVEIVSDLLYKSQVIRGFC
HLYDQGEAICVGMEEAITKDDSIITAYRDHCTQIGRGDTAERVLAELCGRFTGCSKGGGSMHMYLRSANFFGGNGIV
GAQIPVGTGLAF AHKYNNTNGNSTPGSPSSQVAISMFGDGASNQQLFEAMNMAQLWKLPIIYVLENNQYGMGT SKG
RAASNPDFYQRYDNIPGIKTDGMDVHAVR

>Goniomonas_avonlea@odpB
MALFRRGLAVTKACRVVSRHFGSSRVLASPOLTVRDALNAALDEELERDPKVFLMGEEV GAYQGAYKVSRLGFQKY
GAGRVDTPISEAGFAGIGVGAAMQGLRPVIEFMTFNFLSLQ AIDHVINSAKALYMSAGQINVPVIFRGPNGCASGVGA
QHSQCLASWYAHCPGLHVIAPYDAEDAKGLLKASIRDNDPVPVLENELMYGANFVDSAAVMEKDFVLPIGQAKIMRP
GTNVTIVTFSRMVAHALQAAEELEAQGISAEVINLRTIRPLDMKTIAESVKKTNHIVTVEEGWPAYGIGSEIAACIMESEV
FDMLDAPLERVTGVDVMPYAKNIETAAQLAPHNIVNACKRVCYRNK

>Goniomonas_avonlea@PCCB
MHRLRTSPLLRASLLRRPALRSPPLQNAVASFATVGRSFDQKLAVLEERAIEGGAKRIEKQHKGGKLTARERIEVLLDP
GSFREYDKLVEHRCVDFGMQKNKTPGDAVVTGTGTINGRQVYLFSDQFTVFGGSLGEMHASKICKIMDRAVAAGVPV
IGLNDSSGARIQEGVDSL AGYADVFLRNVMSGGVVPQLSVIMGPCAGGAVYSPAITDFIFMVEDTSHLFITGPNVVKTV
THEDVTFEALGGAKHTHTKSGVAHRSFRDDAEALLQLRALYDFLPLSNRDAAPVRQSHDPRTRQEAASLDWIVPHDPNT
PYDMHHVISKVVDGDELFEIMPDYAKNILVGF SRLEGRTVGIVANQPKELAGCLDIDASVKAARFVRFCD SFNIPVTFV
DVPGLPGTAQEHGGIIRHGAKLLYAYAEATVPKLTVITRKAYGGAYDVMSKHLRGDVNVAWPSEIAVMGAKGAV
EIIFRGQSAEEEVKYLDFATPLVAAQRGFIDAVIQPHETRTFLCV

>Goniomonas_avonlea@sdh1
LVRAAKFHRSAPAAASQDHVHSYPVVDHYSYDAIIVGAGGAGLRAAVGFAENGFNTACITKLPTRSHTVAAQGGINAAL
GNMSEDDWRWHFYDTVKGSDWLDGQDAIEYMCREAPRAVIELEHYGMPFSRTEEGKIYQRAFGGQSLHYKGGQAH
RCACVADR TGHSMLHTLYGQALKNDAKFFVEYFALDLIMDEGACRGMALCMEDGTLHRFRAHNTVLA TGGYGR
AYFSA TSAHTCTGDGNAMAARAGVPLQDHEFVQFHPTGIYAGCLITEGARGE GILRNKNGERFMERYAATAKDLA
SRDVSRSMTIEIREGRGVGPEADHCYLRHLDHLPALLAERLPGISETAMIFAGVDVTKPEIPVPTVHYNMGGIPTLKT
GECVTIGPDGKDRIPGLMAAGEAACASVHGANRLGANSLLDIVVFGRAQAQTVA AKSKPGMPLPDLPKNAG

>Goniomonas_avonlea@sdh2
MVAARDMTSVQPKPKMKRFDIYRWNPVEEAKAHLQTYEVDLND CGPMILDALIKIKNEQDPTLTFRRSCREGICGSCA
MNIDGNTLACLASISSEKTPYIPLPHMYVVKDLVTDLTNFY AQYKSIKPKWLKSEAKGDKHEFMSAENRKTLDGLYE
CILCACCTSPSYWNNPEKYLGPVLMQAYRWIISRDEATEERLES LGPPFKVYRCHTIMNCTQTCPKGLNPGKAI
QLK

>Goniomonas_avonlea@SUCLG1

MLRTRLQTVRAGRRFASTIPRLKNGTPAPTIVSKATKVLCOGFTGKQGFHSTHAIEYGTNMVGGVSPGKGGSTHLNL
 PVFNSVQEAKAQVQPDASVIYVPPGAAAIALEALEAEIPLVVCITEGIPQQDMVRVKAALNSQATRLIGPNCPIGKPG
 ECKIGIMPYIHKQKIGIVSRSGTLTYEAVYQTTVAGLQQTTCVIGGGDPFNGTFLDCLEYFVSDPETEGIIMIGEIGGT
 AEEQAAEWLGS CGNKKPVVGFIAGLTAPPGRMRMHAGAHISGGKGTATAKIEAMNKAGITVSSSPAKLGSTMLVEMKA
 AGLA

>Goniomonas_avonlea@tufA

FIGRCVSPAGLTSESRASLAPLVVKARHMAEYKRDKPHMNIQTIGHVDHGKTSLTAATIKILAETGGAEFRAVDQIDNA
 PEEKARGITISSAHVEYETATRHYAHVDCPGHADYVKNMITGAAQMEGAILVVSAPDGPMPQTRHILLARQIGVPSIV
 VFLNKCDLVDDSELELLEVEVEVLEFVKFPGGDLPIVGRSALCALENTKPELGRDAIIEIMKQVDAVYVPLPERDLK
 PFLMPVEDVFSIAGRGTVATGRVEQGGIKTGEEVEIVGIQATVKTVTGLEMFMHKLMPISQAGDNVGCLLRGQKRNDV
 MRGQVLCCKPGTVKPHKKFKAELYVLTKEDEGRHPTFMTNYPKQFFRRTADVTGTVTELEDAQAQMVIPGDNVSVCTVELL
 YPLAINQGLRFAIREGGKTVGAGVVAIDE

>Goniomonas_avonlea@TypA

VASLRNVAIVAHVDHGKTTLVDKLLAQCGEGGGDRVMSMDLEQERGVITIRSKVTAWEVKDHRMNVVDTPGHAD
 FGGEVERVLGLVDGFLLLVDAVEGPMTQTKFVLGKALQRGLQPIVVINKVDRDQSRISQVMNDVDFLDFVNLDATEEQ
 DFPFMYASAKEGWAIAGLGGDISVGMAPLLDAIVS

>Goniomonas_avonlea@ndufa9

MSSVGLTASMERARAGMGGRSSVSGVVATVFGAYGFLGKYVVRNLGRTGTQIVAPYRGDIYEARDKVLGDLGQIVL
 VHYDANNREEIMRTMEHSNVVINTGKRKETYFSTFDSANHQLSKTIAECATEVGCIERFIHVSSLSAVEGAQSKWSQS
 KLAGENA VREAFPSATVLRGLPLVGEEDKFMNRFVAVMAKTLNRVPLFGRQDAKFQPIVGDVSRASISNTVFNPRTRGK
 DYDLAAPESFTLREIVDFVIETMRHPEAKVLPVPLGGIQGNRIEKSPIPRFALTEDEVTEYQEDHVCPRGSKGARDLV
 PVLLS SDSVGFRLFSQC

>Goniomonas_avonlea@ndufaf5

MHKIACHASGNTVTQDIFDRQVKRIQRDAAALQPDANFDYLRNEVASRLVDRLLDDTIVKFPPTALDLGCGPGCIRKHL
 SDRGGVRLLYQCDMSPQMVHRARNLVVTDVPTPPSVSLVADEEDLPRDESFDLVMSNLSLHWVNDLPGVLTVKVRKC
 LKPDGMFLGAMLGGSTLTELRTALILADQDLGGVA AHISPMVGVADAGNLLGTAGFSLISVDVDTIKVEYKDAYELM
 HHLQAMGEGNAIKRRKQFVSKKVFDLAAKKYKGLFGTSKGV EATFQV

>Goniomonas_avonlea@NifU

MPRVSVLAAHRRSMFIQTQDTPNENCLKFLPGETVLEEGMTNFQDMRSAMISPLAKALFRVDGITGVFFGKDFISVTKS
 AKIDWDLKPDIFSVIMDHYISGQPVLLDESDAQHEDTRILPGDSEIVATIKELLDTRIRPFVQEDGGDIRYISFEDGIVKV
 QLQGACSTCSSSTITLKNVENMLMHYVPEVDAVEAIETPDEHLEGQVAEDQLKFVAVSTTNPDGSRRD

>Goniomonas_avonlea@PCCA_

QPPFKKILVANRGEIACRVMKTAKRLGIKTVAVYSEADAQALHVRLADEAVCVGPAPSAQSYLNAKNIMDAMRSTGA
 EALHPGYGFFSENTEFAKQLEQEGFVFIGXXXXLAAAMGDKIESKLLAAAAGVNVIPGFNDIIRDDAHAIEIARQIGYVP
 MIKASAGGGGKGMRYAVYNDDEAKEGFRSTNEASASFNDDRIFIEKFIENPRHIEIQIADKHGNVAVYLNRECESIQRN
 QKVIEEAPSVLLDEATRAAMGKQAVALAHAVDSCSAGTVEMIVDQKNFYFLEMNTRLQVEHPVTEYITG

>Goniomonas_avonlea@UQCRC1

AMSSSQSFCAPLPPNYKFDPAKYRTVPTVTTMPNGMRVASETTPGETATVGVFIDAGSRYESDITNGTAHFLEHMNF
 KGTQKRTQQLETEIENMGHNLNAYSREQTVYAKVLKQDVPKAVDILSDILLNSELKPANIERERGVILRELDEVC
 SEEVYVDDLHGTAYQTTALGRITLGPVENIQSIKREHLVDFIKANYTAPRMCLVAGAVDHDQQLVELAEKGFQGLRTE
 PEVAPAEAPHQSIFVSDTRYRNDMEKAHV ALAFEGVWSSGDSFAQMVMQALLGNWDMHHFSGKNMAMSPMCSTI
 AERGLATNITFTQYSDTSLFGVYIGCDPDTISDMCVIMREAAANLAHRSTDEVDVARAVAKLKNLLFDLQDGTSGQICE
 DIGRQLQTYRRRLSVAEIFARLDAVDAPTVRVASELISDRDIAVAARGPLANMPDYGWLRRRTYMLRY

>Goniomonas_avonlea@UQCRC1

AEPLVRTTGSLSNDYEFEHDDKIADGDPKRAYTYFVLGGARFVFAFGRLAVLKLHSMNASADVLALASTEVDISGI
 AEGTMLTLKWRGKPVFIKHRTASEIKAAEDQNPALRHPQSDSERVQKPSHLIVLVGCTHLGCVPLGNQGDFAAGFFCP
 CHGSHYDTSGRIRKGPAPLNLLEPPYKFIEEQKVFIG

>Malawimonas_californiana@atp1

MFASALRSKVLATSVRQLSTSSALAAAPTASEVTRILEDRLKTFAKSEVEEVGKVLVSGDGIARVHGLLNVQAGEMVS
 FGNNIKGMALNLERDNVGVIFGNDRRAIREGDMVKRTGAIVDVPVKGGLLGRVVDALGNAIDGKGPLDAAHRARVEV
 KAPGIIIPRYKVHEPMQTGLKAIDSMVVPVGRGQRELIIGDRQTGKTAVVAIDTIINQKFINDDSTDEKLLYCIYVAVGQKRS
 TVAQVVHTLEKHGAMKYTTVVAATASEAAPLQLFAPYTGCAIGEYFRDNGMHALIIYDLSKQAVAYRQMSLLRRP
 PGREAYPGDVFYLSRLLERA AKMSEAKGFGSLTALPVIETQAGDVSAIYPTNVISITDQIYLESELFYKGVRAINVL
 SVSRVGSAAQEKAMKQVGGHLKFLAQYREVAFAQFGSDLDASTQHQLNRGARLTEMKLGQGYQPLPMEEQVAVI
 FGGVNGFLDKLPVSEVQPFEGFLRKYIKEQADVLEQIKKERKLSDATTLNKNVYEGALAA

>Malawimonas_californiana@atp2

RAQGVRFASLTNRAPVLRQSAAVQVRVQQRGYAEKPAATGAAKGKIVQVIGAVVDVQFDTHLPQILNALEVQNHEL
 VVLEVAQHLGENTVRTISMEGTEGLVRGQGVVDTGLPITVPVGRECLGRIMNVIGEPIDDRGLPTTKRPLPIHTEPPTFTE
 QGGAAEILVTGIKVVDDLAPYSKGGKIGLFGGAGVGKTVVIMELINNIKAHGGFSVFGVGVGERTREGNDLYKEMIESG
 VIKLGGESKAALVYQMNPEPPGARARVALTALVAEYFRDEEGQDVLIDNIFRFTQAGSEVSALLGRIPSAVGYQPT
 LATDMGAMQERITSTKKSITSVQAVYVPADDLTDPAPATTFSHLDATTVLSRQIAELGIYPVAVDPLDSTSRILDPVIVGE
 EHYNVARAVQKLLQNYKSLQDIIAILGMDLSEEDRLIVARARKIQRFSLQPFHVAEFTSSPGKFVPLKETIAGFKALE
 QYDYLPPEGAFMVGNVVEAVERGKQMAAELAKKDK

>Malawimonas_californiana@atp3

MATLKEVNNRIKSVKNISKITKSMKMVA AAKLRRQAALMAQAQNYVEGIKRFMEKEVATAEKSEAVPAAKTAEKQK
 HLILAITDRGLCGGVNSTVARNVRLVKAEDAAGRDTEIMIVGEKQATLRRDMSKRISYVFLLESKQPLTFGAAAAI
 AERVA AAKADQLTIVFNFKSIAFETVRRPLLSYKALEESKIESGAFEFDTSLPSLYEFQLANTIFSALVENTTVELSSR
 TMAMDNASRANQMIDRLQLFYNRSRQAVITKELIEIISGAAV

>Malawimonas_californiana@cox11

RWENREIGLAVGAIITGVAASYVAVPLYQMFCQATGYFGAPSTQAVRKAFFEESEEDQKLVKRPITVRFSDV ASGIPW
 HFEPAREIVVIPGEPALAFYRATNHSKPIIGVSTYNTVPAALARHFVKIQCFCEHQRLAPHETVDLPVFFYLDTQML
 KDPFLNRVRSVLSYTFFLTEDQQSEDEVMEQAERARD

>Malawimonas_californiana@cytc1

CLRASKARASLATVAERVEEPSKRLVTLGLALVGA AVSAAALLVPRDTHASSDLSLPAEYPWAHKGILSSFDHAAIR
 RGFHVYKSVCANCHSVELIAFRNLVDVAFTEPEVKIAAAGYEVQDGPDEEGSMFERPGRSLSDKIPKYPNEEAARFGNN

GALPPDL SLIVKARPHGADYIFALLTGYRDPAGV VVRPGSFY NPYFAGGVIGMPPPLGEGAXXXXXXXXXXPTPAQAAK
DVTEFLAWAAEPEHDDRKMGMKVFLTLGVA AVLAMWAKRFKWNVVKHRTIQFMDMSRGP GMR

>Malawimonas_californiana@DLDH

MLRLLARPVSLTSSVLRPAAVTTARGYAAPASDADVVVIGGGPGGYVAAIKAAQLGLKVACVEKRGALGGTCLNV
GCIPSKALLQTSHL YEEIAHDVKGHGKIVQGVSDIAAMQVEKEKRVKGLTTGVAGLFKKNVAYHQGFGRITSANEV
TVDLNEGQAKINAKKIVITGSDVAPLPGVAIDKVVVSSGTALALSKVPKRMVVVGGGVIGLELGSVWRRLGSEVI
VVEFLDRVGGPMDAEIAKQFQILGKQGMKFKLGTGVGAEVRGDGATLVLEPAKGGAEKLAADVLLVLSIGRRPFT
DKLVLAEVGVSMDKRGFVNINDNFQTNVPSIY AIGDVVRGPMALHKAEDEGIAVAEILAGKHGHNVYGVIPSVIYTYPE
VAWVGKSEELQKENIKYKVGKPFPIANSRAKTV AQTEGLVKFIADAETDRVLGCHIIGSNAGEAIAEPALAMEYGASS
EDIARTCHAHPTLAEAIKEAAMATYDKPIHI

