

2.16

Paulinella

Archaea

Bacteria

Viruses

Eukaryota

Other/Misc

BS: ultrafast bootstrap support

Chromatophore (≥100aa)



<u>Leukaryota-Stramenopiles-NA-NA-NA-Paraphysomonas_imperforata_MMETSP0103_c15871_g1_i1.p1</u> Eukaryota-Stramenopiles-NA-NA-NA-Thalassiothrix antarctica MMETSP0154 c18063 g1 i1.p1 Eukarvota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator americanus XP 013303431.1 ——— Eukaryota-Arthropoda-Insecta-Diptera-Drosophilidae-Drosophila_yakuba_XP_015054727.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Braconidae-Diachasma_alloeum_XP_015111618.1 - Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba regulata MMETSP0447 c3509 g1 i1.p2 Paulinella Eukaryota-Basidiomycota-Agaricomycetes-Polyporales-NA-Fibroporia_radiculosa_XP_012184407.1 Archaea Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c7688_g1_i1.p1 Bacteria Eukaryota-Ascomycota-Saccharomycetes-Saccharomycetales-Saccharomycetaceae-Tetrapisispora_phaffii_XP_003686396.1 ———— Bacteria-Firmicutes-Bacilli-Bacillales-NA-Gemella_morbillorum_WP_004633290.1 Eukaryota Bacteria-Firmicutes-Bacilli-Bacillales-Staphylococcaceae-Staphylococcus_pasteuri_WP_048803356.1 Bacteria-Firmicutes-Bacilli-Lactobacillales-Streptococcaceae-Streptococcus_sp._UMB1385_WP_102170243.1 ———— Bacteria-Firmicutes-Bacilli-Lactobacillales-Enterococcaceae-Enterococcus_columbae_WP_016182895.1 Bacteria-Firmicutes-Erysipelotrichia-Erysipelotrichales-Erysipelotrichaceae-Coprobacillus_cateniformis_WP_008788156 - 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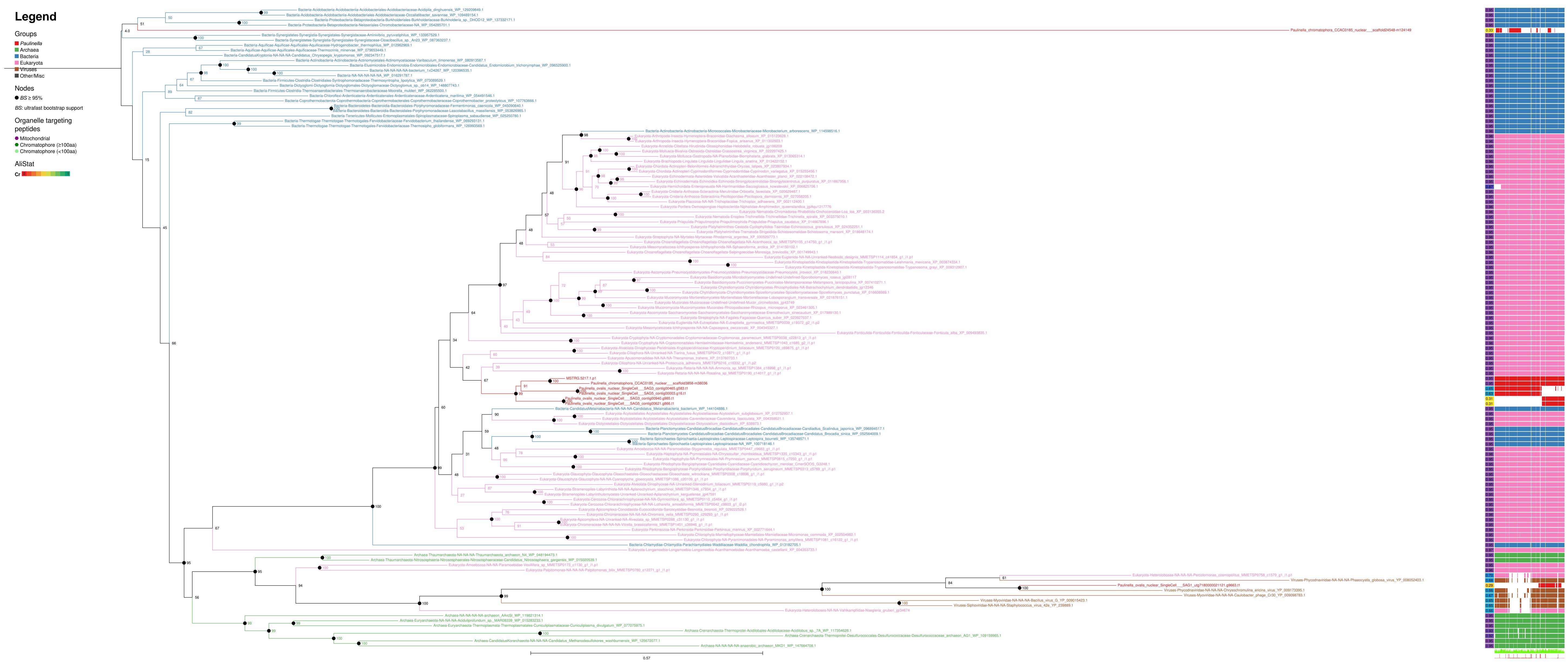
87 Eukaryota-Streptophyta-NA-Malpighiales-Salicaceae-Populus euphratica XP 011016758.1

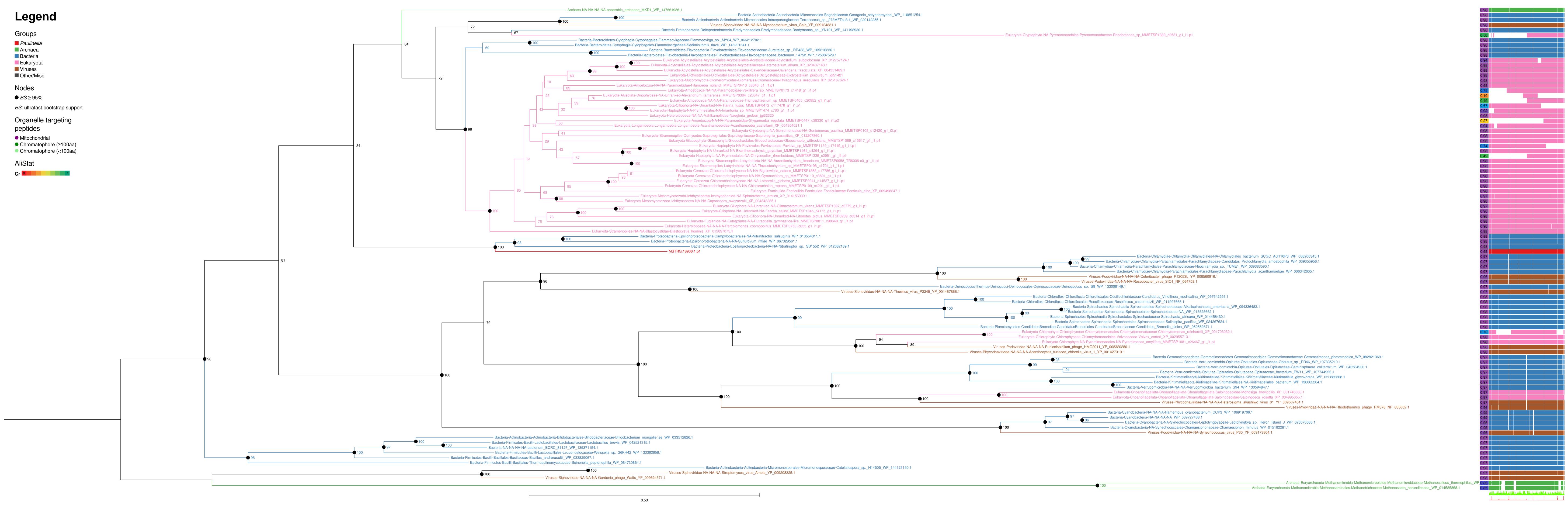
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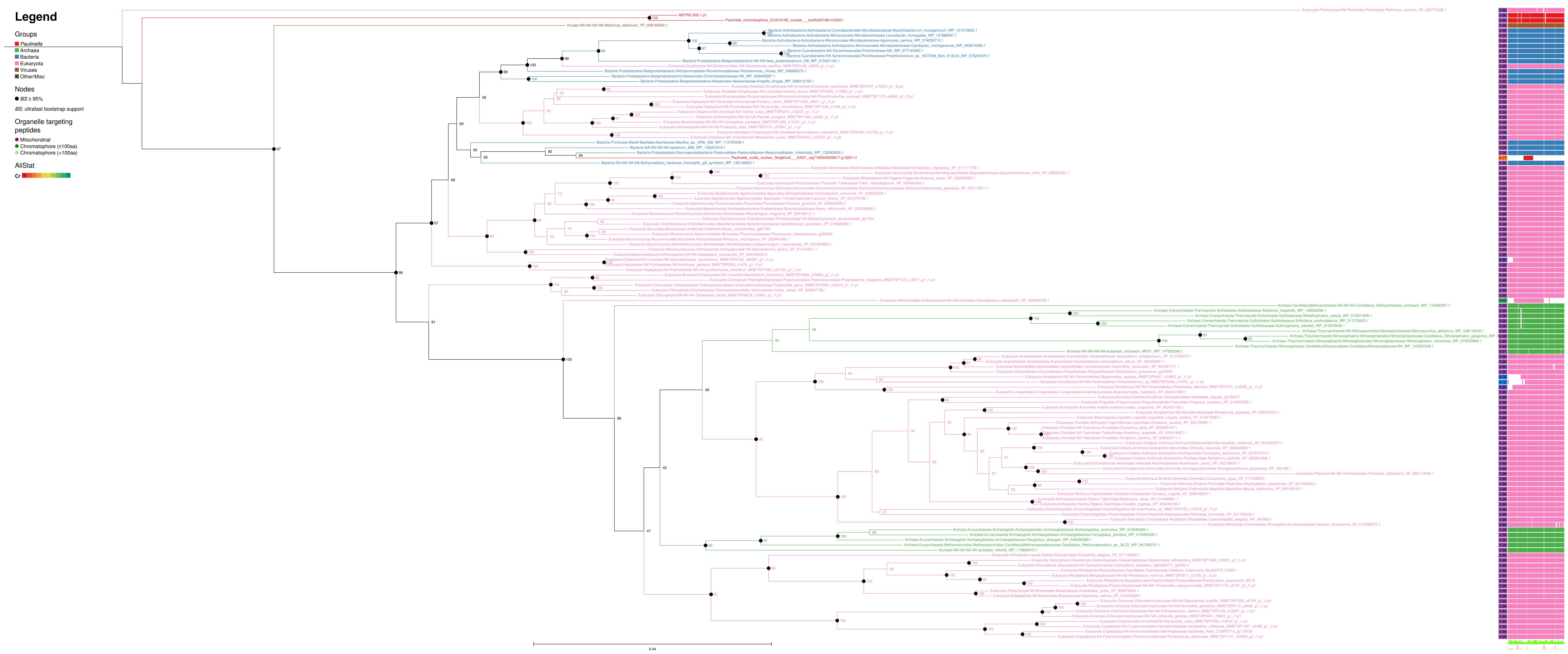


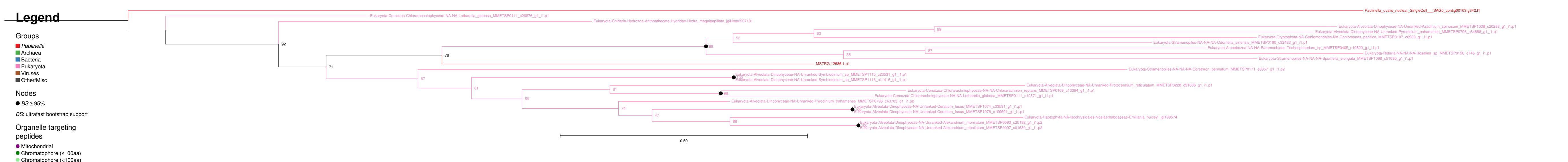
— Bacteria-Actinobacteria-Actinobacteria-Actinomycetales-Actinomycetaceae-Actinomyces_marimammalium_WP_075361952.1 Bacteria-Spirochaetes-Spirochaetia-Spirochaetales-Spirochaetaceae-Sphaerochaeta_pleomorpha_WP_014271262.1 — Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Fretibacterium_sp._OH1220_COT178_WP_124888134.1 — Bacteria-Actinobacteria-Coriobacteriia-Eggerthellales-Eggerthellaceae-Enterorhabdus_mucosicola_WP_028026771.1 — Bacteria-Bacteroidetes-Bacteroidia-Bacteroidales-Bacteroidaceae-Bacteroides_caecimuris_WP_120360854.1 Bacteria-Actinobacteria-Coriobacteriia-Eggerthellales-Eggerthellaceae-Slackia_heliotrinireducens_WP_012799495.1 Bacteria-Firmicutes-Clostridia-Clostridiales-Oscillospiraceae-Dysosmobacter_welbionis_WP_136891537.1 Bacteria-Firmicutes-Clostridia-Clostridiales-Oscillospiraceae-NA_WP_021749352.1 Bacteria-Bacteroidetes-Bacteroidia-Bacteroidales-Prevotellaceae-NA_WP_070665897.1 Bacteria Bacteria-Bacteroidetes-Bacteroidia-Bacteroidales-Prevotellaceae-Prevotella sp. BCRC 81118 WP 134842972.1 Bacteria-Proteobacteria-Deltaproteobacteria-Syntrophobacterales-Syntrophaceae-Syntrophus_gentianae_WP_093882527.1 ——— Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_naviforme_WP_106611839.1 — Bacteria-NA-NA-NA-NA-bacterium C53 WP 120421816.1 — Bacteria-NA-NA-NA-NA_WP_120422756.1 Bacteria-Spirochaetes-Spirochaetia-Spirochaetales-Spirochaetaceae-Treponema_saccharophilum_WP_002705658.1 ——— Bacteria-Spirochaetes-Spirochaetia-Brachyspirales-Brachyspiraceae-Brachyspira_aalborgi_WP_021958062.1 - Bacteria-Firmicutes-Clostridia-Clostridiales-Clostridiaceae-Clostridium acidisoli WP 084117321.1 — Bacteria-Fibrobacteres-Chitinivibrionia-Chitinivibrionales-Chitinivibrionaceae-Chitinivibrio_alkaliphilus_WP_034636009.1 ———— Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella robusta jgi98406 - Eukaryota-Streptophyta-NA-Myrtales-Myrtaceae-Rhodamnia_argentea_XP_030535173.1 Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014674484.1 Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002116883.1 mata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus_purpuratus_XP_003727059.1 ukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea virginica XP 022286519.1 haromycetes-Saccharomycetales-Pichiaceae-Ogataea_parapolymorpha_XP_013933420.1 · Eukaryota-Basidiomycota-Agaricomycetes-Gloeophyllales-Gloeophyllaceae-Gloeophyllum_trabeum_XP_007865351.1 - Eukaryota-Basidiomycota-Pucciniomycetes-Pucciniales-Melampsoraceae-Melampsora_laricis_populina_jgi46311 Eukaryota-Nematoda-Chromadorea-Rhabditida-Rhabditidae-Caenorhabditis elegans NP 741452.2 Eukaryota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator_americanus_XP_013305576.1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Strongyloididae-Strongyloides_ratti_XP_024499244.1 - Bacteria-Chloroflexi-Ktedonobacteria-Ktedonobacterales-Dictyobacteraceae-Dictyobacter_kobayashii_WP_126552088.1 — Bacteria-Chloroflexi-Ktedonobacteria-Ktedonobacterales-Dictyobacteraceae-Tengunoibacter_tsumagoiensis_WP_126580801.1 Bacteria-Chloroflexi-Ktedonobacteria-Ktedonobacterales-NA-Ktedonobacterales_bacterium_SCAWSG2_WP_129894673.1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Filamoeba_nolandi_MMETSP0413_c2756_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella globosa MMETSP0041 c14516 g1 i1.p1 karyota-Cercozoa-Chlorarachniophyceae-NA-NA-Partenskyella_glossopodia_MMETSP1318_c2446_g3_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Pelagodinium bii MMETSP1338 c41293 g1 i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1367_c4718_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Sorites sp MMETSP0191 c40748 g1 i1.p1 Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus marinus XP 002774958.1 Eukaryota-Apicomplexa-NA-Unranked-NA-Alveolata_sp_MMETSP0288_c18148_g1_i1.p1 -Chromeraceae-NA-NA-NA-Vitrella brassicaformis MMETSP1451 c16357 g1 i1.p1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c37861_g1_i1.p1 — Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0117_c4545_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina fusus MMETSP0472 c749 g1 i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Licmophora_paradoxa_MMETSP1360_c7678_g1_i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Paraphysomonas_vestita_MMETSP1107_c22110_g1_i1.p1 ukaryota-Stramenopiles-Oomycetes-Saprolegniales-Saprolegniaceae-Aphanomyces astaci XP 009844454.1 — Eukaryota-Stramenopiles-Oomycetes-Saprolegniales-Saprolegniaceae-Saprolegnia parasitica XP 012195046.1 ——— MSTRG.20503.1.p1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold3819-m37772 — Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000001054.g466.t1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c37319_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Myrionecta_rubra_MMETSP0798_c4783_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Strombidinopsis_sp_MMETSP0463_c36590_g1_i1.p1 ulo sukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_salina_MMETSP1047_c213_g1_i1.p1 — Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP0043_c6325_g1_i1.p1 — Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas sp MMETSP0114_c3565_g1_i1.p1 Eukaryota-Apusomonadidae-NA-NA-Thecamonas trahens XP 013757731.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c19561_g1_i1.p1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Monosiga brevicollis XP 001745244.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004994595.1 —— Eukaryota-Haptophyta-NA-Pavlovales-Pavlovaceae-Pavlova_sp_MMETSP1139_c3459_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Calcidiscus leptoporus MMETSP1334_c8450_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Pleurochrysis_carterae_MMETSP1137_c10792_g1_i1.p1 - Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-CandidatusMethanomethylophilaceae-Candidatus_Methanomethylophilus_alvus_WP_122892372.1 —— Paulinella chromatophora CCAC0185 nuclear scaffold10761-m75925 ------ Viruses-Myoviridae-NA-NA-Prochlorococcus_phage_PSSM7_YP_004325011.1 — Archaea-NA-NA-NA-NA-archaeon AArcSI WP 119818929.1 — Bacteria-Proteobacteria-Alphaproteobacteria-Rhodobacterales-Rhodobacteraceae-Rhodovulum_steppense_WP_132693389.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhodobacterales-Rhodobacteraceae-Sulfitobacter_pontiacus_WP_132997876.1 — Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_witrockiana_MMETSP0308_c37163_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora paradoxa tig00000622 g2633.t1 — Eukaryota-Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Cyanidioschyzon merolae XP 005536829.1 — Eukaryota-Rhodophyta-Bangiophyceae-Porphyridiales-Porphyridiaceae-Porphyridium_aerugineum_MMETSP0313_c5477_g1_i1.p1 Eukaryota-Rhodophyta-Porphyridiophyceae-NA-NA-Timspurckia_oligopyrenoides_MMETSP1172_c2160_g1_i1.p1 — Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000003352.g1545.t1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium subglobosum XP 012751708.1 Eukarvota-Acvtosteliales-Acvtostelia ongamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba_castellanii_XP_004347759.1 ceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas chlamydogama_MMETSP1392_c15920_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Picochlorum oklahomensis MMETSP1161 c3345 g1 i1.p1 — Eukaryota-Streptophyta-NA-Asterales-Asteraceae-Cynara_cardunculus_XP_024971472.1 ukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon_queenslandica_jgiAqu1204444 — Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000024401.g11110.t1 Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-Methanosarcinaceae-Methanococcoides_methylutens_WP_048193486.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-Methanosarcinaceae-Methanolobus tindarius WP 023845298.1 —— Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_116595863.1 — Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147664706.1

Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karlodinium_micrum_MMETSP1016_c98044_g1_i1.p1 ا Eukaryota-Haptophyta-NA-Isochrysidales-Noelaerhabdaceae-Emiliania_huxleyi_MMETSP0994_c34382_g1_i1.p1 ##Karyota-Haptophyta-NA-Prymnesiales-NA-Isochrysis_sp_MMETSP1388_c18484_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Gephyrocapsa_oceanica_MMETSP1363_c3101_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis_astigmatica_MMETSP0804_c21610_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c97472_g1_i1.p1 ——— Eukaryota-Chlorophyta-NA-NA-Pycnococcaceae-Pycnococcus_provasolii_MMETSP1471_c11537_g1_i1.p1 Paulinella ——— Eukaryota-Ciliophora-NA-Unranked-NA-Euplotes_focardii_MMETSP0206_TR4242-c0_g1_i1.p1 Archaea ——— MSTRG.6689.1.p1 Bacteria — Paulinella_chromatophora_CCAC0185_nuclear___scaffold9449-m69775 Eukaryota-Stramenopiles-NA-NA-NA-Pelagomonas_calceolata_MMETSP1328_c7221_g1_i1.p1 Eukaryota Eukaryota-Stramenopiles-Pelagophyceae-Pelagomonadales-NA-Aureococcus_anophagefferens_MMETSP0914_c546_g1_i1.p2 Viruses ——— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_CCMP2755_jgi51143 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_amoebiformis_MMETSP0042_c8345_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Partenskyella_glossopodia_MMETSP1318_c28954_g1_i1.p1 —— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Oxyrrhis_marina_MMETSP0469_c5721_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0117_c5150_g1_i1.p1 ______ Eukaryota-Ciliophora-NA-Unranked-NA-Pseudokeronopsis_sp_MMETSP1396_c15953_g1_i1.p1 BS: ultrafast bootstrap support Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_virescens_MMETSP1356_c6208_g1_i1.p1 Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas_sp_MMETSP0114_c26460_g1_i1.p1 Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c7140_g1_i1.p2 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_cruzi_XP_816102.1 — Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica-like_MMETSP0809_c2686_g1_i1.p1 Chromatophore (≥100aa) Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus_marinus_XP_002787744.1 يلاaryota-Apicomplexa-NA-Unranked-NA-Alveolata_sp_MMETSP0288_c8751_g1_i1.p1 karyota-Chromeraceae-NA-NA-NA-Chromera velia MMETSP0290 c3203 g1 i1.p1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c31432_g1_i1.p1 ——— Eukaryota-Chlorophyta-Chlorophyceae-Sphaeropleales-Selenastraceae-Monoraphidium_neglectum_XP_013899175.1 Eukaryota-Streptophyta-NA-Caryophyllales-Chenopodiaceae-Beta_vulgaris_XP_010688209.1 Eukaryota-Streptophyta-NA-Myrtales-Myrtaceae-Rhodamnia argentea XP 030528588.1 ukaryota-Streptophyta-NA-Solanales-Convolvulaceae-lpomoea nil XP 019152985.1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_witrockiana_MMETSP0308_c31399_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00020675_g12597.t1 Eukaryota-Glaucophyta-Glaucophyta-NA-NA-Cyanoptyche_gloeocystis_MMETSP1086_c10381_g1_i1.p1 Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas bilix MMETSP0780 c8847 g1 i2.p1 Bacteria-Acidobacteria-Holophagae-Holophagales-Holophagaceae-Holophaga_foetida_WP_026939098.1 - Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_brenneri_WP_100792241.1 Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-NA_WP_100744998.1 —— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Chitinimonas_sp._R344_WP_144279936.1 Bacteria-NA-NA-NA-NA-Natronospirillum_operossus_WP_135482716.1 — Bacteria-Verrucomicrobia-Opitutae-Opitutales-Opitutaceae-Ereboglobus_luteus_WP_108823687.1 ———— Bacteria-Chlorobi-Chlorobia-Chlorobiales-Chlorobiaceae-Chlorobium_phaeobacteroides_WP_012475373.1 Bacteria-Chlorobi-Chlorobia-Chlorobiales-Chlorobiaceae-Prosthecochloris_sp._GSB1_WP_094081965.1 Bacteria-Proteobacteria-Oligoflexia-Bacteriovoracales-Bacteriovoracaceae-Bacteriovorax_sp._Seq25_V_WP_021275317.1 Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas_trahens_XP_013759246.1 ukaryota-Heterolobosea-NA-NA-Vahlkampfiidae-Naegleria_gruberi_jgi44236 a-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0758_c10874_g1_i1.p1 - Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Beutenbergiaceae-Salana_multivorans_WP_123739982.1 Eukaryota-Apicomplexa-Conoidasida-Eugregarinorida-Gregarinidae-Gregarina_niphandrodes_XP_011132359.1 Bacteria-NA-NA-NA-NA-bacterium_B66_WP_136252159.1 Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Pseudoalteromonadaceae-NA_WP_010559764.1 —— Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Pseudoalteromonadaceae-Pseudoalteromonas_denitrificans_WP_091979559.1 —— Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000021882.g10000.t1 Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Q31a_WP_145076112.1 ——— Archaea-CandidatusMicrarchaeota-NA-NA-NA-Candidatus Mancarchaeum acidiphilum WP 088820559.1 Eukaryota-Chordata-Mammalia-NA-Camelidae-Vicugna_pacos_XP_006212532.1 Eŭkaryota-Chordata-Mammalia-Rodentia-Sciuridae-Marmota_marmota_XP_015351443.1 ——— Eukaryota-Apicomplexa-Aconoidasida-Piroplasmida-Theileriidae-Theileria_equi_XP_004828598.1 Eukaryota-Ascomycota-Saccharomycetes-Saccharomycetales-Debaryomycetaceae-Suhomyces_tanzawaensis_XP_020062242.1 Eukaryota-Ascomycota-Saccharomycetes-Saccharomycetales-Debaryomycetaceae-Yamadazyma_tenuis_XP_006684413.1 ——— Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea gigas XP 011456774.1 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster_planci_XP_022092174.1 ———— Eukaryota-Platyhelminthes-Cestoda-Cyclophyllidea-Taeniidae-Echinococcus granulosus XP 024346423.1 ———— Eukaryota-Nematoda-Chromadorea-Rhabditida-Onchocercidae-Brugia malayi XP 001901379.1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Onchocercidae-Loa_loa_XP_003147422.1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Rhabditidae-Caenorhabditis_briggsae_XP_002639097.1 Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014675285.1 Eukaryota-Basidiomycota-Agaricomycetes-Agaricales-Psathyrellaceae-Coprinopsis_cinerea_XP_001837101.1 ——— Eukaryota-Basidiomycota-Agaricomycetes-Polyporales-Polyporaceae-Dichomitus_squalens_XP_007364342.1 ukaryota-Chytridiomycota-Chytridiomycetes-Rhizophydiales-NA-Batrachochytrium_dendrobatidis_jgi25461 ______ Eukaryota-Mucoromycota-Mortierellomycetes-Mortierellales-Mortierellaceae-Lobosporangium_transversale_XP_021882215.1 Eukaryota-Mucorales-Mucoraceae-Undefined-Undefined-Mucor_circinelloides_jgi48200 Eukaryota-Mucoromycota-Mucoromycetes-Mucorales-Rhizopodaceae-Rhizopus_microsporus_XP_023465893.1 ————— Eukaryota-Mucoromycota-Glomeromycetes-Glomerales-Glomeraceae-Rhizophagus_irregularis_XP_025183512.1 Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma_arctica_XP_014161005.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004998463.1 —— Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c9125_g1_i1.p1 Eukaryota-Retaria-NA-NA-Elphidium_margaritaceum_MMETSP1385_c11096_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c18282_g1_i1.p1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Pocillopora_damicornis_XP_027040621.1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Stylophora_pistillata_XP_022779650.1 Eukaryota-Platyhelminthes-Trematoda-Strigeidida-Schistosomatidae-Schistosoma_mansoni_XP_018655139.1 —— Eukaryota-Arthropoda-Insecta-Hymenoptera-Tenthredinidae-Athalia rosae XP 012268136.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium_subglobosum_XP_012749551.1 -Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Galdieria phlegrea GphlegSOOS G5250.1 Eukaryota-Rhodophyta-Porphyridiophyceae-NA-NA-Timspurckia_oligopyrenoides_MMETSP1172_c4242_g1_i1.p2 - Bacteria-NA-NA-NA-NA-Bathymodiolus_heckerae_thiotrophic_gill_symbiont_WP_138118559.1 Bacteria-Planctomycetes-CandidatusBrocadiae-CandidatusBrocadiales-CandidatusBrocadiaceae-Candidatus_Scalindua_japonica_WP_096894458.1 ——— Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Pessonella_sp_MMETSP0420_c784_g1_i1.p1 Archaea-Thaumarchaeota-NA-NA-NA-Marine_Group_I_thaumarchaeote_SCGC_AAA799B03_WP_048069937.1 — Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-NA_WP_014965680.1 Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus_piranensis_WP_148703967.1 — Bacteria-Bacteroidetes-NA-BacteroidetesOrderII.Incertaesedis-Rhodothermaceae-Rhodothermus_profundi_WP_072715857.1 Eukaryota-Diplomonadida-Diplomonadida-Diplomonadida-Hexamitidae-Giardia_intestinalis_XP_001704321.1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Leptospirillum_ferriphilum_WP_052157952.1 Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_119820534.1 —— Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-CandidatusMethanomethylophilaceae-Candidatus_Methanomethylophilus_alvus_WP_015505478.1 ———— Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-Methanomassiliicoccaceae-Candidatus_Methanoplasma_termitum_WP_048111120.1 ———— Archaea-Euryarchaeota-Thermoplasmata-Thermoplasmatales-NA-Thermoplasmatales_archaeon_BRNA1_WP_015492981.1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c24140_g1_i1.p1 — Bacteria-Spirochaetes-Spirochaetia-Brachyspirales-Brachyspiraceae-Brachyspira_suanatina_WP_048593316.1 Bacteria-Firmicutes-Bacilli-Bacillales-Bacillaceae-Melghiribacillus thermohalophilus WP 132370587.1 Bacteria-Firmicutes-Clostridia-Halanaerobiales-Halobacteroidaceae-NA_WP_089749891.1 — Bacteria-Firmicutes-Clostridia-Halanaerobiales-Halobacteroidaceae-Orenia_marismortui_WP_018247740.1

Eukaryota-Cryptophyta-NA-Pyrenomonadales-Geminigeraceae-Guillardia_theta_MMETSP0046_c20367_g1_i1.p1 Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c102047_g1_i1.p1 Paulinella_ovalis_nuclear_SingleCell___SAG2_utg7180000008718.g4337.t1 Paulinella_ovalis_nuclear_SingleCell___SAG2_utg7180000020575.g10005.t1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold15846-m96498
Paulinella_chromatophora_CCAC0185_nuclear___scaffold17951-m103930 Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Acidipila_sp._4GK13_WP_117298535.1 Paulinella — Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Candidatus_Koribacter_versatilis_WP_148210135.1 Archaea — Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Occallatibacter_savannae_WP_109484715.1 Bacteria Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Acidobacteriaceae bacterium KBS 83 WP 020709084.1 —— Bacteria-Chloroflexi-Ktedonobacteria-Ktedonobacterales-Thermosporotrichaceae-Thermosporothrix_hazakensis_WP_111325346.1 Eukaryota Bacteria-Chloroflexi-Ktedonobacteria-Thermogemmatisporales-Thermogemmatisporaceae-Thermogemmatispora_onikobensis_WP_069805811.1 Viruses Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-NA-Enhygromyxa_salina_WP_052547406.1 — Bacteria-Abditibacteriota-Abditibacteria-Abditibacteriales-Abitibacteriaceae-Abditibacterium_utsteinense_WP_106381310.1 Eukaryota-Chlorophyta-NA-NA-NA-Chlamydomonascf_sp_MMETSP1180_c9188_g1_i1.p1 Bacteria-Armatimonadetes-Armatimonadia-Capsulimonadales-Capsulimonadaceae-Capsulimonas_corticalis_WP_119319693.1 —— Bacteria-Chloroflexi-Anaerolineae-Anaerolineales-Anaerolineaceae-Anaerolinea_thermophila_WP_013560229.1 Bacteria-Actinobacteria-Actinobacteria-Actinomycetales-Actinomycetaceae-Actinomyces_marimammalium_WP_075361721.1 ———— Bacteria-NA-NA-NA-NA_WP_040318362.1 —— Bacteria-Actinobacteria-Actinobacteria-Actinomycetales-Actinomycetaceae-Flaviflexus_massiliensis_WP_054952610.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Frondihabitans_sp._762G35_WP_119867386.1 Eukaryota-Arthropoda-Insecta-Diptera-Culicidae-Aedes_albopictus_XP_029720812.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-Phyllobacteriaceae-Mesorhizobium_sp._F7_WP_047560801.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhodospirillales-Rhodospirillaceae-Rhodospirillaceae_bacterium_SYSU_D60006_WP_119284816.1 Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Burkholderiaceae-Burkholderia_multivorans_WP_111459287.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Curtobacterium_sp._S6_WP_030013729.1 100 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Micrococcaceae-NA_WP_129360426.1 Chromatophore (≥100aa) Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Micrococcaceae-Kocuria_halotolerans_WP_129660307.1 Chromatophore (<100aa)</p> Bacteria-Actinobacteria-Actinobacteria-Micrococcales-NA-NA_WP_006213604.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Formicidae-Cyphomyrmex costatus XP 018401608.1 ————— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Dermabacteraceae-Brachybacterium_muris_WP_042342829.1 ─ Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Dermabacteraceae-Dermabacter_hominis_WP_101686813.1 Telagoreria-Actinobacteria-Actinobacteria-Micrococcales-Dermabacteraceae-Helcobacillus_massiliensis_WP_055089755.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Dermabacteraceae-NA_WP_065248718.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Chloroflexaceae-Chloroflexus aggregans WP 015941388.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-NA-Chloroflexales_bacterium_ZM163_WP_129686165.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Oscillochloridaceae-Candidatus Oscillochloris fontis WP 129632437. ——— Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Oscillochloridaceae-Candidatus_Chloroploca_asiatica_WP_097654928.1 — Bacteria-NA-NA-NA-NA-bacterium_1xD4267_WP_120395552.1 ukaryota-Amoebozoa-NA-NA-Paramoebidae-Mayorella_sp_MMETSP0417_c13180_g1_i1.p1 — \$\int_{00}\$ 100 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c37368_g1_i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Neoparamoeba_aestuarina_MMETSP0161_c22481_g1_i1.p1 ——————— Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Paramoeba atlantica MMETSP0151 c37611 g1 i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Vexillifera_sp_MMETSP0173_c4719_g1_i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c74_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_wittrockiana_MMETSP1089_c7851_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c65154_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Myrionecta_rubra_MMETSP0798_c28858_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-NA-Geminigera_cryophila_MMETSP0799_c9812_g1_i2.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Cryptomonadaceae-Cryptomonas_paramecium_MMETSP0038_c15129_g1_i1.p2 —— Eukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_sp_MMETSP1091_c10400_g1_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP0043_c15104_g1_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis rufescens MMETSP1357 c11903 g1 i1.p1 Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas sp MMETSP0114 c3340 g1 i1.p1 - Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas pacifica MMETSP0107 c3529 g1 i1.p1 Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c17480_g1_i1.p1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Leishmania_mexicana_XP_003875331.1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_cruzi_XP_813396.1 —— Bacteria-Bacteroidetes-Bacteroidia-Bacteroidales-Bacteroidaceae-Anaerorhabdus_furcosa_WP_078711613.1 ———— Bacteria-Firmicutes-Erysipelotrichia-Erysipelotrichales-Erysipelotrichaceae-Erysipelotrichaceae_bacterium_MTC7_WP_067422554.1 — Bacteria-Firmicutes-Erysipelotrichia-Erysipelotrichales-Erysipelotrichaceae-Faecalitalea_cylindroides_WP_035401697.1 —— Bacteria-NA-NA-Haloplasmatales-Haloplasmataceae-Inordinaticella_fortuita_WP_119569249.1 ———— Bacteria-Tenericutes-Mollicutes-Acholeplasmatales-Acholeplasmataceae-Acholeplasma_hippikon_WP_035368241.1 —— Bacteria-Tenericutes-NA-NA-NA-Tenericutes_bacterium_MOXQ_WP_106720058.1 — Bacteria-Firmicutes-Bacilli-Lactobacillales-Aerococcaceae-Dolosicoccus_paucivorans_WP_092085705.1 Bacteria-Bacteroidetes-Flavobacteriia-Flavobacteriales-Flavobacteriaceae-Muricauda_sp._MT229_WP_144841535.1 Bacteria-Firmicutes-Bacilli-Lactobacillales-Enterococcaceae-Enterococcus_rivorum_WP_069697315.1 Bacteria-Firmicutes-Bacilli-NA-NA-NA WP 002356260.1 Bacteria-CandidatusSaccharibacteria-NA-NA-NA-Candidatus_Saccharibacteria_bacterium_WP_129632457.1 Bacteria-CandidatusSaccharibacteria-NA-NA-NA-NA_WP_039327039.1 ——— Bacteria-CandidatusSaccharibacteria-NA-NA-NA-TM7_phylum_sp._oral_taxon_488_WP_138076433.1 ———— Bacteria-NA-NA-NA-NA-bacterium_BCRC_81129_WP_135368399.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Apidae-Apis_florea_XP_003691695.1 Bacteria-Firmicutes-Bacilli-Lactobacillales-Aerococcaceae-Aerococcus_sp._1KP2016_WP_094517772.1 Bacteria-Firmicutes-Bacilli-Lactobacillales-NA-NA_WP_069285397.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-Phyllobacteriaceae-Mesorhizobium_sp._B2.3_WP_126700175.1 - 100 Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-Phyllobacteriaceae-Nitratireductor_pacificus_WP_008598112.1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Dinophysis_acuminata_MMETSP0797_c5464_g1_i1.p2 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karlodinium_micrum_MMETSP1015_c6396_g1_i1.p1 L<u>Euk</u>aryota-Haptophyta-NA-Isochrysidales-Noelaerhabdaceae-Emiliania_huxleyi_jgi428604 Eukaryota-Haptophyta-NA-Isochrysidales-Noelaerhabdaceae-Emiliania_huxleyi_MMETSP1154_c43306_g1_i1.p1 ———— Eukaryota-Stramenopiles-Pelagophyceae-Pelagomonadales-NA-Aureococcus_anophagefferens_jgi25241 Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica-like_MMETSP0811_c3183_g1_i1.p2 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_tamarense_MMETSP0384_c137241_g1_i1.p1 ———— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Pyrodinium_bahamense_MMETSP0796_c81453_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Blepharisma_japonicum_MMETSP1395_c20152_g1_i1.p1 —————— Eukaryota-Ciliophora-NA-Unranked-NA-Euplotes focardii MMETSP0206 TR14924-c0 g1 i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Coccolithus_pelagicussspbraarudi_MMETSP0164_c30179_g1_i1.p1 MSTRG.15480.1.p1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold7547-m60233 Paulinella_chromatophora_CCAC0185_nuclear___scaffold1705-m21561 ----- MSTRG.17958.1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_MMETSP1054_c21650_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0041_c19569_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_oceanica_MMETSP0040_c825_g1_i1.p1 — 100 — Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c18058_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora sp MMETSP0110 c16041 g1 i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Aplanochytrium_sp_MMETSP0954_c6855_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Aurantiochytrium_limacinum_MMETSP0958_TR10999-c0_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Schizochytrium aggregatum MMETSP0965 c5104 g1 i2.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Thraustochytrium_sp_MMETSP0198_c1853_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Ammonia sp MMETSP1384 c16813 g1 i1.p1 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c15378_g1_i1.p1 —— 95 Eukaryota-Retaria-NA-NA-Rosalina_sp_MMETSP0190_c3707_g1_i1.p1 Eukaryota-Streptophyta-Liliopsida-Poales-Poaceae-Brachypodium_distachyon_XP_003568800.3 48 Eukaryota-Streptophyta-NA-Malpighiales-Euphorbiaceae-Ricinus_communis_XP_002527093.1 Eukaryota-Streptophyta-NA-Malpighiales-Salicaceae-Populus_euphratica_XP_011044833.1 Eukaryota-Streptophyta-NA-Malpighiales-Salicaceae-Populus_trichocarpa_XP_002307524.3 61 Luman Eukaryota-Streptophyta-NA-Rosales-Cannabaceae-Cannabis_sativa_XP_030496707.1 Eukaryota-Streptophyta-NA-Caryophyllales-Chenopodiaceae-Chenopodium_quinoa_XP_021737652.1 — 100 — L31 — Eukaryota-Streptophyta-NA-Fabales-Fabaceae-Glycine max XP 003536401.2 a-Streptophyta-NA-Solanales-Solanaceae-Solanum lycopersicum XP 004253262.1 a-Streptophyta-NA-Solanales-Solanaceae-Solanum_pennellii_XP_015072047.1 nydomonadaceae-Chlamydomonas_chlamydogama_MMETSP1392_c27083_g1_i1.p1 - Eukaryota-Chlorophyta-NA-NA-NA-Chlamydomonascf sp MMETSP1180 c10341 g1 i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Crustomastix_stigmata_MMETSP0803_c6919_g1_i1.p2 —— Eukaryota-Rhodophyta-Bangiophyceae-Bangiales-Bangiaceae-Porphyra_umbilicalis_Poumb2535s0001.1 ukaryota-Chlorophyta-NA-Pyramimonadales-NA-Pyramimonas_amylifera_MMETSP1081_c27466_g1_i1.p1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_tamarense_MMETSP0384_c149204_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Glenodinium foliaceum MMETSP0119 c16213 g1 i1.p1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Noctiluca_scintillans_MMETSP0253_c41493_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Amphidinium_carterae_MMETSP0259_c25540_g1_i1.p1 ———— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1122_c35987_g1_i1.p2 Eukaryota-Ciliophora-NA-Unranked-NA-Mesodinium_pulex_MMETSP0467_c30808_g1_i1.p2 Eukaryota-Ciliophora-NA-Unranked-NA-Strombidinopsis acuminatum MMETSP0126 c14085 q1 i1.p2 ——————————————————————Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c10112_g1_i2.p1 — Bacteria-Firmicutes-Clostridia-Clostridiales-Peptostreptococcaceae-NA_WP_018589158.1 Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Burkholderiaceae-Hydromonas sp. F02 WP_114563333.1 — Bacteria-Firmicutes-Clostridia-Clostridiales-Ruminococcaceae-Caproiciproducens_galactitolivorans_WP_135657024.1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Trichosphaerium_sp_MMETSP0405_c4655_g1_i1.p1 ——— Bacteria-Aquificae-Aquificae-Aquificales-Aquificaceae-Hydrogenobacter_hydrogenophilus_WP_096603452.1 - Bacteria-Caldiserica-Caldisericia-Caldisericales-Caldisericaceae-Caldisericum_exile_WP_014453393.1 Bacteria-Coprothermobacterota-Coprothermobacteria-Coprothermobacterales-Coprothermobacteraceae-Coprothermobacter_platensis_WP_018963214.1 ——— Bacteria-Coprothermobacterota-Coprothermobacteria-Coprothermobacterales-Coprothermobacteraceae-Coprothermobacter_proteolyticus_WP_107690196.1 Bacteria-Actinobacteria-Actinobacteria-Actinomycetales-Actinomycetaceae-Varibaculum timonense WP 080912523.1 Eukaryota-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadidae-Trichomonadidae-Trichomonas vaginalis XP 001307954.1 ——— Bacteria-Firmicutes-Clostridia-Clostridiales-Christensenellaceae-Christensenella_massiliensis_WP_079546708.1 Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Aminobacterium_colombiense_WP_013048177.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_equinum_WP_060793758.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_necrophorum_WP_129491303.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_varium_WP_096402407.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-NA_WP_005951554.1 ——— Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Leptotrichiaceae-Leptotrichia_massiliensis_WP_071124900.1 —— Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Leptotrichiaceae-Sneathia sanguinegens WP 066729911.1 ——— Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Leptotrichiaceae-Leptotrichia_sp._OH3620_COT345_WP_125237101.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Leptotrichiaceae-Sebaldella_termitidis_WP_012861596.1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Rhabditidae-Caenorhabditis remanei XP 003087028.1 Eukaryota-Heterolobosea-NA-NA-Vahlkampfiidae-Naegleria_gruberi_jgi80810 —— Bacteria-Firmicutes-Negativicutes-Veillonellales-Veillonellaceae-Dialister_sp._MarseilleP5638_WP_022383016.1 — Bacteria-Firmicutes-Clostridia-Thermoanaerobacterales-Thermoanaerobacteraceae-Carboxydothermus_hydrogenoformans_WP_011343989.1 Bacteria-NA-NA-NA-NA-Thermobaculum_terrenum_WP_012873991.1 Bacteria-CandidatusMarinimicrobia-NA-NA-NA-Candidatus Marinimicrobia bacterium WP 129510991.1 Bacteria-Proteobacteria-Oligoflexia-Bacteriovoracales-Bacteriovoracaceae-Bacteriovorax sp. BSW11 IV WP 021271548.1 Eukaryota-Ciliophora-Oligohymenophorea-Hymenostomatida-Tetrahymenidae-Tetrahymena_thermophila_XP_001470981.1 — Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfobulbus_mediterraneus_WP_028585933.1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodosorus_marinus_MMETSP0011_c2800_g1_i1.p2 Rhodophyta-Bangiophyceae-NA-NA-Rhodosorus_marinus_MMETSP0315 c3014 g1 i1.p1 Eukaryota-Rhodophyta-Florideophyceae-Gigartinales-Gigartinaceae-Chondrus crispus XP 005715825.1 Eukaryota-Rhodophyta-Bangiophyceae-Porphyridiales-Porphyridiaceae-Porphyridium_purpureum_527.4 ——— Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis_astigmatica_MMETSP0804_c2842_g1_i1.p1 —— Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Halobacteriaceae-Haloarchaeobius_iranensis_WP_089735733.1 -— 100 Archaea-NA-NA-NA-NA-archaeon_AArcSI_WP_119821046.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Eimeriidae-Eimeria necatrix XP 013432759.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Besnoitia besnoiti XP 029218432.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Neospora caninum XP 003884067.1 Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus_marinus_XP_002780416.1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera velia MMETSP0290 c1594 g1 i1.p1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Strongyloididae-Strongyloides_ratti_XP_024503902.1 Eukaryota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator americanus XP 013301148.1 ——— Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas trahens XP 013761677.1 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013410329.1 Eukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon queenslandica jgiAqu1227531 Eukaryota-Chordata-Actinopteri-Beloniformes-Adrianichthyidae-Oryzias_melastigma_XP_024139611.1 Eukaryota-Chordata-Actinopteri-Semionotiformes-Lepisosteidae-Lepisosteus oculatus XP 006633050.2 8 Eukaryota-Chordata-Actinopteri-Clupeiformes-Denticipitidae-Denticeps_clupeoides_XP_028815365.1 —— 100 Eukaryota-Chordata-Aves-Passeriformes-Tyrannidae-Empidonax_traillii_XP_027751637.1 81 Eukaryota-Chordata-Mammalia-Rodentia-Cricetidae-Microtus ochrogaster XP 005358519.1 Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014676675.1 Eukaryota-Cnidaria-Anthozoa-Actiniaria-Edwardsiidae-Nematostella vectensis XP 001625038.1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Acroporidae-Acropora millepora XP 029207842.1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Merulinidae-Orbicella_faveolata_XP_020611549.1 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster planci XP 022080007.1 Eukaryota-Echinodermata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus purpuratus XP 011684206.1 Eukaryota-Hemichordata-Enteropneusta-NA-Harrimaniidae-Saccoglossus kowalevskii XP 006814065.1 —————————————————————Eukaryota-Cnidaria-Hydrozoa-Anthoathecata-Hydridae-Hydra_vulgaris_XP_002170830.2 Eukaryota-Mollusca-Bivalvia-Pectinoida-Pectinidae-Mizuhopecten yessoensis XP 021363882.1 _Eukaryota-Mollusca-Gastropoda-Architaenioglossa-Ampullariidae-Pomacea_canaliculata_XP_025094266.1 Eukaryota-Mollusca-Gastropoda-Architaenioglossa-Ampullariidae-Pomacea_canaliculata_XP_025094267.1 Eukaryota-Mollusca-Gastropoda-NA-Planorbidae-Biomphalaria glabrata XP 013073815.1 Eukaryota-Mollusca-Gastropoda-NA-Planorbidae-Biomphalaria_glabrata_XP_013073817.1 Eukaryota-Mollusca-Gastropoda-NA-Lottiidae-Lottia_gigantea_jgi225737 ——— Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Monosiga_brevicollis_XP_001745597.1 — Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004990017.1 Eukaryota-Chytridiomycota-Chytridiomycetes-Rhizophydiales-NA-Batrachochytrium_dendrobatidis_jgi91122

