—— Bacteria-Actinobacteria-Actinobacteria-Micrococcales-Microbacteriaceae-Hymenobacter_sp._Fur1_WP_144848367.1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Cytophagaceae-Sporocytophaga_myxococcoides_WP_045468468.1 Bacteria-Bacteroidetes-Cytophagia-Cytophagales-Thermonemataceae-Thermonema_rossianum_WP_038030936.1 Bacteria-NA-NA-NA-bacterium_336_3_WP_054037654.1 Bacteria-Proteobacteria-Alphaproteobacteria-Rhodospirillales-Rhodospirillaceae-Inquilinus_sp._KBS0705_WP_138807620.1 Bacteria-Spirochaetes-Spirochaetia-Leptospirales-Leptospiraceae-Leptospira_ilyithenensis_WP_135765833.1 45 Lacteria-Proteobacteria-Gammaproteobacteria-Alteromonadales-Alteromonadaceae-Glaciecola_sp._THG3.7_WP_124747152.1 Bacteria-Chlamydiae-Chlamydiia-Parachlamydiales-Parachlamydiaceae-Neochlamydia_sp._EPS4_WP_044881856.1 Archaea —— Bacteria-Chlamydiae-Chlamydiia-Parachlamydiales-Parachlamydiaceae-Parachlamydiaceae_bacterium_HST3_WP_042103106.1 Bacteria —————— Bacteria-Cyanobacteria-NA-Nostocales-Nostocaceae-Nostoc_linckia_WP_099073317.1 Eukaryota-Microsporidia-NA-NA-NA-Nematocida_parisii_XP_013059613.1 Eukaryota Eukaryota-Palpitomonas-NA-NA-Palpitomonas_bilix_MMETSP0780_c3419_g1_i1.p1 Viruses Eukaryota-Rhodophyta-Bangiophyceae-Cyanidiales-Cyanidiaceae-Galdieria_sulphuraria_XP 005706607.1 Eukaryota-Rhodophyta-Florideophyceae-Gigartinales-Gigartinaceae-Chondrus_crispus_XP_005717776.1 Other/Misc Eukaryota-Alveolata-Dinophyceae-NA-Unranked-Alexandrium_tamarense_MMETSP0384_c9195_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-NA-Crustomastix_stigmata_MMETSP0803_c3791_g1_i1.p1 Eukaryota-Chlorophyta-NA-NA-Picocystis_salinarum_MMETSP1159_TR7920-c0_g1_i1.p1 Eukaryota-Chlorophyta-NA-Pyramimonadales-NA-Pyramimonas_parkeae_MMETSP0058_c33963_g1_i1.p1 Eukaryota-Streptophyta-NA-Brassicales-Brassicaceae-Arabidopsis_thaliana_NP_179770.1 Eukaryota-Streptophyta-NA-Fabales-Fabaceae-Lupinus_angustifolius_XP_019430219.1 BS: ultrafast bootstrap support Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Bigelowiella_natans_CCMP2755_jgi58266 Eukaryota-Cercozoa-Chlorarachniophyceae-NA-NA-Gymnochlora_sp_MMETSP0110_c15906_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Ammonia_sp_MMETSP1384_c20276_g1_i1.p1 Eukaryota-Retaria-NA-NA-NA-Elphidium_margaritaceum_MMETSP1385_c19054_g1_i1.p1 MSTRG.3989.1.p1 Paulinella_chromatophora_CCAC0185_nuclear___scaffold1426-m19028 Mitochondrial Eukaryota-Glaucophyta-Glaucophyta-Gloeochaetales-Gloeochaetaceae-Gloeochaete_witrockiana_MMETSP0308_c5092_g1_i2.p1 Chromatophore (≥100aa) Eukaryota-Glaucophyta-Glaucophyta-NA-Cyanophoraceae-Cyanophora_paradoxa_tig00000733_g3775.t1 Chromatophore (<100aa)</p> Eukaryota-Annelida-Clitellata-Hirudinida-Glossiphoniidae-Helobdella_robusta_jgi185290 49 Eukaryota-Mollusca-Gastropoda-Architaenioglossa-Ampullariidae-Pomacea_canaliculata_XP_025088063.1 ——— 97 Eukaryota-Mollusca-Gastropoda-NA-Lottiidae-Lottia_gigantea_jgi206843 Eukaryota-Echinodermata-Asteroidea-Valvatida-Acanthasteridae-Acanthaster_planci_XP 022086330.1 