— 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

Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Hymenobacteraceae-NA_WP_045689958.1 Bacteria-Aquificae-Aquificae-Aquificales-Hydrogenothermaceae-Persephonella_hydrogeniphila_WP_097001157.1 - Bacteria-Aquificae-Aquificae-Aquificales-Hydrogenothermaceae-Sulfurihydrogenibium_subterraneum_WP_028950248.1 —— Bacteria-Aquificae-Aquificae-Desulfurobacteriales-Desulfurobacteriaceae-Balnearium_lithotrophicum_WP_142935746.1 —— Bacteria-Aquificae-Aquificae-Desulfurobacteriales-Desulfurobacteriaceae-Desulfurobacterium_indicum_WP_076713080.1 Bacteria-Bacteroidetes-NA-BacteroidetesOrderII.Incertaesedis-Rhodothermaceae-Longibacter_salinarum_WP_098075086.1 — Bacteria-Bacteroidetes-NA-BacteroidetesOrderII.Incertaesedis-Rhodothermaceae-Rhodothermaceae_bacterium_RA_WP_068125026.1 ——— Bacteria-Rhodothermaeota-Rhodothermia-Rhodothermales-Rubricoccaceae-Rubricoccus_marinus_WP_094547328.1 ———— Bacteria-Rhodothermaeota-Rhodothermia-Rhodothermales-Rubricoccaceae-Rubrivirga_sp._SAORIC476_WP_095513086.1 — Bacteria-Ignavibacteriae-Ignavibacteria-Ignavibacteriales-Ignavibacteriaceae-Ignavibacterium_album_WP_014559691.1 — Bacteria-Ignavibacteriae-Ignavibacteria-Ignavibacteriales-Melioribacteraceae-Melioribacter_roseus_WP_014856518.1 Bacteria-CandidatusKryptonia-NA-NA-NA-Candidatus_Kryptobacter_tengchongensis_WP_072151010.1 Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Cloacibacillus_sp._An23_WP_087366900.1 Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-NA_WP_008709106.1 Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Synergistes_jonesii_WP_037977458.1 ———— Bacteria-Synergistetes-Synergistia-Synergistales-Synergistaceae-Dethiosulfovibrio_salsuginis_WP_085544937.1 — Bacteria-Deferribacteres-Deferribacteres-Deferribacterales-Deferribacteraceae-Calditerrivibrio_nitroreducens_WP_013450504.1 —— Bacteria-Deferribacteres-Deferribacteres-Deferribacterales-Deferribacteraceae-Flexistipes_sinusarabici_WP_013885805.1 Bacteria-Deferribacteres-Deferribacteres-Deferribacterales-Deferribacteraceae-Seleniivibrio_woodruffii_WP_132871951.1 —— Bacteria-Lentisphaerae-Lentisphaeria-Lentisphaerales-Lentisphaeraceae-Lentisphaera_araneosa_WP_007278570.1 Bacteria-Lentisphaerae-Lentisphaeria-Victivallales-NA-Victivallales_bacterium_CCUG_44730_WP_106054715.1 —— Bacteria-Lentisphaerae-Lentisphaeria-Victivallales-Victivallaceae-Victivallis_vadensis_WP_116884937.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Acytostelium_subglobosum_XP_012758313.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Acytosteliaceae-Heterostelium_album_XP_020427224.1 Eukaryota-Acytosteliales-Acytosteliales-Acytosteliales-Cavenderiaceae-Cavenderia_fasciculata_XP_004354087.1 osteliales-Dictyosteliales-Dictyosteliaceae-Dictyostelium_purpureum_jgi47452 - Eukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas euryale MMETSP0063 c29440 g1 i1.p1 ukaryota-Chlorophyta-Trebouxiophyceae-Chlorellales-Chlorellaceae-Chlorella_vulgaris_jgi43809 Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c14110_g1_i2.p1 Eukaryota-Palpitomonas-NA-NA-NA-Palpitomonas_bilix_MMETSP0780_c14110_g1_i3.p1 Eukaryota-Ciliophora-NA-Unranked-NA-Fabrea_salina_MMETSP1345_c13108_g1_i1.p1 Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Azadinium_spinosum_MMETSP1036_c49542_g1_i1.p1 ukaryota-Apicomplexa-NA-Unranked-NA-Alveolata_sp_MMETSP0288_c13398_g1_i1.p1 romeraceae-NA-NA-NA-Vitrella_brassicaformis_MMETSP1451_c15814_g1_i1.p1 ——— Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Lotharella_globosa_MMETSP0041_c7885_g1_i1.p1 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Chlorarachnion_reptans_MMETSP0109_c13471_g1_i1.p1 MSTRG.20131.1.p1 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000031497.g13862.t1 Paulinella_ovalis_nuclear_SingleCell___SAG5_contig02083.g1901.t1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold6502-m54505 