>Malawimonas_californiana@DLST

MFRVGLFGRVGSVAVRIARPQVREVAKVFNLP TIADSI SDGT V GKWHFQPGDAVKTD DDLISTVETDKVAYEFRSPVN
GVLLKHFPKDGNIKVGEPFVEIDVDAAGGKSKSDDAPKEETPKAESKKEASPKPEQPKPEAPKAEPKAEVKTAPKEP
TPAPQPVFTGSRSENVPMRMRQRIARL KDSQNTNAML TTFNEIDMSGYITLREELKDVFAEKHKVKLGFMSGFVK
AAASALRFMPVVNSAISGTDIVERDYIDISVAVATPTGLVVPVLRNADQLSFAGVEKAI AELGTRARDNKLTLADMAGG
TFTISNGGVYGSMMGTPIINPPQSAILGMHGTVKRAVVVNDQIVIRPMMYVALTYDHRLLIDGREAVLFLRHIKDCVEDP
RRLLELV

>Malawimonas_californiana@etfB

GCTTSCATTMRILVAVKRVVDYAVKVRVRPDKTGVELAGVKMSMNPFD EIAVEEALKLKEKGVATEVVAVSVGPA
GAAEVLRNALAFGCDRGHIA YEKGEVSTLSVAKLLKGLVAKEQPGLIILGKQAIDDDSNQTGQMLAGLLNYPQGTFFAS
KVAVSSDKKTV DVTREVDGGLETVSLTMPAVITCDLRLNTPRYPTLPNIMKAKKKPIDKVTPEDLGVTVQSTLKM LTV
EPAKRKGGVIVDSVETLVSKLRNEAKVI

>Malawimonas_californiana@grpE

MLRNVLRASLARASMPAPWRLRTPVRLFASETTEPKAEAEAGQQPEPAKDPKTDLEK KLSSEVEKIKELNSNY
LRAIADAENARKIARQDRVQNAREYGVGEFAKSL LAVADNLDHALASVPPAARADKLMSSFYDGVSM TQTTLMKALE
KHGVTRIQADLGQKFDPNCHNAVFEQDAPDREAGTISQVIKSGYKIRDRVLRVADVGVARASS

>Malawimonas_californiana@prot_10

MSKTETFAFQAEINQLMSLIINTFYSNKEIFLRELISNASDALDKIRYEGLTDKSRLETNPNLEIKIVPDKTNKTLTVWDSG
VGMTKADMNCLGTIARSGTKAFMEAVSSGADLSLIGQFVGFYSAYLVADRVTVSKHNDDEQYVWESAAGGSFTIT
PDADGEPLRRGTKIVLHLKEEQLEYLEERRLKDLIKHSFISYPIYLQVEKEKEKEKPKDEDKETEESDEEGEKEDK
KEDKKPEKEKVKELVLNKKQPIWLRKPDEISREYGTFFYKSLTNDWEDHLAVKHFTVEGGVEFTACLFTRRAPFDM
FEPKPKPNIRLYVRRV FIMDNCEELIPEYLSFIKGVVDSDELPLNISRETLQNKV LKVIKRNIVKCKLEMFTELAANKD
DYKKFYDAFSKNLGIHEDATNRAKLADLLRYHSTKSTEDQTLADYQTRMKENQEFIYITGESRAAVESSPFLEVF
KKGIEVLLMTDPIDEYAVQQLEKYNKKLVNITKDGLKLPETEEKKKFFEEKAAAEGLCKAVKEILGDKVDKVQVG
TRITDPCVLVTSEHGWSANMERIMKAQALRDSMSTYMTSKKTMENPAHPMAELRRRVEADKGDKTVKDLVWLL
FETSLLTSGFSLDEPTGFASRIHRMIKLGLSIDEDEMTDAAPADLPSLEPSETKTTSMEEVD

>Malawimonas_californiana@prot_11

MATVKHKVLILSGKGGV GKSTVSSQLAYAFAAKEMEVLGDDIDICGPSIPKMMGLEGESVHASNLGWEPAYVQENLA
VMSIGFMLQDPDQAIWRGPRKNGMIKQFLKDV CWGELDVLLVDTPPGTSDEHLSVVQFLKESGIDGAVIVTTPQEV AL
LDVRKEITFCQKVGVPILGVVENMAGFVCPNCKTETQIFYPSSGGAARMAAEMGV PFLGSIPLDPRLRGAAD EGGKSFAS
VHGDSPAVKTLNVIVDQLARTLDC

>Malawimonas_californiana@prot_13

MASHATDFIKFVNAVSPYHAVHQARSLLAAGYRFISEAGTWDVKPGGKYFYTRNQSTIVAF AIGQQYTAGNGFNIV
AAHTDSPVLKVKPVSVHSSAGYVQGVPEPYGGGLWHTWFDRLTVAGRIVVRGGADFSSRLVRINKPILRIPTLAIHLN
REVNSDGFKFNTQTHVLPV LSTAVKEALAVPSDAKHHPRLLEMLAKELSCPKEDIHDFDLNLDVTPQSVIGGPLDEFIFS
PRLDNLCMSFCALMAGDLSSSENVRMLALFDHEEVGSASDHGAASPIAEVVRVVTLLGGTSMPTDLVEVALR
KSFLVSADMAHAVHPNYSEKHESHHPAMHKGIVIKENSQRYATSSITSLPLRIIAQKRSIPLQEFVVRNDSACGSTIGP
IISSNAGMRAVDIGAPQLSMHSIREMCGVEDVKWGVQLCQAFYEEFSEVDRHVRVDDQTA

>Malawimonas_californiana@prot_14

MYRNVLEEMFEKWEANPQSV DSSWQTFRRDVQASESFESFKSTVAAKGS DPESIKRAVYD TVRLM TLARMYRVRGHL
NANLDPLGLQQPVLADLDP AKYK LSEADMKREFVSPPLGQISDYDKYRVVAPSRVVEDIRRVYCNTVGV EYHIIHD
AVQREWLQNKIEVEHPKELSKDEKLWIYTHLAHAELFEQYLARKEKTAKRFLGEGGETCLPVLEKIVEAASDQGVESIV
IGMPHRGRNLVNLANTM KKPFAIFQGFHKL SVDEWDKIHNQQEELVGSADVQSGSDVKYHLGTTVDRLLNXXXXHL
TLPSPNHL EAVNPVEGRTRAQQFYLG DTERSRAMSVLMHGDAFAAGQGVVAETL MFSDLPTTGGTIIHVNQIG
FTTDPVSGRSTPYCTDIAKGAGAPIFHVNGDDPEAAVRIAQLAVAEWRQRFHKSIVVDVVCYRRRHGNEDEPSTQPR
MYKAI EAKETVKVSYGKLVASGVVTA AELEAMDKSFSEMLEQEFQAGKDYVHNPLDWIPKPKELAQLPVQPTG
VEESTLLAIGKHVTTVPEGFTVHPQLKRSVIAARAKMMETKQGLDWGMGEHLAYGSLLEGHAVRLSGQDVERGTF S
HRHAVWNDYESPVKSSKIPLDNMSKDQGRFIANSLSSEFVGLGFEYGTSLSPAHLAMWEAQFGDFANGAQVIFDQ
FLSSGEQKWYTSGLV VLLPHGYDGAGPEHSSCLERFLNMSSEEPETPRAEWDEELQLRQCWNQVVYLTTPANYFH
AIRRQMKRNYRKPLIVAVSKGLR LPASNLSDFLPGTFMSVYPEQNPQDLVDPKDVKRIVFVSGQLFYDLIKARSERKI
KDIAIVRVEQLNPFPAAVAREADKYPNAQVVWAQEPEKNMGSWGFVRPRLELILNYDRDPIYVGRHVSASPATGWA
QMHEKEKEALKRAAMTIA

>Malawimonas_californiana@prot_18

GMNLPAGVEAHGPQRKIVFRIGSVTSFEKLLDDAQNEFGIPPSQRVPVSFVQATSLVNEALRLLPTLLL VAGFLYMMRK
MGGSSGFKLFSVGKSPAQVFKQGDIKTTFKDVAGLGEAKNEIMEFVEFLRNPQKFSRLGAKIPRGALLVGPPTGKTL
LGKAVAGEANVPFFSISGDFVEMFVGVGPRSRVDFLFAQARSNAPCIVFIDEIDAIGRHRGKMGGNDERENTLNQLLV
EMDGLKSLAGVIVLAGTNRADVLDPALTRAGRDFRHFVDPDLPARQKIFEVHLKPLKLDADPPPEAYSKRLAGLTPGMS
GAEIANVCNEAALHAARTSKKAVEFSDFQYAVDRVIAGLERKSRVLTPTTEKRTVA YHEAGHAVVGVWFLEHCDPVLKM
MDMVCMTLGGRVAEQIFFAKASTGAADDLDRITRSLY AQJAMFGMDKEFGPITYPAPKDGELQLWKPYSEETAVIDE
RVRTIVREAYDRTLRLTEKKDAVVKLAEALLEKEMLSQEDVITLIGTRPHGAMSNEYAFVYGEKGYKGSLEEAQQRD
AATRPREGSIGSTV

>Malawimonas_californiana@prot_24

MTERKRTFGQATEQMNPLTGRTFQSRYFDILAKRKTLPVYEF RDEFIDIVNKNQVVVLVGETGSGKTTQIPQFLIDMGF
ANTKKKVCCTQPRRVAAMSVSKRVAEELDVLGEEVGY SIRFEDMTSQKTILKYLTDGMLLREAMTDPMLEGYSCIVL
DEAHERTLATDVLLGLVKEVSRKRKDLKIVVMSATLDAEFKQTYFDGAPLLKVPGR LFPVEIFYTPEPERDYLEAIRT

VIQHIMVEKPGDILLFLTGEEIEEDACKRIVREAGNLGDQVGEIMAVPLYSSLPNLLQKIFDTAPAARRSGGPPGRKVV
 VSTNIAETSLTIDGIVYVIDPGFAKQKVYNPRIRVESLLVTPISRASAQQRAGRAGRTQPGKCFRLYTEKAFKELIPNTY
 PEILRNSLNTVLLKLLGIEDLVHFDMDPPAPETLMRALEQLNYLGDALDDGDLNTPMGSTMCEFLPDLPQSKMLVM
 APEYNCSNEMLSIVALLSVPNIFVRPRESAAAADHAKAQAFLHDGDHLLTLLNAYHAYKANNDDQWQWQNFNARM
 KSGDNVRTQLARIMRKFNLPLVSTDFNSKEYYPNIRKCLCTGFFMQAAHLERSGHYLVTKDSQVVALHPSACLHDKPE
 FVIYNEFVLTTKNFIRTVTDVKAEWLLEVAHYDDMDNFPDCEAKLVFKRILQRRAIADKQSSRYASSTY

>Malawimonas_californiana@prot_25

TPTVRSFLRNLIRAASQKAPGYVIGLPLSPTMEKGTISEWVKEGDKVSPGDQLAMIETDKAQVPFDSQEEGYIAKIL
 VPKGSSDIPVNPQIIIAENKEDVAKFKDYVPEGASSSSSTSESAPASAPAPEQPAQQPAQQQASKAAEPAERGRIFASP
 VAKKLASEQGIALSEIQSGPAPTHRIVKADVEKAASQPKKAAAPAPVFSAAV PATGAYTDVPLSNIRKVIATRLTEAK
 QTIPHYLTVDVVMDPELLAIRQELNASQAKDSKISVNDVFKASALALRKPVTVNSWVGTAIRVNHTVDVSVAVQAD
 TGLITPIKXNDQRGVVAEISAATKDLAERARKGGLQPSEYQGGTFTISNLGMFGRQFAAVINPPQACILAVGASSRRVVP
 ASEQGGDDVKVANVMTVTISADHRVVDGAVAAQWLGAFRGLLEKPVMTLL

>Malawimonas_californiana@prot_26

SYHSLKTDGPVLDGAVDTASDAFKANTAVMSEYVAQLRQHVAAAKQGGDDKTRKRHTDRGKMLPRDRVGALLDAG
 SPFLESLAGHGLYEDSVPAGGIITGIGRVAGTECMIVANDATVKGTYYPITVKKHLRAQTIAMQNLPCVYLVDSDG
 GAFLPLQSEVFPDKEHFGRIFYNQAMSSMNIPQISVVMGSC TAGGAYVPAMSDETIVKGNGTIFLGGPPLVKAATGE
 VVSAEDLGGADVHCRTSGVTDHYATSDEHGIALARRIAANLNRAPPQSPPTPEAPAFDPADMGGLIPADTRVQFDVR
 KVLARIVDGSRFDEFKALYGTTLVTGFAIRIHGHPVIVANNVLFSDSAAKGAHFIELCGQRGIPLLFVNITGFMVGRK
 YEAEGIKAGHKMVTAVATAPVPKLTIIGGSFAGNYGMCGRAYDRPFLMWPNARISVMGGTQAASVLTAVQREG
 MERAGKQWPQEQAQFRTAIEDRYNHEGSAFFSSARLWDDGVIEPSSSRDVLGLALATTARAPKPLPHWGVFRM

>Malawimonas_californiana@prot_32

RLAAPLARTFATDATPLMKTPLNEFHKKLGAKMVPFCGWEMPVQYKEGVLAEHLHCRSKASIFDVSHMGQLKIFGKD
 RNAFIESLTVADVNGAAENKAQLSVFTNEKGGIIDDITRNLNHLFVVINAGCRDKDMAHLRAHEAKFRSSGKDVKI
 EEIDTHALVNLQGPAMNVLQAHVKEDLKQVPMSSHMIRVNGVECRVSRGTYGEDGFEISIPSEQAVSLTESLLNSP
 VAKVLMTGLGARDSLRLEAGLCLYGHDLNEDITPVEGSLAWTIKRNRSEGGFPADKILQQLSSNVYPIKRVGLTSTA
 PAREHMEIQDEAGKKVGEVTSVTPVTKASISMGYVPLELSKVGTKLHVMRNGKQIPAVVAALPFVPTRYKTKPKAA
 APK

>Malawimonas_californiana@prot_33

GVSIAAGAVASLSFAISDKTPPIVISQTNAPLPTRADHLKRVRELASFDVIVIGGGATGCGVAFDAATRKLNTLLERD
 DFASATSSRAKLVHGGVRYLEKAVQELDWEQLRLVDEALNERGVLLRTAPHLVHALPIIVPLEKWWKVPWMWIGCK
 LYDFISGKAVVGKSYLSQEEITLKRITLAPDRVAGSMVMYEGQMND SRLCTTVALTAAANGATVNLHVEVVGLDKE
 XXX
 XXXXXYLVDVRSVWTGIRPLAVDPHKVGSVTTAQISRDIHVHVS DSGLVTINGGKWTFRMAEDTLNRAVAVANLP
 AGPCVTRRTMLLGGDGYTSSLHEHLRSEYQLDPSVARHLADNYGDRAVTVAEYIKQGFGRKLAPDYLFVEAEVLHAV
 RAEYACTVVDVIARRLRLAFLDRKELTNAIPAVAALMAKELRWDDTRRAQEEQAARQFMRFEPADGDACARPS

>Malawimonas_californiana@prot_34

RFAAAMASPEPAADIDASRLTITRKTTPRPKQPHESLIFGHTFTDHMLEIDYKPKSGWSAPRIVPLHDLSLHPAASVLHYS
 LECFDGLKAYRSPQDKPVLFRPDQHMARFNRSARLALPSFNEPQLLECKLVSLE RDWIPNARGYSLYIRPTLIATXX
 XLGVQPASHALLYIILSPVGPYYREGFKAVKLLAEKEYCRAFPGGTGDAKVGNGYAL SILPALEAAQKGYTQVWLFG
 PQHQITEVGTMMMFVFWKNEQGERELVTAPLDGTILPGVTRDSVLQLARQWGEFKV SERAFTMPDVVKALEEGRVCD