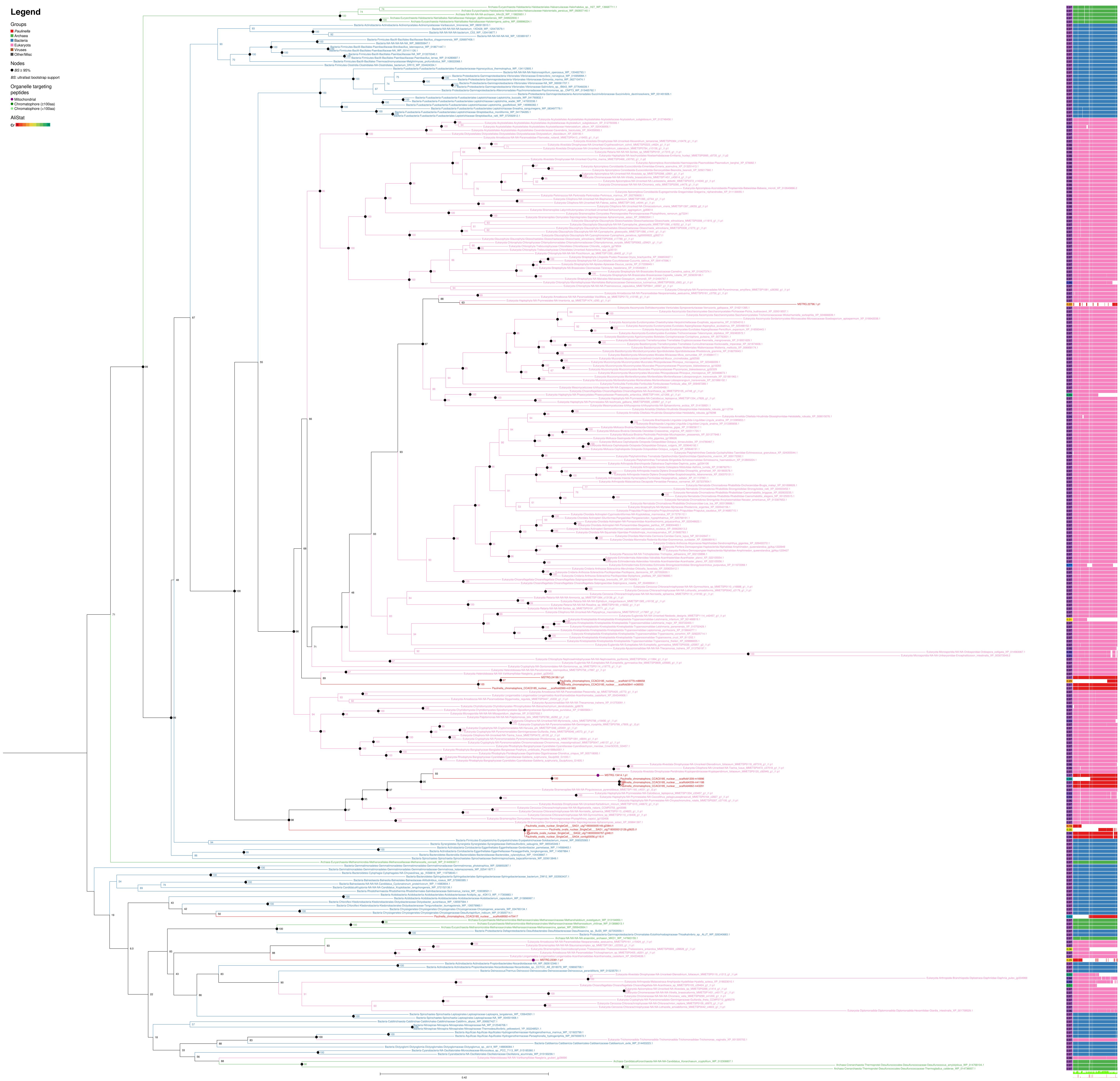
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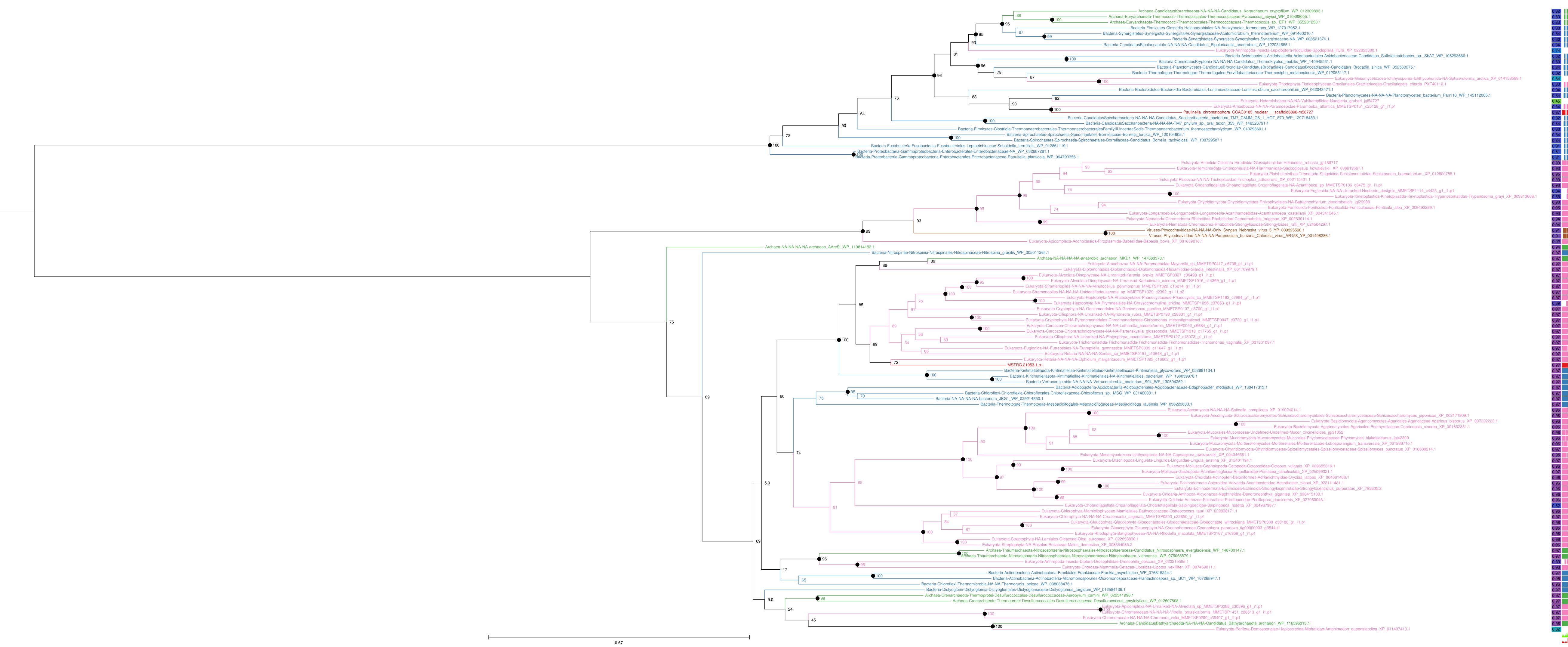





Paulinella

Archaea Bacteria

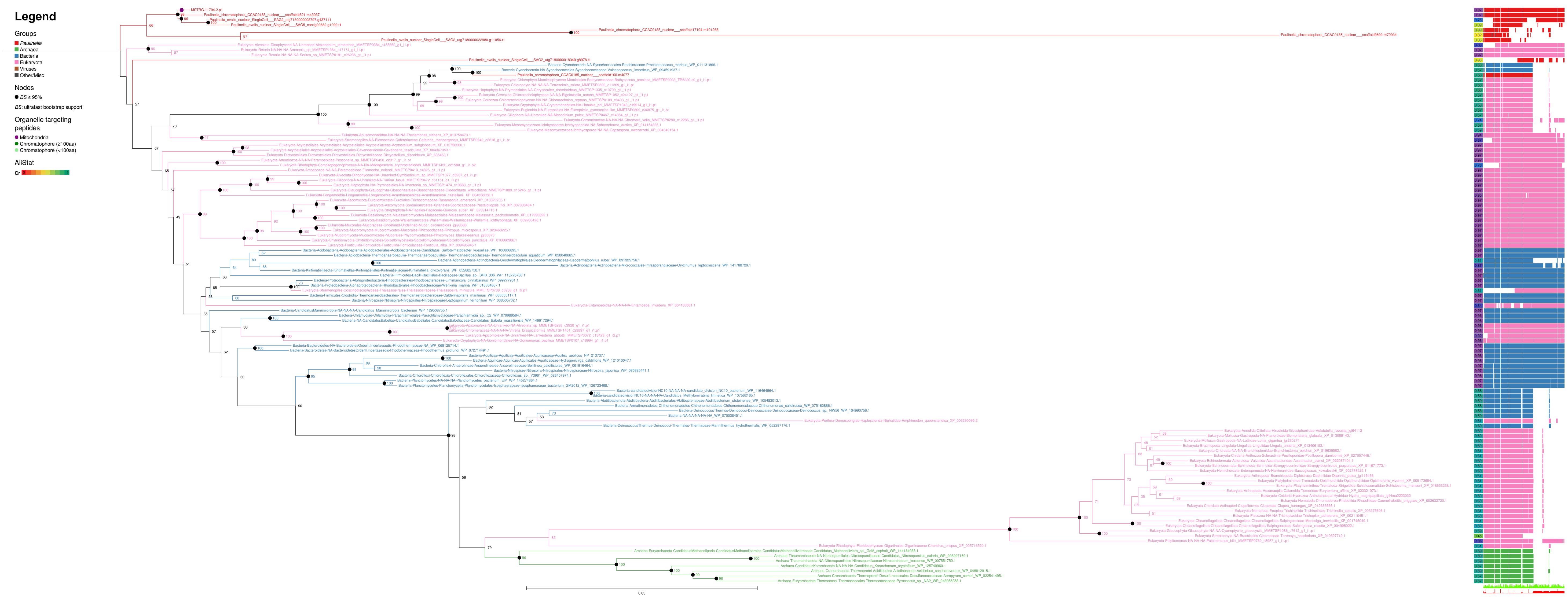
Eukaryota





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PCC 7335 WP 038016056.1 Eukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Polytomella_parva_MMETSP0052_c26500_g1_i1.p1 Eukaryota-Streptophyta-NA-Amborellales-Amborellaceae-Amborella_trichopoda_XP_011625436.1 Eukaryota-Streptophyta-NA-Caryophyllales-Chenopodiaceae-Chenopodium_quinoa_XP_021765571.1 Eukaryota-Streptophyta-NA-Caryophyllales-Chenopodiaceae-Spinacia_oleracea_XP_021852929.1 Eukaryota-Streptophyta-NA-Solanales-Convolvulaceae-Ipomoea nil XP 019190918.1 Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00020909_g15327.t1 acteria-Armatimonadetes-Chthonomonadetes-Chthonomonadales-Chthonomonadaceae-Chthonomonas calidirosea WP 016483603.1 cteria-Armatimonadetes-Chthonomonadetes-Chthonomonadales-Chthonomonadaceae-Chthonomonas calidirosea WP 075163130.1 Bacteria-Firmicutes-Negativicutes-Veillonellales-Veillonellaceae-Megasphaera elsdenii WP 014015235.1 Bacteria-Firmicutes-Clostridia-Clostridiales-Clostridiaceae-Clostridium sp. CL2 WP 032116927.1 ——— Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Aminivibrio_pyruvatiphilus_WP_133958126.1 ———— Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Aminomonas_paucivorans_WP_006300910.1 —— Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Thermovirga_lienii_WP_014162920.1 - Bacteria-Firmicutes-Clostridia-Halanaerobiales-Halobacteroidaceae-Orenia marismortui WP 134116826.1 Bacteria-Firmicutes-Clostridia-Halanaerobiales-NA-Anoxybacter_fermentans_WP_127017921.1 —— Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_wolffii_WP_016545874.1 Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-NA_WP_004751269.1 Bacteria-Chrysiogenetes-Chrysiogenetes-Chrysiogenales-Chrysiogenaceae-Chrysiogenes arsenatis WP 027388926.1 Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147662882.1 Archaea-Thaumarchaeota-NA-NA-NA-Candidatus Nitrosotalea bavarica WP 101477840.1 — Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Candidatus_Nitrosopumilus_sp._NM25_WP_109877557.1 —— Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus_piranensis_WP_148702460.1 Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_119815698.1 — Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Desulfurococcaceae-Thermogladius_calderae_WP_083830002.1 Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Pyrodictiaceae-Pyrolobus_fumarii_WP_014026251.1 ———— Archaea-Euryarchaeota-Thermococci-Thermococcales-Thermococcaceae-Pyrococcus_kukulkanii_WP_068320228.1 —— Archaea-Euryarchaeota-Thermococci-Thermococcales-Thermococcaceae-Thermococcus_litoralis_WP_004067721.1 — Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-CandidatusMethanomethylophilaceae-Candidatus_Methanomethylophilus_alvus_WP_015504046.1