Paulinella_ovalis_nuclear_SingleCell___SAG1_utg7180000006958.g3275.t1 aulinella_ovalis_nuclear_SingleCell___SAG5_contig00890.g1107.t1 ———— Paulinella_ovalis_nuclear_SingleCell___SAG5_contig01610.g1645.t1 —————————————————————Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004997362.1 karyota-Choanoflagellata-Choanoflagellata-Choanoflagellata-NA-Acanthoeca_sp_MMETSP0105_c530_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-Chroomonadaceae-Chroomonas_mesostigmaticacf_MMETSP0047_c57163_g1_i1.p1 Eukaryota-Cryptophyta-NA-Pyrenomonadales-NA-Geminigera_sp_MMETSP1102_c6045_g1_i1.p1 ——— Eukaryota-Rhodophyta-Bangiophyceae-NA-NA-Rhodella_maculata_MMETSP0167_c21849_g1_i1.p1 — Viruses-Mimiviridae-NA-NA-NA-Megavirus_chiliensis_YP_004895145.1 Viruses-Pithoviridae-NA-NA-Cedratvirus_A11_YP_009329210.1 ——— 100 Viruses-Pithoviridae-NA-NA-NA-Pithovirus_sibericum_YP_009000992.1 Viruses-NA-NA-NA-NA-Pandoravirus_dulcis_YP_009430286.1
Viruses-NA-NA-NA-NA-Pandoravirus_inopinatum_YP_009119049.1 — Bacteria-Firmicutes-Bacilli-Bacillales-Staphylococcaceae-Abyssicoccus_albus_WP_123808047.1 — Bacteria-NA-NA-NA-NA_WP_012655930.1 —— Bacteria-Tenericutes-Mollicutes-Entomoplasmatales-Entomoplasmataceae-Entomoplasma_somnilux_WP_024863860.1 Bacteria-Tenericutes-Mollicutes-Entomoplasmatales-Spiroplasmataceae-NA_WP_070406424.1

Bacteria-Tenericutes-Mollicutes-Entomoplasmatales-Spiroplasmataceae-Spiroplasma_kunkelii_WP_053390461.1 cteria-Firmicutes-Clostridia-Clostridiales-Syntrophomonadaceae-Thermohydrogenium_kirishiense_WP_132775629.1 — 100 Bacteria-Firmicutes-Clostridia-Thermoanaerobacterales-ThermoanaerobacteralesFamilyIII.IncertaeSedis-Thermoanaerobacterium_thermosaccharolyticum_WP_013299112.1 Bacteria-Spirochaetes-Spirochaetia-Brachyspirales-Brachyspiraceae-Brachyspira_pilosicoli_WP_147731050.1 - Bacteria-Firmicutes-Clostridia-Clostridiales-Hungateiclostridiaceae-Ruminiclostridium_sufflavum_WP_110462893.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_necrogenes_WP_115270765.1 — Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-NA_WP_070577629.1 —— Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Fusobacteriaceae-Fusobacterium_russii_WP_022818811.1 Bacteria-Fusobacteria-Fusobacteriia-Fusobacteriales-Leptotrichiaceae-Leptotrichia_wadei_WP_018499121.1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Thermodesulfovibrio_thiophilus_WP_028845063.1 — Paulinella_ovalis_nuclear_SingleCell___SAG2_utg7180000018808.g9202.t1 Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-CandidatusMethanoperedenaceae-Candidatus_Methanoperedenaceae_archaeon_WP_116481558.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-Methanosarcinaceae-Methanohalobium_evestigatum_WP_013194210.1 Eukaryota-Euglenida-NA-Eutreptiales-NA-Eutreptiella_gymnastica-like_MMETSP0809_c1952_g1_i1.p1 Eukaryota-Kinetoplastida-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Leptomonas_pyrrhocoris_XP_015654851.1 Eukaryota-Kinetoplastida-Kinetoplastida-Trypanosomatidae-Trypanosoma_conorhini_XP_029223611.1 Eukaryota-Euglenida-NA-NA-Unranked-Neobodo_designis_MMETSP1114_c6533_g1_i1.p1 —— Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_119818961.1 — Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Desulfurococcaceae-Desulfurococcaceae_archaeon_AG1_WP_109159295.1 Archaea-Crenarchaeota-Thermoprotei-Sulfolobales-Sulfolobaceae-Sulfolobus_sp._JCM_16833_WP_054844886.1 ——— Archaea-Crenarchaeota-Thermoprotei-Desulfurococcales-Desulfurococcaceae-Desulfurococcus_amylolyticus_WP_048815847.1 —— Archaea-CandidatusBathyarchaeota-NA-NA-NA-Candidatus_Bathyarchaeota_archaeon_WP_116596616.1 — Archaea-Thaumarchaeota-NA-NA-NA-Marine_Group_I_thaumarchaeote_SCGC_AAA799O18_WP_048069988.1 Archaea-Thaumarchaeota-NA-NA-NA-NA_WP_048079375.1 Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus_maritimus_WP_012215803.1 — Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Candidatus_Nitrosarchaeum_limnium_WP_010191071.1