>Malawimonas_californiana@prot_35

MYSKSPITWTGFGIIGITGVGMVLYFNYEKEKQLRNARLGRITIGEIMVGGPFELQDLGDNKVTDAELLGHHSVYVGF
 HCPEVCPNELAKMGVIMAGLDSDEQTKGQVQPYFVSDPGRDTPPEKLREYAKQWHPHSIRYL TGHDDQIKHVARAYRI
 YSKPDDDKDYLVDHSIVMYLMSPTGKICIGYFGQTHNAEQVVS KIRELLGPSYTFLEWIGKTVGLSKSDSV

>Malawimonas_californiana@prot_37

MLAKYLWLKGETGLKVRVVGALTLIGAKITNVYVPIFKHSDALAAPTDLALAI PFSVLVGYGVARGAASLFNEM
 RNVVFANVAQNARRVSLQVFEHLHKLDLNFHLSRQTGALSRIIDRGVGRGINFVLSAMLFNIVPTFLEIGLVSALLAHTC
 GAPFVLVTAAGTVVAYAVFTIIVTQWRKFRKQMNAIENDMSSKVLLESLINYEYVYFGNERMELKRYDQSLAGYEGAS
 IKTQTSLGFNLQGSIAFTAGMTGLMLLAAGVHGMETVGDVLMVNGLLFQLSIPNLFLGTYREMRQSFIDMEQMF
 SLLSVPATIQDRPDAKPIVVRGSGSIKFEHVTFGYSKDRPILRDVVSFEVPAGRTVAIVGPSGCGKSTIMRLLFRFYDVSEGA
 VRIDGQDVRDVTVDSLRRQIGVVPODMVLFNDTVYYNIA YGRPGADPEEVYAAARSARIHVVNSFPDGYNTK VGER
 GLKISGGEKQVIAIARTMLKRPAILLCE

>Malawimonas_californiana@prot_4

MHEIKSEVGSKMDSMELERERGITIQSAATYCGWKGHNHINIIDTPGHVDFTEIEVERSLRVLDGAVMTITVDKQMKRYHV
 PRVAFINKLDRMGADPFRVIGEIRAKLRHNAAAVQVPIGAESSLSGLVDL VHMGRGFYMGAAQTQVSEVEIPNSVSKSL
 VEAKRQELIEQVANVDDQLGELYLSEANITPEQLKSAIRRA TLRQFFPVFMGTSLNKNGVQSLLDGVIDYLP CPRERDN
 VALNLSKNEEQVPLESNPNKPLVALAFKLQEHKFGQLTYMRIYQGTIRKGDQLLNTK TGKKVKIPRLVRMHSDEMEEI
 AECGPGEIVAMFGVECSSGDTFTDGTQYAMFIVWNGYSKALGRFQREDPTFRV SFDKESQQTIIISMGELHLDIYVER
 MKREYKVDTVVGGPQVSYRETITKPADFNTHKKQSGGAGQFARIIGSIEPIGFDQPCFVNAL VGNVPPGFVPACEK
 GFAEAAEKGPLLGHIVQGVRTTIKDGLAHSVDSNELSFR LASIYGFKAQAFDKAGPVILEPIMAVEVSVPTFEQGTVGGI
 NKRKGTILNTEREGYTHIETHVPLANMFGYSTELRSATQGGKGFESMEYHQHMPVSRQTQELIEAYKQRKEDNK

>Malawimonas_californiana@prot_5

MADIFLFTSESVNEGHPDKLCDQVSDAVLDA CLREDPQAKVACETCAKTGMVMVFGEITTSANLDFQRIVRDAVKEIG
 FDHSDKGFYKTCNVLVAIEKQSPDIAQGVHLNRDEM DLGAGDQGMFGYATNETKEMMPLSHVLATQLGLRLTEVR
 KSLGCLPWLDPGKTQVTVVEYQKTSRVEPLRVHTIVISTQHIEGVTNEQIRADLHEHVIKPVVPAEYKLDTIYHLNPSGR
 FVIGGPQGDAGLTGRKIIVDTYGGWGAHGGGAFSGKSPDKVDRSAAYAARWVAKSLVAAGLVDRVLVQLSYAIGVA
 HPLSIFVETYGTKRSDAELLSIVKKNFDRPRAIHKALKL TEPIYSKTACYGHFGRAEFAWEQPKTLEM

>Malawimonas_californiana@prot_6

RRKLSIHTIPTSVPVKTVICITIGPGINTVEKLAELMYHGSVIANVRAAAKVNKPVAIMLDTMGPEIRTGKLEGGKPV
 LRTGQPTIFNTLIVGDSTKCGVTYNHITQVLSAGSLLIDDLG LIALVNSVHSDRLECTVKNGLLGETKGVNLPNCV
 DLPVATARDKDIIEFGIEGIDAIASFRQAENVREIRSILTQSRNPNAQNMIIHSKIENVEGLNNEFEEILHESDGMVAR
 GDLGVEIPIQKIAMAQKLMISQCNVAVGKPVITATQML ESMIKNPRPRAETTDVCNAVLDGSDCVMLSGETAKGDYV
 ECVQLMVSICRETEAGINYYVSHKYLRRTASVSGGVSEVISATAVKAEEEMGAKLMVVLTETGATARHVAKYRPSVPI

LCINSHDMVARQCQVSSRDVCFSRGVIPFTVDSMIGTDAIVLQALAFATSAGLCQSGDIVVLVSGYKEGIPGQTNMIKKL IAP

>Malawimonas_californiana@prot_7

MAEVSEAYPDFISQRVALFEQIKAKQAAEPRDKKPIKITLPDGA VKEGVAFETTPLDIALSISKGLADKIVA AKLDGGVV WDAWRPLESDCTLQLLKFEDDGKKVYWHSSAHILGQAMELEFGGKLCIGPALEEGFYDDIGGDVVVSEADYARLEA RVKKIIDQKQPFERLLVPKEVALEMFKYNYKTEIINQKVPDGDVCSVYRCPGLIDLRCRPHVPNTGKVKALKVTKSSA AYWLGKNDNSLQRVYGISFPDAKQLKEVWHFQEEAKKRDRHRNIGRDQELFFFHERSPGSCFFLPHGTRIYNKLTAFIR RQYWKRGYTEVVTNPNVFNKLVQDSGHWAHYKENMFSFAVEGQDFALKPMNCPGHCVMFHGHRSSRYRELPIRFADF GVLHRNEYSGALTGLTRVRRFCQDDAHIFCMPSQIMDEIRGVLDLQEVYGFIFGFTFDELSTRPKDFLGEVAQWDEAE KALTDALNGFGQPWKINAGDGA FYGPKIDIRVFDALRRRHQCATIQDFQLPQRFELTYEAGGGRMETPIIVHRAILGSI ERFIAVLTEHYGGKWPFWVSPRQVRVLTLDTKCQDWARQVESKLAAGYYVDTDFGDAKIEKKIRHDVQRRPDRAG QLHPCGRTQGGCRRREGQRAHPR

>Malawimonas_californiana@prot_9

MRAALSAVSRISFSSVRTASRWSKVEMGPADPILGLTVSFKN DPNPNKVNGLGVGAYRDDNGQAFTLPCVREAEKRLV GADHEYGPIGGVPGFTKAAAALIFGEDNAALKDGRVATVQTL SGTGALRVGDFFIRRFQGALPVYMPNPTWPNHKNV ARDSQLGAVKEYRYDYDKASKGLDMQGMVADLAAENPENSFILLHACAHNPTGADPTQEQWKEISKVCKDKKHPIFFDS AYQGFASGDPAKDAFAVRRFIEDGHDVVVAQSFANFGLYGERAGAFHIVCSSPKENEILLSQLRILIRPMYSNPPVTGA RFVETILNDKALTKQWHSVDKLMADRIISMRHALVDGLKKAGSSHNWAHITNQIGMFCYTG LNP EQVKMIEKHHIYL TGDGRISVAGLTSKNVKYVADALHDVTK

>Malawimonas_californiana@HslVU

ELIPREVV AELDRYIIGQGEAKRAVAVAFRNRWRRRN LAPNLRNEVIPKNILMIGPTGVGKTEIARRLAKLTNAPFLKVX XXXXXXXXXXXXGRVDTHIRDLVDVAIHNQKQATKERXXX XX IHDARTVIEDEEVEKLASEESVIADALR AVQEDGVVCIDEIDKIVVSSKDRTTSNASDEGVQKDLLPLVEGTTVTRYGNVDTGKILFIASGAFHSVKPSDMLAELQ GRLPIRVELKPLSQHDLYRILTEPETS LIKQJALMKTENIDLVEFDDAIREIAAVATSNASVENIGARRLHTIIEVLEDV SFNCDKYRGQRLVITADQVKRSIAELETQDLKKFIL

>Malawimonas_californiana@Hsp78

MARAGKLDPVIGRDEIRRTLQVLSRRTKNNPVLIGEPGVGKTAIVEGIAQRIANGEV PDSVKNKRVISLDLSSLLAGAK FRGEFERVSVLKDVIKAEKGVILFIDEMHTLVGAGAAEGAMDASNMLK PALARGELHVMGATTTAEYRKYIEKDAALARRFQSITVPEPSTDTIALLRGLKEKYEVEHVGVRIMDASLVFAAVNAHRFISERFLPKAIDLIDEAASRLKMQMESK PDPIEKLAREVMMRIELEALRREPDPSPNEKRRAVLEKEVVEKQASLDQLNRTWQQEKDALEKVKAAKRQLDQAKNE FVLSQRSGLLARASELKYSIIPKLEKDVAFQSENKLSMLSDALRPKDIAAVIARATGIPVENLMMDEADKLLHLEDRLR ARVVGQEHALRVIDAVRLSRAGLHAHTRPLGSFLGPTGVGKTELCKALAEVLFNGDNTMTRIDMSEYMERHSTSR LIGAPPGYVGYEEGGTLTEAVRRRYPQLVLFDEFEKAHREVANLLLQVLDDEGRLTDSQGRTVDFRNTLIIMTSNIGADA LASLPEGATSEQARPQILAAVRRHMAPEFINRIDEMVLFNKLGRGVMSDIVNVQLKQVSRMLEEKQLT LSVSPA AHAW LAEQGYDFTYGARPLKRVIHQHLLNPLARL VIEGKVPPLSTIAVQVDGSSSLKLEVRPPMTTP

>Malawimonas_californiana@mHsp60

MFRSAANPVARLARLSFPVRQYAAAGKEIFGADARKKLLKGVHKLADAVAVTLGPKGRNVILDQSGFAPKITKDGVT VAKHIEFRDRYENAGAQLIRQVASKTNDVAGDGTATILARYFFAQGCKSVEAGLNPMDVRRGINAAVEKVIEDLKS RSIDVTNKDQIKQVATISANNVVKIGELIADAMEKVGEKGAITTDGRTLQDEL DVVEGMKLD RGYISPFVTD AKTQR CELENVHVLVVDKKSINIQGLVKALEVSVQKGGSLIVAEDEVGDALATLVNVRVRA GLKVC AVKAPGFGDNRNKIL HDIATMTGAVLSEDEVGLKFDDTLAVEQYLGSCCKKVSVDKDDAIIFFGGSGNQDAVSERLDQLRDAIKQTTSDYEAKEL QERLAKLTGGVAVIRVGGATEAEVNERKDLVTDALHATRAAVAEGVLPGGGSALLFASRALEGFKLANFDQDHG VSI VREALKVPAKTIASNAGIDGGVVVEKVLASSNTHGYNAQTSAYVDMIKEGILDPTKVVRTALMDAARIASLMTTAE A VIVDLPKEEPAAPARGGMGGMDMDY

>Malawimonas_californiana@mHsp70

MFSRILCQPLRRLPFRRLRAYADAAPTGPVVIDLGTNSCVATMEGQNPRVLENAEGARTTPSVVAIQKDGTVLVGAPA KRQLATNSQNTFHGKRLIGRRYDDPMVRKEQQMVGTYIVKADNGDAWVEAQGGKYSPOIGAYVLT KMKETAETH FGGPVKNAVVTVPAYFNDAQRQATKDAGRIAGLDVLRINEPTAAALAYGLNSGKHSKIAVYDLGGGTFDVS VLEIVE GFVEKATNGDTFLGGEFDARL TEYLVDQFAKENGMDLRKDRIALGRLREAAEKAKIELSSTNQTDINLPFITADATG PKHVQMTLSRAKYETLVDLLKKTLEPCKQCMKDSGFKNEDLSEVVLVGGMTRMPKVTELVRGLFGKEPFKGVNPD E VVAVGAAIQGSVLTKTGGVLLDVTPLSLGIETLGGVFTLIPRNTTIPTKKSQTFSTAVDNQPSVEIKVLQGERELAA DNKLLGQFQLVGIPPAPRAVPQIEVTFDIDANGIVNVS AKDKDSGRQQITL KSSGG LAEDDIKRMVQEAERNKTADTQ RKALIEAKNEAETTYSLEKLTTEHREKIPEADRTKVQEAIAEVRKATEGDNVDAIKSKVAALSSHNMRLYELVYKQG GQQQQQSGDSSNGDKKQ

>Malawimonas_californiana@mrl3

ALDARNLIRSENLTEEELKSSLTEEDFGVTSARYTPTASNWTPQSKRVGVV ARKEGMLSLQDEWGRWWPLTLLKLENT QVTQVKTKETDGYDAIQV GIEDILPRKTTKAMIKHFEKAGVPPKRKTFEFRVTPDALLSPGTTITARHFVPGQYVDVTGI TKGHGFTGAMERWGFGLRASHGVSVSHRSHGATGQRQDPGKVFKGK MAGHMGVDQRTIQSLRVYQIEAKLNCLL VVGSVPGPKRGFVRIRDALRKHVVPFPFTVAPPSETPETMPDIVVADPGDPFAPMVEETE

>Malawimonas_californiana@mtif2

MQKVSGVSWKGTAEARAKPPSDGFTLSDELAKLRRPKPDHGARIPAAHTHQPRHAPSTVQHRFVGDRTVVIGDSIPIRT LATEAGARVVDVLKALILGENPRSVSAAISGDAEALALEEMMLRKWVSTVKITRLRPREINVSRYTRERIAKDVSA G TQYPAKSPVATILGHVDHGKTTLLDALRHTAVAAKEAGGITQSIGAFSVARPEPTRRITVLDTPGHAAFTQMRKRGA A VTDVAVVVVAADDGKVPQTVEAIRHAQDAHVPMVVALNKCDKEGVDVAVVASLAQYGVVTEAEGGDVQVVRISA LQALKSGGTDGNLSALIDAIDLQADLSGICMAPTDVPAEUVIEARNDKQVGPVAVVITAGTLRVGD AFVCGCSY GK AKHFAVNGQRVSSAPPATPVDLMGLKEAPAAGDDFVVEDEKARKIAAWRCELRESNNEMRRKRAAVRMADA AKR GVIELPVVKADMHGSMEDIAEALETAHIPSNEVVVRVVGSGVGNVHESDIDLANA AKAMLIGFNVKANASVMAVAR MHGVAVRTYRVYIDLVEKREQLTALLPTTEEIVVNGRAEVAQLYPIRGKKS GATQNVAGSRVLEGAIKRSSAVRLMR DGTEIWSGKIFSLKHFKEEVSEIEKGKCEGILLDDCADLQQGDVIECVETVKRQRTLEDSAAASHKAVR

>Malawimonas_californiana@nad10

ASRVPSLAALQSSVPSDKAAAHVSPASQKSQSTAVEPSAAGKVRKFDLSEKPKGGLEYVSKLDSLNVNWSKSSM WPMTFGLACCAVEMMHAAAPRYDLDRFGIVFRASPRQSDVMIVAGTLTNKMAPGLRKVYDQMAEPRFVSMGSCAN GGGYYHYSYGVVVRGCDRIVPVDIYVPGCPPTAEALLYGLLQKQKIGRQRTL