Eukaryota-Echinodermata-Echinoidea-Echinoida-Strongylocentrotidae-Strongylocentrotus_purpuratus_XP_780425.1 Lumaniidae-Saccoglossus_kowalevskii_XP_002741928.1 Eukaryota-Arthropoda-Malacostraca-Decapoda-Penaeidae-Penaeus_vannamei_XP_027233205.1 Eukaryota-Chordata-Amphibia-Gymnophiona-Siphonopidae-Microcaecilia_unicolor_XP_030055699.1 Viruses-Poxviridae-NA-NA-Cowpox virus NP 619870.1 ● 100 Viruses-Poxviridae-NA-NA-NA-Eptesipox_virus_YP_009408000.1 Viruses-Baculoviridae-NA-NA-Hemileuca_species_nucleopolyhedrovirus_YP_008378353.1 Viruses-Hytrosaviridae-NA-NA-Musca_hytrovirus_YP_001883393.1 ______ Viruses-Baculoviridae-NA-NA-NA-Spodoptera_littoralis_nucleopolyhedrovirus_YP_009505829.1 Viruses-Alloherpesviridae-NA-NA-NA-Cyprinid_herpesvirus_1_YP_007003794.1 Eukaryota-Platyhelminthes-Cestoda-Cyclophyllidea-Taeniidae-Echinococcus_granulosus_XP_024354866.1

Eukaryota-Platyhelminthes-Trematoda-Strigeidida-Schistosomatidae-Schistosoma_mansoni_XP_018651820.1 Eukaryota-Choanoflagellata-Choanoflagellata-Choanoflagellata-Salpingoecidae-Salpingoeca_rosetta_XP_004997537.1 T______Eukaryota-Mesomycetozoea-Ichthyosporea-NA-NA-Capsaspora_owczarzaki_XP_004349266.2 96 Eukaryota-Cnidaria-Anthozoa-Actiniaria-Aiptasiidae-Exaiptasia_pallida_XP_020893304.1
Eukaryota-Placozoa-NA-NA-Trichoplacidae-Trichoplax_adhaerens_XP_002116037.1 Eukaryota-Ascomycota-Dothideomycetes-Venturiales-Sympoventuriaceae-Verruconis_gallopava_XP_016215152.1

Eukaryota-Ascomycota-Eurotiomycetes-Chaetothyriales-Herpotrichiellaceae-Exophiala_dermatitidis_XP_009156183.1 Eukaryota-Basidiomycota-Mixiomycetes-Mixiales-Mixiaceae-Mixia osmundae XP 014570890.1 —— Eukaryota-Mucorales-Mucoraceae-Undefined-Undefined-Mucor_circinelloides_jgi79078 — Viruses-Alloherpesviridae-NA-NA-NA-Anguillid_herpesvirus_1_YP_003358255.2 — Viruses-NA-NA-NA-Apis_mellifera_filamentous_virus_YP_009165865.1 Viruses-Nimaviridae-NA-NA-NA-White_spot_syndrome_virus_YP_009220529.1 Viruses-Marseilleviridae-NA-NA-NA-Marseillevirus_marseillevirus_YP_003406952.1 Viruses-Marseilleviridae-NA-NA-Tokyovirus_A1_YP_009254993.1 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-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-Planctomycetes-Planctomycetia-Planctomycetales-Gemmataceae-Gemmata_obscuriglobus_WP_081471784.1 ———— 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 ——— Archaea-Euryarchaeota-Halobacteria-Halobacteriales-Haloarculaceae-Halapricum_salinum_WP_049992523.1 ——— Archaea-Euryarchaeota-Halobacteria-Haloferacales-Haloferacaceae-Halogranum_salarium_WP_009367158.1 Viruses-Siphoviridae-NA-NA-Pseudomonas_virus_nickie_YP_009620745.1 Paulinella_ovalis_nuclear_SingleCell___SAG6_contig00003.g4.t1 Viruses-Iridoviridae-NA-NA-NA-Shortfinned_eel_ranavirus_YP_009259397.1 Viruses-Ascoviridae-NA-NA-Diadromus_pulchellus_toursvirus_YP_009640042.1 Viruses-Iridoviridae-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-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 ${\it tryota-Trichomonadida-Trichomonadida-Trichomonadida-Trichomonadidae-Trichomonas_vaginalis_XP_001580988.7$ - 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