 Bacteria-Actinobacteria-Actinobacteria-Corynebacteriales-Mycobacteriaceae-Mycolicibacterium_llatzerense_WP_07128850.98 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Noctiluca scintillans MMETSP0253 c12301 g1 i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Pyrodinium_bahamense_MMETSP0796_c10201_g1_i1.p1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karenia brevis MMETSP0574 c17483 g1 i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_tamarense_MMETSP0382_c12775_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Azadinium_spinosum_MMETSP1038_c101284_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Brandtodinium_nutriculum_MMETSP1462_c87271_g1_i1.p1 Paulinella — MSTRG.17384.1.p1 Archaea Paulinella_chromatophora_CCAC0185_nuclear___scaffold17617-m102769 Bacteria Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Curtobacterium_sp._MCBD17_040_WP_111025442.1 ———— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Leifsonia_aquatica_WP_025157198.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Micrococcaceae-Arthrobacter_sp._NamE5_WP_138605337.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Micrococcaceae-Pseudarthrobacter_sp._B4EP4b_WP_142060154.1 — Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Nocardiopsaceae-Nocardiopsis_flavescens_WP_084736864.1 — Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Microbacterium_sp._T32_WP_063257402.1 Eukaryota-Rhodophyta-Bangiophyceae-Bangiales-Bangiaceae-Porphyra umbilicalis Poumb0152s0011.1 Eukaryota-Rhodophyta-Florideophyceae-Gigartinales-Gigartinaceae-Chondrus_crispus_XP_005717309.1 Eukaryota-Rhodophyta-Florideophyceae-Gracilariales-Gracilariaceae-Gracilariopsis_chorda_PXF48360.1 90 Lukaryota-Rhodophyta-Bangiophyceae-NA-NA-Erythrolobus_madagascarensis_MMETSP1354_c732_g1_i1.p1 L——————————————————————Eukaryota-Rhodophyta-Porphyridiophyceae-NA-NA-Timspurckia_oligopyrenoides_MMETSP1172_c3923_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-Porphyridiales-Porphyridiaceae-Porphyridium_purpureum_3451.2 Eukaryota-Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Cyanidioschyzon_merolae_XP_005539097.1 —— Eukaryota-Chlorophyta-Nephroselmidophyceae-NA-NA-Nephroselmis_pyriformis_MMETSP0034_c15421_g6_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP1041_c11849_g1_i1.p1 a-Cryptophyta-NA-Pyrenomonadales-Chroomonadaceae-Chroomonas_mesostigmaticacf_MMETSP0047_c6747_g1_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-NA-Hanusia_phi_MMETSP1048_c869_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c39374_g1_i1.p1 Chromatophore (≥100aa) tophyta-NA-Pyrenomonadales-Geminigeraceae-Guillardia_theta_MMETSP0046_c10462_g1_i1.p1 Chromatophore (<100aa)</p> Eukaryota-Stramenopiles-NA-Bicosoecida-Cafeteriaceae-Cafeteria_roenbergensis_MMETSP0942_c711_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Geminigeraceae-Proteomonas sulcata MMETSP1049 c1384 g1 i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_sp_MMETSP1091_c9897_g1_i1.p1 ukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c8063_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-Picocystis_salinarum_MMETSP0807_c3083_g1_i2.p1 Bacteria-Bacteroidetes-Flavobacteriia-Flavobacteriales-Flavobacteriaceae-Maribacter_ulvicola_WP_076548841.1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Dinophysis_acuminata_MMETSP0797_c85228_g1_i1.p1 — Eukaryota-Ciliophora-NA-Unranked-NA-Mesodinium pulex MMETSP0467 c61257 g1 i1.p1 — Eukaryota-Stramenopiles-NA-NA-NA-Synchroma_pusillum_MMETSP1452_c4815_g1_i1.p2 - Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0117_c7937_g1_i1.p1 Eukaryota-Stramenopiles-Chrysophyceae-Chromulinales-Chromulinaceae-Ochromonas_sp_MMETSP1105_TR8828-c0_g1_i1.p1 Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus marinus XP 002773343.1 aryota-Haptophyta-NA-Prymnesiales-NA-Calcidiscus_leptoporus_MMETSP1334_c8761_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Coccolithus_pelagicussspbraarudi_MMETSP0164_c2518_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Pleurochrysis_carterae_MMETSP1136_c17128_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Isochrysis_galbana_MMETSP0595_c22368_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium_parvum_MMETSP0006_c8896_g1_i1.p1 — Eukaryota-Haptophyta-NA-Prymnesiales-NA-Chrysochromulina_polylepis_MMETSP0143_c27862_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Galdieria_phlegrea_GphlegSOOS_G1363.1 Eukaryota-Stramenopiles-NA-NA-NA-Dinobryon_sp_MMETSP0019_c11722_g1_i1.p1 Bacteria-Actinobacteria-Actinobacteria-Kineosporiales-Kineosporiaceae-Kineococcus_radiotolerans_WP_011981470.1 — Bacteria-Proteobacteria-Betaproteobacteria-Neisseriales-Neisseriaceae-Snodgrassella_alvi_WP_037408295.1 — Bacteria-Proteobacteria-Gammaproteobacteria-Pseudomonadales-Moraxellaceae-Moraxella_sp._VT1612_WP_089540558.1 Bacteria-Proteobacteria-Betaproteobacteria-Rhodocyclales-Zoogloeaceae-Azoarcus_indigens_WP_133587681.1 —— Bacteria-Proteobacteria-Betaproteobacteria-Nitrosomonadales-Thiobacillaceae-Thiobacillaceae_bacterium_LSR1_WP_131446606.1 Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Alcaligenaceae-Achromobacter_marplatensis_WP_006222515.1 Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Alcaligenaceae-NA_WP_054429425.1 — Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Alcaligenaceae-Bordetella genomosp. 10 WP 094851179.1 — Bacteria-Proteobacteria-Betaproteobacteria-Burkholderiales-Alcaligenaceae-Orrella_dioscoreae_WP_067749451.1 Eukaryota-Apicomplexa-NA-Unranked-NA-Alveolata_sp_MMETSP0288_c18940_g1_i1.p1 Fulu Paragraphic Properties of the P Eukaryota-Chlorophyta-NA-NA-NA-Picochlorum_sp_MMETSP1330_c1563_g1_i1.p2 Eukaryota-Haptophyta-NA-Phaeocystales-Phaeocystaceae-Phaeocystis_cordata_MMETSP1465_c3418_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-Pycnococcaceae-Pycnococcus sp MMETSP1085 c5498 g1 i1.p2 Eukaryota-Haptophyta-NA-Unranked-NA-Scyphosphaera_apsteinii_MMETSP1333_c8083_g1_i1.p1 Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea_virginica_XP_022313772.1 Eukaryota-Chordata-Mammalia-Primates-Cercopithecidae-Cercocebus_atys_XP_011897932.1 Eukaryota-Chordata-Mammalia-Primates-Cercopithecidae-Papio_anubis_XP_003913457.1 Eukaryota-Chordata-Mammalia-Primates-Hylobatidae-Nomascus_leucogenys_XP_003279118.2 Eukaryota-Chordata-Mammalia-Primates-Cercopithecidae-Theropithecus_gelada_XP_025219684.1 Faskaryota-Chordata-Mammalia-Primates-Cercopithecidae-Macaca_fascicularis_XP_005584964.1 — Ewaryota-Chordata-Mammalia-Primates-Cercopithecidae-Chlorocebus sabaeus XP 008009976.1 Eukaryota-Chordata-Mammalia-Primates-Hominidae-Pan_troglodytes_XP_001139013.2 Eukaryota-Mollusca-Gastropoda-NA-Planorbidae-Biomphalaria glabrata XP 013069490.1 Eukaryota-Mollusca-Gastropoda-Architaenioglossa-Ampullariidae-Pomacea canaliculata XP 025083057.1 Eukaryota-Mollusca-Gastropoda-Aplysiida-Aplysiidae-Aplysia_californica_XP_005102318.1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Aurantiochytrium_limacinum_MMETSP0958_TR15876-c0_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Thraustochytrium_sp_MMETSP0198_c4249_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Schizochytrium_aggregatum_MMETSP0964_c5801_g1_i1.p1 Eukaryota-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadidae-Trichomonas_vaginalis_XP_001307715.1 ——— Eukaryota-Hemichordata-Enteropneusta-NA-Harrimaniidae-Saccoglossus_kowalevskii XP 006825056.1 Eukaryota-Chordata-NA-NA-Branchiostomidae-Branchiostoma floridae XP 002599177.1 Archaea-NA-NA-NA-NA-archaeon_AArcSI_WP_119819601.1 — Bacteria-CandidatusCryosericota-CandidatusCryosericia-CandidatusCryosericales-CandidatusCryosericaceae-Candidatus_Cryosericum_odellii_WP_119175396.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_varium_WP_117511849.1 — Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-NA_WP_052191767.1 ——— Bacteria-CandidatusKryptonia-NA-NA-NA-Candidatus_Kryptobacter_tengchongensis_WP_072152000.1 — Bacteria-Dictyoglomi-Dictyoglomia-Dictyoglomales-Dictyoglomaceae-Dictyoglomus_sp._ob14_WP_148806080.1 ——— Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Candidatus_Sulfobium_mesophilum_WP_109135844.1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Thermodesulfovibrio_sp._N1_WP_068858620.1 Eukaryota-Chytridiomycetes-Rhizophydiales-NA-Batrachochytrium_dendrobatidis_jgi89346 ——— Archaea-Euryarchaeota-Methanomicrobia-Methanomicrobiales-Methanomicrobiaceae-Methanolacinia_paynteri_WP_048152735.1 Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Dethiosulfovibrio_salsuginis_WP_085545272.1 —— Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus_adriaticus_WP_048115391.1 —— Bacteria-DeinococcusThermus-Deinococci-Thermales-Thermaceae-Oceanithermus_profundus_WP_013457513.1 —— Eukaryota-Mesomycetozoea-Ichthyosporea-NA-NA-Capsaspora_owczarzaki_XP_011270722.1 Eukaryota-Basidiomycota-Agaricomycetes-Agaricales-Schizophyllaceae-Schizophyllum_commune_XP_003029847.1 Eukaryota-Chytridiomycota-Chytridiomycetes-Spizellomycetales-Spizellomycetaceae-Spizellomyces_punctatus_XP_016604658.1 Eukaryota-Basidiomycota-Agaricomycetes-Russulales-Stereaceae-Stereum hirsutum XP 007308180.1 Eukaryota-Mucorales-Mucoraceae-Undefined-Undefined-Mucor_circinelloides_igi20619 Eukaryota-Mucoromycota-Mucoromycetes-Mucorales-Phycomycetaceae-Phycomyces_blakesleeanus_igi75543 Bacteria-Firmicutes-Bacilli-Lactobacillales-Carnobacteriaceae-Alkalibacterium_pelagium_WP_091479359.1 - Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea_virginica_XP_022341969.1 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013407465.1 Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus caudatus XP 014661914.1 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster planci XP 022107519.1 Eukaryota-Chordata-Actinopteri-Holocentriformes-Holocentridae-Myripristis murdjan XP 029915183.1 Eukaryota-Chordata-Mammalia-Rodentia-Cricetidae-Peromyscus_leucopus_XP_028739920.1 — Eukaryota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba_castellanii_XP_004334229.1 Eukaryota-Echinodermata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus_purpuratus_XP_011667238.1 Eukaryota-Mollusca-Bivalvia-Pectinoida-Pectinidae-Mizuhopecten vessoensis XP 021342966.1 Eukaryota-Cnidaria-Anthozoa-Actiniaria-Aiptasiidae-Exaiptasia pallida XP 020897708.1 Eukaryota-Ciliophora-Oligohymenophorea-Hymenostomatida-NA-Ichthyophthirius_multifiliis_XP_004030694.1 Eukaryota-Palpitomonas-NA-NA-Palpitomonas_bilix_MMETSP0780_c13415_g1_i1.p1 Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas_trahens_XP_013762067.1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Erythrolobus_madagascarensis_MMETSP1354_c3987_g1_i1.p1 Eukaryota-Mucoromycota-Glomeromycetes-Glomerales-Glomeraceae-Rhizophagus_irregularis_XP_025185019.1 Eukaryota-Rhodophyta-Compsopogonophyceae-NA-NA-Madagascaria_erythrocladiodes_MMETSP1450_c14190_g1_i1.p1 Eukaryota-Ascomycota-Leotiomycetes-Helotiales-Dermateaceae-Marssonina_brunnea_XP_007293050.1 Eukaryota-Ascomycota-Sordariomycetes-Glomerellales-Glomerellaceae-Colletotrichum_graminicola_XP_008097782.1 ——— Eukaryota-Streptophyta-NA-Fagales-Fagaceae-Quercus_suber XP 023908860.1 -Conoidasida-Eucoccidiorida-Sarcocystidae-Neospora_caninum_XP_003881865.1 a-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Toxoplasma_gondii_XP_002366601.1 —— Eukaryota-Chromeraceae-NA-NA-NA-Vitrella brassicaformis_MMETSP1451_c1445_g1_i1.p1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c13631_g1_i1.p1 - Eukaryota-Platyhelminthes-Trematoda-Opisthorchiida-Opisthorchiidae-Opisthorchis_viverrini XP 009164244.1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c18462_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c27483_g1_i1.p1 acteria-Thermotogae-Thermotogae-Kosmotogales-Kosmotogaceae-Mesotoga_sp._H07.pep.5.3_WP_099771332.1 Bacteria-Thermotogae-Thermotogae-Kosmotogales-Kosmotogaceae-NA_WP_006486758.1 - Bacteria-Actinobacteria-Actinobacteria-Corynebacteriales-Mycobacteriaceae-Mycobacterium_sp._KBS0706_WP_138886062.1 — Bacteria-CandidatusMelainabacteria-NA-NA-NA-Candidatus_Melainabacteria_bacterium_WP_144104698.1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Mayorella_sp_MMETSP0417_c5087_g1_i1.p1 a-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba regulata MMETSP0447 c6279 g1 i1.p1 ——— Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma_arctica_XP_014152072.1 — Paulinella_chromatophora_CCAC0185_nuclear___scaffold18795-m106789 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0111_c2736_g1_i1.p1 —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Norrisiella sphaerica MMETSP0113 c1081 g1 i2.p1 Eukaryota-Chlorophyta-NA-NA-NA-Prasinococcus_capsulatus_MMETSP0941_c3963_g1_i2.p1 Eukaryota-Heterolobosea-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0758_c5421_g1_i1.p1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-NA-Thermoflexibacter_ruber_WP_091538460.1 Bacteria-Bacteroidetes-Flavobacteriia-Flavobacteriales-Flavobacteriaceae-Aureitalea_sp._RR438_WP_105216716.1 — Bacteria-Rhodothermaeota-Rhodothermia-Rhodothermales-Rubricoccaceae-Rubricoccus_marinus_WP_094549784.1 - Bacteria-Rhodothermaeota-Rhodothermia-Rhodothermales-Rubricoccaceae-Rubrivirga_sp._SAORIC476_WP_095514988.1 — Bacteria-Cyanobacteria-NA-Nostocales-Rivulariaceae-Rivularia sp. PCC 7116 WP 015122462.1 —— Bacteria-Cyanobacteria-NA-Oscillatoriales-Oscillatoriaceae-Moorea_bouillonii_WP_075900071.1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Polarella_glacialis_MMETSP1440_c16312_g1_i1.p1 —— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1122_c26988_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Chrysochromulina_polylepis_MMETSP0143_c35364_g1_i1.p1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c3206_g1_i1.p1 — Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c2792_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis sp MMETSP0419 c4864 g1 i1.p1 — Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Labilitrichaceae-Labilithrix_luteola_WP_146654579.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Polyangiaceae-Sorangium cellulosum WP 129580670.1 Eukaryota-Cryptophyta-NA-Cryptomonadales-NA-Hanusia_phi_MMETSP1048_c2900_g1_i1.p1 Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas_sp_MMETSP0114_c13873_g1_i1.p1 — Eukaryota-Haptophyta-NA-Prymnesiales-NA-Isochrysis_galbana_MMETSP0595_c941_g1_i1.p1 Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c47821_g1_i1.p1 MSTRG.27764.1.p1 Paulinella_chromatophora_CCAC0185_nuclear__scaffold1028-m15216 Paulinella_chromatophora_CCAC0185_nuclear___scaffold2477-m28026 — Paulinella_chromatophora_CCAC0185_nuclear___scaffold4600-m42900 — Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Mal4_WP_145368141.1 — Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Chloroflexaceae-Chloroflexus_aggregans_WP_012615934.1 Bacteria-NA-NA-NA-NA-bacterium_JKG1_WP_081752816.1 Viruses-NA-NA-NA-Pandoravirus_dulcis_YP_008318817.1 - Bacteria-DeinococcusThermus-Deinococci-Thermales-Thermaceae-Meiothermus_granaticius_WP_119356728.1 —— Bacteria-Firmicutes-Limnochordia-Limnochordales-Limnochordaceae-Limnochorda_pilosa_WP_082726357.1 —— Bacteria-Planctomycetes-CandidatusBrocadiae-CandidatusBrocadiales-CandidatusBrocadiaceae-Candiadtus_Scalindua_japonica_WP_133111590.1 Bacteria-Actinobacteria-Coriobacteriia-Eggerthellales-Eggerthellaceae-Raoultibacter_massiliensis_WP_102373472.1 — Bacteria-Acidobacteria-Holophagae-Holophagales-Holophagaceae-Holophaga_foetida_WP_005038296.1 ——— Bacteria-Spirochaetes-Spirochaetia-Brachyspirales-Brachyspiraceae-Brachyspira_hampsonii_WP_107926519.1 Bacteria-Spirochaetes-Spirochaetia-Brevinematales-Brevinemataceae-Brevinema_andersonii_WP_092320168.1 —— Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter_sp._UWB2_WP_088659279.1 —— Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-NA_WP_078777083.1 Archaea-Euryarchaeota-Halobacteria-Natrialbales-Natrialbaceae-Halopiger_salifodinae_WP_049991531.1 Bacteria-Caldiserica-Caldisericia-Caldisericales-Caldisericaceae-Caldisericum_exile_WP_014452733.1



Legend Groups Paulinella Archaea Bacteria Eukaryota Viruses Other/Misc Nodes BS ≥ 95% BS: ultrafast bootstrap support Organelle targeting peptides Mitochondrial Chromatophore (≥100aa) Chromatophore (<100aa)

Paulinella_chromatophora_CCAC0185_nuclear___scaffold10292-m73797 Eukaryota-Entamoebidae-NA-NA-NA-Entamoeba_invadens_XP_004261648.1 Eukaryota-Entamoebidae-NA-NA-Entamoeba_nuttalli_XP_008860217.1 —— Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c21372_g1_i1.p1 —— Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_theileri_XP_028880163.1 ———— Bacteria-Proteobacteria-Gammaproteobacteria-Enterobacterales-Erwiniaceae-Pantoea_vagans_WP_147790162.1 Eukaryota-Chordata-Actinopteri-Tetraodontiformes-Tetraodontidae-Takifugu_rubripes_XP_011608547.2 Eukaryota-Nematoda-Chromadorea-Rhabditida-Onchocercidae-Loa_loa_XP_020307504.1 100 Eukaryota-Nematoda-Chromadorea-Rhabditida-Rhabditidae-Caenorhabditis_elegans_NP_001040752.2 Eukaryota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator_americanus_XP_013305661.1 Eukaryota-Arthropoda-Hexanauplia-Calanoida-Temoridae-Eurytemora_affinis_XP_023322405.1 —— Eukaryota-Arthropoda-Insecta-Coleoptera-Buprestidae-Agrilus_planipennis_XP_018333886.1 Eukaryota-Arthropoda-Insecta-Diptera-Drosophilidae-Drosophila_arizonae_XP_017871207.1 100 Eukaryota-Arthropoda-Insecta-Hemiptera-Cimicidae-Cimex_lectularius_XP_014246157.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Apidae-Ceratina_calcarata_XP_017887421.1
Eukaryota-Arthropoda-Insecta-Hymenoptera-Cephidae-Cephus_cinctus_XP_015609694.1 Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulidae-Priapulus_caudatus_XP_014673024.1 Eukaryota-Apicomplexa-Aconoidasida-Piroplasmida-Theileriidae-Theileria_orientalis_XP_009691426.1 Eukaryota-Chordata-Mammalia-Perissodactyla-Equidae-Equus_asinus_XP_014690625.1 Leukaryota-Chordata-Mammalia-Primates-Tarsiidae-Carlito syrichta XP 021569633.1 Eukaryota-Chordata-Chondrichthyes-Chimaeriformes-Callorhinchidae-Callorhinchus_milii_XP_007897682.1 Eukaryota-Hemichordata-Enteropneusta-NA-Harrimaniidae-Saccoglossus kowalevskii XP 002735956.1 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster_planci_XP_022107454.1

Eukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon_queenslandica_XP_003387106.1 Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea_virginica_XP_022320813.1 Eukaryota-Mollusca-Bivalvia-Pectinoida-Pectinidae-Mizuhopecten_yessoensis_XP_021362568.1 ______ 1d0_______ Eukaryota-Mollusca-Gastropoda-Aplysiida-Aplysiidae-Aplysia_californica_XP_012935114.1 Eukaryota-Mollusca-Gastropoda-NA-Lottiidae-Lottia_gigantea_jgi137775 Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella_robusta_jgi104268 Eukaryota-Cnidaria-Anthozoa-Alcyonacea-Nephtheidae-Dendronephthya_gigantea_XP_028401670.1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Acroporidae-Acropora_millepora_XP_029206091.1 100 Eukaryota-Chidaria-Anthozoa-Scleractinia-Pocilloporidae-Pocillopora_damicornis_XP_027051415.1 —————100 2 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Stylophora_pistillata_XP_022788959.1 84______Eukaryota-Cnidaria-Hydrozoa-Anthoathecata-Hydridae-Hydra_magnipapillata_jgiHma2213804 Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002117951.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c762_g1_i1.p1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Monosiga_brevicollis_XP_001749767.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004992756.1 Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma_arctica_XP_014161517.1 — 66 Eukaryota-Mesomycetozoea-Ichthyosporea-NA-NA-Capsaspora_owczarzaki_XP_004342384.2 Eukaryota-Ascomycota-Dothideomycetes-Pleosporales-Pleosporaceae-Bipolaris maydis XP 014081437.1 Eukaryota-Ascomycota-Dothideomycetes-Undefined-Undefined-Cochliobolus_heterostrophus_C5_jgi81933 Eukaryota-Ascomycota-Eurotiomycetes-Eurotiales-Aspergillaceae-Aspergillus_fumigatus_XP_746921.1 Eukaryota-Ascomycota-Eurotiomycetes-Eurotiales-Aspergillaceae-Penicillium_expansum_XP_016597699.1 Eukaryota-Ascomycota-Orbiliomycetes-Orbiliales-Orbiliaceae-Arthrobotrys_oligospora_XP_011127844.1 Eukaryota-Ascomycota-Saccharomycetes-Saccharomycetales-Pichiaceae-Ogataea_parapolymorpha_XP_013936969.1 Eukaryota-Ascomycota-Saccharomycetes-Saccharomycetales-Pichiaceae-Pichia_kudriavzevii_XP_029321309.1 Eukaryota-Basidiomycota-Exobasidiomycetes-Ceraceosorales-Ceraceosoraceae-Ceraceosorus_guamensis_XP_025372663 Eukaryota-Basidiomycota-Ustilaginomycetes-Ustilaginales-Ustilaginaceae-Moesziomyces antarcticus XP 014655292.1 -- 10d______ Eukaryota-Basidiomycota-Exobasidiomycetes-Microstromatales-NA-Pseudomicrostroma_glucosiphilum_XP_025348945.1 94 Lukaryota-Basidiomycota-Wallemiomycetes-Wallemiales-Wallemiaceae-Wallemia_mellicola_XP_006958315.1 ———— Eukaryota-Chytridiomycota-Chytridiomycetes-Rhizophydiales-NA-Batrachochytrium_dendrobatidis_jgi599 Eukaryota-Mucoromycota-Glomeromycetes-Glomerales-Glomeraceae-Rhizophagus_irregularis_XP_025183713.1 Eukaryota-Mucorales-Mucoraceae-Undefined-Undefined-Mucor_circinelloides_jgi92434

Eukaryota-Mucoromycota-Mucoromycetes-Mucorales-Rhizopodaceae-Rhizopus_microsporus_XP_023471158.1 Eukaryota-Mucoromycota-Mucoromycetes-Mucorales-Phycomycetaceae-Phycomyces_blakesleeanus_igi10512 Eukaryota-Mucoromycota-Mortierellomycetes-Mortierellales-Mortierellaceae-Lobosporangium transversale XP 021883326.1 Eukaryota-Fonticulida-Fonticulida-Fonticulida-Fonticulida-Fonticulaceae-Fonticula_alba_XP_009497770.1 Eukaryota-Microsporidia-NA-NA-NA-Mitosporidium_daphniae_XP_013236442.1 Eukaryota-Microsporidia-NA-NA-NA-Nematocida_parisii_XP_013058166.1 Eukaryota-Microsporidia-NA-NA-Pleistophoridae-Vavraia culicis XP 008075518.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium_subglobosum_XP_012756304.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium_subglobosum_XP 012759553.1 ______49- Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Heterostelium_album_XP_020428242.1 100 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Cavenderiaceae-Cavenderia fasciculata XP 004359294.1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Filamoeba_nolandi_MMETSP0413_c11963_g1_i1.p1 —————————————————————Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Pessonella_sp_MMETSP0420_c7118_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c12663_g1_i1.p1

Eukaryota-Haptophyta-NA-Prymnesiales-NA-Imantonia_sp_MMETSP1474_c32704_g1_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Cryptomonadaceae-Cryptomonas_paramecium_MMETSP0038_c41415_g1_i1.p1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP1042_c12532_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_lens_MMETSP0484_c52539_g1_i1.p1 —————————————————————Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0117_c8286_g1_i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Chrysocystis_fragilis_MMETSP1165_c19760_g1_i1.p1 — 100 Lucaryota-Stramenopiles-Oomycetes-Saprolegniales-Saprolegniaceae-Saprolegnia_parasitica_XP_012196959.1 Lucione Eukaryota-Stramenopiles-NA-Bicosoecida-Cafeteriaceae-Cafeteria_sp_MMETSP1104_c5828_g1_i1.p1 Eukaryota-Chlorophyta-Mamiellophyceae-Mamiellales-Mamiellaceae-Micromonas_sp_MMETSP0802_c2217_g1_i2.p1 Eukaryota-Chlorophyta-NA-NA-Unidentifiedeukaryote_sp_MMETSP1326_c15735_g1_i1.p1 Eukaryota-Streptophyta-Liliopsida-Arecales-Arecaceae-Elaeis_guineensis_XP_010937877.2 Eukaryota-Streptophyta-Liliopsida-Poales-Poaceae-Brachypodium_distachyon_XP_024316097.1 Eukaryota-Streptophyta-Liliopsida-Asparagales-Orchidaceae-Phalaenopsis_equestris_XP_020578908.1 ukaryota-Streptophyta-NA-Fagales-Juglandaceae-Juglans_regia_XP_018825849.1 00 Eukaryota-Streptophyta-NA-Malpighiales-Euphorbiaceae-Hevea_brasiliensis_XP_021691049.1 Eukaryota-Streptophyta-NA-Caryophyllales-Chenopodiaceae-Beta_vulgaris_XP_010683284.1 Eukaryota-Streptophyta-NA-Rosales-Rosaceae-Malus_domestica_XP_008350928.1 Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis_chuii_MMETSP0491_c33743_g1_i1.p1 Eukaryota-Chlorophyta-NA-Pyramimonadales-NA-Pyramimonas_sp_MMETSP1445_c11083_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Picocystis_salinarum_MMETSP0807_c2583_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_witrockiana_MMETSP0308_c37940_g1_i1.p1

Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00001694_g9567.t1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c9079_g1_i1.p1

Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Partenskyella_glossopodia_MMETSP1318_c4066_g1_i1.p1 —— Fukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0111_c15135_g2_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c8109_g1_i1.p1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold39510-m160032 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000005380.g2498.t1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c19984_g2_i1.p1 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c18364_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c20023_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Rosalina_sp_MMETSP0190_c62429_g1_i1.p1 ______ Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c27907_g1_i1.p1 Eukaryota-Haptophyta-NA-Phaeocystales-Phaeocystaceae-Phaeocystis_cordata_MMETSP1465_c6077_g1_i1.p2 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Eimeriidae-Cyclospora_cayetanensis_XP_026192261.1 —— Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Besnoitia besnoiti XP_029219836.1 100_ Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Neospora_caninum_XP_003884547.1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c4161_g1_i1.p1 Eukaryota-Chromeraceae-NA-NA-NA-Vitrella_brassicaformis_MMETSP1451_c14462_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Climacostomum_virens_MMETSP1397_c7720_g1_i1.p1 - Eukaryota-Ciliophora-Oligohymenophorea-Peniculida-Parameciidae-Paramecium tetraurelia XP 001456308.1 Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas_trahens_XP_013758574.1 —— Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000013589.g6291.t1 Eukaryota-Heterolobosea-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0759_c7490_g1_i1.p1 karyota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c13795_g1_i1.p1 —— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_monilatum_MMETSP0095_c8307_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Gymnodinium_catenatum_MMETSP0784_c52356_g1_i1.p1 ıkaryota-Haptophyta-NA-Isochrysidales-Noelaerhabdaceae-Emiliania huxleyi MMETSP0995 c9359 g1 i1.p1 ota-Haptophyta-NA-Prymnesiales-NA-Gephyrocapsa_oceanica_MMETSP1364_c5275_g1_i1.p1 -Haptophyta-NA-Prymnesiales-NA-Gephyrocapsa_oceanica_MMETSP1366_c7504_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Chrysochromulina polylepis MMETSP0143 c42361 g1 i1.p1 Jukaryota-Amoebozoa-NA-NA-Paramoebidae-Mayorella_sp_MMETSP0417_c3250_g1_i1.p1 ota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c36045_g1_i1.p1 - Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Trichosphaerium sp MMETSP0405 c9057 g1 i1.p1 karyota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba_castellanii_XP_004339845.1 Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Streptosporangiaceae-Nonomuraea_sp._KC333_WP_1111830. Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Amoebophrya sp MMETSP0795 c2738 g1 i1.p1 - Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas_pacifica_MMETSP0108_c10285_g1_i1.p1 Eukaryota-Stramenopiles-Raphidophyceae-Chattonellales-Chattonellaceae-Chattonella_subsalsa_MMETSP0947_c26690_g1_i1.p1 Eukaryota-Stramenopiles-Raphidophyceae-Chattonellales-Chattonellaceae-Heterosigma_akashiwo_MMETSP0294_c5736_g1_i1.p1 ----- MSTRG.9371.1.p1 — Paulinella_chromatophora_CCAC0185_nuclear___scaffold2383-m27282 1.21