>Malawimonas_californiana@nad11

GIHATARACAAPAKTLKMSVDGKEVEVDASFTVLQACAVAGVEIPRFCFHERLSIAGNCRMCLEVEVEKSPKPIASCAMP
 VAPNMKVFTNSEKTKRAREGVMFELLANHPLDCPICDQGGECDLQDQALVFGKDRSRFHEYKRSVEDKNIGPLVKT
 VTRCIHCTRCRVEASEIAGVEDLGMTGRGADSQIGTYVEKMFDESELGNIIDLCPVGALTSKPYAFTARPWELVRTE
 VHAIGANISLDTRVGEVMRVLPRINEDVNEEWLSDKRSFSYDGLKRQRLHFPMIKKPNGEYISATWQDTLQYIKERL
 GVPGTNIRALVGNLADCESMMALKDLVNRLGSENIESREDGMKVSPLRASYLTNSTIAGAESADVLLIGCNPRVEAP
 LFNTRLRKAYLYNDALITYIGPKQQLTYDANHLGDSVSVLKDILKGAHPLAKVLQQAQRPVVVGGAAALRRPDASGIL
 EAVGQLAHKTPNLVQPGVWNGVNLHTAASRVGALDLGIVPGTAAQSSATGRSVLYLLNADDFGEEAVKTSGSDTFVI
 YQGHGDKGASRADVILPGCAYSEKDATYVNTTEGRVQRTKRAVGGPPGDAREDWKIIRALSEVLGVALPYDVTVKLRQ
 RLADVSPSFARVDKREPATIMPOVPSSAPTLDTTVPMASGVTNFYMTDPISRASQTMARCTA

>Malawimonas_californiana@nad7

MESRNFVTFNFGPQHPAAHGVRLVLELDGETVVRSDPHIGLLHRGTEKLEIYKTYLQALPYFDRLDYVSMMSMEHCYS
 MAVERLLGCDVPLRAQYIRVMFLELTRILNHLAVSAHALDVGAMTPMFWAFEEREKLFEPYERVSARMHAAAYIRP
 GGVSMMDMPLGLMDDIYQFIRQLPSRLDEIEELLTANRIWKMRLLVDIGVVTAQQAQDWGFTGVMLRGSGVPWDLRKTQ
 PYEVYDKMEFDVPVGTGDCYDRYRCRMEEMRQSVRIVQQCLNQMPGEPVKSGDAKISPPSRQEMKTSMEALIHFK
 LYSEGFSVPAGETYTAVEAPKGEFGVYLVSDGSSRPYRCKIRAPGFFHLQGLDFMAKGHMLADVVAIGTQDIVFGEID
 R

>Malawimonas_californiana@nad8

MPKSVAVVRSNSTQPTQPPNPDDIDPWHRRERLKNFKPKETSAKHLIDWTANSLITELVRGAIVATSVLFEPKVTVNYPF
 EKGPLSPRFRGEHALRRYATGEERCIACKLCEAVCPAQAITIEAEPREDGSRRTTRYDIDMTKCIYCGFCQEAACPVDIAV
 EGNPFESTETHEELLYNKEKLLANGDRWEAELAHNIEANFLYR

>Malawimonas_californiana@ndufv1

MLSRVVALSRTAARLPVTVTSRGY AERAYGNLKDEDRIFTNLYGDAHGPDGWKIDGAMKRGDWHRTKDIIGKGV
 IVNEMKASGLRGRGGAGFSPGMKWSFMPKQTDPRQYLVVNADEGEPGTCKDREIMRQDPHKLVEGCLVAGFAMRAR
 AAYIYIRGEFDLEANRLEEAIIDEAYKAGYLGPNSCGTGYAFDVYVHRGAGAYICGEETALIESLEGKQKPKPLKPPFA
 NMGLFGCPTTVNNVETIAVAPTILRRGAAWFSFGRKNNTGTKLYCISGHVNNPCTVEEEMSIPLKELIERHCGGVVGG
 WDNLLAIIPGGSSVPLPKSICDNVLMDFDALKDVQSLGTA AVIVMNKSTDPRAIARLSKFYKHESCGQCTPCREGT
 WLWSLMERMVVG DARVDEIDQLEELSRQIEGHTICALGDAAAWPVQGLIRHFRPVMQRIAEYQKAGTKAASVHA

>Malawimonas_californiana@ndufv2

SAGALFVHRDTPDNNASTPFDWTSNDRKRIEKILSKYPAHYKRAKTIPLHLAQQKNGGWLSLAAMNKVADTLGVS
 RVYEVATFYTMFNRNFVGHVQVCTTTPELCEGSGPVLDAIRTHLGVEVGETTADKEFTLMEVECLGACVNAPMMQ
 INDDFYEDLTPDSAVEVLRGLKDRGRVVRVGPQGNARHTCEPSHKRTSLATPAWGPSAPNLDRVEPPKPEAPKGAADA
 KK

>Malawimonas_californiana@nsf1

SSKSTLAGRPYILDMQATTPVDPVRLDAMLPPYTEQYGNPHSRTHAYGWDSEEAVEAAREDVAKVIKADSKEIVFTSG
 ATENNNMAIKGVARFYKQKQKHVITATEHKCVLDSICALQEGFDVYTLVQVQNGLVLDLESAIRPDTSLVSMG
 VNNEIGVVQPIQIGSLCRKRGVFFHCDAQAIGKIPVDVNA MNIDLLSISGHKIYGPKGIGALYVRRKPRVRLPIQSGG
 GQERGMRSGLTAPLIVGLGAACRVILEEQHNDTRHVTQLSRYLYDEVKRIELVTLNGDKESRYPGNLNL SFRFVEGE
 SLLMALKQCAVSSGSACTASLEPSYVLRALGVEEDMAHTSIRIGIRFTTREEVDHIVSLELQHVQRLRDMSPLYEMW
 KEGIDMKSSISWTGH

>Malawimonas_californiana@odpA

RLLRSPASVLLSSRRGLASAAEISYEIPESYAYHKLDVKVDRKTKMKKSELMEYFKT MATMRRMEAEAEQLYKAKF
 VRGFLHLYNGQEA VVTGTEAILKKTDSVITAYRDHCHFVGRGGSVRACLAELMGRFPGCSKGGGSMHMYLAKNNF
 GNGIVGAQVPVAGLAFAHWYRQDGGVCFASYGDGAANQQQIFEA YNIAFLWKLVPVFCENRNYGMGTSIQRAA
 SNQAFTRGDVAVPGIKVDGMNVLAVREGVRYAAEHARTKGPLVEMDITYRSGHMSDPGLSYRSREEVQATRQAR
 DPELVRTWLTANGWATEALKAIEKEIRAEIQMSAELKTSPPVSEL TADVYVDTHS

>Malawimonas_californiana@odpB

MQSSRILSLAGRVASSRSVFLIRFNSTAPAATEVPTKLTVRDALNSALDEEIERDDKVFLGEEVGGYDGYKVSRLG
 WKY YGSKRIVDTPITEMGFTGIAVGAALAGLRPICFEMTFNLSQAIDHVNSAAKGLYMSGGQLRCPVIFRGPNGPAK
 AVAAQHSQCFAAWYGA VPLKVIAPYSAEDARGLLKAAIRDNDPVVFLENEVIYGEAFDITPDVLSKDFVLPKAKIE
 KIGTNTVTAFSRMVGVLEAAKIVKEADNIDVEINLRSRPLDRQTIVDSVKKTNRLVTVEEGWPQYGVGAEVAASI
 MESDAFDYLDAPVQRVSGADVMPYAQNIEDLATPTPQIVADAIKACYKK

>Malawimonas_californiana@PCCB

MFRQALLGLRQVTASVRSQRLRFNSSKIEALRQSSLGGGEHRIAAQHKKGKLTARERLALLLDQGSFVELDAFVEHR
 CTRDFGMEKQRFPDGVVTGSGTINGRPVYVFSQDFTVFGGALSETHAQKICKVMDKAMLIGVPVIGLNDSGGARIQEG
 VASLGGYADVFRQNVDSAGVIPQLSLIMGPCAGGAVYSPAMTDFMMVRDTSYLFVTPGDPVVKTVTHEMVTAEELGG
 ARHTTTKSGVAHA AFENDLEAMRKTREFFDYLP LNREGPPVPCEDPRTAELS LDRVVPADANMPYNMLDVIHKV
 VDNGDFELQPEYARNIVIGMARMEGRTVGIVANQPKEQAGVLDIDSSTKAARFVRFCD SFNPIITFVDVPGFLPGTKQ
 EYNGIIRHGAKLLYAYAEATVPKLTVITRKAYGGAYDVMGSKHLRADS NYAWPSAEI AVMGAEGAANIIFRGPDLPA
 RVAEYKNQFANPLAAARRGFLDDIIRPHQTRQVLCRDLELLKNKEYERPARKHGNIP

>Malawimonas_californiana@sdh1

PAARRMASSDPAAYPIIDHTYDVVVVGGAGLRAAFGMANAGYKTACITKLPFTRSHYVAAQGGINAALANMTEDD
 WRWHA YDVTVKGSDWLGDDQDAIHYMCREAIPVIELEQMGPFSRTKEGKIYQRAFGGQSLKFGEGGQAYRCAAAED
 RTGHALLHTLYGQSLKYNTTEFFTEYFALDLIMENEGCRGVIAMCLEGSLHRFRSHKTVLATGGYGRCYLTATSHTC
 TGDGNAMVTRAGLPIQDAEFVQFHPTGIYGAGCLITEGARGEGGYLLNAQGERFMERHAPTAKDLASRDVVS RAMTV
 EIMEGKGVGPKDHDVYLQLSHLDPALLHKRLPGISETAAIFAGVDVTKPEIPVLPVHYNMGGIPTNYMGEVVTIKDGN
 PDHVVPGLMAIGEAAACVSVHGANRLGANSLLDIVVFGRAAVHRVQQLAKETPHRPLPKAGHESIDNLDKLRNGQG
 XXXXXXXXXXXXMQRTMQRYYAAVFRKQDLETTGCKELTRIPDLNLLKLDHGRMIWNSDLVEALELQNLMTQAMITM
 YSAEARKE SRGAHARDDFTKRDDKTWMKHTVGLDVPVTKVSLDYRPVHMNTLDENEMKPIPPKQRYV

>Malawimonas_californiana@sdh2

MLRSLSTLSRFARSAAPTAEKAAASAKPAAAAMPTKKAPDVRRFQIYRWDPEKNEKPRLQSYDVMSCQCGPMVLDVL
 IKIKNEVDPTLFRRSREGICGSCAMNIDGTNTLACLRAVDQKSMKIYPLPHMAVIKDLVPDLTNFYRQHASVQPYLK
 YKTEPAPVSNLQSEEQRAKLNGLYECVLCACCSTSCPSYWWNGDKYLGPAILLQAYRWIADSRDQFTRERLESLEDDA
 FKYLRCHTIMNCSRTCPKGLNPALAIKIKSQISEL

>Malawimonas_californiana@SUCLG1

MFAVRGRTIIAAAPRSLLSAVRSYAAEASAGPPYVFVDRNTKVICQGFTRQGTFFHSQQAIEYGTQVVGVSPPGKGGSTHLGLPVFNTVSEAVRTTGANATSIIYVPPPGAKAAIIIEAIEAEIPLIVVITEGIPQHDMAIYVKHALRSGSKSRLIGPNCPCGVIKPGECKIIMPGHIIHLPRIGIVSRSGTLTYEAVAQTTANLKGQSTCVGIGGDPFNGTDFVCLKLFMNDPQTDGILLIGEIGGSAEEDAADFIKAHPKQPVAAFIAGSTAPPGRMRMGHAGAIISGGKGTAGDKIRALTAAGVTVAESPARLGDAILKAMKERGKA

>Malawimonas_californiana@tufA

TPVLRFLFSAMTAAAPRPTVVHSYTIVRGMAKFERFKPHVNVGTIGHVDHGKTTLTAATKVLADQALAKFVAFDQIDK APEERLRGITIQSAHVEYETKNRHYSHVDCPHGHDYVKNMITGAAQMDGAILVVSADDGPKPQTRHILLARQVGVPH LVVFMNKVDKVDPPDLEL VEMEIRDLLKFYKFPGDETPVIRGSALHALNGTDEQLGRAAILKLMETVDSYIPTPPRAV DKPFLMCVEGVNSISGRGTATGRIEQGIVKVGDEVEIHGLGKSGEKTVTGVMFRKELDQGGAGDDIGALLRGVGR DDIRRGMVLAKPGSVKTHTRFEGEIYALKDEEGRRTPFMNRYRQVYFRTADVTAGVTLPQGTETMMPGDNCKLTF QLQYPVVLNQLRFAIREGGRTVAGIVASIVE

>Malawimonas_californiana@TypA

PRVTSLSRANTAPILQRLQFSARFASKIDGIRNVAIIAHVDHGKTTLVDTLRQSGTMSAIAQGARVMDSNALEKERGI TILAKVTA VNWQNKRNIVDTPGHADFGGEVERILSMVDGVLLVDATEGPMPTKFLVSKALRQRLRPIVVLNKAADR DTSRPFSEVTEIFDLFCALDCAEDQDFSVLYASAKEGWA VRSLSDKRESMQPLDITXXXXXXXXXXXXXXXXXXXXX XXXXXXXXXXXXRILTGRVYSGSVLVNDRVHALKRAESTKIEEGRVLKILQRSGMERYTVDKGIAGDIISVGLSAATVGD TISSIXXXXXXXXSPAIDPPTIAMQFNPDSPLAGTEGSQVSTMVGERLRAEAEVNVALQVKQMGETVEYVRRGELQLG ILIENMRREGFELSVSPPTVVYREDEQGNKLEPIEEMIDVDAEFMGVVIEKMAIRKAEELDSKDVAGKTRLRFLCPSRG LIGFKSEFSTETRTGIMHHVHFSYKPFKGPMPNQTRKGLVMSMDGVSTHYALQNLDRGTMFITPGVKVYPMIVGE HTRDNDLDVNVSKAKKLTNVRATATDMGALALSPPRILKLEESISYVKTGELVEVTPKSIRLRKPGEMDSAKRVAARD AKK

>Malawimonas_californiana@CLPP

IMFSLCRRLLQPASICRWASYSPTRALIPMVIEQSPRGERVFDIYSRLLKERIIFLNGEVHDDSAVVVAQLLLQAEDH AKPVFLYINSPGAVTAGMAIYDTMQFIRPEVHTLCMGQACSMASLLLAAGSLGHRMILPNSKVMIHQPHGGTSGQAS DIAIHAKDILETRRLNDLLS

>Malawimonas_californiana@Coq7

MADQEEKHLEKFKKMVGKEKRVPTVLEPVWNAAGYALGVASALLGERAAMACTVAVEDVIAEHYNGQLRDLKAG ADKAEALFDITIRAFRDEDMGHHTAMQHGAAPAYGALTAAVKGATRTAIFLSERL

>Malawimonas_californiana@ETFDH

QLHTRSALYSTASPSEHAQQGTQKQSESETAVDPRTOEPRAAEFDDVVIVGGGPAGLAASIRLQKLAQNQRDVRVCVI EKAAEFGRHTLSGAVMETRALDELIPQWREKEAPLHTPA THDRLYLTERGAYRLPLPREMNNHGNIVSLSQVVRWL AAQAEAGVELYPGFAGAEILREGDKVVG VATGDVGVGKRGEIKSGYSRGMELRGKVTLFAEGCRGSLTRQLYSMYN LEQGEPTQYIGLKEVWEVDPAVHKPGHIMHSFGWPVKDAYCGSFLYHMKPNLISLGLVIGLDYKPNPYSYHEFQRF KHHPLVKPLLEKGTICIEYGARAHIEGGWQSLPKLTFPGGALIGDCAGTLNVPKIGTHTAMKSGMLAAEHAFAELDQA QSLDKYDSALRESWVGKELYAARNVRPSFDLGFIPFVLISGTESYITRGLKPFTHHHGRDSQSLRPAEACREIVYEKPD NKISFDLLTNLQRTNTNHEEDQPHLRVTDVPVKARVSYTKYAGPEGRFCPAGVYEWIKDEQTEPKLQISAQNCIHKCT CDIKSEFITWVPPPEGGGGPMYTNT

>Malawimonas_californiana@ndufa9

SIARTNPEQKRGI AFHQVTPGARASVAGVPVTLGATGFLGRYVVSSIGNTGSQIVVYRGNESYRHLKLAGDLGQIV PIPFHPKRIDTIAQAVEHSAVINLIGRNYETHNSSFEDVNVRLAGDIAKVCTEAGVQRLIHVSALAANDPHATSRWAQT KRRGEEAVRKAFFPDATHIRPAPVFGPEDRLSQKEATVAKFFLFPFI FGSDSRIQPTWVLDVAEAILNATRDIHTAGKTYEL AGPRVYTRKQFMDEILDIAGLWRARPVPVPSLLAAVPAWFLERIPPIEYVTRDMLKQY AQDIVRDDSALGYEDLHITPQ SFEKHAVSLLRGRFPKKAHIGFEITNES

