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UBA6099;o__UBA6099':0.33896)75.0:0.09446)23.0:0.05265,((((GB_GCA_003503675.1:0.30629,(GB_GCA_016867265.1:0.4975,GB_GCA_017744355.1:0.28068)100.0:0.0615)'100.0:o__S15B-MN24':0.13285,(GB_GCA_014377495.1:0.43851,(GB_GCA_014377055.1:0.46228,GB_GCA_002783405.1:0.52575)'98.0:o__UBA7694':0.06231)99.0:0.0837)'100.0:c__Sericytochromatia':0.0922,(((GB_GCA_013285555.1:0.33453,GB_GCA_014379585.1:0.34049)'100.0:o__Gloeobacterales':0.0891,((RS_GCF_000332275.1:0.22551,RS_GCF_000013225.1:0.23621)'100.0:o__PCC-7336':0.10631,(((GB_GCA_012032135.1:0.29135,((GB_GCA_004292515.1:0.24901,(RS_GCF_003846445.1:0.19345,GB_GCA_012032745.1:0.25163)78.0:0.04497)42.0:0.02703,(GB_GCA_903897715.1:0.24601,((((GB_GCA_012032525.1:0.23588,GB_GCA_014534385.1:0.27154)71.0:0.01974,(((RS_GCF_001939115.1:0.13502,RS_GCF_014695385.1:0.09933)74.0:0.01702,RS_GCF_000775285.1:0.16966)72.0:0.01518,RS_GCF_001650195.1:0.21892)75.0:0.01531)36.0:0.01028,RS_GCF_000317045.1:0.1577)43.0:0.01016,((((GB_GCA_010672865.1:0.1451,(((RS_GCF_000332195.1:0.26065,(((GB_GCA_018141785.1:0.18808,GB_GCA_011391125.1:0.16932)28.0:0.01951,(GB_GCA_011088145.1:0.3392,(GB_GCA_016903655.1:0.15867,RS_GCF_000332035.1:0.20343)56.0:0.0228)10.0:0.01536)4.0:0.01347,(RS_GCF_000017845.1:0.21104,(GB_GCA_903887375.1:0.26463,RS_GCF_000297435.1:0.23973)37.0:0.01145)69.0:0.02601)11.0:0.01274)41.0:0.01096,GB_GCA_012031815.1:0.20209)81.0:0.01894,GB_GCA_012031265.1:0.27004)46.0:0.0119)81.0:0.01585,GB_GCA_018610095.1:0.28394)100.0:0.04268,RS_GCF_000211815.1:0.18616)28.0:0.01382,GB_GCA_012031635.1:0.24244)34.0:0.02105,(((RS_GCF_014698505.1:0.1774,GB_GCA_905479905.1:0.22165)100.0:0.0296,RS_GCF_015207735.1:0.17328)98.0:0.01465,(RS_GCF_003003775.1:0.23644,RS_GCF_014695915.1:0.1257)42.0:0.01761)23.0:0.01692)43.0:0.01792,(GB_GCA_005518205.2:0.19957,((GB_GCA_015295835.1:0.15603,(RS_GCF_012295525.1:0.17341,(GB_GCA_001314905.1:0.26757,RS_GCF_001870905.1:0.23438)65.0:0.02478)44.0:0.01446)16.0:0.01013,RS_GCF_013179805.1:0.21885)32.0:0.01155)22.0:0.00982)'76.0:o__Cyanobacteriales':0.02566)32.0:0.01394)50.0:0.0167)37.0:0.01929)56.0:0.03625,(RS_GCF_014696065.1:0.1891,GB_GCA_002291895.1:0.4007)19.0:0.02722)31.0:0.03861,(RS_GCF_001870225.1:0.3527,(((RS_GCF_014279975.1:0.158566,bin.275:0.120401):0.0303117,bin.183:0.108655):0.00178569,bin.51:0.114466):0.424297)60.0:0.03856)94.0:0.05617)95.0:0.06973)'100.0:c__Cyanobacteriia':0.29149,((GB_GCA_902168245.1:0.51339,(GB_GCA_001784535.1:0.30596,(RS_GCF_904420445.1:0.23063,(GB_GCA_015152565.1:0.46738,GB_GCA_002438405.1:0.40358)100.0:0.10361)100.0:0.05606)'100.0:o__Gastranaerophilales':0.1548)100.0:0.09618,(GB_GCA_003153555.1:0.5719,(GB_GCA_001784585.1:0.56563,(GB_GCA_001