Groups

■ Paulinella

ArchaeaBacteria

■ Eukaryota■ Viruses■ Other/Misc

■ Other/I

■ BS ≥ 95%BS: ultrafast bootstrap support

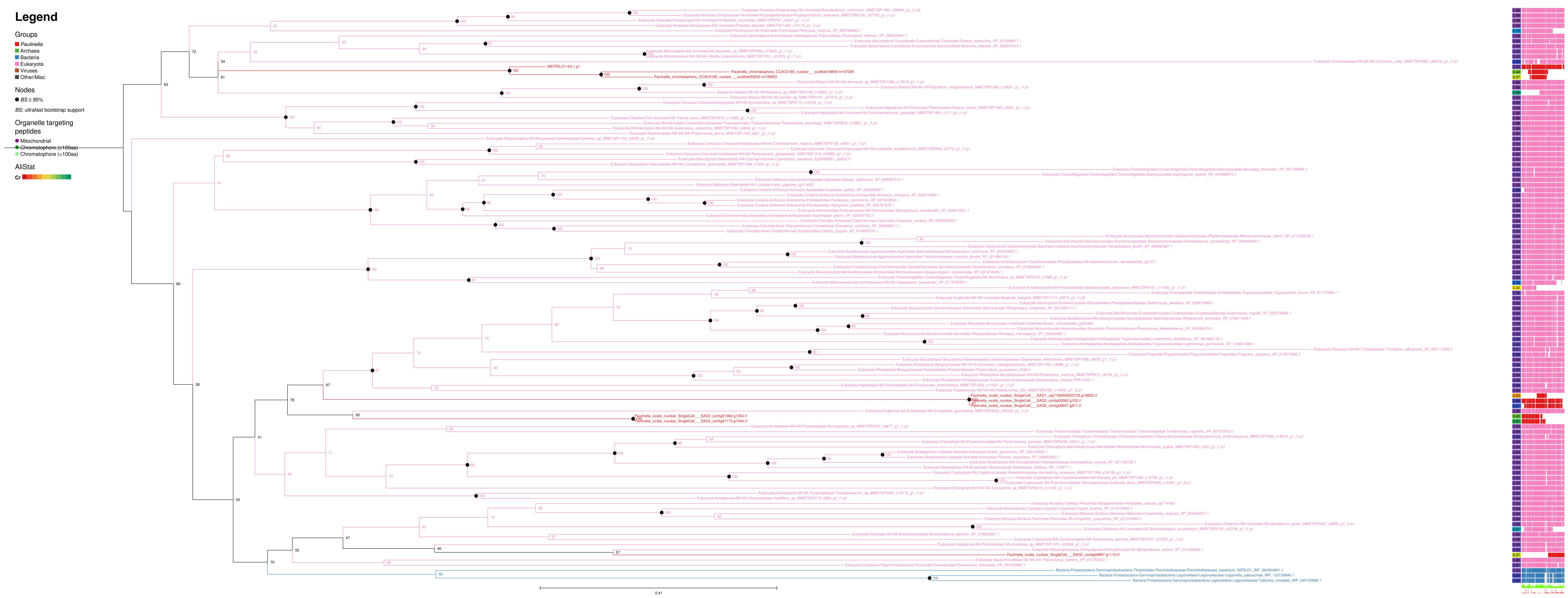
Organelle targetir

peptides

Mitochondrial
 Chromatophore (≥100aa)

AliStat





——— Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Pyrodictiaceae-Pyrodictium_occultum_WP_058371210.1 ——— Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Acidianus_hospitalis_WP_013775565.1 ———— Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Metallosphaera_cuprina_WP_013736631.1 ——— Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Metallosphaera_hakonensis_WP_110369214.1 —— Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Sulfodiicoccus_acidiphilus_WP_126451239.1 Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Caldivirga_sp._MU80_WP_066796409.1 ———— Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Vulcanisaeta thermophila WP 069808134.1 Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Vulcanisaeta distributa WP 013337225.1 Archaea ———— Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Haloarculaceae-Halorientalis_sp._F1325_WP_129069278.1 —— Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Haloplanus vescus WP 092630956.1 Bacteria Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Haloferax_mediterranei_WP_004572582.1 Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-NA_WP_008573642.1 Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Halogranum_gelatinilyticum_WP_089694769.1 Archaea-NA-NA-NA-Archaeon_AArcSI_WP_119818932.1 Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Halobacteriaceae-Halorussus_amylolyticus_WP_132057692.1 ——— 100_____ Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Halobacteriaceae-Halorussus_ruber_WP_135825534.1 Archaea-Euryarchaeota-Halobacteria-Halobacteriales-NA-halophilic_archaeon_LT46_WP_137283464.1 Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Halobacteriaceae-Halarchaeum_sp._CBA1220_WP_123074058.1 —— Bacteria-NA-NA-NA-NA-bacterium_B66_WP_136249701.1 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000011124.g5198.t1 Bacteria-Proteobacteria-Gammaproteobacteria-Enterobacterales-NA-NA_WP_004131470.1 100Bacteria-Proteobacteria-NA-NA-NA-NA_WP_000423742.1 100 Eukaryota-Arthropoda-Insecta-Phthiraptera-Pediculidae-Pediculus_humanus_XP_002433304.1 Bacteria-Proteobacteria-Gammaproteobacteria-Enterobacterales-NA-NA_WP_010863772.1 Bacteria-Proteobacteria-Gammaproteobacteria-Vibrionales-NA-Vibrionales_bacterium_C3R12_WP_113795949.1 Bacteria-Proteobacteria-Gammaproteobacteria-Vibrionales-Vibrionaceae-Vibrio_genomosp._F6_WP_017052226.1 Eukaryota-Stramenopiles-Mediophyceae-Triceratiales-Triceratiaceae-Triceratium_dubium_MMETSP1175_c4689_g1_i1.p1 — Bacteria-Proteobacteria-Gammaproteobacteria-Vibrionales-Vibrionaceae-NA_WP_011217888.1 100 Bacteria-Proteobacteria-Gammaproteobacteria-Vibrionales-Vibrionaceae-Photobacterium_lipolyticum_WP_107284554.1 Bacteria-Proteobacteria-Gammaproteobacteria-Vibrionales-Vibrionaceae-Salinivibrio_proteolyticus_WP_077674207.1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_tamarense_MMETSP0384_c67803_g1_i1.p1 + 100 Eukaryota-Chlorophyta-Mamiellophyceae-Mamiellales-Mamiellaceae-Micromonas_pusilla_MMETSP1402_c1837_g1_i1.p1 - Eukaryota-Chlorophyta-Mamiellophyceae-Mamiellales-Mamiellaceae-Micromonas_commoda_XP_002505798.1 — Eukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas_chlamydogama_MMETSP1392_c28415_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis chuii MMETSP0491 c4309 g1 i1.p1 —————— Eukaryota-Chlorophyta-NA-NA-NA-Picocystis_salinarum_MMETSP0807_c3119_g1_i1.p1 Eukaryota-Streptophyta-Bryopsida-Funariales-Funariaceae-Physcomitrella_patens_XP_024385403.1 Eukaryota-Streptophyta-NA-Brassicales-Brassicaceae-Arabidopsis_thaliana_NP_193579.2 Eukaryota-Streptophyta-NA-Lamiales-Oleaceae-Olea_europaea_XP_022889769.1 Eukaryota-Streptophyta-NA-Lamiales-Pedaliaceae-Sesamum_indicum_XP_011072113.1

90 Eukaryota-Streptophyta-NA-Lamiales-Phrymaceae-Erythranthe_guttata_XP_012858151.1 Eukaryota-Streptophyta-NA-Rosales-Rosaceae-Prunus_avium_XP_021813242.1 — Bacteria-NA-NA-NA-NA-Natronospirillum_operossus_WP_135482266.1 Eukaryota-Arthropoda-Malacostraca-Amphipoda-Hyalellidae-Hyalella_azteca_XP_018028568.1 ——— Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Mal33_WP_145284582.1 —— Bacteria-Proteobacteria-Gammaproteobacteria-Cellvibrionales-Halieaceae-Halieaceae_bacterium_GH478_WP_133212230.1 Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Alteromonadaceae-Marinobacter_sp._NP6_WP_127401506.1 Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Alteromonadaceae-NA_WP_041334256.1 Bacteria-Proteobacteria-Gammaproteobacteria-NA-NA-NA_WP_053112230.1 ———— Bacteria-Proteobacteria-Gammaproteobacteria-Oceanospirillales-Halomonadaceae-Halomonas_sp._BC04_WP_043513535.1 Bacteria-Proteobacteria-NA-NA-NA-Proteobacteria_bacterium_228_WP_104154022.1 Eukaryota-Nematoda-Chromadorea-Rhabditida-Rhabditidae-Caenorhabditis remanei XP 003087149.1 Eukaryota-Chordata-Mammalia-Cetacea-Lipotidae-Lipotes vexillifer XP 007471579.1 —— Bacteria-Proteobacteria-Gammaproteobacteria-NA-NA-Thiolapillus_brandeum_WP_041067184.1 <u>Eukaryota-Haptophyta-NA-Prymnesiales-NA-Chrysochromulina_polylepis_MMETSP0143_c79215_g1_i1.p2</u> Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium_parvum_MMETSP0008_c8364_g1_i1.p1 71 Lukaryota-Haptophyta-NA-Unranked-NA-Scyphosphaera_apsteinii_MMETSP1333_c64616_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Coccolithus_pelagicussspbraarudi_MMETSP0164_c852_g1_i1.p1 Eukaryota-Rhodophyta-Porphyridiophyceae-NA-NA-Timspurckia_oligopyrenoides_MMETSP1172_c1575_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-Porphyridiales-Porphyridiaceae-Porphyridium_purpureum_2276.7 — Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Vexillifera_sp_MMETSP0173_c10538_g1_i1.p1 ----- MSTRG.6096.1.p1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold14186-m90258 • 100 Paulinella_chromatophora_CCAC0185_nuclear___scaffold6215-m52838 Paulinella_chromatophora_CCAC0185_nuclear___scaffold27326-m131755 MSTRG.9958.1.p1 98 Paulinella_chromatophora_CCAC0185_nuclear___scaffold6315-m53423 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000021045.g9632.t1 ____Fallinella_ovalis_nuclear_SingleCell___SAG3_contig00517.g626.t1 Paulinella_ovalis_nuclear_SingleCell___SAG5_contig00832.g1056.t1 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000028822.g12868.t1 —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_MMETSP1052_c11982_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_amoebiformis_MMETSP0042_c8957_g1_i1.p1 —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0111_c3142_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c7944 g1 i1.p1 —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c10487_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Aplanochytrium_sp_MMETSP0954_c2513_g1_i1.p1 +100 2100 Eukaryota-Stramenopiles-Labyrinthulomycetes-Unranked-Unranked-Aplanochytrium_kerguelense_jgi47516 LEukaryota-Stramenopiles-Labyrinthista-NA-NA-Aurantiochytrium_limacinum_MMETSP0958_TR217-c0_g1_i1.p1 🚣 Бикатуоta-Stramenopiles-Labyrinthulomycetes-Unranked-Unranked-Aurantiochytrium_limacinum_jgi39355 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Aurantiochytrium_limacinum_MMETSP0960_c1718_g1_i1.p1 ——— Eukaryota-Stramenopiles-NA-Bicosoecida-Cafeteriaceae-Cafeteria_sp_MMETSP1104_c2923_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Amphidinium_carterae_MMETSP0258_c13135_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1374_c50386_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karenia_brevis_MMETSP0027_c35110_g1_i1.p1 ——— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Oxyrrhis_marina_MMETSP0468_c40464_g1_i1.p1 Eukaryota-Apicomplexa-Aconoidasida-Haemosporida-Plasmodiidae-Plasmodium_chabaudi_XP_016653172.1 Eukaryota-Apicomplexa-Aconoidasida-Haemosporida-Plasmodiidae-Plasmodium_yoelii_XP_726536.1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c31471_g1_i1.p1 — Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Besnoitia_besnoiti_XP_029221763.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Toxoplasma_gondii_XP_002365419.1 ryota-Ciliophora-NA-Unranked-NA-Euplotes_focardii_MMETSP0205_c22970_g1_i1.p1 ——— Eukaryota-Ciliophora-NA-Unranked-NA-Platyophrya_macrostoma_MMETSP0127_c10303_g1_i1.p1 Eukaryota-Ciliophora-Oligohymenophorea-Hymenostomatida-Tetrahymenidae-Tetrahymena_thermophila_XP_001015405.2 Eukaryota-Ciliophora-Oligohymenophorea-Peniculida-Parameciidae-Paramecium tetraurelia XP 001424339.1 — Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c27276_g1_i1.p1 ———— Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Neoparamoeba aestuarina MMETSP0161 c23254 g1 i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c8647_g1_i1.p1 tomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP0043_c411_g1_i1.p1 phyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP1041_c29940_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Geminigeraceae-Guillardia_theta_CCMP2712_jgi159766 Eukaryota-Cryptophyta-NA-Pyrenomonadales-NA-Geminigera_cryophila_MMETSP0799_c4124_g1_i1.p1 ——— Eukaryota-Cnidaria-Anthozoa-Actiniaria-Edwardsiidae-Nematostella vectensis XP 001617604.1 — Eukaryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Stylophora pistillata XP 022809225.1 Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella gymnastica MMETSP0039 c12188 g1 i1.p1 — Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c7976_g1_i1.p1 — Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_theileri_XP_028879505.1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c86268_g1_i1.p1 ukaryota-Ascomycota-Dothideomycetes-Capnodiales-Mycosphaerellaceae-Pseudocercospora_fijiensis_XP_007929648.1 + 100 Eukaryota-Ascomycota-Pezizomycotina-Undefined-Undefined-Mycosphaerella_fijiensis_jgi34751 Chaetothyriales-Herpotrichiellaceae-Cladophialophora yegresii XP 007754036.1 Archaea-CandidatusKorarchaeota-NA-NA-NA-Candidatus_Methanodesulfokores_washburnensis_WP_125671439.1 — Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147665217.1 Eukaryota-Ascomycota-Leotiomycetes-Helotiales-NA-Phialocephala scopiformis XP 018062477.1 Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002110145.1 ukaryota-Chordata-NA-NA-Branchiostomidae-Branchiostoma belcheri XP 019642621.1 —— Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster_planci_XP_022092542.1 — Eukaryota-Platyhelminthes-Cestoda-Cyclophyllidea-Taeniidae-Echinococcus_granulosus_XP_024347737.1 ——— Archaea-Thaumarchaeota-NA-NA-NA-Candidatus_Nitrosotalea_devanaterra_WP_148694459.1 ———— Archaea-Thaumarchaeota-NA-NA-NA-Candidatus_Nitrosotenuis_cloacae_WP_048187104.1 ——— Archaea-Thaumarchaeota-NA-NA-NA-Thaumarchaeota_archaeon_N4_WP_048196528.1 Archaea-Thaumarchaeota-NA-NA-NA-Marine_Group_I_thaumarchaeote_SCGC_AAA799E16_WP_048088682.1 Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus_adriaticus_WP_048118777.1 — Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Candidatus_Nitrosarchaeum_limnium_WP_007402939.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Apidae-Apis florea XP 012339220.1 Eukaryota-Arthropoda-Insecta-Hymenoptera-Formicidae-Vollenhovia_emeryi_XP_011860385.1 — Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_116577188.1 — Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus Bathyarchaeota archaeon WP 119816727.1

Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Cellulomonadaceae-Actinotalea_ferrariae_WP_034221889.1 Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Cellulomonadaceae-Cellulomonas_carbonis_WP_081978615.1 Bacteria-Actinobacteria-Actinobacteria-Propionibacteriales-Nocardioidaceae-Kribbella_sp._VKM_Ac2568_WP_132294547.1 Bacteria-Actinobacteria-Actinobacteria-Propionibacteriales-Nocardioidaceae-Marmoricola_solisilvae_WP_123234110.1 Bacteria-Actinobacteria-Actinobacteria-Propionibacteriales-Nocardioidaceae-NA_WP_132187423.1 Bacteria-Actinobacteria-Actinobacteria-Micromonosporales-Micromonosporaceae-Actinoplanes_brasiliensis_WP_133874305.1 —— Bacteria-Actinobacteria-Actinobacteria-Micromonosporales-Micromonosporaceae-Actinoplanes teichomyceticus WP 122981371.1 + 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 Bacteria Eukaryota-Rhodophyta-Compsopogonophyceae-NA-NA-Madagascaria_erythrocladiodes_MMETSP1450_c15537_g1_i1.p2 Bacteria-Actinobacteria-Rubrobacteria-Rubrobacterales-Rubrobacteraceae-Rubrobacter_taiwanensis_WP_132687979.1 —— Bacteria-Chloroflexi-Ktedonobacteria-Ktedonobacterales-Dictyobacteraceae-Tengunoibacter_tsumagoiensis_WP_126580400.1 Eukaryota-Ciliophora-NA-Unranked-NA-Platyophrya_macrostoma_MMETSP0127_c16522_g1_i1.p1 — Bacteria-Firmicutes-Bacilli-Bacillales-Paenibacillaceae-Paenibacillus_sp._BK736_WP_132487971.1 Bacteria-Armatimonadetes-Chthonomonadales-Chthonomonadaceae-Chthonomonas_calidirosea_WP_016481552.1 Bacteria-Armatimonadetes-Chthonomonadetes-Chthonomonadales-Chthonomonadaceae-Chthonomonas calidirosea WP 075162624.1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold1114-m16077 ukaryota-Chlorophyta-Nephroselmidophyceae-NA-NA-Nephroselmis_pyriformis_MMETSP0034_c15448_g1_i4.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_MMETSP1052_c37205_g1_i1.p1 ukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c13035_g1_i1.p1 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etaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c17015_g2_i1.p1 ——— Eukaryota-Chlorophyta-NA-NA-NA-Picocystis_salinarum_MMETSP0807_c1708_g1_i1.p1 ----- MSTRG.17428.2.p1 Paulinella chromatophora CCAC0185 nuclear_scaffold1731-m21789 ukaryota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba castellanii XP 004335079.1 Viruses-NA-NA-NA-NA-Mollivirus sibericum YP 009165080.1 Viruses-Pithoviridae-NA-NA-NA-Cedratvirus A11 YP 009329205.1 — Viruses-Mimiviridae-NA-NA-NA-Moumouvirus_YP_007354741.1 ota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba castellanii XP 004335043.1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Amphidinium_massartii_MMETSP0689_c1263_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1122_c6570_g1_i1.p1 — Eukaryota-Microsporidia-NA-NA-NA-Nematocida parisii XP 013058256.1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_virescens_MMETSP1356_c13983_g1_i1.p2 70 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Brandtodinium_nutriculum_MMETSP1462_c71354_g1_i1.p2 Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0116_c103589_g1_i1.p1 Lukaryota-Alveolata-Dinophyceae-NA-Unranked-Heterocapsa arctica MMETSP1441_c10489_g1_i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Pseudo_fraudulenta_MMETSP0851_c86888_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karenia_brevis_MMETSP0027_c3365_g1_i2.p1 —— Eukaryota-Stramenopiles-Coscinodiscophyceae-Thalassiosirales-Skeletonemataceae-Skeletonema_japonicum_MMETSP0593_c2123_g1_i1.p1 Bacteria-Firmicutes-Clostridia-Clostridiales-Ruminococcaceae-Ruminococcaceae_bacterium_WP_026077126.1 — Viruses-Mimiviridae-NA-NA-NA-Megavirus_chiliensis_YP_004895060.1 - Bacteria-Firmicutes-Bacilli-Bacillales-Planococcaceae-Planococcus_donghaensis_WP_008431702.1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_rangeli_XP_029233217.1 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Bukaryota-Rhodophyta-Compsopogonophyceae-NA-NA-Madagascaria_erythrocladiodes_MMETSP1450_c10852_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Karenia_brevis_MMETSP0029_c42458_g1_i1.p1 Bacteria-Chrysiogenetes-Chrysiogenetes-Chrysiogenales-Chrysiogenaceae-Chrysiogenes_arsenatis_WP_051321552.1 Bacteria-Chrysiogenetes-Chrysiogenetes-Chrysiogenales-Chrysiogenaceae-Desulfurispirillum_indicum_WP_013506198.1 Bacteria-Deferribacteres-Deferribacteres-Deferribacterales-Deferribacteraceae-Geovibrio_sp._L21AceBES_WP_022850549.1 Bacteria-Cyanobacteria-NA-NA-NA-filamentous_cyanobacterium_CCP5_WP_106881552.1

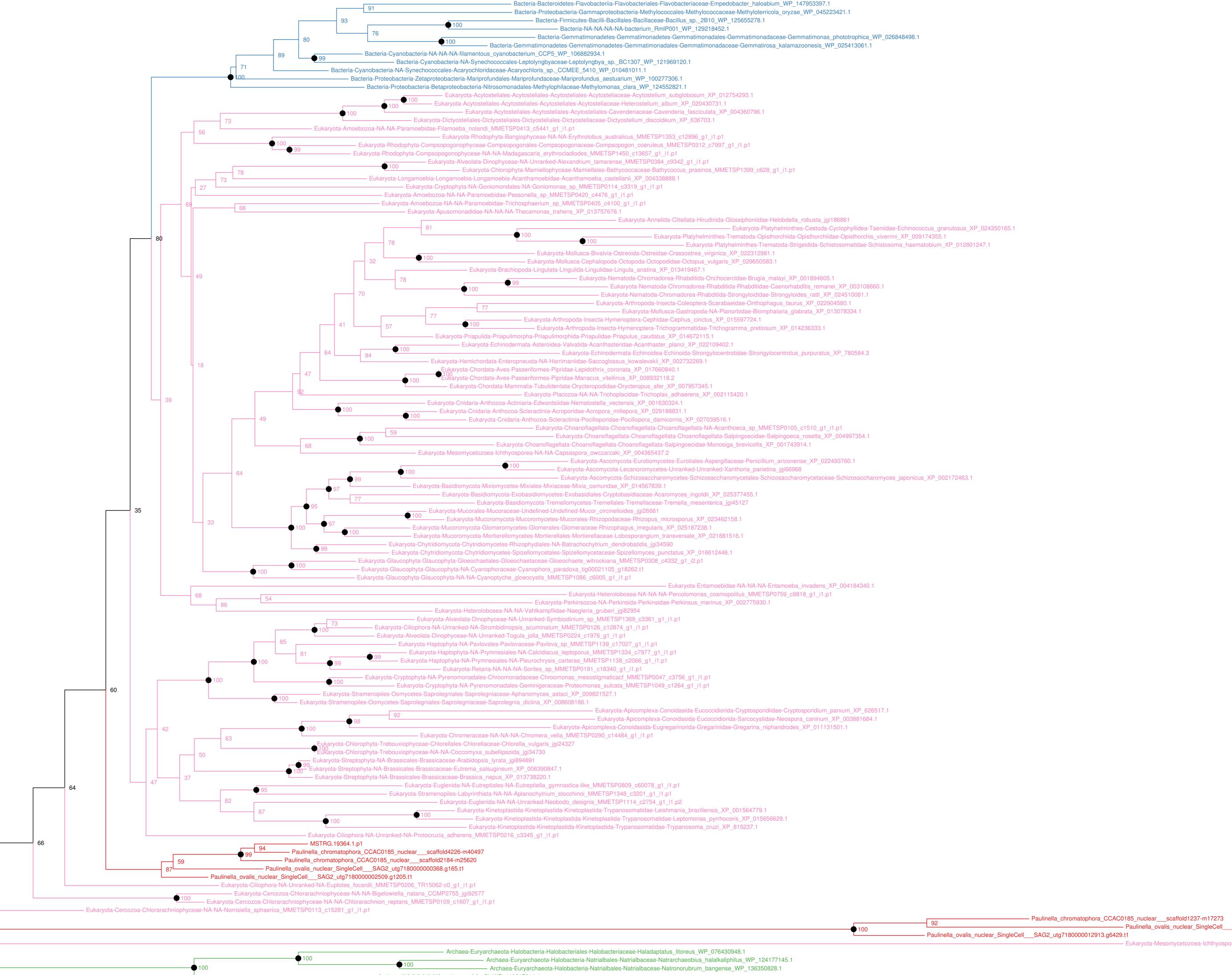
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Paulinella