>Malawimonas_californiana@ndufaf5

DTMEVFDQRQYKRLQRNRIARANAPDFDLRDQIADTLVDRLXDVPRDFPNALDLGCGSGSIIRHLNRGGIQTIVQCDX XXXXVKA YRVHADEEFLPFQHGSDLVMSNLSLHWINDLPGVFQQVRKILKPDGMFLGSMGGQTLTELRTSFVVAES EREGLSRRMSPMADVSDVGLISSAGFNLPVDVETVTLNYASPFVLLHELMMGEANA VNSREMTLKRDTLLSMA ASYQALFGNADGSPATFQV

>Malawimonas_californiana@NifU

RRSLFIRPARTPNENSMQFFPTXXXXXXXXXXMEFKSIREENTQKSPLAKLLFQIEGVESVFM SHNFVTINKTEETEWDIL KPHVFAALMDFDSDGQPVYTDMPVTDITLPEDEVVAMIKELVETKIRPYVLRDGGNILYRGFKDGYVHVQMTGSC SGCSASDTLKKGVESMLMHYIDDVKGIVRVDEAGDDVNSALQLEERLARAKKESKA

>Malawimonas_californiana@PCCA_

ANRGEIALRVFRITCKKLGIRTVAVYSDADKDALHVQLADEAVRIGPAPTNSYLNADAVLEAARKSGAQAIHPGYGFL SENA AFSEAVTKAGITVGPNNAMRALGDKIQSKHIAKEAGVSTVPGYVGEVNSEADA IKIANQIGYVVMLKASAGGG GKGMRVAVWDDDDVRTGYTISREEAKSYFGDDRLLIEKFIESPRHIEIQIMADSQGVLYPERECSLQRRNQKVIEEAPS VALDDATRSMGEQAASLARA VGYQSAGTLEFLVDPRKNFYFLEMNTRLQVEHPITEYITGVDLVECMMLVAAGHPL PMKQSDLKIKGWAVESRVY AEDPLKGLFPLSIGLLTTYKEPPVTDYNLRVESGVTEGSEISVYDPMISKVVSYGENRDQ ALLRQKNALDSYVIRGLNHNIPFLRSVLDHPRFIKGDNLTKFIPRDAPKGFSGHALTARQVKELVGA AATMHMMRTQR DASISDRLDSS

>Malawimonas_californiana@PET112

WQLVVGLEVHARINSPKCLFSGASTDIDAPPKNVALFDSAHPGTLPVNLPHCQEAVRTALALRGRIALHSTFDRKHY SYHDLPHGFQITQKLCVMSGGLEVKLENKEVVVPIQHLQIEMDSGKTIQDLSTLYVDLNRAGVGLMEIVTAPVMH SSAVAGQFVKQLQTLRHRIGTCDGNMQDGLSRCDVNVSVTHRVTQQRGARIEIKNLNSIRSVVRAIDYEYERHVDLLTR KEELKPETRSFDAMSNTTQFMRSKETHLDYRFFPEPDLPALVLEEIRKSLPRMPEQIAADLVSNY AISQADAALLTCDLR VLDFFEQA AKGRSGKKVANWYVSELFLLAGAKRPFDESITPQQLGSLIDALDAKTIXXXXXXXXXXXXXXXXXXXXXX XXXXXXXXGLTDTDEASLRSLCERVVQSNPTEVAKYKAGRTRVFGFFVGA VIKETR GKADPETVNRIVRELLDR

>Malawimonas_californiana@UQCRC1

RRLVSSSQQFSLALRRISA VIPTTTTTNGIRVATEEKAGETATIGVFIDAGSRYEYEQNNGTAHFLEHLAFKGTSNRTQ QLELEVENIGAQLNAYTSREHTVYAKVLKKDVPRAVNILADIIQNSLYPEERIEAERSTILREMEEVERTFEEATFDRL HETAYQGTALGRITLGPENIRTIQRXDLKDFVKTHYTGKRIAVVAGAVSHADLEKLTQSSFGSLPAESATPVHKTPC KYTGSVDLVQNDMDLTHVALAIQGVGWKHADSIPLMVMQIIIGAWDRNAGSARHLSSKLAGEVHRYDLARFMSF NTVYSDTGLWGTYAIXXXXXDETLDDL CYAIENEVWRMCFDVTEAEVERAKNQLKSSLLVQVDGTTQTCEDIGRQLL TYGRRVPVAEMLQRIDXXXXXXXXVRRVASTYIYDQDPVMAMIGPVAGAPDYNRLRKWTHWYRT

>Malawimonas_californiana@UQCRFS1
RSL SRL PL STIR SSARALASSSSGGDPKTGYQVADDFHHGPD RARSNVGGDVG RKMFAYSVLGTA AIYAASVRNTVV
DFVDSMNSPADVLALASIEVDIQIAEGD TMVVKWRGKPIFIRHTAAEIEAAKSTALSELKDPQEDAVRVQDPAWLIV
LGVCTHLGCVPMVKQGDYDGLCPCHYSHYDTSGRIRKGPAPLNLEVPYQFIEGNTKVRIG

>Malawimonas_jakobiformis@atp1
MICLSFVFRYFQARLFTTSSAARAAPTASEVSR IIEDRIKFSFSHKAEEVEEVGRVISVGDGIARVHGLLNCQAGEMVTFA
GGVKG MALNLERNVGVVIFGNDRVIKEDLVKRTGSIVDVPV GKAMLRVVDALGNPIDGKGAIDTQTRSRVEVKA
PGIHPRQKVAEPMMTGKAVDSMVP IGRGQRELIIGDRQTKLTAVIDTIINQK FVNDTGEKRKLYTIYVAIGQKRSTV
AQVVRLEKHDAMKYTIIVAATASEAAPLQFLAPYSGCAMGEYFRDNGMHALIIYD DLSKQAVAYRQMSLLRRPPGR
EAYPGDV FYLHSRLLERA AKMSDANGGSLTALPVIETQAGDVSAIYPTNVISITD GQIYLESELFYK GIRPAINVGLSVS
RVGSA AQERAMRQVGGRLKLYLAQYREVA AFAQFGSDLDAATQHQLNRGARLTEM LKQGGYSPLMEEQV VVIFGG
VNGYLDKLPVSEVGFVFRK YIKDKHATLLD TIRKERM TDASTEELK KAYD GALNAWSAAK

>Malawimonas_jakobiformis@atp2
GPKGKIVQVIGAVVDVQFEGALPPILNSLEVQNSDIRVVLEVAQH LGENTVRTISMEGTDLGVRGQGVVDTGAPIMVPV
GRET LGRIMNVIGEPIDNRGPIS TKKAAIHAEP LFTQSSATEILVTGIKVV DLLAPYSKGGKIGLFGGAGV GKTVVIM
ELINNI AKAHGGFSVFGG VGER TREGNDLYKEMIESGVIKLDGDSKAAALVYGQMN EPPGARARVALTALVAEYFRDE
EGQDVLLFIDNIFRFTQAGSEVS ALLGRIPSAVGYQPTLATDMGAMQERITSTRKGSITSVQAVYVPADDLTDPAPATTF
SHLDATTVLSRAIAELGIYPAVDPLDSTSRILDPTIVGEEHYNVARAVQKLLQNYKSLQDI IAILGMD ELSEEDKLVVAR
ARKVQRFLSQPFHVAEVFTNQAGKFVSLKDTISGFKAIMEGQYDHLPE SAFFMVG TIDEAVDVAKKMAELGAK

>Malawimonas_jakobiformis@atp3
MAGETRGMATLKEVANRIKSVKNIAKITKSMK MVAASKLRRATASMMQAREYVAGIESFFEEAPTAEASTAVAAPAG
TKRKH LIAVTTDRGLCGGLNSTVARQIRAMVKG FDSNTVPEIIMGEKGNAQM KRDLGPYFSYVFE LSKSTFTFASAS
VVAEKILASNFDEATLVYNYFKNKISYVTTKRPIRSLKSFQEA KLEAGAYEFSDCLTDLYEFYVANSV FQSSVENATVE
LSSRTMAMDNA TRNATQMIDRLTFYNRSRQASITKELIEISGAAA V

>Malawimonas_jakobiformis@cox11
GRKGKWDNTQIGLAVGAFALAGIAASYAAVPLYQMFCRATGYFGAVGRGDPAEAAA KAAAQONAVVRPITVRFTSD
VSSNLPWSFVPIQKSIKIVPGETALAVYSATNKTD TPLIGVATY NVAPASVATYFVKVQCFCFEHQRLNPHESVDMPVLF
YLDPEILNDPLLDHISAITLSYTFFLADREGQAAVQAAAL KLAEDSERERELGKVA AAVAQTADS

>Malawimonas_jakobiformis@cyt1
MAALTSRFVRAIAAAGAASLGIALLPRSQPAQTSGGELEPAEY PWSHKGLLSSFDHASIRRGFQVYKQVCSTCHSVELL
AFRNLVGVAYTEDEVKALADYEITDGP DDEGEMFTRPGILSDKIPKPYANEQAARFANNGSLPPDLSLMVKARPRRE
DYVFSLLTGYREPPAGVVVREGMHFNYPYFPGNVIGMAKLLTDDLVEYDDGTNPTASQA AKDVVTFLTWAAEPEHDDR
KMGMKVLFVLGVALITTYLKRKFWNVV KHR TISFMDMHRGPGTRK

>Malawimonas_jakobiformis@DLDH
KCISLFAFVEMLSVIRLARSVAARATRAMSAAATTDVDVCV VGGGPGGYVAAIKAAQLGLKTACVEKRGALGGTCLN
VGCIPSKALLHSSHLYEHALHDA AAYGVKITGVSM DVAQMLAQKDNAVKTLTGGIEM LFRKNKQVYVKGFGKLSA
NEVVVDMS EGGQSKIRAKNIIATGSDV TPLTPVIDEKIVSSTGALSMQRI PKKMIVIGGGVIGLEMGSVWRR LGTEVT
VVEYMDRIGAGMDA EIAAQFQRLLTQGMKFKMSTKVMGAEINSNGAVVNVEAAQGGKPEKLDADCVLV SIGRRPY
TDKLNLSAVGVKTDKRGFIDINDHFQTSVPSIY AIGDVVRGPM LAHKAEEEGVAVAE LLAGRAGHVNYNAIPSVIYTP
EVAWVGKTEELKQAGVKYRVGKFPFLANSRAKTVAQTDGLVKMIADEATDRVLGIHIGSTAGEMIAEGLVALEYGA
SCEDIARTCHAHTLSEAFKEAAMATYDKPIHI

>Malawimonas_jakobiformis@DLST
IVIGAIRVARPAARSFHALQRASVRLPLAERLQHQH LTFSRMMAVKTYTMPQIADAVNEGTLAKY NKQVGDYVNEDEI
IAQFETDKVAFEPKASGVITKLYAQV GQTVRTGDNVVDIDV GATAGAGAAK PAPA AEKAAEK PAAAAA APKAEAP
KPAKAEAPKPAESKPSAATGAKPAAAPVM MSTAGRTERREPM SRMRQRI AERLKASQNTYALLTTFNEIDMSNLMA
MRDDLKDEFLEKHKV KLGFM SGFVRASASALQAFPVINAVIDEQDIVYRNYVDISVAVSTPTGLVVPVLRD VDRMSFA
DVEKAINELGVRARDNKLTIPEMQGGTFTISNGGVYRSMMGTPILNPPQSAILGMHGVTKRVVVNDQMVIRPMMYV
ALTYDHR LIDGREA VFLRHIKACVEDPRRLLEL

>Malawimonas_jakobiformis@etfB
MRILVGVKRVIDHAVKIRVRGDKTG VETANVKMALNPFDEIAIEEAMK LKQAGVAKEVVALSIGPTGAQESLRTALAL
GCDKAIHVP HDKGDNLTLTI AKIFRGIIGRENPNL VLLGKQAIDDDSNQTGQLLAGLLSWPQGT FASKVVVEGDKVSVT
REIDGGLETILLKLP AVITCDLRLNTPRYPSL PNMKAKKMPITQVKLEELGVD AKNTLQTVSVEEPAKRKGGVKVDSVE
TLLQKLKTEAKVI

>Malawimonas_jakobiformis@grpE
MQRLAHPMPWRALAPVRPLSVYSGVYAENDQGA EQKAQQAQSAEQAAKEQKPEPSQPEKEIAELKDKAKEFQDKWVR
SLAELENLRKITQRDIAVAREYAVTEFAK DMLSVADNLERALTAVPEQARAENKLLQNL YDGVKMTQSGLASVLQRH
GVVKIPTVGEKFDPNVHNALFELDDPKYAPGVV SQMTKQGYMIKDRVLRVSDVGVVRQPSQ

>Malawimonas_jakobiformis@prot_10
ISKNNDEQYI WESNAGGTFNITLDTEGERLGRGTKIILHLKDDQLEYLEERRLKD LIKHHSEFINYPIMLLVEKTEEKEV
DGEAEGEKKEKVTTFEFELVNKTKPIWLRKPEEISREEYQGFYKGLSNDWEDHLAVKHFNLEGQIEFTXLLFVPRRAP
FDXFE PNKKNNIRLYVRRV FIMDNCEELIPEYLSFIK GIVDSEDLPLNISRETLQ QNKVLKVRKNIVK KCLDLFSEIAEN
KDDFFK FYDAFSKNLKLGIHEDSANRAKLA EFLRFYSSKSADEMTSLTDYVTRMKEGQDQIYYITGESRAA VESSPFLE
GLKKRNIEVLFMTDPIDEYAIQQLKEFQGGKLVNITKENLNLGESEEEKKRIEEKA AFEPLCKTMKEILENKVEKVV LG
QRIVESPCVLVTSEHGWSANMERIMKAQALRDSSMSMYMTSKKTMEINPSHPHIIKELKNRVERGDKA VKDLIMLMYET
ALLTSGFSL EEPASFAKRINRMIAMGLEVDEEAGPAADAASDLPPLEPAAEGISNTTSMEEVD

>Malawimonas_jakobiformis@prot_11
MSDRPDNAP EHCPTESDQAGHASACQCPNQTIMEIKERLSTVKHKILVLSGKGGV GKSTVSSQLAFSLAAAGYQVG
LLDV DICGSP IPKMTGLEGETVHQSSAGWSPV FDERMAVMSIGFMLENPDQAI IWRGPRKNGMIKNFLRDVDWGELD
VLLIDTPPGTSDEHLSIVTYLKDAGIDGAVVVTTPQEVALLDVRKEITFCCKVGVRLGVVENMAGFVCP RCKGETQIF
RPTTGGAKKMAEEMQVPLIGSIPLDPSLRVACDEGKSFQAVNAESPASKALMSVVQRMFCSAMFIIFLYSKLYNTPEK

>Malawimonas_jakobiformis@prot_13
MSGAVKEFLRFVNASVSPYH AVHQARTALEAAGYELISEAAPWKLKAGGKYFFTRSQSSIVAF AIGGQFKPGNGFNVV
ACHTDSPVLKVKPVSIHQ RAGYLVQVVEPYGGGLWHTWFD RDL SVAGRVLVRNGS QYVSR LVHIDRPI LRIPNLAIHL
NRAVNTDGFQNLQTHVLPVLATAVKSELENPTGAKHQALLKLLADELKC DPADVADFDLVLCDTQPAQLTGAMEE
FVASPRLDNLCMSFCGLKGLAEASGLDSESAVRVLALFDHEEVGSQSDH GAGSPIMLYVLSAELVKRVTSV FVAGSDTPP

DIVEVALRKSFLVSADMAHALHPNYAEKHEEHQPMHHRGVVLKINSNORYATSALTALPLRLVANRAGVTLQEFVV
RNDNACSGSTIGPIIAALCGMRTVDIGVPQLAMHSIREMCGAADIDAAVQLCTAFYTEFTAIDASVQTELTATTAQKSAK
V

