

| Domain | Preliminary analysis | | Combined analysis (all ACAD species) | |
|------------|--|--|--|--|
| | Species | Taxonomy | Species | Taxonomy |
| Archaea | <i>Archaeoglobus fulgidus</i> * <i>Halobacterium sp.</i> <i>Thermoplasma acidophilum</i> * | Archaeoglobi Halobacteriales Thermoplasmatales | <i>Aeropyrum pernix</i> <i>Pyrobaculum aerophilum</i> <i>Natronomonas pharaonis</i> <i>Picrophilus torridus</i> | Desulfurococcales Thermoproteales Halobacteriales Thermoplasmatales |
| Eubacteria | <i>Bacillus cereus</i> <i>Geobacillus kaustophilus</i> <i>Geobacter metallireducens</i> | Bacillales Bacillales Deltaproteobacteria | <i>Agrobacterium tumefaciens</i> <i>Brucella suis</i> <i>Nitrobacter winogradskyi</i> <i>Legionella pneumophila</i> <i>Carboxydotherrnus hydrogeniformans</i> <i>Nostoc punctiforme</i> <i>Salinibacter ruber</i> <i>Rubrobacter xylanophilus</i> <i>Roseiflexus sp.</i> | Alphaproteobacteria Alphaproteobacteria Alphaproteobacteria Gamaproteobacteria Firmicutes Cyanobacteria Bacteroidetes Actinobacteria Chloroflexi |
| Eukaryota | <i>Trypanosoma cruzi</i> , <i>Arabidopsis thaliana</i> <i>Oryza sativa</i> <i>Dictyostelium discoideum</i> * <i>Yarrowia lipolytica</i> * <i>Aspergillus fumigatus</i> <i>Cryptococcus neoformans</i> <i>Caenorhabditis elegans</i> <i>Drosophila melanogaster</i> <i>Mus musculus</i> <i>Homo sapiens</i> * | Euglenozoa Viridiplantae Viridiplantae Mycetozoa Fungi:Ascomycota Fungi:Ascomycota Fungi:Basidiomycota Nematoda Arthropoda Chordata Chordata | <i>Leishmania major</i> <i>Thalassiosira pseudonana</i> <i>Tetrahymena thermophila</i> <i>Nematostella vectensis</i> | Euglenozoa Diatom Ciliophora Cnidaria |

Supplementary Table 1 - Taxa examined in preliminary and combined phylogenetic analyses. Taxa marked with a star show species used in both analyses.