<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 - Bacteria-Firmicutes-Clostridia-Clostridiales-Lachnospiraceae-Lachnoanaerobaculum\_sp.\_ICM7\_WP\_009663013.1 Bacteria-Thermotogae-Thermotogae-Petrotogales-Petrotogaceae-Defluviitoga\_tunisiensis\_WP\_045087685.1 nycota-Saccharomycetes-Saccharomycetales-Phaffomycetaceae-Cyberlindnera\_jadinii\_XP\_020068558.1 Bacteria-NA-NA-NA-NA-Bathymodiolus brooksi thiotrophic gill symbiont WP 139476148.1 BS: ultrafast bootstrap support Eukaryota-Priapulida-Priapulimorpha-Priapulimorphida-Priapulidae-Priapulus\_caudatus\_XP\_014669984.1 Eukaryota-Retaria-NA-NA-NA-Ammonia\_sp\_MMETSP1384\_c14404\_g1\_i1.p1 50 Eukaryota-Retaria-NA-NA-NA-Elphidium\_margaritaceum\_MMETSP1385\_c13238\_g1\_i1.p1 \_\_\_\_\_\_94 Eukaryota-Retaria-NA-NA-NA-Rosalina\_sp\_MMETSP0190\_c49654\_g1\_i1.p1 L.....Eukaryota-Retaria-NA-NA-NA-Sorites\_sp\_MMETSP0191\_c22747\_g1\_i1.p1 MSTRG.11892.1.p1 92 Paulinella\_chromatophora\_CCAC0185\_nuclear\_\_scaffold9891-m71861 Eukaryota-Stramenopiles-NA-NA-NA-Chrysoreinhardia\_sp\_MMETSP1164\_c3968\_g2\_i1.p2 Bacteria-Proteobacteria-Deltaproteobacteria-Bradymonadales-Bradymonadaceae-Bradymonas\_sediminis\_WP\_111333871.1 Bacteria-Proteobacteria-Deltaproteobacteria-Bradymonadales-NA-Bradymonadales\_bacterium\_TMQ2\_WP\_146974531.1 Bacteria-Proteobacteria-Deltaproteobacteria-Bradymonadales-NA-NA WP 115604523.1 Bacteria-Proteobacteria-Deltaproteobacteria-Bradymonadales-NA-Bradymonadales\_bacterium\_TMQ4\_WP\_146980404.1 Bacteria-Proteobacteria-Deltaproteobacteria-Bradymonadales-Bradymonadaceae-Bradymonas\_sp.\_YN101\_WP\_141200557.1 —————Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobacteraceae-Desulfobacterium\_autotrophicum\_WP\_015905068.1 Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobacteraceae-Desulfatitalea\_tepidiphila\_WP\_083453530.1 Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobacteraceae-Desulfosarcina\_sp.\_BuS5\_WP\_084446037.1 Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobacteraceae-Desulforegula\_conservatrix\_WP\_084156179.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Kofleriaceae-Haliangium\_ochraceum\_WP\_045121379.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Nannocystaceae-Nannocystis\_exedens\_WP\_096333611.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Nannocystaceae-Plesiocystis\_pacifica\_WP\_006976823.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-NA-Minicystis\_rosea\_WP\_146728345.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Polyangiaceae-Sorangium\_cellulosum\_WP\_129345773.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Polyangiaceae-Chondromyces\_apiculatus\_WP\_052375523.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Polyangiaceae-Polyangium\_fumosum\_WP\_136932327.1 Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Sandaracinaceae-Sandaracinus\_amylolyticus\_WP\_053232625.1 —— Bacteria-Proteobacteria-Deltaproteobacteria-Myxococcales-Polyangiaceae-Pajaroellobacter\_abortibovis\_WP\_083604309.1 Eukaryota-Alveolata-Dinophyceae-Peridiniales-Kryptoperidiniaceae-Kryptoperidinium\_foliaceum\_MMETSP0120\_c21134\_g1\_i1.p1 \_\_\_\_\_\_ Eukaryota-Chlorophyta-NA-NA-NA-Tetraselmis\_astigmatica\_MMETSP0804\_c16513\_g1\_i1.p1 Eukaryota-Stramenopiles-Coscinodiscophyceae-Thalassiosirales-Thalassiosiraceae-Thalassiosira\_oceanica\_MMETSP0971\_c2543\_g1\_i1.p1 Eukaryota-Chlorophyta-Trebouxiophyceae-Microthamniales-NA-Stichococcus\_sp\_MMETSP1473\_c14200\_g1\_i1.p1 — Bacteria-Firmicutes-Bacilli-Lactobacillales-Lactobacillaceae-Lactobacillus\_fabifermentans\_WP\_024626213.1 — Bacteria-Bacteroidetes-Bacteroidia-Bacteroidales-NA-Bacteroidales\_bacterium\_WCE2004\_WP\_079592876.1 — Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Flammeovirgaceae-Marivirga\_tractuosa\_WP\_013455833.1 —— Bacteria-Chloroflexi-Chloroflexia-Chloroflexales-Chloroflexaceae-Chloroflexus\_sp.\_Y3961\_WP\_044231960.1 ———— Bacteria-Firmicutes-Clostridia-Clostridiales-Hungateiclostridiaceae-Hungateiclostridium\_alkalicellulosi\_WP\_148891781.1 Bacteria-Cyanobacteria-NA-Synechococcales-Leptolyngbyaceae-Leptolyngbya\_ohadii\_WP\_088894970.1 Bacteria-Firmicutes-Clostridia-Clostridiales-Peptococcaceae-Desulfotomaculum\_ruminis\_WP\_013841232.1 Bacteria-Firmicutes-Clostridia-Clostridiales-Clostridiaceae-Clostridium sp. 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Bacteria-Actinobacteria-Actinobacteria-Pseudonocardiales-Pseudonocardiaceae-Sciscionella\_sp.\_SE31\_WP\_031468892.1 Bacteria-Actinobacteria-Actinobacteria-Streptosporangiales-Nocardiopsaceae-Streptomonospora\_alba\_WP\_052810258.1 93 Bacteria-Actinobacteria-Actinobacteria-Micromonosporales-Micromonosporaceae-Catellatospora\_sp.\_H14505\_WP\_144127123.1

87 Eukaryota-Streptophyta-NA-Malpighiales-Salicaceae-Populus euphratica XP 011016758.1

48 Bacteria-Actinobacteria-Actinobacteria-Frankiales-Frankiaceae-Frankia\_elaeagni\_WP\_018638820.1

Bacteria-Actinobacteria-Actinobacteria-Corynebacteriales-Mycobacteriaceae-Mycobacterium\_sp.\_JS623\_WP\_083906457.1