>Malawimonas_jakobiformis@prot_14

AQSVVPTQQRSFASKLHPSESLTGTSSVIEEMYENYQKDPSSVDSTWREFFRRVDSGAPPGEAVSIMTPPMLESVRRP
VVSOGAAPAVRHLTCVSDNDGDVAVRQAVYDTVRLMTLQRLHRVRGHLQAKLDPLCLQPAKHLSDLPATYGFDTAD
MNRPVVAPPQVKDITNQSQYTTTTVAKVLEEIRSVYCGTVGVEYYHIDAEQRDWLQKEIETPAPALTREEKLWVYK
HLSHAELFETFLAKKFGIAKRFGAEGGEAMLPLVESIVETASDSGIESVIGMPHRGRNLANTMRKPFRAILQGFQAH
DEPVNKQQSDVQSGDVKYHLGTTVDRTLKNGKHIHVTLSPNPSHLEAVNPVVEGRTRAKQFYLGDKERSRVMSVLM
HGDAAFAGQGIVAEFLAFSDLNFFKTGGTVHIIINNIGFTTDPNSRSTPYPSDIKAGAGAPIFHVNGDDPEAIVQVGR
AVRWRQRFHKSIVDMVCYRRRHGHNETDEPSFTQPLMYKKAIAKKNPRVL YREKLIAEGSVTKEELDAIDNPFLELLEN
EFKEAKSVYHNPDYDWIPKPKWELMAEPSTVRPTGVVEEVLLMIGKHLTTVPEGFVPHRLGKAVIEPRRNMESKGL
DWGMGEALAYGSLVLEGVHVRLSGQDVERGTFSHRHAVVHDYSETPKRYTPLDCITKDQARFIVGNSSLSEFGVLGF
EYGTLESPEKHLTIWEAQFGDFANGAQVIFDQFVSSGEAKWYTSQGLVCLLPHGYDGGQPEHSSSRVERFLQQAEDSD
LKSSQWDEDLQRLNWNQIANPSTPGNFFHMRQIKRNRKPLIITSPKRILRLPASDLSEFLPGTAFKSVLPERDQLVSP
DKVKRVVFCGQLYDYLNARKERQVKDIAIVRVEQLAPFFAAVQQAQYVADVVVAQEEPKNMGFWDYVVRP
FENALNSAEGASYVGRPSAASPATGYPEQHRELRTLEHAMTPRKDKKVL

>Malawimonas_jakobiformis@prot_17

TVTRAPRLGIRGLLSYLELSKFRGLGALVVFSTTAGFVLASGSIWQDWATIDWSQCAWVSVGTAALVGAANTLNQVIE
RNRDRVMARTLGRPLGRLSVAHAIGFAVVCCTAAGTYLHQHNSKLTALGLSNLCLYAFIYTPLKMWHPINTWVGA
VGAIPPVMGAAAIVLPGQPSLRDLRFDAWLMGAVLFLWQIPHFALSYFIRTDYAKAGYRMLSISNPTLTARLAVRYCL
YLLPVGLLAWAAGVTDWVYAVDSAALAA YMAWKGRPFVMQPSDSNARRLFRAALVYLPVAVMLLAIAHAKPLSERV
AKTPLLQIGAPVSVTAAVQTDGVTTVSQRSEA

>Malawimonas_jakobiformis@prot_18

SPSGDGSHESTRPVRNVHFQIGTVSSFEKKLEQAQRELGITPDHWVAVHGEFLKLSPTLLLIGGWYLMRRMGAGGG
MSQIFNVGKSPAHEMYKQGEVTRTFKDVAGLDEAKVEIMEFVDFLTPAKFTRLGAKIPKGAAMLVGPPTGKTLAKA
VAGEAAVPPFISGSDVFEMFVGVGSPSRVRLDFAQARQNPACILFIDEIDAIGRHRGRIGGNDERENTLNQLVEMDGL
KGLHHVIVLAGTNRSDVLDPALTRAGFRDRHIYIDLPAIKARKQIFEVHLKPLKLAEPMENYSKLLAALTPGMSGAEVA
NVCNEAALHAAREGKKNIEIDFYAIDRVIAGLERKSRVLAPEKKTVA YHEAGHAVTGWFLEHADPVLKVSIVPRG
AAALGFTQYLPKDRRLHSDKQLWDMVCMTLGGRAEAEQIFFGRVSTGAADDLDRITRILYQEVALLGMDSTFGPISYPP
PGDGEMRFYKPYSESTAELIDERVRLVDAFDRTMKLLTEKKEAVAALAEERLLEKEVLSQEDVAQLIGVRPFKQQT
YEEFVYGTGLPNSAGTTDSATTTTAAAAAADSGAAAVAGSAPESAPKSDSNEKDKKPE

>Malawimonas_jakobiformis@prot_24

STKTKFSDGPGMAAAAGSAGAASGVNPLTGRAFSQRYDILAKRKTLPVYEFRDEFFKLVRENQVIVLIPQFLIEMGLA
AGRKRIACTQPRRVAAMSVSKRVSEEMDVLGEEVGYNIRFEDMTSQTILKYLTDGMLLREAMADPTLDQYSCIVLD
EAHERTLATDILMGLMKEVLKARPDIKLIVMSATLDAERFQDYFTLEGRAEKAPLLKVPGRLYVPEIFYTPPERDYVE
AAVTVTLQIHLCEKPGDVLFLTGEIEEETCKRLVRESKNIEQAGELVAVPLYSTLPPAMQRRIFDAAPAAKRPYGGP
GRKVVVSTNIAETSLTIDGIVYVIDPGFAKQKVYNPRIRVESLVTPISRASAQQRAGRAGRTQPGKCFRLYAEKAFKKE
LTPQTYPEILRSNLNTVLT LKRLGIDDLVHFDMDPPAPETLMRALELLNYL GALDDDGNLTEL GKMMCEFPDLPQLA
KLLITAPDYNCSNEILSVVSMLSAPNVFVRPRESAAQADQAKARFTHQDGDHLLTNVYHAFKANGDDAQWCWENFL
NHRTLKSVDNVRTQLARIMRKFNLPLVSTDFNSKEYYINIRCLCTGFFMQAAHLERSGQYLTVKDSQLVGLHPSTGLD
HKPEFVYNEFVLTTKNFIRTVTDVKPEWLVEVAPHYDMDNFPDCEAKLVFKRIQQRAELMKRAQQQERQLYKR

>Malawimonas_jakobiformis@prot_25

RVHLLPITSIRMASGKPOLPAPGRVVLG PALSPTMSAGTISEWKVKEGDKVAVGDQALAIETDKATVSMDSQDDGYIAK
ILKPKGSSDVPVSEPIIIIAENAADVAKFKNFELGASAPAAAAPAAAPKAAAAPAPSPAPASAPARXXXXXXXXGAGGDR
VFASPAARKLAADSGVSLAGIQGSGPAPTHRVIKADVERAALVTAQAKTAPATTTAAAAAPTAAAPAAPRAAVPAGAYTD
VPLTNMRKVIAQRLTESKQIPHYYLSVDVEMDALMKVRAQLNAAQKDAVKISVNDFLVKAALALRRVPVAVNNS
WLGTAIRVNHTVDVSVAVQTTGLITPIVRNADLRGVAIAAATKDLAERARTNKLTLDEFQGGTFITSNLGMFGIKQF
TAVINPPQSCILAVGAAQRRVVPVSEESTETKIASVMTVTLSCDHRVVDGAVGAQWLGVFRSLEKIPITMLL

>Malawimonas_jakobiformis@prot_26

PYHSLRTDAPVLDG AIDVNSEDFKANTNAMNEYIQELRKRVSVAKQGGDEVSRRKRVKMLPRDRVAALLDPGSP
FLELSALAGDGLYEDKVPAGGIITGIGRVSGTECVIVANDATVKGTTYYPITVKKHLRAQTIAMQNRLPCVYLVDSGGA
FLPLQSEVFPDREHFGRIFYNQAQMSAMNIPQVAVVMGSCTAGGAVYPAMADETIVVKGNITFLGGPPLVKAATGEV
VSAEDLGGADVHCRNSGVTDYARSDEHGVALARRIVANLNRSKPRAPDAEPEAPAFDPREMGDIAPDRKQFDVRK
VLARMVDGSRFDEFKELYGSTLVGTGWAHIIHGRVIVANNGVLFGESAAGAHFIELCGRGIPLLFVQNTGFMVGR
KYENEGIAKHGAKMVTAVATAPVPKLTMIIGGSFGAGNYGMCGRAYDPRFLFMWPNARISVMGGPQAASVLATVQR
EGYERQKHWPAEEEAFAKIEARYAHEGSAFFSSARLWDDGVIEPSTSRDVLGLALAAAHGTEPAPPNWGVFRM

>Malawimonas_jakobiformis@prot_32

TTLRTVLQIARVLQAALQRTPLHSFHVQRGAKMVEFCGYDMPVQYKEGVLTEHLACRQKAAIFDVSHMGQLHVEGK
DRIAFMESLVCADISAATDGKSQLSVFTNEKGGIIDLIVTRTPDYLYVINAGCKEKDIHLKAKAAAASGLDVKLNIIET
HALVALQGPAMSTLQKLLKDDLTRMPFMTSAVAVNGVQCRVTRCGYTGEDGFEISVPAEKSVALTEALLDTGKGN
VLMAGLGRSDSLRLEAGLCLYGH DINEDITPVEAGLTW TISKRRRAAGGFPGFNIAAQIANGAPKRVGKTTAPAREN
CEILDTTGNKVGVTSGTFSPSLKAAISMGYVPAALSKTGTAIQVVRNGKALPAQVVDLPFVPSHYKVPK

>Malawimonas_jakobiformis@prot_33

EYQDMIVIGGGATGCGVTLDAATRGLKVALIEREDFAAGTSSRSTKLAHGGIRYLENAVNHLDYEQLRLVDEALNERG
IMLRTAPHLVKPLPILVLDVDRWWKLPKLVIG

>Malawimonas_jakobiformis@prot_34

MAAMPAGPAADVDANLLSVTLAKNMKPKQPHELT VFGHTFTDHMLEVEWVKQGGWGAPRIVPYHDLVLSAASV
HYGLECFEGFKAYRSPQKPLFRPDRNFARMTNSARRLALPSFNEGQMLECVKLVSIDRDWPNARGYSYIRPTLIA
TTPALGVAPPSNALFFVIMSPVGPYFKEGFKAVKLLAEETYTRAWPGGTGPAKVGGNYSILPQLEAAQKGYTQVLW
LFGPNQVTEVGTMMNFVFWKNEAGETELVAPLDGTLPGVTRDSVLALTRGWKEFKVSRPYTIHDLIKANEGR
LEAFGAGTAAIVSPVSAINFRGKEHRIPLDAKSSAQAGLARRLMSTLLSIQYGETQHPWTITVD

>Malawimonas_jakobiformis@prot_35

PQAQSKTDTKSSAGESDAKSDSQWSRYRTPITWGTVGGVFTGLGVVMMYYNYEKSKRSDVKVGVKSVGEMAIGGPFNL
VDVNGKPVSDQDFRGKYMMIYFGFTHCPDICTELTKVGEVMEQLEKNPKTRGKVQPVFISVDPARDSPAQLKAYAAD

WHPKFVFLTGNDQVRAVTKAYRVVYYSKPEVVTADKDYLDVHSHIYFVDPEGKCTNFFTQSLGAKQVVERITTELTGG
ELSFADYLRGLVGLRKHQDQ

>Malawimonas_jakobiformis@prot_36

MLRSLRLDVRTVTLFPGDGIGPEISLAVQEIFSAANVPIRWEPEFDVGTAKASAGKMPDEAIESVKNRNVALKGPLATPIG
GGHVSLSLTLRRIFDLVANVRPCRSIAGYKTPYDDVDVVIIRENTEGEYSGLEHEVVPGIVESLKLITRPASQRIAYAFE
YAKRYQRAGVVAVHKADVI

>Malawimonas_jakobiformis@prot_37

MRLLYRFYDVTGQDIRAVSLPSLRAIGVVPQDMVLFNDSIYNYIAYGGSSETTEADVHSAQAARIHVDVIQ
RFPEGYQTKVGERGLKISGGEKQRVAIARTMLKQPTILLCDEATSSLSRTEVEILHSLKQLAQDRTAVFIAHRLSTIADA
DEILVMDSGRVVERGTHESLM

>Malawimonas_jakobiformis@prot_4

APTAAPRVIPSVFRRYLLDPAADAERISHVRNIGISAHIDSGKTTLTERILYYTGRIREIHEIKSEVSGKMDSDMLERERGIT
IKSAATYCAWKDAHINIIDTPGHVDFTEIVERSLRVLDGAVLVLCVSGGVQSQTTITVDKQMRRYHVPRVAFINKLDRGTG
ADPWRVINDLRAKLRHNAAVQIPIGLENLDSGVVLDLDMRAFQFFGNKGEQVKEIDFPNELRTMAESKRNELIEQVA
NVDDALGELYLSSEKIEADALRQAIRRVTLARKFFPVFMGSAKYKNGVQKLLDGDVIDYLPNPSERENFALDRNKDEEK
VQLSSQSNKPFVGLAFKLEHQFGLQTYLRVYQGTIKKGFITNITTKKKVKVPRLVRMHSDMEDIQCEGAGEIVAMF
GIECASGDTFTDGTQQVTMESMHVPEPVMSLAIAPKVKDKSDAFGKALNRFREDPTFRVDFDKESQQTIIISGMGELHL
DIYVERMKREYGVDTIVGQPQVAYRETVATKTDNFYTHKKQSGGAGQFGRVIGYIEPLGPDQSEFVNAVVGNNIPPGF
MPAIEKGFHEAVEKGPLIGHPVQGVRFVLTDLGSAHVSNSLSRFLAAIGAFKTAFFAAGGMVLEPIMRVDIQQVPREYQ
GNVIAGLNKRKGVVLSNEEREGYTHIEAHVPLKDMFGYSTDLRSATQKGGEFSMEYHKLAPVPRNVQQLMDAYAKK
RAAEK

>Malawimonas_jakobiformis@prot_5

LTGSCYVLAKMSTFLFTSESVNEGHPDKLCDQVSDAVLDACLRVDPHAKVACETASKTGMVMVFEITTSVAVLDFQKI
VRDAVKEIGFSDSDKGFYKTCNVLVAIEQQSPDIAQGVHIGRADEDLQAGDQGMFGYASDETPEMMPLSHVLATKL
GARLTVYRKKGILPWVLPDGKQTVTVYKREGGLVIPQRVHTIVISTQHVESVNSNDQIRKDLLEHVIRKPIVPMMLKDTI
FHLNPSGRFVIGGPMGDAGLTGRKIIVDTYGGWGAHGGGAFSGKSPEKVDRSAAAYARWVAKSLVAAGLCKRVLVQ
LSYAIQVARPLSIFIDTYGTATKSEQELLDIVNKNFDLRPRAIKALNLTQPMYHKTACYGHFGRSEFPWEQPKKLEM

>Malawimonas_jakobiformis@prot_7

MAAAAAEVPEFVQHRIRLFEEKAKQAAAPKKEEKISIRLPDGA VKEGIAGVTTPLNVAEGIAKKLAQNTVAKVNGA
MWDARPLEDDCDLKLITFDEDEGKHVFWHSSAHVLGQALELEFGAKLCIGPALEEGFYDLASEVPVTPSDFTRVET
RVKKIIDERQPFERLAVPKEVALEMFKFNKYKTEIISKVPDGTCTVYRCGPLIDLRCRPHLPNTNRKAFKVTKNSSAY
VLGNKLNDSLQRVYGISFPEPKQLKEWVAFQEEAKKRDRHVIGTQQELFFFHERSPGSCFFLPHGARIYNTLMSFIKEEY
WQRGYTEVITPNMNFVLDLWKTSGHYQNYRDNMFLLEVEGEFALKPMNCPAHCMFMFKHRTRSYRELPMRYADFGV
LHRNEFSGALTGLTRVRRFCQDDAHIFCTLQGIQAEVKGALDFIKHVYGVFGFRFELELSTRPEKALGTVEQWDKA
LAAALDDFGQEWKINPGDGA FYGPKIDIGVFDALRRRHQCATIQLDFQLPQRFELEYEGETGKETPVIVHRAVLGSLER
MAILTEHFAGKWPFWVSPQRVRLPFSKDCMAFAEEVRAALHDAGYFVDVSDTDDTIQKKIRNAQVAQVNYMLVVG
KQVEAERKVNVRTRDNVVRGLKSIEEVLAEFDELKRTKAREEIAVPGAAAAAAAATD