899385.1:0.74897,GB_GCA_018695135.1:0.62501)'65.0:o__Caenarcaniphilales':0.05751)100.0:0.08824)100.0:0.0661)'100.0:c__Vampirovibrionia':0.07912)95.0:0.0436)'100.0:p__Cyanobacteria':0.10178,((GB_GCA_018823125.1:0.38128,((GB_GCA_011333685.1:0.25229,(GB_GCA_013204645.1:9.83673e-06,bin.592:6.11352e-06):0.32232)'100.0:o__O2-12-FULL-45-9':0.08652,((GB_GCA_001771535.1:0.36435,GB_GCA_009772965.1:0.34797)100.0:0.05823,(GB_GCA_018813405.1:0.3189,(GB_GCA_013202975.1:5.35217e-06,bin.294:6.11352e-06):0.350755)75.0:0.04219)'100.0:o__XYC2-FULL-46-14':0.06196)99.0:0.0651)'100.0:c__WOR-1':0.16665,(GB_GCA_003864475.1:0.65809,((GB_GCA_018646105.1:0.50153,((GB_GCA_009691415.1:0.38195,(GB_GCA_018402095.1:0.4023,GB_GCA_005791325.1:0.60087)100.0:0.08876)'100.0:o__SXXA01':0.09624,((GB_GCA_013215865.1:0.42112,GB_GCA_018698675.1:0.47433)33.0:0.06634,(((GB_GCA_018700055.1:0.41216,GB_GCA_902558105.1:0.50708)'84.0:o__UBA817':0.07212,GB_GCA_002433595.1:0.72684)40.0:0.04651,((GB_GCA_002716485.1:0.42714,GB_GCA_003265895.1:0.40312)73.0:0.08747,(GB_GCA_002719695.1:0.55198,GB_GCA_003265975.1:0.41178)33.0:0.04039)'99.0:o__GCA-2716485':0.09314)15.0:0.02967)11.0:0.03044)28.0:0.0509)'100.0:c__Marinamargulisbacteria':0.21622,(GB_GCA_003242895.1:0.43001,GB_GCA_903897765.1:0.71497)'100.0:c__Riflemargulisbacteria':0.09565)44.0:0.04262)100.0:0.07237)'100.0:p__Margulisbacteria':0.08933)98.0:0.04351,((((((((GB_GCA_001028815.1:0.28795,((GB_GCA_007132635.1:0.29117,GB_GCA_900019385.1:0.35468)90.0:0.0

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)60.0:0.04943)'69.0:o__Limnochordales':0.03995,GB_GCA_017578085.1:0.31431)98.0:0.0469)96.0:0.
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885.1:0.42654)'100.0:o__P2-
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497)'100.0:o__WGA-4E':0.16761)87.0:0.04587)'100.0:c__WGA-4E':0.08113)'100.0:p__Poribacteria':0.12952,((GB_GCA_003598085.1:0.175103,bin.86:0.200965):0.299187,(GB_GCA_011338105.1:0.40418,(GB_GCA_002746185.1:0.377,((GB_GCA_018005585.1:0.24798,((GB_GCA_007116095.1:0.2408,GB_GCA_002070275.1:0.47117)23.0:0.02025,((GB_GCA_016182645.1:0.21673,GB_GCA_016125095.1:0.30005)41.0:0.03472,GB_GCA_903837785.1:0.21656)17.0:0.01952)87.0:0.03636)88.0:0.03837,GB_GCA_016934125.1:0.29523)80.0:0.03783)100.0:0.08476)'100.0:p__Hydrogenedentota;c__Hydrogenedentia;o__Hydrogenedentiales':0.25955)70.0:0.09631)16.0:0.03148,((GB_GCA_003598175.1:0.57137,(GB_GCA_015075175.1:0.52004,GB_GCA_013360775.1:0.55012)95.0:0.08156)'100.0:p__OLB16;c__OLB16':0.14366,(((GB_GCA_012513815.1:0.43312,GB_GCA_017161655.1:0.35646)'100.0:o__Sumerlaeales':0.18466,((GB_GCA_007132505.1:0.6108,GB_GCA_016928695.1:0.54201)7.0:0.05152,((GB_GCA_002070185.1:0.49117,((GB_GCA_003501375.1:0.309593