Archaea-CandidatusKorarchaeota-NA-NA-NA-Candidatus\_Korarchaeum\_cryptofilum\_WP\_125742960.1 Archaea-NA-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-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 Bacteria Bacteria-Firmicutes-Clostridia-Clostridiales-Syntrophomonadaceae-Thermohydrogenium\_kirishiense\_WP\_132775629.1 Bacteria-Firmicutes-Clostridia-Thermoanaerobacterales-Thermoanaerobacterales-FamilyIII.IncertaeSedis-Thermoanaerobacterium\_thermosaccharolyticum\_WP\_013299112.1 — Bacteria-Spirochaetes-Spirochaetia-Brachyspirales-Brachyspiraceae-Brachyspira\_aalborgi\_WP\_147527433.1 — 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 — Paulinella\_ovalis\_nuclear\_SingleCell\_\_\_SAG2\_utg7180000018808.g9202.t1 Bacteria-Nitrospirae-Nitrospira-Nitrospirales-Nitrospiraceae-Thermodesulfovibrio\_thiophilus\_WP\_028845063.1 ——— 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-candidatedivisionNC10-NA-NA-NA-Candidatus\_Methylomirabilis\_limnetica\_WP\_107561898.1 — 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-Fibrobacteres-Chitinivibrionia-Chitinivibrionales-Chitinivibrionaceae-Chitinivibrio\_alkaliphilus\_WP\_022637445.1 Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter\_sp.\_UWP2\_WP\_073188081.1 Bacteria-Fibrobacteres-Fibrobacteria-Fibrobacterales-Fibrobacteraceae-Fibrobacter\_sp.\_UWT1\_WP\_101480194.1 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 ——— Bacteria-Verrucomicrobia-NA-NA-NA-Verrucomicrobia\_bacterium\_S94\_WP\_130594215.1 — Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptonema\_illini\_WP\_002771011.1 —— Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira\_perolatii\_WP\_100714406.1 Eukaryota-Chlorophyta-Chlorophyceae-Chlamydomonadales-Chlamydomonadaceae-Chlamydomonas\_euryale\_MMETSP0063\_c29440\_g1\_i1.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\_\_\_SAG5\_contig01610.g1645.t1 Paulinella\_ovalis\_nuclear\_SingleCell\_\_\_SAG1\_utg7180000006958.g3275.t1 84 — Viruses-Mimiviridae-NA-NA-NA-Megavirus\_chiliensis\_YP\_004895145.1 Viruses-Pithoviridae-NA-NA-NA-Cedratvirus\_A11\_YP\_009329210.1 Viruses-Pithoviridae-NA-NA-NA-Pithovirus\_sibericum\_YP\_009000992.1 Viruses-NA-NA-NA-NA-Pandoravirus\_dulcis\_YP\_009430286.1 Bacteria-NA-NA-NA-NA-Vampirococcus\_sp.\_LiM\_WP\_128699061.1 — Bacteria-Planctomycetes-CandidatusBrocadiae-CandidatusBrocadiales-CandidatusBrocadiaceae-Candiadtus\_Scalindua\_japonica\_WP\_096892728.1 Bacteria-Proteobacteria-Deltaproteobacteria-Desulfobacterales-Desulfobulbaceae-Desulfocapsa\_sulfexigens\_WP\_015404537.1 Bacteria-Thermodesulfobacteria-Thermodesulfobacteria-Thermodesulfobacteriales-Thermodesulfobacteriaceae-Thermodesulfobacte - Bacteria-Thermodesulfobacteria-Thermodesulfobacteria-Thermodesulfobacteriales-Thermodesulfobacteriaceae-Thermosulfurimonas\_dismutans\_WP\_068669213.1 ———— Paulinella\_ovalis\_nuclear\_SingleCell\_\_\_SAG1\_utg7180000020442.g9373.t1 Bacteria-Proteobacteria-Deltaproteobacteria-Desulfuromonadales-Geobacteraceae-Geobacter\_daltonii\_WP\_012645937.1 —— Archaea-Euryarchaeota-Thermoplasmata-Methanomassiliicoccales-Methanomassiliicoccaceae-Candidatus\_Methanomassiliicoccus\_intestinalis\_WP\_020449084.1 — Bacteria-CandidatusMelainabacteria-NA-NA-NA-Candidatus\_Melainabacteria\_bacterium\_WP\_144105344.1 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 — Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-CandidatusMethanoperedenaceae-Candidatus\_Methanoperedenaceae\_archaeon\_WP\_116481558.1 — Archaea-Euryarchaeota-Methanomicrobia-Methanosarcinales-Methanosarcinaceae-Methanohalobium evestigatum WP 013194210.1 — Viruses-Siphoviridae-NA-NA-NA-Gordonia\_virus\_Ghobes\_YP\_009281153.1 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\_WP\_048079375.1

Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Nitrosopumilus\_maritimus\_WP\_012215803.1 ————— Archaea-Thaumarchaeota-NA-Nitrosopumilales-Nitrosopumilaceae-Candidatus\_Nitrosarchaeum\_limnium\_WP\_010191071.1