>Malawimonas_jakobiformis@prot_9

MYSVLLSVRAILPRHVRMASRWSKVEMGPADPILGLTVAFKNDTSPNKNVNLGVGAYRDDNGKPYVLPVREAEKRL
DADHEYAPIGGLPGFTKAAATLTFGDDSAPLREGRIATVQTLSGTGALRTGDFIRRFGLAMPVYMPQPTWPNHKNIA
RDSQLGGVKEYRYFDKTKGLDFAGLKSLSAAPNGSMVLLHACAHNPTGVDPTQDQWVEISRLCKDKQHFVFFDSAY
QGFAGDPDRDFAFAVRQFVRDGHVVAQSFANFLYGERIGFAFHIVTGSDEKAEILLSQLRILIRPMYSNPPTGARI
VETILTDKGLTAQWHKDVKLMADRIGMRQALVDGLKQAGSKQDWSHITKQIGMFCYTLGLSTEQVKKMIEKHHVYM
TADGRISVAGLTSKNVQYVANALYDVTKA

>Malawimonas_jakobiformis@HslVU

VLLLVPATMWRRTLLFTVSVFRTPHTFRCSSTRPQELFPREVVAE LDKCVVQEDAKKAVAVAFNRNRWRRLHIDESMK
GEVIPKNILMIGPTGVGKSEIARRLAKLTNAPFVKVEATKFTVEVGFYGRDVTIHDLDVAAIKDCHDRAKDALRGQVN
SDIEKALVDKLAGPDARATTRESFLHMLRQGHLLDREIDIEXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
XXXXXXXXVSEAKKVLIEDSLIEQKVTQEQQVGDALRSVQEDGVVCIDEIDKIVVREDSRNHSNASDEGVQKDLLPLIEGTT
VNTPYGPDVTSKILFIACGAFHSCKVSDMLAEQGNFLPIRVTLQPLSENDLVRILTEPRSSLIKQCALLATEGVKLFTE
DGVREIAKVAANVTQVENIGARRLFTVMERVLEETNFNCNCDTLRGQEVVNAEFVRKNLRLDLERSTDLKFFIL

>Malawimonas_jakobiformis@Hsp78

MFNRVARSLIRVGRVIAGLPKPMIATTERQLGFVLGRVAVTPRVSGLFSSTFSSSRLHHTTPMRFAATPGQPEPYISPDALP
TGEALRKYGRDLTEAAKRGQLDPVIGRDEIRRTLQVLARRTKNNPVLIGEPGVGKTAIVEGIARRIANGEVPEVSKNK
RVIQLDLAAMLAGAKYRGEFEERLKSVLKDVTDKGEVILFIDEMHTLVGAGSAQGTMDASNMLKPALARGELHCVG
ATTTAEYRKYIEKDAALARRFQPVVPEPSVPETIALLRGLKEKYEVHVGVRIMDAALVFAAVNAHRFISERFLPKAI
DLVDEAASRLRMQAESKPEVIDSLQREVTLRIELEALKREPDPTAKRAREVEEVKVKQAE LDRLNVRVWQEEERQAL
AKQKEVKRQLDQARSEMQLASRNGDLARASELMYATIPRLEKEAQALSEVPLTMSDAVRPKDIAAVIARATGIPVEN
LMMDEAEKLLHMEDQLRARVVGQEALQVSDAVRLSRAGLHAHTRPLGSFLFLGPTGVGKTELCKALAEVLFVGD
HAMTRIDMSEYMERHSTSRIGAPPYGVYEEGGTLTEAVRRRYPQLVLFDEFKAHREVLDGRLTDSQGRVDFRN
TLIIMTSNIGADALALPEGKPSAAKDAVMSAVRRTMAPEFINRIDEIVLFRNRLERSVMADIVNVQLRGVAKLLEEKNI
LLDVTPAARKWLAEQGYDPVYGARPLKRVIQNLNPLARKIIEGSLPQQSAVKVDVDRDGAVDISVAVVESQONEK

>Malawimonas_jakobiformis@mHsp60

MQRFARLATSSPIRNLPIGRISASTRQYANGKEILFGSEARKRMLGGVKNLADAVQVTLGPKGRNVIIDQSFQAPKITKD
GVTVAKNIEFRDRYENAGAQLRQVASKTNDTADGDTTATILARYILAQGCCKSVEAGLNPMDFRRGINAAIDRVV
LKKRSIEVTTKQIRQVATISANDEKLGELIANAIEKVGKDGAITTQDGRTLNDELEIVEGMKFDGRYISPFVDTKTQ
KCEFENPILLDKKVSNTLGLVKCLEYTPQNRPLIIAEDVDGDALATLVVNRRLRAGLKVCAVKAPGFGDNKRNKQ
HDIAATTVGAQVISDDVGLKFDTTNFEQVLGSAKRVTISKDDTIVFGGSLPEAISERIEQLRDAIKQTTSDYEKEKLQER
LAKLTGGVAVIRVGGATEAEVNERKDLVTDALHATRAAVAEGLVPGGGCALLYATRALDDVPTQNFQDKHGVQIVK
DAL TIPCKTIVSNAGRDGGVVVEHLLSQSSNTRGFNAFADKYEDMIQTGILDPTKVVRTALVDSARVASLMTTAQAVIV
DLPAEEKAGSAGGAGMGGMGGMGGMGGMGGMDY

>Malawimonas_jakobiformis@mHsp70

MYSAVRNSLLRRVAVIRSAALRGYAEQAKVQGPVVGIDLGTNTSCIAVMEGTQPRVIENAHGARTTPSVVAVLQDQGV
LVGAPAKRQVATNPTNTFHGVKRLIGRRFDDPMVSKQSMVGYKIVRADNGDAWVEAHGKRYSPSQIGAYVYLQSMR
ETAKEHFHPIKNAVVTVPAYFNDSQRQATKDAGRIAGLEVHRIINEPTAAALAYGIKEKDAKIAVYDLGGGTFDISILEI

QEGVFEVKATNGDTFLGGEDFDARLVDFMANEFQKENNMDLRKDKIAVGRLREAAEKAKIELSSVMQTDIQLPFITAD
ASGPKHLQMTLTRSKYSELVDDLLKKTLEPCRCQLKDAGVQPTQLKEVVLVGGMTRMPKVTEIVRGLFGKEPFKGVN
PDEVMAGAAIQGGILYGDVTVGVLLDVTPLSLGIETMGGVFTRLINRNTTIPTRKAQVFSTAVDNQTSVEIKVFQGERE
LAMDNKLGSFLLSGIPPAPRSVPQIEVVSFDIDANGICNVSAKDKDSGRQQITIKSSGGLAEDDIKRVMAEAEKMRRAAD
LKRKEAIEARNEADTNIYAMERLLAEHKDKLTENDKEQARREITELRTAMEADDAKAIKEKVSALQATQTRLYHAAY
HAGKQQGGDQQQQQ

>Malawimonas_jakobiformis@mrl3

ARQRAALITKIEDLTEELKARQKVGGIVQHKYIPLASAWTPKSRRRVGAIIVKAGMLTLEDDWGARFPVTVTKTQEKE
GYTALQVGATDMRPQKACCYLSVTKPMLVHFQKWNVTPKRTLEFRVTPDALLAPGTRISARHFVPDQYVDVTGITK
GKGFAGPMKRWFGGGLPASHGVSVSHRSHGATGQRQDPGKVFKGKKMAGHMGVEQRTVQSLRVVKIDPKRDLIYV
GSPVGPVKGYVRVKDSIRRRFTYSMPPPFTVPPTSETAESMPDEVVGAAGSDPFVRDVEE

>Malawimonas_jakobiformis@mtif2

LQKATTVSWRGTSPRPTSGSQKSDATSTFKQPVARTSNERIINIGDTIIRDLAQNAGVRVVDVLKALILGEVPRSATSII
SGDSAELALEEITARKWTQNKLIANRVTERDDVKRQYTRERILQDVAAGKTYPPRAPVVAVMGHVDHGKTTLLDAL
RRTTVAHEAGGITQSIGAFSVAATPSQTTRSVTFLDTPGHEAFTAMRRRGGALATDVAVLVVAANDGVMPQTLDALRHI
REANVPFVVALTDLVDASRIEEVKDMLGAQGVVTEDRGGDVQTEISAAAALXXXXEGLNSALVEAVLLQAEVAG
NCMAPVTGRAEGVXIEARNDKQQGAVISAVVTAGTLRRGDVVVVGRAWGRVXXXXXGVPVVAEAGPSTPVDIVGLK
ELAAAGDEVVVVXXXXXXXXXXSAYRGAKEMLVILKTDVHGSLEAVTEALENAHKPSTEVIALRVTSVAVGAVSEADID
LAAATKARVLAFNKVPATVQAAARMHNVPIHSYSIHYALVXXXXXXXXXXXXXXXXXXCVQGVADVAQLFPTRDRK
GTVTGHAGCRVIDGTMKKGAHIRVKRDGAVIWSGSMASLRHFREDVPKVVXKGQECGILLDGFADLRVGDITETVETV
QRARTLDE

>Malawimonas_jakobiformis@nad10

GARIPQIQNAVVPATRQATSSPTATAPQGTTLQEVGAGAPRKYDSLMLLEKPKNGAEYVVSKLNDLINWGRKSSMWPM
TFGLACCAVEMMHTAAPRYDLDRFGIVFRASPRQSDVMIVAGTLTNKMAPGLRKVVDQMPEPRYVVSVMGSCANGGG
YYHYSYAVVRGCDRVVVDIYVPGCPPTAEALLYGLLQLQKKIARQRTLLAAYRK

>Malawimonas_jakobiformis@nad11

QLLVRSCRQVGSPLAAAAPAVKTVKMFVDGREVEVDASVTVLQACAVAGVEIPRFCHERLSIAGNCRMCLVEIEK
SPKPIASCAMPVSPNMKVYTNSEKTKKAREGVMEFLLMNHPLDPCPIDQGGECDLQDQAMVFGKDRSRFHEYKRAVE
DKNIGPLVKTVMTRCTHCTRCVRFAAEIAAGVEDIGMTGRGAESQIGTYVEKMFDESELSGNIIDLCPVGALTSKPFVAFAR
SWELQRTESIDVLDVAVGSNISVDTRVGEVVRILPRVNDVNEEWLSDRSRFAYDGLKRQRLNSPMVKVNGKLVVVTW
KEALEHIRDQLRGVPGSNIQALVGLSADAESMIALKDLLNRLGSENVCECREDGMRVDPGLRSSYLTNSTIQKAEETDLA
LLIGSNPRVEAPLFRTRLRKAFLYNDALITYIGPKAELTYQSHHLGDNIGILKDIVTGKHPLAGILSQAARPMVIGAAAL
RRADAESIQTLYRELTARCPALVQPGVWNGINVLHTAASRVGGLDLGMVPGPAAASAPTSGARVVYLLNADDFENLPE
NAFTIYQGHGDKGASAADVILPGCAYTEKDATYVNTTEGRVQRTKRAVGPFGDAREDWKILRALSDVGLVRLPYDVT
SQVRERLADVAPHFARVEHIEPTVVQPSLRASAVALDASTPVASGLINFYMTDPISRNSVTMSKCTA

>Malawimonas_jakobiformis@nad7

MQSRNFTVNFQHPHAAHGVLRLELDGETVVRADPHIGLHRGTEKLEIYKTYMQALPYFDRLDYVSMMSMEHGY
TMAVEKLLGVEVPRRAQYIRVLFLELTRIMNHLLAVSCHALDVGAMSPMMWAFEEREKLFEFYERVSGARMHAAAYIR
PGGVSMMPVGLCDDIYHFQKQPSRIDEMDEMLTGNRIWKQRLVDIGVVTAQQAQDWGFTGVMLRSGVWPDLRK
TQYEVYPELEFDIPVGTGKDCYDRYRIRMEEMRQSVRIIEQCLNKMPEGPVKTADAKVVPPSRQDMKTSMEALIHFFK
LYSEGFSVPAGETYAAVEAPKGEFVYLVSDGSSRPYRCKIRAPGFFHLQGLDFMAKGHMLADVVTIIGTQDIVFGEVD
R

>Malawimonas_jakobiformis@nad8

QKLASVTPITVQSKSAVFAVSRREMSSTKMSDKERIRNFQPKERTLKHLLDWSAQTFLITELWRGLFMATTIMFEPKVT
LNYPFKEGQLSPRFRGEHALRRYSTGEERCIACKLCEAVCPAQAITIEAEPREDGSRRTTRYDIDMTKCIYCGFCQEAEP
VDAIVEGNFEYSTETHEELLYNKDKLLANGDRWEVELAHNVQANFLYR

>Malawimonas_jakobiformis@ndufv1

MLTRVLSLARVGLRAPAEKTTYGPLKDQDRIFONLYGDSHGVDGWRLKGAEKRGDWYRTKDILGKGVDWIVNEMKA
SGLRGRGGAGFPGLKWSFMPKPTDRPQYLVVNADEGEPGTCKDREIMRQEPHKLVEGCLVAGFAMRARAAYIYIRG
EFVLEADRLEAAIQEAYAGLLGPNACGSGFPFDVYVHRGAGAYICGEETALIESIEGKQKQKPRPKPPFANVGLFGCPT
TVNNVETIAVAPTILRRGASWFTSFRKNNSGTKLFCISGHVNTPTCTVEEEMSIPLKELIERHCGGVRGGWDLNLLAIPGG
SSVPLLPKKICDTVLMDFDALRDVQSGLGTAAVIVMDKSTDVIQAIARLSKFYKHESCGQCPTCREGTGWSAMMERM
VKGDAMVDEIDQLEELSRQIEGHTICALGDAAAWVQGLIRHFRPEMEKRIASFQKKGPSAPKQGPVHLLH

>Malawimonas_jakobiformis@ndufv2

SSGSLFVHRDTEENNEKTPFEFNADSMKIQITILKKYPSHYKRAAMIPALDIAQRQNGGWSLNLAMNRVADLLGVARM
RVYEVATFYTMFNRPVKGHFVQVCTTTPCELGSGQVLDALRDHLKIDVGETTPDKKFTLIEVECLGACANAPMMQI
NDDFYEDLTPQTAVAVVKALAEKGQPKVGPQNGRVTCEPLGKRTSLTDMASAGPTAPNLDK

>Malawimonas_jakobiformis@nsf1

MLALRRLGGNSGVIRRLVRHASAKNSNADELLGRPIYLDVQATSPMDPRVLDAMLPHYFTEFGNPHSRTHAYGWESER
AAEEAREFVGAIGADAKEIVFTSGATESNNMAIKGVARFYKAQKKHVITQTTEHKCVLDSCRALEQEGFDVYTLVPVQ
KSLVDLQELSAIRPDTSLVSMGVNNEIGVVQPLADIGSLCRKKGVFFHCDAQAQVGIPLDVNQMKIDLLSISGHKI
YGPKGIGALYVRRKPRVRLPELQSGGGQERGMRSGLTPTLVVGLGAACRLILEERDNDVRHVQQLSKYLFQDITKRIP
HVHLNGDLVQRYSGNLNFSFAFVEGESLLMALKTCVSSGSACTSASLEPSYVLRALGVEEELAHTSIRIGIRGFTTKRE
VDYFVDLLEKSVARLRELSPLWEMYNEGIDLKSIAWAAH

>Malawimonas_jakobiformis@odpA

SARTAPAARMQISQRGMAAAADEVTYELPEQMFAYHKFEQRAPKTTVVQKSDLIQYFKTMALYRRVEMQSEDLYRN
KFIRGFLHVYTGQEAFLVGVSEAVLKPTDSAITA YRDHCHYLARGGTVRACLAELMGRYDGCAGKGGSMHMYHKPG
NFYGGNGVIGAQPVPVAGIAFAHKYRGDGGVCVASYGDGAANQQQLFEAYNMAMLWKLPAIFVCENNKYGMGTSV
ARAAANYEFYTRGDFVPGIKVDGMNVIAVREAMRLATAHARTQGPPIVEMETYRYSGHSMSPDGLSYRTREEVAEYRR
TRDPIEFVKGLLQYQGWMTAEIEKAVEKQIRDEVEEVANDLQAPYPPAEELYKDIYAP