,bin.579:0.196393):0.327237,(GB_GCA_017161705.1:0.37213,GB_GCA_016928995.1:0.48308)'98.0:o__JADFCW01':0.08183)21.0:0.03574)18.0:0.03319,(GB_GCA_017161665.1:0.48286,GB_GCA_002068205.1:0.45346)33.0:0.09281)23.0:0.03275)35.0:0.03808)'100.0:p__Sumerlaeota;c__Sumerlaeia':0.14409,GB_GCA_002428325.1:0.58598)25.0:0.04834)34.0:0.05363)19.0:0.02482,(((GB_GCA_014728225.1:0.7446,GB_GCA_003647715.1:0.60841,GB_GCA_011773985.1:0.54243)'100.0:c__B26-G2':0.11718)'100.0:p__RBG-13-66-14':0.1137,((((GB_GCA_005239795.1:0.49606,GB_GCA_016206515.1:0.57679)'100.0:c__SBBH01;o__SBBH01':0.25815,(((GB_GCA_002711105.1:0.76976,(GB_GCA_002402755.1:0.63274,(GB_GCA_016209605.1:0.37456,(GB_GCA_016209535.1:0.34147,GB_GCA_002320775.1:0.4279)100.0:0.07526)'100.0:o__UBA8108':0.13094)86.0:0.06357)'100.0:c__UBA8108':0.09112,(GB_GCA_003694875.1:0.53587,(GB_GCA_016200955.1:0.35831,GB_GCA_016765095.1:0.51791)'100.0:o__J058':0.23911)'84.0:c__J058':0.08999)35.0:0.03501,GB_GCA_016209495.1:0.54452)46.0:0.0272,(((GB_GCA_011525755.1:0.5049,GB_GCA_016795345.1:0.54108)'100.0:c__PLA2;o__PLA2':0.14006,(GB_GCA_016178505.1:0.48596,(GB_GCA_016935485.1:0.48474,GB_GCA_016209595.1:0.55001)49.0:0.06855)56.0:0.06659)27.0:0.047,((GB_GCA_015485455.1:0.5207,(GB_GCA_017853435.1:0.45982,GB_GCA_013213915.1:0.42555)100.0:0.11673)'100.0:c__GCA-002687715;o__GCA-002687715':0.16932,((GB_GCA_016795255.1:0.5237,(GB_GCA_003644265.1:0.56617,GB_GCA_016872815.1:0.55845)78.0:0.08083)'100.0:c__B15-G4;o__B15-G4':0.09782,((GB_GCA_011321845.1:0.441,GB_GCA_016716265.1:0.48294)'100.0:o__UBA2386':0.14754,((GB_GCA_016793245.1:0.49248,GB_GCA_016200225.1:0.56863)99.0:0.07462,(GB_GCA_016872715.1:0.71473,(((GB_GCA_004295085.1:0.302865,bin.406:0.316196):0.0141082,bin.362:0.30561):0.00427936,bin.524:0.338423):0.354577)98.0:0.05037)'85.0:o__UBA1135':0.04273)'100.0:c__UBA1135':0.05299)100.0:0.05505)95.0:0.0499)39.0:0.03261,((GB_GCA_013360495.1:0.44618,GB_GCA_019186845.1:0.43659)'100.0:o__UBA2392':0.29278,(GB_GCA_007127275.1:0.57663,GB_GCA_016209585.1:0.57317)54.0:0.07066)'92.0:c__UBA8742':0.0998)8.0:0.02504)45.0:0.02779)21.0:0.02899,(((GB_GCA_014584395.1:0.39323,((RS_GCF_013694095.1:0.524023,bin.382:0.394669):0.029296,bin.140:0.433245):0.101451)'100.0:o__Gemmatales':0.14064,GB_GCA_007748055.1:0.49204)31.0:0.04143,((RS_GCF_007747995.1:0.2551,GB_GCA_016235885.1:0.29132)59.0:0.03706,(GB_GCA_017795105.1:0.420504,bin.212:0.314077):0.107456)'100.0:o__Planctomycetales':0.15313,(((GB_GCA_017447865.1:0.66228,(GB_GCA_016177915.1:0.2608,GB_GCA_015488215.1:0.29546)65.0:0.0773)35.0:0.02274,(((GB_GCA_003389325.1:0.2162,GB_GCA_003576845.1:0.2607)23.0:0.02258,(GB_GCA_016793185.1:0.23146,(GB_GCA_016191115.1:0.18881,GB_GCA_018242585.1:0.26954)83.0:0.01945)93.0:0.03