Archaea Bacteria

Eukaryota



- Archaea-NA-NA-NA-NA-archaeon AArcSI WP 119817814.1 — Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Caldivirga_sp._MU80_WP_066795596.1 Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Vulcanisaeta_thermophila_WP_143701209.1

Paulinella_ovalis_nuclear_SingleCell___SAG2_utg7180000004277.g2098.t1

Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma arctica XP 014153899.1

- Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147663252.1 Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Durinskia_baltica_MMETSP0116_c88310_g1_i1.p1 ta-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Kryptoperidinium_foliaceum_MMETSP0120_c11255_g1_i1.p1 — Eukaryota-Stramenopiles-NA-NA-NA-Pseudo australis MMETSP0139 c12253 g1 i1.p1 nyta-Florideophyceae-Gigartinales-Gigartinaceae-Chondrus_crispus_XP_005715985.1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodella maculata MMETSP0167 c12460 g1 i1.p1 Archaea karyota-Amoebozoa-NA-NA-Paramoebidae-Paramoeba_atlantica_MMETSP0151_c23877_g1_i1.p1 Bacteria aryota-Amoebozoa-NA-NA-Paramoebidae-Trichosphaerium_sp_MMETSP0405_c3559_g1_i1.p1 ceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas_euryale_MMETSP0063_c401_g1_i1.p2 ukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Polytomella_parva_MMETSP0052_c8336_g1_i1.p1 ptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_lens_MMETSP0484_c997_g1_i1.p2 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_virescens_MMETSP1356_c35154_g1_i1.p1 —— Eukaryota-Streptophyta-Liliopsida-Poales-Poaceae-Oryza_brachyantha_XP_006660719.1 Eukaryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Stylophora pistillata XP 022809929.1 ukaryota-Apicomplexa-NA-Unranked-NA-Alveolata sp MMETSP0288 c97 g1 i1.p1 aceae-NA-NA-NA-Vitrella brassicaformis MMETSP1451 c4143 g1 i1.p1 — Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c25591_g1_i2.p1 ———— Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus_marinus_XP_002772079.1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c12140_g1_i1.p1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c41293_g1_i1.p1 . 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Legend

Grour

Paulinella

ArchaeaBacteria

Eukaryota

■ Viruses ■ Other/Misc

Node

BS: ultrafast bootstrap support

Organelle targeting

peptides

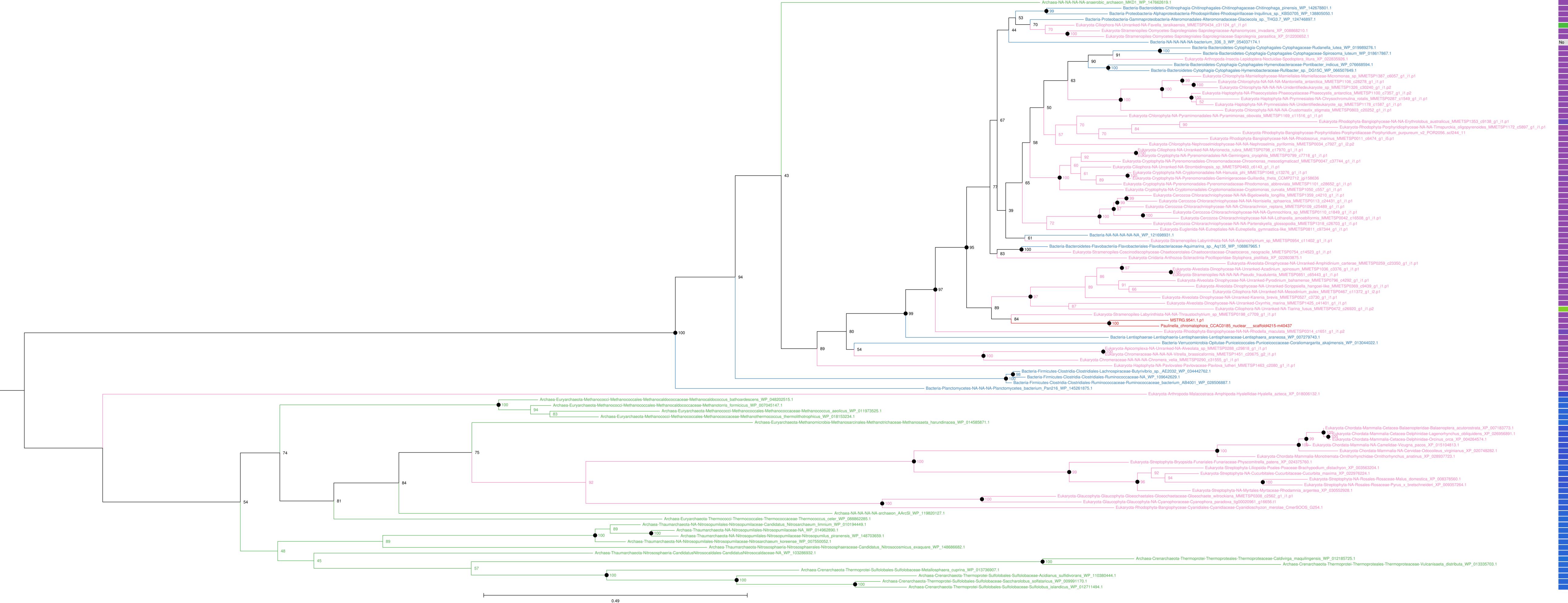
Mitochondrial

Chromatophore (≥100aa)

Chromatophore (<100a</p>

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— Viruses-Siphoviridae-NA-NA-NA-Gordonia_virus_Ghobes_YP_009281153.1 — Archaea-CandidatusKorarchaeota-NA-NA-NA-Candidatus Korarchaeum cryptofilum WP 125742960.1 Archaea-NA-NA-NA-Archaeon_AArcSI_WP_119818676.1 —— Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147664005.1 — Archaea-Euryarchaeota-Archaeoglobi-Archaeoglobales-Archaeoglobaceae-Archaeoglobus_sulfaticallidus_WP_015590543.1 ——— Bacteria-Fibrobacteres-Chitinivibrionia-Chitinivibrionales-Chitinivibrionaceae-Chitinivibrio_alkaliphilus_WP_022637445.1 Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter sp. UWP2 WP 073188081.1 Paulinella Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter_sp._UWT1_WP_101480194.1 Archaea — Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptonema_illini_WP_002771011.1 Bacteria Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_perolatii_WP_100714406.1 Eukaryota — Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfobulbus_mediterraneus_WP_028583273.1 Viruses —— Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfocapsa_sulfexigens_WP_015404537.1 - Bacteria-Thermodesulfobacteria-Thermodesulfobacteria-Thermodesulfobacteriales-Thermodesulfobacteriaceae-Thermodesulfatator_autotrophicus_WP_068543924.1 ——— Bacteria-Thermodesulfobacteria-Thermodesulfobacteria-Thermodesulfobacteriales-Thermodesulfobacteriaceae-Thermosulfurimonas_dismutans_WP_068669213.1 ——— Paulinella ovalis_nuclear_SingleCell___SAG1_utg7180000020442.g9373.t1 — Bacteria-Proteobacteria-Deltaproteobacteria-Desulfuromonadales-Desulfuromonadaceae-Pelobacter propionicus WP 011734463.1 — Bacteria-Proteobacteria-Deltaproteobacteria-Desulfuromonadales-Geobacteraceae-Geobacter_daltonii_WP_012645937.1 - Bacteria-candidatedivisionNC10-NA-NA-NA-Candidatus_Methylomirabilis_limnetica_WP_107561898.1 — Bacteria-Verrucomicrobia-NA-NA-NA-Verrucomicrobia bacterium S94 WP 130594215.1 BS: ultrafast bootstrap support — Bacteria-CandidatusMelainabacteria-NA-NA-NA-Candidatus_Melainabacteria_bacterium_WP_144105344.1 Bacteria-NA-NA-NA-NA-Vampirococcus_sp._LiM_WP_128699061.1 — Bacteria-Planctomycetes-CandidatusBrocadiae-CandidatusBrocadiales-CandidatusBrocadiaceae-Candiadtus_Scalindua_japonica_WP_096892728.1 — Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-Methanomassiliicoccaceae-Candidatus_Methanomassiliicoccus_intestinalis_WP_020449084.1 ——— Bacteria-Actinobacteria-Actinobacteria-Actinomycetales-Actinomycetaceae-Actinomyces_radicidentis_WP_067941718.1 —— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Rarobacteraceae-Rarobacter_incanus_WP_142112390.1 —— Bacteria-Actinobacteria-Actinobacteria-Bifidobacteriales-Bifidobacteriaceae-Bifidobacterium_breve_WP_016462059.1 —— Bacteria-NA-NA-NA-NA WP_004110044.1 Bacteria-Actinobacteria-Coriobacteriia-Coriobacteriales-Atopobiaceae-Atopobium vaginae WP 006302238.1 — Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Pan265_WP_145445290.1 Bacteria-Planctomycetes-Planctomycetia-Planctomycetales-Planctomycetaceae-Blastopirellula_marina_WP_105334502.1 Bacteria-Planctomycetes-Planctomycetia-Planctomycetales-Planctomycetaceae-NA_WP_105333044.1 Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Acidobacteria_bacterium_KBS_146_WP_026388385.1 Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-NA_WP_047490417.1 ——— Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Candidatus_Koribacter_versatilis_WP_011524667.1 — Bacteria-Acidobacteria-Acidobacteriia-Bryobacterales-Solibacteraceae-Candidatus_Solibacter_usitatus_WP_011683785.1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Hymenobacteraceae-Hymenobacter_perfusus_WP_125434506.1

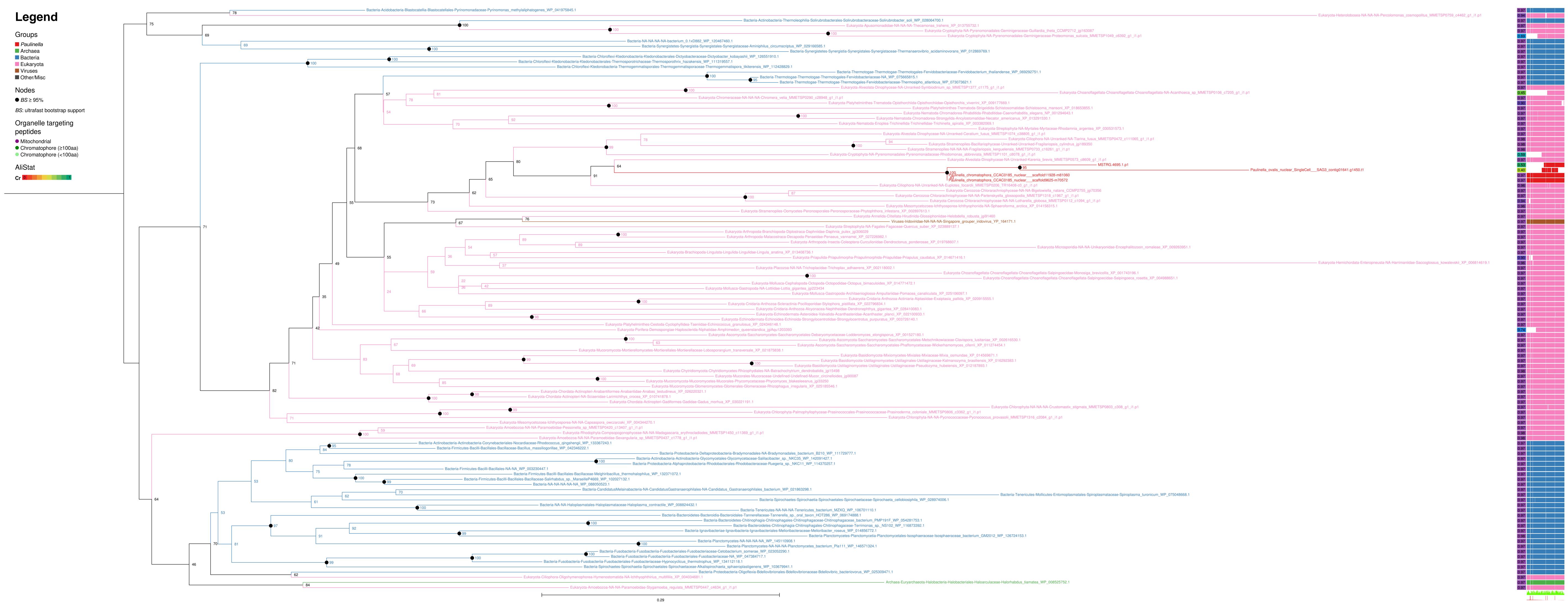
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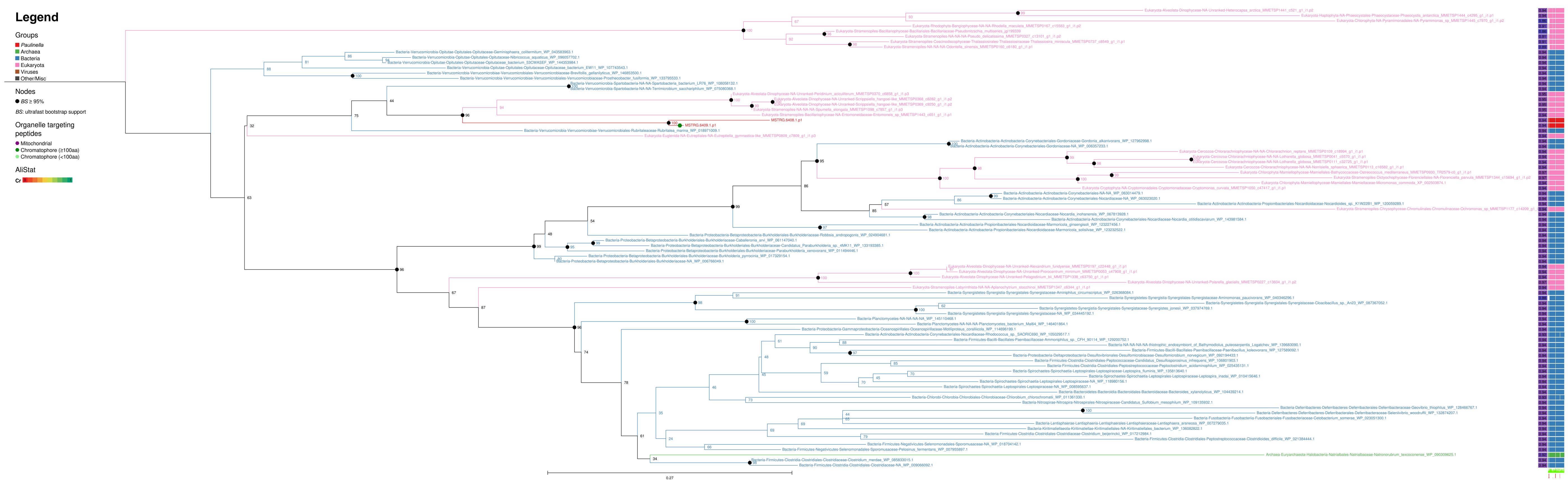
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Bacteria-Acidobacteria-Holophagae-NA-NA-Holophagae_bacterium_WP_116782377.1 ———— Bacteria-NA-NA-NA-NA-bacterium_A52C2_WP_092498769.1 ——— Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfobulbus_japonicus_WP_028579477.1 — Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfopila_sp._IMCC35006_WP_136813015.1 ———— Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Thermodesulfovibrio_aggregans_WP_082673554.1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Candidatus_Sulfobium_mesophilum_WP_109134507.1 — Bacteria-Proteobacteria-Deltaproteobacteria-NA-NA-Deltaproteobacteria bacterium WP 116620209.1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_witrockiana_MMETSP0308_c5772_g2_i1.p1 Archaea —— Eukaryota-Glaucophyta-Glaucophyta-NA-NA-Cyanoptyche_gloeocystis_MMETSP1086_c6807_g1_i1.p1 Bacteria Eukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas_leiostraca_MMETSP1391_c404_g1_i1.p1 Eukaryota Eukaryota-Chlorophyta-NA-NA-NA-Prasinococcus_capsulatus_MMETSP0941_c4045_g1_i1.p1 Viruses Eukaryota-Streptophyta-NA-Fabales-Fabaceae-Vigna_radiata_XP_022636795.1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1369_c7731_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Mesodinium_pulex_MMETSP0467_c5618_g1_i1.p1 ukaryota-Chromeraceae-NA-NA-NA-Vitrella_brassicaformis_MMETSP1451_c35809_g1_i1.p1 ukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_virescens_MMETSP1356_c16440_g1_i1.p1 — Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas_sp_MMETSP0114_c29991_g1_i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Paramoeba_atlantica_MMETSP0151_c2881_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c12794_g1_i1.p1 Eukaryota-Haptophyta-NA-Phaeocystales-Phaeocystaceae-Phaeocystis_antarctica_MMETSP1444_c20125_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium_parvum_MMETSP0814_c4637_g1_i1.p1 Eukaryota-Stramenopiles-Labyrinthista-NA-NA-Thraustochytrium_sp_MMETSP0198_c7262_g1_i1.p1 Anthozoa-Alcyonacea-Nephtheidae-Dendronephthya_gigantea_XP_028404041.1 Eukaryota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator_americanus_XP_013301349.1 ukaryota-Nematoda-Enoplea-Trichinellida-Trichinellidae-Trichinella_spiralis_XP_003372964.1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold877-m13621 Viruses-Herpesviridae-NA-NA-NA-Alcelaphine_gammaherpesvirus_2_YP_009044455.1 — Viruses-Herpesviridae-NA-NA-NA-Bovine gammaherpesvirus 4 NP 076568.1 — Viruses-Herpesviridae-NA-NA-NA-Common_bottlenose_dolphin_gammaherpesvirus_1_strain_Sarasota_YP_009388574.1 · Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Cyclobacteriaceae-Aquiflexum_sp._Z0201_WP_113922525.1 cteria-Bacteroidetes-Cytophagia-Cytophagales-Cyclobacteriaceae-Cecembia_calidifontis_WP_130277635.1 - Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Cyclobacteriaceae-Echinicola_vietnamensis_WP_015268135.1 — Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Granulicella_mallensis_WP_083836716.1 —— Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter_sp._UWB13_WP_085490438.1 —— Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000008017.g3745.t1 Bacteria-Firmicutes-Bacilli-Lactobacillales-Carnobacteriaceae-Agitococcus_lubricus_WP_107864650.1 Eukaryota-Ascomycota-Orbiliomycetes-Orbiliales-Orbiliaceae-Arthrobotrys_oligospora_XP_011118627.1 — Eukaryota-Mesomycetozoea-Ichthyosporea-NA-NA-Capsaspora_owczarzaki_XP_004364431.2 — Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000010398.g4877.t1 ——— Bacteria-Cyanobacteria-NA-Synechococcales-Leptolyngbyaceae-Leptolyngbya_valderiana_WP_063719498.1 Eukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon_queenslandica_XP_003391725.2 — Bacteria-NA-NA-NA-NA-Natronospirillum_operossus_WP_135484549.1 — Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Chitinimonas_sp._R344_WP_144277423.1 - Bacteria-Verrucomicrobia-Opitutae-Puniceicoccales-Puniceicoccaceae-Coraliomargarita_sp._WN38_WP_110130110.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanomicrobiales-Methanocorpusculaceae-Methanocorpusculum labreanum WP 011832677.1 ———— Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Desulfurococcaceae-Desulfurococcus_amylolyticus_WP_048058802.1 Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Caldivirga_sp._MU80_WP_066792938.1 Archaea-Crenarchaeota-Thermoprotei-Thermoproteales-Thermoproteaceae-Vulcanisaeta_moutnovskia_WP_013605298.1 Archaea-Thaumarchaeota-NA-NA-NA-Candidatus_Nitrosotenuis_cloacae_WP_048187974.1 ———— Archaea-Thaumarchaeota-NA-NA-NA-Thaumarchaeota_archaeon_N4_WP_048195405.1 Archaea-Thaumarchaeota-Nitrososphaeria-CandidatusNitrosocaldales-CandidatusNitrosocaldaceae-NA WP 103287227.1 Archaea-NA-NA-NA-NA-archaeon_AArcSI_WP_119814190.1 Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_116595603.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanocellales-Methanocellaceae-Methanocella_conradii_WP_014405803.1 Archaea-NA-NA-NA-NA-anaerobic_archaeon_MKD1_WP_147663251.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanomicrobiales-Methanoregulaceae-Methanoregula_boonei_WP_012106009.1







—— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Hymenobacter_sp._Fur1_WP_144848367.1 —— Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Alteromonadaceae-Glaciecola_sp._THG3.7_WP_124747152.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhodospirillales-Rhodospirillaceae-Inquilinus_sp._KBS0705_WP_138807620.1 Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_ilyithenensis_WP_135765833.1 ——————Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Cytophagaceae-Sporocytophaga_myxococcoides_WP_045468468.1 Bacteria-Chlamydiae-Chlamydiia-Parachlamydiales-Parachlamydiaceae-Neochlamydia_sp._EPS4_WP_044881856.1 — Bacteria-Chlamydiae-Chlamydiia-Parachlamydiales-Parachlamydiaceae-Parachlamydiaceae_bacterium_HST3_WP_042103106.1 ——————— Bacteria-Cyanobacteria-NA-Nostocales-Nostocaceae-Nostoc_linckia_WP_099073317.1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Thermonemataceae-Thermonema_rossianum_WP_038030936.1 —— Bacteria-NA-NA-NA-NA-bacterium_336_3_WP_054037654.1 Bacteria Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c20472_g1_i1.p1 Eukaryota Eukaryota-Heterolobosea-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0759_c7879_g1_i1.p1 Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c3419_g1_i1.p1 — Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Sexangularia_sp_MMETSP0437_c2262_g1_i1.p1 —— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Gymnodinium_catenatum_MMETSP0784_c9944_g1_i1.p1 Eukaryota-Stramenopiles-Dictyochophyceae-Florenciellales-NA-Florenciella_parvula_MMETSP1344_c1244_g1_i1.p1 Eukaryota-Stramenopiles-Dictyochophyceae-Rhizochromulinales-NA-Rhizochromulina_marinacf_MMETSP1173_c1129_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c12053_g1_i1.p1 Viruses-Phycodnaviridae-NA-NA-Feldmannia_species_virus_YP_002154718.1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium parvum MMETSP0815 c13011 g1 i1.p1 Eukaryota-Haptophyta-NA-Unranked-NA-Scyphosphaera_apsteinii_MMETSP1333_c4915_g1_i1.p1 ————————————————————————Viruses-Phycodnaviridae-NA-NA-Emiliania_huxleyi_virus_86_YP_294186.1 ———— Eukaryota-Chlorophyta-NA-NA-NA-Crustomastix_stigmata_MMETSP0803_c3791_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Picocystis_salinarum_MMETSP1159_TR7920-c0_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00000733_g3775.t1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_CCMP2755_igi58266 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c15906_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c20276_g1_i1.p1 —— 100 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c19054_g1_i1.p1 MSTRG.3989.1.p1
Paulinella_chromatophora_CCAC0185_nuclear___scaffold1426-m19028 Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella_robusta_igi185290 Eukaryota-Mollusca-Gastropoda-Architaenioglossa-Ampullariidae-Pomacea_canaliculata_XP_025088063.1 Eukaryota-Mollusca-Gastropoda-NA-Lottiidae-Lottia_gigantea_jgi206843 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013405225.1 Viruses-Poxviridae-NA-NA-Cowpox_virus_NP_619870.1 Viruses-Poxviridae-NA-NA-NA-Eptesipox_virus_YP_009408000.1 — Viruses-Alloherpesviridae-NA-NA-NA-Anguillid_herpesvirus_1_YP_003358255.2 — Viruses-Nimaviridae-NA-NA-NA-White_spot_syndrome_virus_YP_009220529.1 — Viruses-Alloherpesviridae-NA-NA-NA-Cyprinid_herpesvirus_1_YP_007003794.1 — Viruses-Baculoviridae-NA-NA-NA-Spodoptera_littoralis_nucleopolyhedrovirus_YP_009505829.1 — Viruses-Hytrosaviridae-NA-NA-NA-Musca_hytrovirus_YP_001883393.1 Viruses-NA-NA-NA-NA-Apis_mellifera_filamentous_virus_YP_009165865.1 Viruses-Nudiviridae-NA-NA-NA-Heliothis_zea_nudivirus_YP_004956795.1 — Viruses-Marseilleviridae-NA-NA-NA-Marseillevirus_marseillevirus_YP_003406952.1 Viruses-Marseilleviridae-NA-NA-NA-Tokyovirus_A1_YP_009254993.1 — Viruses-Pithoviridae-NA-NA-NA-Cedratvirus_A11_YP_009329125.1 Viruses-Pithoviridae-NA-NA-NA-Pithovirus_sibericum_YP_009001024.1 — Viruses-Siphoviridae-NA-NA-NA-Cellulophaga_virus_ST_YP_007673424.1 Viruses-NA-NA-NA-NA-Pacmanvirus_A23_YP_009361413.1 — Viruses-Mimiviridae-NA-NA-NA-Acanthamoeba_polyphaga_mimivirus_YP_003986816.1 — Viruses-Mimiviridae-NA-NA-NA-Moumouvirus_YP_007354486.1 Viruses-Asfarviridae-NA-NA-NA-African_swine_fever_virus_NP_042739.1 —— Viruses-Malacoherpesviridae-NA-NA-NA-Haliotid_herpesvirus_1_YP_006908672.1 Viruses-Malacoherpesviridae-NA-NA-NA-Ostreid_herpesvirus_1_YP_024594.1 — Viruses-Herpesviridae-NA-NA-NA-Columbid_alphaherpesvirus_1_YP_009046537.1 Viruses-Herpesviridae-NA-NA-NA-Gallid alphaherpesvirus 3 NP 066871.1 Viruses-Nudiviridae-NA-NA-NA-Tomelloso_virus_YP_009553415.1 Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Acidobacteria_bacterium_KBS_146_WP_026389084.1 - Bacteria-Acidobacteria-Acidobacteriia-Acidobacteriales-Acidobacteriaceae-Edaphobacter_aggregans_WP_035359677.1 ——— Bacteria-Actinobacteria-Acidimicrobiia-Acidimicrobiales-Microthrixaceae-Candidatus_Microthrix_parvicella_WP_012225260.1 —— Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Pla163_WP_145192396.1 — Bacteria-Cyanobacteria-NA-Nostocales-Tolypothrichaceae-Tolypothrix_campylonemoides_WP_063773970.1 Bacteria-Firmicutes-Bacilli-Bacillales-Bacillaceae-Bacillus_sp._SRB_336_WP_113728847.1 —— Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Candidatus_Nitrospira_inopinata_WP_082633896.1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Nitrospira_japonica_WP_080886329.1 — Bacteria-Planctomycetes-Planctomycetia-Planctomycetales-Gemmataceae-Gemmata obscuriglobus WP 081471784.1 ——— Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Haloarculaceae-Halapricum_salinum_WP_049992523.1 Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Halogranum_salarium_WP_009367158.1 —— Viruses-Siphoviridae-NA-NA-NA-Pseudomonas_virus_nickie_YP_009620745.1 —— Paulinella_ovalis_nuclear_SingleCell___SAG6_contig00003.g4.t1 — Viruses-Podoviridae-NA-NA-NA-Pelagibacter_phage_HTVC019P_YP_007517830.1 Viruses-Iridoviridae-NA-NA-NA-Shortfinned eel ranavirus YP 009259397.1 — Viruses-Podoviridae-NA-NA-NA-Alteromonas_phage_vB_AmaP_AD45P1_YP_008126084.1 Viruses-Ascoviridae-NA-NA-NA-Diadromus_pulchellus_toursvirus_YP_009640042.1 Viruses-Iridoviridae-NA-NA-NA-Invertebrate_iridescent_virus_31_YP_009046711.1 Viruses-Ackermannviridae-NA-NA-NA-Klebsiella virus 0507KN21 YP 008531966.1 Viruses-Ackermannviridae-NA-NA-NA-Serratia virus MAM1 YP 007349107.1 — Viruses-Myoviridae-NA-NA-NA-Synechococcus_phage_SSSM5_YP_004324792.1 — Viruses-Herelleviridae-NA-NA-NA-Bacillus_phage_Eldridge_YP_009274812.1 — Viruses-Myoviridae-NA-NA-NA-Bacillus_virus_SP15_YP_009302417.1 — Viruses-Herelleviridae-NA-NA-NA-Listeria_virus_LMSP25_YP_009043131.1 Archaea-Crenarchaeota-Thermoprotei-Fervidicoccales-Fervidicoccaceae-Fervidicoccus_fontis_WP_014558137.1 — Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Acidianus_sulfidivorans_WP_110380680.1 — Archaea-CandidatusMicrarchaeota-NA-NA-NA-Candidatus Mancarchaeum acidiphilum WP 088820152.1 Eukaryota-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadidae-Trichomonas_vaginalis_XP_001580988 Archaea-CandidatusKorarchaeota-NA-NA-NA-Candidatus Methanodesulfokores washburnensis WP 125672030.1 Archaea-Thaumarchaeota-NA-NA-NA-Candidatus_Nitrosotalea_bavarica_WP_101476990.1 — Archaea-Thaumarchaeota-Nitrososphaeria-CandidatusNitrosocaldales-CandidatusNitrosocaldaceae-NA_WP_103286420.1

Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Hymenobacter_sp._Fur1_WP_144848362.1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Hymenobacteraceae-Hymenobacter_gummosus_WP_126694215.1 — 100 98 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Hymenobacteraceae-NA_WP_072144860.1 Bacteria-NA-NA-NA-NA-bacterium_336_3_WP_054040425.1 Bacteria-Chlamydiae-Chlamydiia-Parachlamydiales-Parachlamydiaceae-Candidatus_Protochlamydia_amoebophila_WP_039359781.1 Bacteria-Chlamydiae-Chlamydiae-Parachlamydiales-Parachlamydiaceae-Parachlamydiaceae_bacterium_HST3_WP_042103104.1 Bacteria-Cyanobacteria-NA-Nostocales-Nostocaceae-Nostoc_linckia_WP_099073318.1 Paulinella Bacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Alteromonadaceae-Glaciecola_sp._THG3.7_WP_124747153.1 Archaea Bacteria-Proteobacteria-Alphaproteobacteria-Rhodospirillales-Rhodospirillaceae-Inquilinus_sp._KBS0705_WP_138807621.1 Bacteria Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_kobayashii_WP_109020685.1 Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-NA_WP_100720654.1 Eukaryota Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium_subglobosum_XP_012749426.1 Viruses ——— Eukaryota-Dictyosteliales-Dictyosteliales-Dictyosteliales-Dictyosteliaceae-Dictyostelium_purpureum_jgi56591 ——— Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica_MMETSP0039_c22786_g1_i1.p1 ——— Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c5289_g1_i1.p1 Eukaryota-Stramenopiles-Mediophyceae-Triceratiales-Triceratiaceae-Triceratium_dubium_MMETSP1175_c1837_g1_i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Odontella_aurita_MMETSP0015_c4312_g1_i1.p1 Eukaryota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba_castellanii_XP_004339812.1 92 Viruses-NA-NA-NA-Pandoravirus_neocaledonia_YP_009482187.1 ___Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Amphidinium_carterae_MMETSP0258_c13855_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Symbiodinium_sp_MMETSP1374_c27152_g1_i1.p1 ——— Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus_marinus_XP_002773236.1 Eukaryota-Apicomplexa-NA-Unranked-NA-Lankesteria_abbottii_MMETSP0372_c13850_g1_i3.p1 —— Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000020600.g9443.t1 Eukaryota-Chromeraceae-NA-NA-NA-Chromera velia MMETSP0290 c1055 g1 i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Galdieria_sulphuraria_Gsulp002_G4230.1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodosorus_marinus_MMETSP0315_c5521_g1_i1.p1 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000007149.g3367.t1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold13870-m89037 ু বুর্মি inella_chromatophora_CCAC0185_nuclear___scaffold34413-m148939 Paulinella_chromatophora_CCAC0185_nuclear___scaffold6407-m53968 Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas_trahens_XP_013753183.1 —— Viruses-Pithoviridae-NA-NA-NA-Cedratvirus_A11_YP_009329082.1 —— 100 Viruses-Pithoviridae-NA-NA-Pithovirus_sibericum_YP_009001342.1 Eukaryota-Retaria-NA-NA-NA-Rosalina_sp_MMETSP0190_c20074_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c28091_g1_i1.p1 Eukaryota-Ciliophora-Oligohymenophorea-Peniculida-Parameciidae-Paramecium_tetraurelia_XP_001454302.1 Eukaryota-Cryptophyta-NA-Cryptomonadales-Hemiselmidaceae-Hemiselmis_andersenii_MMETSP1041_c22070_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_lens_MMETSP0484_c52997_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_wittrockiana_MMETSP1089_c29634_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-NA-NA-Cyanoptyche_gloeocystis_MMETSP1086_c12340_g1_i1.p1 ——— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c8769_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Partenskyella_glossopodia_MMETSP1318_c21982_g1_i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Neoparamoeba_aestuarina_MMETSP0161_c12153_g1_i1.p1 Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Paramoeba_atlantica_MMETSP0151_c2066_g1_i1.p1 Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c7987_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Platyophrya_macrostoma_MMETSP0127_c15883_g1_i1.p1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_theileri_XP_028880014.1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Chrysochromulina_ericina_MMETSP1096_c50126_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium_parvum_MMETSP0006_c37321_g1_i1.p1 ———— Viruses-Mimiviridae-NA-NA-NA-Cafeteria_roenbergensis_virus_YP_003970085.1 Viruses-Phycodnaviridae-NA-NA-Emiliania huxleyi virus 86 YP 293780.1 Eukaryota-Chlorophyta-NA-NA-Picochlorum_oklahomensis_MMETSP1161_c9761_g1_i1.p1 79 _____ Eukaryota-Chlorophyta-Palmophyllophyceae-Prasinococcales-Prasinococcaceae-Prasinoderma_coloniale_MMETSP0806_c2367_g1_i1.p2 90 Eukaryota-Streptophyta-NA-Fabales-Fabaceae-Abrus_precatorius_XP_027352154.1 Eukaryota-Streptophyta-NA-Fabales-Fabaceae-Glycine_soja_XP_028207738.1 ———— Viruses-Phycodnaviridae-NA-NA-NA-Chrysochromulina_ericina_virus_YP_009173500.1 ——————— Eukaryota-Heterolobosea-NA-NA-Vahlkampfiidae-Naegleria_gruberi_jgi56348 Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella_robusta_jgi154313 71 Viruses-Ascoviridae-NA-NA-NA-Trichoplusia_ni_ascovirus_2c_YP_803312.1 Viruses-Nimaviridae-NA-NA-NA-White_spot_syndrome_virus_YP_009220535.1 — Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014662021.1 Viruses-Baculoviridae-NA-NA-NA-Lymantria_xylina_nucleopolyhedrovirus_YP_003517877.1 Viruses-Nudiviridae-NA-NA-NA-Heliothis_zea_nudivirus_YP_004956813.1 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013417055.1 Eukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon_queenslandica_XP_011406825.2 Viruses-Poxviridae-NA-NA-NA-Cowpox_virus_NP_619839.1
100 Viruses-Poxviridae-NA-NA-NA-Yokapox_virus_YP_004821373.1 ——— Viruses-Hytrosaviridae-NA-NA-NA-Musca_hytrovirus_YP_001883390.1 ——— Viruses-Iridoviridae-NA-NA-NA-Scale_drop_disease_virus_YP_009163813.1 Eukaryota-Nematoda-Enoplea-Trichinellida-Trichinellidae-Trichinella_spiralis_XP_003374906.1 — Viruses-Alloherpesviridae-NA-NA-NA-Cyprinid_herpesvirus_3_YP_001096062.1 Eukaryota-Microsporidia-NA-NA-Ordosporidae-Ordospora_colligata_XP_014563615.1 Viruses-NA-NA-NA-Bufonid_herpesvirus_1_YP_009552879.1 — Viruses-Alloherpesviridae-NA-NA-NA-Anguillid_herpesvirus_1_YP_003358235.1 — Viruses-Mimiviridae-NA-NA-NA-Moumouvirus_YP_007354487.1 Viruses-Asfarviridae-NA-NA-NA-African_swine_fever_virus_NP_042738.1 Viruses-Marseilleviridae-NA-NA-NA-Lausannevirus_YP_004347240.1 Viruses-Marseilleviridae-NA-NA-NA-Melbournevirus_YP_009094740.1 — Viruses-Herpesviridae-NA-NA-NA-Columbid_alphaherpesvirus_1_YP_009046538.1 Viruses-Herpesviridae-NA-NA-NA-Gallid_alphaherpesvirus_2_YP_001033969.1 — Viruses-Malacoherpesviridae-NA-NA-NA-Haliotid_herpesvirus_1_YP_006908681.1 Viruses-Malacoherpesviridae-NA-NA-NA-Ostreid_herpesvirus_1_YP_024565.1 Bacteria-Acidobacteria-Acidobacteriia-Bryobacterales-Bryobacteraceae-Bryobacter_aggregatus_WP_031496451.1 - Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Thermomonosporaceae-Actinomadura_roseirufa_WP_131738891.1 — Viruses-Herelleviridae-NA-NA-NA-Bacillus_virus_Camphawk_YP_008770002.1 Viruses-Myoviridae-NA-NA-NA-Bacillus_phage_0305phi836_YP_001429715.1 — Viruses-Herelleviridae-NA-NA-NA-Listeria_virus_A511_YP_001468505.1 Viruses-Myoviridae-NA-NA-NA-Delftia virus PhiW14 YP 003358881.1 —— Viruses-Podoviridae-NA-NA-NA-Alteromonas_phage_vB_AmaP_AD45P1_YP_008126085.1 — Viruses-Podoviridae-NA-NA-NA-Podovirus_Lau218_YP_009042163.1 Viruses-Siphoviridae-NA-NA-NA-Caulobacter_virus_Magneto_YP_006988790.1 — Viruses-Siphoviridae-NA-NA-NA-Sphingobium_virus_Lacusarx_YP_009600762.1 Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Halobellus_sp._ZY21_WP_122105635.1

Archaea-Euryarchaeota-Halobacteria-Haloferacales-Halorubraceae-Halorubrum_lipolyticum_WP_008005803.1 0.70



Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Mayorella sp MMETSP0417 c2062 g1 i1.p1 ota-Amoebozoa-NA-NA-Paramoebidae-Stygamoeba_regulata_MMETSP0447_c4439_g1_i1.p1 Bacteria Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Neoparamoeba_aestuarina_MMETSP0161_c21411_g1_i1.p1 - Eukaryota-Longamoebia-Longamoebia-Longamoebia-Acanthamoebidae-Acanthamoeba_castellanii_XP_004333955.1 — Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c2800_g1_i1.p1 ukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Norrisiella_sphaerica_MMETSP0113_c13019_g1_i1.p1 Viruses-Pithoviridae-NA-NA-NA-Cedratvirus_A11_YP_009329013.1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0112_c5285_g1_i1.p1 Eukaryota-Haptophyta-NA-Pavlovales-Pavlovaceae-Pavlova gyrans MMETSP1466 c22824 g1 i1.p1 prophyta-NA-NA-NA-Mantoniella_antarctica_MMETSP1106_c14657_g1_i1.p1 ukaryota-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_lens_MMETSP0484_c5132_g1_i1.p1 ryota-Alveolata-Dinophyceae-NA-Unranked-Heterocapsa_rotundata_MMETSP0503_c1742_g1_i1.p2 karyota-Ciliophora-NA-Unranked-NA-Mesodinium_pulex_MMETSP0467_c66716_g1_i1.p2 —— Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c39649_g1_i1.p1 —— Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas bilix MMETSP0780 c10301 g1 i2.p1 ——— Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013381691.1 Eukaryota-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadidae-Trichomonas_vaginalis_XP_001303599.1 anoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c1427_g1_i1.p1 ——— Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004994592.1 Eukaryota-Fonticulida-Fonticulida-Fonticulida-Fonticulaceae-Fonticula_alba_XP_009494286.1 Eukaryota-Perkinsozoa-NA-Perkinsida-Perkinsidae-Perkinsus marinus XP 002780561.1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma grayi XP 009310453.1 ryota-Stramenopiles-Oomycetes-Saprolegniales-Saprolegniaceae-Saprolegnia_diclina_XP_008611955.1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c18598_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Rosalina_sp_MMETSP0190_c7148_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c33720_g1_i1.p1 — Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodella_maculata_MMETSP0314_c3352_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodosorus_marinus_MMETSP0011_c4381_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-Porphyridiales-Porphyridiaceae-Porphyridium_purpureum_4481.3 — Paulinella_chromatophora_CCAC0185_nuclear___scaffold18795-m106789 —— Paulinella_chromatophora_CCAC0185_nuclear___scaffold32880-m145463 Paulinella_chromatophora_CCAC0185_nuclear___scaffold4600-m42900 —— Eukaryota-Chlorophyta-NA-Pyramimonadales-NA-Pyramimonas parkeae MMETSP0058 c2703 g1 i1.p1 — Archaea-Euryarchaeota-Thermoplasmata-NA-NA-methanogenic_archaeon_ISO4H5_WP_066076851.1 — Bacteria-Actinobacteria-Actinobacteria-Catenulisporales-Actinospicaceae-Actinospica_robiniae_WP_051450565.1 Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Thermomonosporaceae-Actinomadura_hibisca_WP_067478289.1 Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Thermomonosporaceae-NA_WP_034521594.1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Prymnesium_parvum_MMETSP1083_c11520_g1_i1.p2 —— Eukaryota-Haptophyta-NA-Isochrysidales-Noelaerhabdaceae-Emiliania_huxleyi_jgi461362 Eukaryota-Heterolobosea-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0759_c497_g1_i1.p1 Eukaryota-Stramenopiles-NA-NA-NA-Phaeomonas_parva_MMETSP1163_c915_g1_i2.p1 — Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Gymnodinium_catenatum_MMETSP0784_c31728_g1_i1.p1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Neospora_caninum_XP_003884083.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Toxoplasma_gondii_XP_018636107.1 Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma_arctica_XP_014151397.1 —— Bacteria-Firmicutes-Bacilli-Bacillales-Bacillaceae-Bacillus_cavernae_WP_126867335.1 —— Bacteria-Firmicutes-Bacilli-Bacillales-Bacillaceae-Microbacterium_sp._SLBN1_WP_142130366.1 Bacteria-Firmicutes-Bacilli-Bacillales-Bacillaceae-NA_WP_079532504.1 Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c43139_g1_i1.p1 — Bacteria-Thermotogae-Thermotogae-Kosmotogales-Kosmotogaceae-Mesotoga_sp._H07pep.5.4_WP_121510639.1 ——— Eukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas_sp_MMETSP0114_c4173_g1_i1.p1 · Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Mayorella_sp_MMETSP0417_c4389_g1_i1.p1 Eukaryota-Echinodermata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus_purpuratus_XP_011666784.1 ukaryota-Amoebozoa-NA-NA-Paramoebidae-Neoparamoeba_aestuarina_MMETSP0161_c15604_g1_i1.p1 — Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Paramoeba_atlantica_MMETSP0151_c11210_g1_i1.p1 ----- MSTRG.19222.1.p1 —— Paulinella_chromatophora_CCAC0185_nuclear___scaffold240-m5449 Eukaryota-Arthropoda-Arachnida-Scorpiones-Buthidae-Centruroides sculpturatus XP 023236967.1 —— Eukaryota-Arthropoda-Malacostraca-Amphipoda-Hyalellidae-Hyalella azteca XP 018006981.1 Eukaryota-Chordata-Amphibia-Anura-Pipidae-Xenopus_laevis_NP_001089463.1 Eukaryota-Chordata-NA-Testudines-Testudinidae-Gopherus_evgoodei_XP_030411724.1 ——— Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002116928.1 Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea_gigas_XP_011456806.1 —— Eukaryota-Mollusca-Bivalvia-Pectinoida-Pectinidae-Mizuhopecten_yessoensis_XP_021354048.1 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster planci XP 022100679.1 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013420399.1 — Eukaryota-Hemichordata-Enteropneusta-NA-Harrimaniidae-Saccoglossus_kowalevskii_XP_002741914.1 ———— Eukarvota-Chytridiomycota-Chytridiomycetes-Rhizophydiales-NA-Batrachochytrium dendrobatidis igi36043 Eukaryota-Chytridiomycota-Chytridiomycetes-Spizellomycetales-Spizellomycetaceae-Spizellomyces_punctatus_XP_016605256.1 Eukaryota-Mucoromycota-Glomeromycetes-Glomerales-Glomeraceae-Rhizophagus_irregularis_XP_025176353.1 ————————— Eukaryota-Nematoda-Chromadorea-Rhabditida-Strongyloididae-Strongyloides_ratti_XP_024503567.1 Eukaryota-Nematoda-Chromadorea-Strongylida-Ancylostomatidae-Necator_americanus_XP_013291253.1 Bacteria-CandidatusBipolaricaulota-NA-NA-NA-Candidatus_Bipolaricaulis_anaerobius_WP_122030517.1 Bacteria-DeinococcusThermus-Deinococci-Thermales-Thermaceae-NA_WP_018111474.1 Bacteria-DeinococcusThermus-Deinococci-Thermales-Thermaceae-Thermus_sp._2.9_WP_039458350.1 TBacteria-DeinococcusThermus-Deinococci-Thermales-Thermaceae-Thermus_aquaticus_WP_040684477.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Chloroflexaceae-Chloroflexus_aggregans_WP_012615934.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Oscillochloridaceae-Candidatus_Viridilinea_mediisalina_WP_097644378.1 Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Oscillochloridaceae-Oscillochloris trichoides WP 006562841.1 - Bacteria-NA-NA-NA-NA-bacterium_JKG1_WP_081752816.1 — Bacteria-Cyanobacteria-NA-Synechococcales-Pseudanabaenaceae-Pseudanabaena_sp._ABRG53_WP_126390495.1 — Bacteria-Cyanobacteria-NA-Oscillatoriales-Microcoleaceae-Arthrospira_platensis_WP_006618753.1 Bacteria-Cyanobacteria-NA-Oscillatoriales-Oscillatoriaceae-Limnoraphis_robusta_WP_046281164.1 Bacteria-Cyanobacteria-NA-Oscillatoriales-Oscillatoriaceae-Lyngbya_aestuarii_WP_023069651.1 ——— Bacteria-NA-NA-NA-NA_WP_135855525.1 ——— Bacteria-NA-NA-NA-NA_WP_135898565.1 Bacteria-Proteobacteria-Alphaproteobacteria-NA-NA-NA_WP_116491978.1 —— Bacteria-Proteobacteria-Alphaproteobacteria-NA-NA-Polymorphum_gilvum_WP_013653831.1 — Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-Cohaesibacteraceae-Cohaesibacter_marisflavi_WP_090070526.1 — Eukaryota-Stramenopiles-Coscinodiscophyceae-Chaetocerotales-Chaetocerotaceae-Chaetoceros_curvisetus_MMETSP0719_c1757_g1_i1.p1 Eukaryota-Stramenopiles-Coscinodiscophyceae-Thalassiosirales-Thalassiosiraceae-Thalassiosira miniscula MMETSP0738 c5254 g1 i1.p1 Eukaryota-Arthropoda-Insecta-Lepidoptera-Bombycidae-Bombyx_mandarina_XP_028041850.1 thropoda-Insecta-Lepidoptera-Cosmopterigidae-Hyposmocoma_kahamanoa_XP_026318223.1 —— Eukaryota-Nematoda-Chromadorea-Rhabditida-Strongyloididae-Strongyloides_ratti_XP_024499357.1 Eukaryota-Chordata-Aves-Passeriformes-Estrildidae-Lonchura_striata_XP_021384402.1 Akaryota-Chordata-Aves-Passeriformes-Estrildidae-Taeniopygia_guttata_XP_002191116.2 TEukaryota-Chordata-Aves-Passeriformes-Fringillidae-Serinus_canaria_XP_030091709.1 — Eukaryota-Echinodermata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus_purpuratus_XP_011682913.1 ryota-Cnidaria-Anthozoa-Scleractinia-Pocilloporidae-Pocillopora_damicornis_XP_027055785.1 ————— Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014678782.1 - Eukaryota-Mollusca-Cephalopoda-Octopoda-Octopodidae-Octopus_bimaculoides_XP_014771030.1 Eukaryota-Mollusca-Gastropoda-Aplysiida-Aplysiidae-Aplysia_californica_XP_012943122.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-NA-Hartmannibacter_diazotrophicus_WP_099554895.1 ——— Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-NA-Methylobrevis_pamukkalensis_WP_083255818.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhodobacterales-Rhodobacteraceae-Rhodovulum_sp._MB263_WP_080616594.1 —— Bacteria-Proteobacteria-Alphaproteobacteria-Rhodobacterales-Rhodobacteraceae-Rhodovulum_sp._P5_WP_081531697.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhizobiales-NA-Rhizobiales_bacterium_WP_122011479.1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_wittrockiana_MMETSP1089_c7593_g1_i1.p1 Bacteria-DeinococcusThermus-Deinococci-Deinococcales-Deinococcaceae-Deinococcus_deserti_WP_012695190.1 — Bacteria-DeinococcusThermus-Deinococci-Deinococcales-Deinococcaceae-NA_WP_011525821.1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Calcidiscus_leptoporus_MMETSP1334_c9047_g1_i1.p1 — Bacteria-Firmicutes-Clostridia-Clostridiales-Ruminococcaceae-Acetivibrio_ethanolgignens_WP_083504372.1 —— Bacteria-Firmicutes-Tissierellia-Tissierellales-Peptoniphilaceae-Peptoniphilaceae_bacterium_WP_148473262.1 Bacteria-Caldiserica-Caldisericia-Caldisericales-Caldisericaceae-Caldisericum_exile_WP_014452733.1 - Bacteria-CandidatusCryosericota-CandidatusCryosericia-CandidatusCryosericales-CandidatusCryosericaceae-Candidatus_Cryosericum_septentrionale_WP_126855135.1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_margalefi_MMETSP0661_c97630_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Mesodinium_pulex_MMETSP0467_c36960_g1_i1.p2 ______ Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Cryptosporidiidae-Cryptosporidium muris XP 002140172.1 Eukaryota-Apicomplexa-NA-Unranked-NA-Lankesteria_abbottii_MMETSP0372_c13332_g2_i1.p1 Eukaryota-Apicomplexa-NA-Unranked-NA-Alveolata_sp_MMETSP0288_c23958_g1_i1.p1 — \$100 Eukaryota-Chromeraceae-NA-NA-NA-Vitrella_brassicaformis_MMETSP1451_c1445_g1_i1.p1 ——— Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c13415_g1_i1.p1 ukaryota-Chlorophyta-NA-NA-NA-Tetraselmis_astigmatica_MMETSP0804_c33_g1_i1.p1 ophyta-NA-Cryptomonadales-Cryptomonadaceae-Cryptomonas_curvata_MMETSP1050_c8072_g1_i1.p1 ta-Cryptophyta-NA-Pyrenomonadales-Pyrenomonadaceae-Rhodomonas_lens_MMETSP0484_c6207_g1_i1.p1 Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodella_maculata_MMETSP0167_c80_g1_i1.p2 - Eukaryota-Stramenopiles-Raphidophyceae-Chattonellales-Chattonellaceae-Chattonella_subsalsa_MMETSP0947_c7134_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0112_c6202_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Partenskyella_glossopodia_MMETSP1318_c2222_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c11049_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c13502_g1_i1.p1 - Eukaryota-Apusomonadidae-NA-NA-NA-Thecamonas trahens XP 013762067.1 aryota-Mucoromycota-Mucoromycetes-Mucorales-Rhizopodaceae-Rhizopus_microsporus_XP_023469567.1 89 — Eukaryota-Streptophyta-NA-Fagales-Fagaceae-Quercus_suber_XP_023908860.1 Eukaryota-Ciliophora-Oligohymenophorea-Hymenostomatida-NA-Ichthyophthirius_multifiliis_XP_004030694.1 Eukaryota-Rhodophyta-Florideophyceae-Gigartinales-Gigartinaceae-Chondrus_crispus_XP_005712197.1 Eukaryota-Ciliophora-NA-Unranked-NA-Tiarina_fusus_MMETSP0472_c114101_g1_i1.p1 Eukaryota-Heterolobosea-NA-NA-NA-Percolomonas_cosmopolitus_MMETSP0759_c442_g1_i1.p2 Bacteria-Planctomycetes-NA-NA-NA-Planctomycetes_bacterium_Pan189_WP_145364912.1 ——— Archaea-Euryarchaeota-Halobacteria-Haloferacales-Halorubraceae-Halorubrum_tebenquichense_WP_006629019.1 — Archaea-Euryarchaeota-Halobacteria-Haloferacales-Halorubraceae-Salinigranum_sp._DYF38_WP_136592142.1

- Bacteria-Chlamydiae-Chlamydia-Chlamydiales-NA-Chlamydiales bacterium SCGC AG110M15 WP 088244702.1 ———— Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_margalefi_MMETSP0661_c11483_g1_i1.p1 - Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Pyrodinium bahamense MMETSP0796 c34047 g1 i1.p1 ——— Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c13237_g1_i1.p1 — Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c9221_g1_i1.p1 — Eukaryota-Retaria-NA-NA-NA-Sorites_sp_MMETSP0191_c73222_g1_i1.p1 Paulinella Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella natans CCMP2755 jgi131354 Archaea —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0111_c2089_g1_i1.p1 Bacteria ukaryota-Cryptophyta-NA-Goniomondales-NA-Goniomonas pacifica MMETSP0107 c13820 g1 i1.p1 Eukaryota-Stramenopiles-NA-Bicosoecida-Cafeteriaceae-Cafeteria_sp_MMETSP1104_c1162_g1_i1.p1 Eukaryota ukaryota-Stramenopiles-Oomycetes-Peronosporales-Peronosporaceae-Phytophthora_ramorum_jgi72787 Viruses Eukaryota-Stramenopiles-Oomycetes-Saprolegniales-Saprolegniaceae-Aphanomyces_astaci_XP_009828157.1 Other/Misc Eukarvota-Crvptophyta-NA-Pyrenomonadales-Geminigeraceae-Guillardia_theta_MMETSP0046_c8562_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Crustomastix stigmata MMETSP0803 c3887 g1 i1.p4 — Eukaryota-Chlorophyta-NA-NA-NA-Picochlorum_sp_MMETSP1330_c1480_g1_i1.p1 ota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004998010.1 — Eukaryota-Ciliophora-NA-Unranked-NA-Blepharisma_japonicum_MMETSP1395_c27434_g1_i1.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Fabrea_salina_MMETSP1345_c2097_g1_i1.p1 —— Paulinella_chromatophora_CCAC0185_nuclear___scaffold3571-m36069 — Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00001292_g8046.t1 Amoebozoa-NA-NA-Paramoebidae-Vexillifera_sp_MMETSP0173_c4737_g1_i1.p1 —— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c6920_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_wittrockiana_MMETSP1089_c3688_g1_i1.p1 Eukaryota-Haptophyta-NA-Prymnesiales-NA-Imantonia_sp_MMETSP1474_c33928_g1_i1.p1 Eukaryota-Glaucophyta-Glaucophyta-NA-NA-Cyanoptyche_gloeocystis_MMETSP1086_c10388_g1_i1.p1 Eukaryota-Brachiopoda-Lingulata-Lingulida-Lingulidae-Lingula_anatina_XP_013391998.1 Eukaryota-Hemichordata-Enteropneusta-NA-Harrimaniidae-Saccoglossus_kowalevskii_XP_006818123.1 Eukaryota-Mollusca-Bivalvia-Ostreoida-Ostreidae-Crassostrea_gigas_XP_011447434.1 Eukaryota-Porifera-Demospongiae-Haplosclerida-Niphatidae-Amphimedon_queenslandica_igiAqu1221635 Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002111658.1 — Eukaryota-Amoebozoa-NA-NA-Paramoebidae-Pessonella_sp_MMETSP0420_c6091_g1_i1.p1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Besnoitia_besnoiti_XP_029220051.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Neospora_caninum_XP_003882217.1 Eukaryota-Apicomplexa-Conoidasida-Eucoccidiorida-Sarcocystidae-Toxoplasma_gondii_XP_002371435.1 — Eukaryota-Chromeraceae-NA-NA-NA-Chromera_velia_MMETSP0290_c825_g1_i1.p1 — Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella robusta igi114833 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c25001_g1_i1.p1 yota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus_caudatus_XP_014662411.1 Eukaryota-Mesomycetozoea-Ichthyosporea-Ichthyophonida-NA-Sphaeroforma_arctica_XP_014151570.1 - 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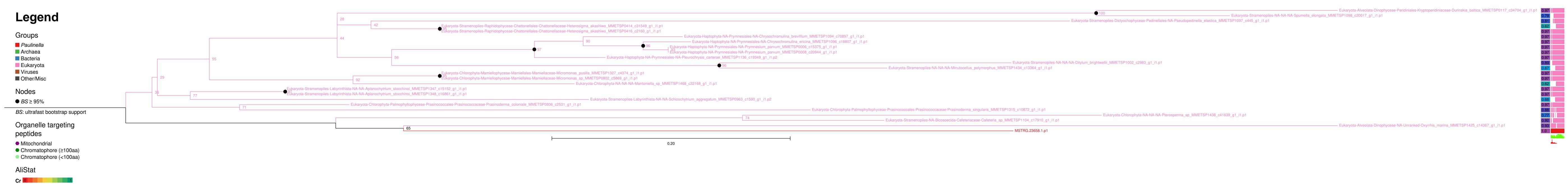
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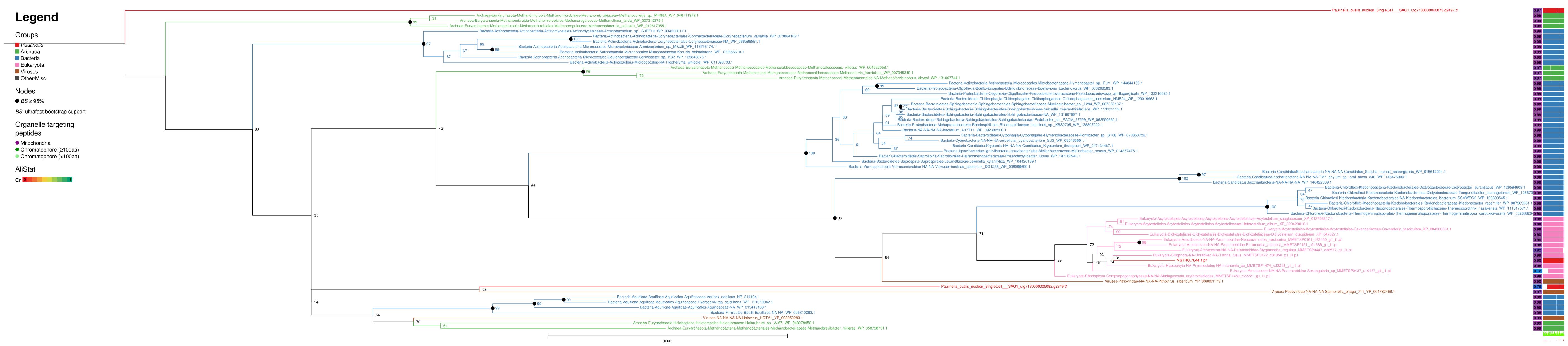
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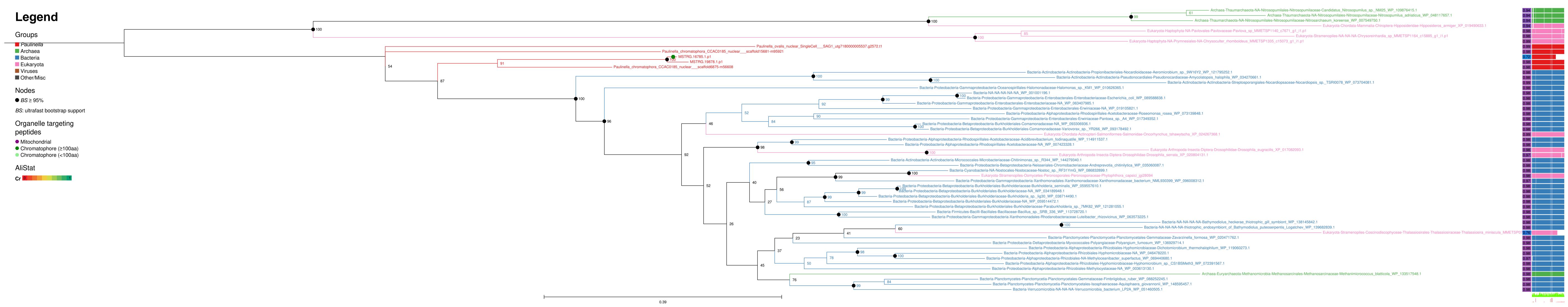
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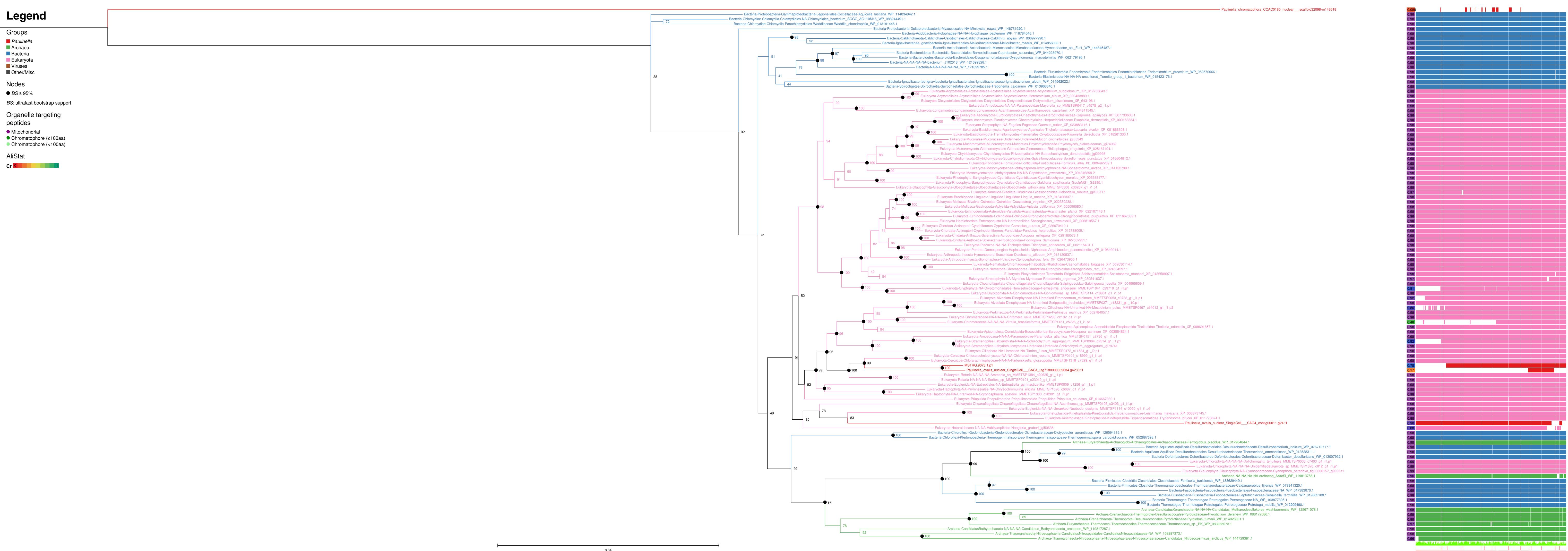
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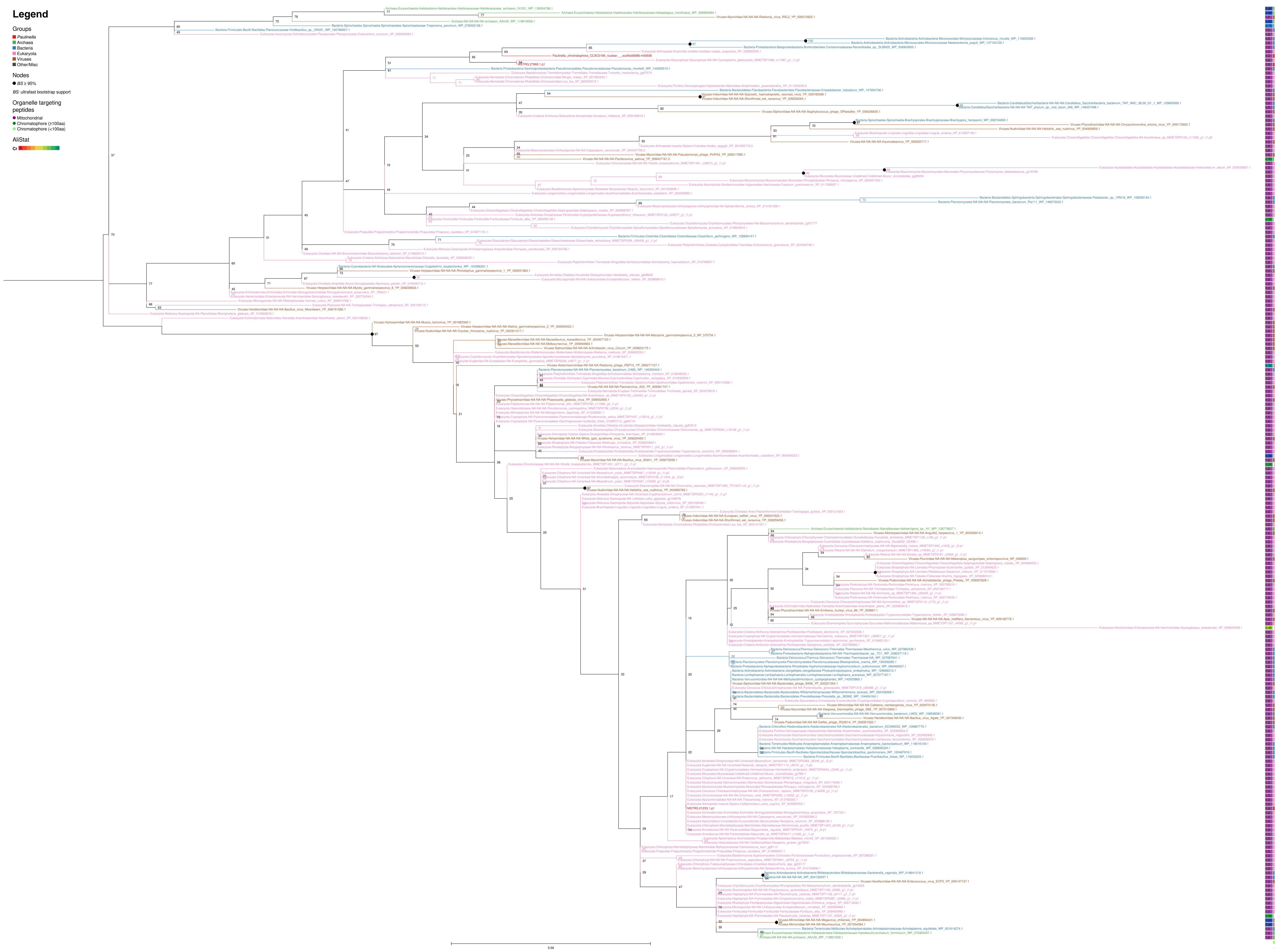






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