>Malawimonas_jakobiformis@odpB

MLRVTASLPRRLAQAHRLFALVRLQSTDAAPKKVQVREALAMAMDEEMERDEKVFMLGEEVGAINGAYKVSGLF
AKWGEKRIIDTPITEMGFAVLAAGLAGLRPICEFMTFNFSMQAIDHVNSAGKALYMSGGQLHCPVFRGPNGAAR
AVAAQHSQDFSAWYGSVPLKVVAPWNAEDAKGLLKAIRDNPNVFLENEIMYGEQFELPASVQSKDFVLEIGKAKI

ERVGTSVTLTAFSRMVGVALQAAEILSKEHGIEAEVINLRSIRPLDRQCIVDSVIKTNRLVSIIEGWPPQYGVGAEISASVM
ESAAFYDLADAPILRVTVGADVMPYPSQHLLEAAALPSIAMIVDAVKKVCYKK

>Malawimonas_jakobiformis@PCCB

VGFHSRMNMHRLLQRLPAARAARFRPLVALSSARPLVAARFAHAAPAETQISDVRQEIRKLKEQAVLGGGEQRIAAQHK
KGKLTARERLELLDEGSFNEIDALVEHRCADFGMGKQKYPGDGVVTSVGTIHRPVPVFSQDFTVFGGSLSETHAQKI
CKIMDKAMLVGVPVIGLNDSSGARIQEGVASLAGYAEVFRQNVDSAGVVPQLSLVMGPCAGGAVYSPAMTDFIMMV
KETSVMYVTGPDVVKVTMETVTHDELGGARVHTGKSGVAHLAFDNDIEAMXRTRELFDFLPLNNRDGVPERYTADP
XDREEPYLDYIVPKDPNAPYNNMLEVITKVVDDGNFLEITQDFARNILVGFARMAGRTVSIVANQPKEQAGVLDIDSSVK
GGRFVRFCDAFNPIITFVDVPGFLPGTKQEFNGIIRHGAKLLFAYAEASVPKLTVITRKAYGGAYDVMGSKHLRADVN
YAWPNAEIAVMGAEGAANIIFRGDADL.PARVAEYKARFANPLAAARRGFLDDVIVPSQTRKLLIRLDELLKHKKEYEGV
PKRHNNLPL

>Malawimonas_jakobiformis@sdh1

NTKPQKGQHRMSSYPVVDHTYDVVVVGAGGAGLRAAFGLANSYKTACITKLPTRSHTVAAQGGVNAALGNMGR
DDWRWHMFDTVKGSDDLGDQDAIHYMCREAIPAVVELENFVGFPSRTEDGRIYQRAFGGQSLDYGKGGQAYRCCAA
ADRTGHAILHTLYGQSLKYNTYFVEYFALDLIMENGECEGRVLAALCMEDGTLHRFRAHKTILATGGYGRAYFSATSAAH
TCTDGNAMVVRAGLPCQDLDFVQFHPTGIYAGCLITEGARGEGGILLNSLGERFERMERHAPTAKDLASRDVVSRAITI
EVREGRGVPLKDHVYLQLHLLPPDILHARLPGISETAAIFAGVDVTKPEIPILPTVHYNMGGIPTNYMTEVVTLKDGPN
DHVVPGLMAIGEAACVSVHGANRLGANSLLDIVVFGRAAVQQVQNTLKPAPHRPLPADAGEESIANLDRLRHANGA
STPAEVRMRMQTKMNYAAVFRQTSTLEEGVKKIDEVYQEHKDLKLSDRGLIWNITDLVEALELQNLMTQAVLTLHSA
ENRKESRGAHAREDFSTRDDVNWMKHTVSWLDDVDSGKVKLDYRVPVKMTTLDSEVSPFPQARKY

>Malawimonas_jakobiformis@sdh2

MIRIWRSSAVAPLLRQVGPASAAAAAGPFKTEAKEAPQATAVKPKDVRKFQIYRWDPERTEKPRVATY EIDMNE
CGPMVLDALLKIKNEVDPTLTFRRSCREGICGSCAMNINGANALACLKVDASVMKIYPLPHMNVIKDLVPLDITTFYK
QHASIKPYLMQKQPEQGSNLQSPADREKLDGLYECILCACSTSCPSYWWNGEMYLGPAILLQAFRWISDSRDQFT
RERLEALNDAYKLYRCHTIMNCTRVCPKGLNPALAIKIKKQIAELP

>Malawimonas_jakobiformis@SUCLG1

MFSRIGRALLQAPRSVILACRTYASEAPLPTSAPYVFDVDRSTKVICQGFQTKQGTFTTQQAIEYGTKVVGVPKGGGS
SHLNLVPFNSVSEAMKATGANASSVYVPPYAKGAIMEAIEAIEPLIVVITEGIPQHDMAVYKHALRESGKTRLIGPNCP
GIKPGCEKIGIMPGHILPGRIGVSRSGTLTYEAVAQTTANKLQMFQSTCVGIGGDPFNFTNFVDTLRLFMNDPQTEGILLI
GEIGGTAEEEEAEFIRQNHKKPVAAFIAGVTAPPGRMGHAGAIISGGKGTAAQDKIKTLKQCGVVVSEPAKLGDAML
QAMKQFGKA

>Malawimonas_jakobiformis@tufA

IVRGMKAFERVKPHFNIGTIGHVDHGKTTLTAATKVLADEGKARFMDFDQIDKAPERQRGITIQTAAHVEYETQKRHY
SHVDCPGHEDYVKNMITGAAQMDGAILVVSADGPKPQTRHILLARQVGVNLLVFLNKVDLVEDQELLELAEEV
RDLLKFYKYPGDEIPVIRGSALHALKGTDPKLRDAIMKLMDSVDTYLPTPPRAVDKPFMSLESVLSISGRGTVATGRI
EQGVKVGEEIEITGFSAAPIKTTVTGVMFKKELDRGEAGDDVGLLRGVSREQLRRGMVLSKPGTVKTHKKFEAEI
YVLEDEGGRTPFMNRYRQVFRVADVTGAVTLPQGTVMVMPGDNIRLTFDLQYPMVLAEGVRFVAVREGNRTVM
SGVVTKVL

>Malawimonas_jakobiformis@TypA

MSFFRVMQSRVHADGIRNVAIAHVDHGKTTLVDTLRQSGTMDKLDGGERVMDSDNLERERGITILAKVTAVNWNKD
RINIVDTPGHADFGGEVERTLSMVDGVVLDVDALEGMPQTKFLAKALQRRLRPIVNLKNSDRPTARHSEVESELDL
FCALDCTEEQLDFPVLASAKEGWAVRNQDKRESMHPLDITIVQKVPAPLVANAPFMSMLVTTVEREQYLGKILTGR
VYSGQVRVNDRVKGMTRTGAQKEEGRVMKILQRSGLSRAPIELGTAGDIISISGLTQSTVGDITAAIDLADPIPAPIDPP
TISMNFGANDSPLAGREGKLLTSALIGERLRGEAEVNAIQIEPMEVYEVVGRGEMQLGVLIENMRREGFELSVPSPV
VYQTSSETGEKLEPIEVTIDVDQEFVGVVIDKMLVRKAEMVDSREVAGKTRLRFLVPARGLIGYKSEFSTDTRGTGMH
YGFHSGPYKGPINNVRKGVLSMADGVTTYALKALEDRGVMFMGAGVCSYGMIVGEHTRDSDLVNPRVRAKLL
TNVRSPTSDEAVARLSPRLMSLEEAIAYVKPGEVVEVTPKNIRLRKGMMDLSKRRATDRAERKAQK

>Malawimonas_jakobiformis@CLPP

FRICMSSIIIFRSIMKRLSATFVRPMHFSRTFSTARTTRSVIPMVIEQSFRRGERAFDIYSRLLKERIVFLHGEVTDDESSLV
VAQLMFLAEADPSRISMVYINSPGGLVITAGLAIYDTMQYIRSPVHTLFCFGQACSMASLLAAGSTGNRLVLPNSKIMIHQ
PLGGTSGQASDIAHAEIELETRARLN

>Malawimonas_jakobiformis@Coq7

TVQEMADQERAHYEKFADLARERRVRPTVLQPFWKMAGFAAGAATALLGDKAAMACTVAVEEISEHYNDQLRDLL
SHGLNOREGELFETVRQFRDDELQHHDIGLAHGARETPAFNLLYESIKAGTKMAVWLSQRV

>Malawimonas_jakobiformis@ETFDH

MFSRVLQAARRLQPRFGSVRSFSDAVDPRLEPRASEDFDVVIVGGGAPGLSAAIKLKQLSQASNKDLRUCVIDKAAEFQ
RHTLGAVIEPRALNELIPDWKEKGAPLDPATSDKFFYLTEKRAFRLPTPPTLHNDGNVYVLSNVVRWLATQAEAG
VEMYPGFAEAELYDDGRVGVATGDVGVGKDGKLDKDSFTRGMELRAKAVTLMAEGCRGSLSKQIIRFDLQOGRIQT
YGIGLKELEWVDPSPVCPQGTILHTLWPLQHDVYGGSHLYHMKPNLISLGFVGLDYTNPYLNPYREFQRYKTHPLIRT
VLENGTCVGYGARAIVEGGWQSIKLVFPGGALIGDAAGFVNVPKIKGTHNAMKSGMLAAECVFNALQGTGSLEAYD
SALRESWVGEELYAVRNIRPSLHYGFLSFMAISGLETMITRGKIPITLQHHVEDHKSCLKPKDACTPIEYKPKDGLTFDLL
TNLTRSNVNHEEDQPAHLKVLDPAPVERNLKVYGGPESRFPAGVYEFVDDTATGKPRQLQINAQNCVHCKTCDIKDS
NINWTVPEGGGPAYSNM

>Malawimonas_jakobiformis@ndufa9

RGIAFKQITPGTRPTVAGVPVTVFGGTGFVGRYVVAIGKTSQIAPYRGEDEMSVRHLKVNGDLGQIIPVPHPLKPETI
AQAVEKSAIVINLIGKNYKTNYSFNVDVNNIPAMIAHVRCKEAGVHRLIHVSALAASYDAPSEFARTKARGEDAVREE
FPEATIVRPATYGHEDRFITKETAATAKSLKWYPIIAGHLLTQPTYVVDVAAAVALQIARDGDTQKQVYELAGPTVYERG
KLLREAFEVAGLWTSKAFNLPAHLALPAGFANELLLPFEPFWRDILRQLSQDIVKRDDALGYEDLGLVDPDSFEKHAFT
LLRRFRPP

>Malawimonas_jakobiformis@ndufaf5

MWRRLHRVVSANTGCNPARRGFATEEDSVNFDRNYKRIQRNRIARMHAEYEFRLNRVADTLDRLTDIPRQFPAV
LDLGCNASNLRHLRDRGVSVKTFIQTDMAEEMLELYREEDANHPSIDVHRVHCDEEFLPFQNSKFDLVISNLSLHWVN
DLPGVFTQVRNVSKPDGAFIAGLGGSTLRELRSFVVAESEREGGISRRMSPLADAPDVGNNLTRAGFNLPVTVDETITI
NYGSPFSLMHELMMGEANA VNSRQMNLSDVLTATASAYNALYQNEDEGSVPATFQV

>Malawimonas_jakobiformis@NifU

CRIPACALVAAQRGISSVVOPIAVRSAITRIESFPQPIVTAKRTLFVRVETTPNENSLKFLPTGRVVLESIGNIEFHSPRENT
 QKSPLAKQLFSLEGVQSLLSFHEFVTVTKDDSVIEWDILKPNVFAATIMDFYDSGAPVFTDEMPVTDTTILPEDDDVVAAIK
 EIVEMKIRPVVLRDGGNILFRGFIDGYVHLQLTGACSTCSSKATLYNGVENMLMHYVPEVKGIKQVEDEAEKVGNEEF
 SELEKRLDRAKSVSA

>Malawimonas_jakobiformis@PCCA_

MQRLVQAVVRQSVSSAAAVQARNASTTKYFDKLMVANRGEIACRVFRTAKKLGIRTVAVYSEADKEAVHVQMADEA
 VCIGPAPTNQSYLNMDAVLAAARKTGAQAIHPGYGFLSENADFSQACRDNKIAFIGPPPEAMYKLGDKIRSKQLARAA
 GVSTVPGYAGEVNSEAEAIKISREIGYPVMLKASHGGGGKGMRVAWNDDVNLNFQISREEAKSFFGDDRLLEKFI
 PRHIEIQVLADQOGNILYFPERECSLQRRNQVVEESPSVALDENLRRMLGEOAASLAREVGYFSAGTLEFLDKHKKF
 YFLEMNTRLQVEHPVTEYITGYDLVEMMIMVAAGHPLPIKQSDIKINGWSMETRIY AEDPLKGF LPSIGLTSYREPEAA
 EGLRIDTGVREGSEISVYYDPMIAKVV AHGSRNEALDRLR TALDSFVVRGVTHNVNFLRSVLDHPRFQRADLTTKFI
 DEYPKGFVGHPLNAKQIKQLIASSAVMHMMRVERNNTISDRMESAPIPKLQLVVEVAGKQYEV MVARDPAADELSS
 DSYAVGIATEVKSMEGAHEEPVPSVAAAAKDAEPVAAAHEHENGDEHVFEVPEWDVDSTLFRFMLGDESPVVLQ
 MVRATPTGFRIQHIGSNYDVKVMSKLEAKLMPYMPEKKAMDTSKMLLSPMPGALRHVYVNVGDQVTMGQPLAVVE
 AMKMQNVLRAVAPGKVKKILHQPGAILQPDEVIMELE

>Malawimonas_jakobiformis@PET112

MISRKWLTVGLEVHARIKAATKLFSGAGTDVSARPNSSQVGFDDAAVPGTLPVLNRECVMQAIRTSVALQGHVALRST
 FDRKHIFYHDLPHGFQITQKFTQLMRDGLHVAEPKGPSKTIGVKYLQLEVDSGKTIHDLSPQFSYVDLNRAGAALMEI
 VTEPEIRTPGEAASFVRTLQSLLRHIGTCDGNMQDGLRCDVNVSVHAADGSRHSRPRVEVKNLNSLRAISKAIEFEYNR
 HVRALES AHGAEADLVQETRMFDANS GTTRMRTKESA WDYRFFPEPDLPLLITQIRQSLPPTPEQMAEELVAQTGI
 SAADARLIVADPDSLRFK EASSGRS AKK VANW LISDLYGLLNQDDLSV SQCPVTPQQLGSLVDVIESGSVTVSLGKDIL
 HRMFHGDRTTAQDIASAEGMIVVQDEAAIRTLCKEIVANPAEVAKYIAGRKNVFGFFVGLAMKKTNGRANPTLVNA
 ALTEILARQKAAAASLAEGRSQ

>Malawimonas_jakobiformis@UQCRC1

LRAVSRVARRAVDSVRHASDTAVSTLPNGLRVATEEKLGETATIGVFIDAGSRYETE QNNGVAHYLEHLAFKGTKTRT
 QHQLELEVENIGGQLNAYTSREHTVFLAKVLKDVPRAVDILGDIIQNSTYPADRVEAERSTILREMEEVERNNEEAVF
 DRLHESAYQGTPLGRITLGPENIRAITRDDLVNFVQTHYTAPRMIVVGAGAVSHQQLTQLAEKSFGLPSKAATPISKL
 PCKYTGSDILVQNDLGLTHVAIAVQGVGWAHPDAL TLMVMQSI VGSWDRNAV GARHVSSKLAGEITRYDLARSFKS
 FNTCYTDTGLFGCYAVXQRVDDHTLDDL VYSIENEWVRLCYDVTEHEVERAKSQLKASFLMGLDGT TAVVEDIGRQL
 LVYGRVPQRELLARIDAIDVNAVKR VASTYIYDQDPVMAMVGD CNMAPDYNRIRK WTHWYRT

>Malawimonas_jakobiformis@UQCRFS1

SSSHGHGHGTVA VVPSKARRAAAGLFLASGGCVPSFSVGRVDMSTRLTRSFASAAGPESGYEGGEQATARSNVGGDP
 AKRTFAYLVMGSSAFLYAAAIRSTVVDFVQTMNPSADVLALASIEIDVGKIPEGSGIVAKWRGKPVFIRHRTQDEIEAAR
 AVPLSELKDPQDDSA RTKQPEWL VVLGVCTHLGCVP MAGQGEYGGWFCPC HSHYDISGRIRKGPAPLNLEVP PYSFV
 DGGAKIRIG