409)30.0:0.02405,((RS_GCF_001642955.1:0.472705,bin.112:0.328233):0.259965,((GB_GCA_014237955.1:0.33464,RS_GCF_007859935.1:0.39672)48.0:0.011876,bin.20:0.257309):0.010774)72.0:0.0111758,bin.375:0.269364):0.0142842)33.0:0.01764)39.0:0.03711,((((((GB_GCA_903949225.1:0.17332,bin.566:0.12718):0.00659469,bin.657:0.129444):0.000839685,bin.655:0.118784):0.00890742,bin.333:0.136469):0.00580891,bin.390:0.123002):0.00637728,bin.76:0.12177):0.0206992,bin.29:0.166647):0.33

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559)'100.0:o__UBA11236':0.13525)96.0:0.06139)'100.0:c__Fibrobacteria':0.1611)68.0:0.05182)'100.0:p__Fibrobacterota':0.12273,((GB_GCA_016927185.1:0.75666,GB_GCA_017997825.1:0.62761)24.0:0.0779,((GB_GCA_003564155.1:0.41847,((GB_GCA_002742885.1:0.3289,((GB_GCA_014382915.1:0.175013,bin.287:0.169707):0.0136586,bin.262:0.145248):0.154468)99.0:0.04222,(GB_GCA_009782695.1:0.49171,(GB_GCA_002424605.1:0.37241,GB_GCA_016838885.1:0.35204)100.0:0.05837)97.0:0.03775)96.0:0.04743)'100.0:o__Cloacimonadales':0.13212,(GB_GCA_003647765.1:0.34157,(GB_GCA_001577135.1:0.37587,(GB_GCA_016932035.1:0.090574,bin.679:0.0977806):0.227066)100.0:0.12331)'100.0:o__JGIOTU-2':0.10003)'100.0:p__Cloacimonadota;c__Cloacimonadia':0.20311)35.0:0.06099)26.0:0.03548,((((GB_GCA_018263585.1:0.56621,GB_GCA_016703065.1:0.69416)74.0:0.05776,(((GB_GCA_002127415.1:0.222895,bin.11:0.206164):0.0351975,bin.407:0.243987):0.299948,GB_GCA_018812585.1:0.5317)61.0:0.05312)32.0:0.02982,(GB_GCA_016783645.1:0.28582,(GB_GCA_013202315.1:7.77863e-06,bin.685:6.11352e-06):0.254882)'100.0:c__JABMRZ01;o__JABMRZ01':0.23165)'90.0:p__AABM5-125-24':0.06236,((GB_GCA_903910645.1:0.48349,GB_GCA_016784425.1:0.4328)'100.0:o__CAIWAD01':0.15637,GB_GCA_016938275.1:0.71348)'82.0:p__Delongbacteria;c__UBA4055':0.08422)75.0:0.05582,((((GB_GCA_002049825.1:0.26251,GB_GCA_003695285.1:0.2683)'100.0:o__RBG-13-44-9':0.15123,(GB_GCA_003696775.1:0.31211,GB_GCA_016928315.1:0.32678)'100.0:o__Calditrichales':0.16645)'100.0:p__Calditrichota;c__Calditrichia':0.10522,((GB_GCA_016783505.1:0.39146,(GB_GCA_003644825.1:0.34072,GB_GCA_001304035.1:0.4101)'100.0:p__SM23-31;c__SM23-31':0.08463)71.0:0.06849,(((GB_GCA_004356825.1:0.36671,(GB_GCA_011047125.1:0.34136,GB_GCA_008501765.1:0.46265)'100.0:o__DRLW01':0.05537)74.0:0.04164,(((GB_GCA_014728085.1:0.30399,(GB_GCA_002327255.1:0.32043,GB_GCA_011682565.1:0.28294)79.0:0.03027)'100.0:o__UBA2214':0.13973,(GB_GCA_014359355.1:0.30969,GB_GCA_011389025.1:0.3368)'97.0:o__JACIZP01':0.0521)100.0:0.04371,(GB_GCA_016927835.1:0.35333,(GB_GCA_016783825.1:0.26953,GB_GCA_016931935.1:0.31715)100.0:0.06725)'100.0:o__AABM5-25-91':0.07828)43.0:0.02153)'100.0:p__KSB1;c__UBA2214':0.03984,(((GB_GCA_011040895.1:0.26104,GB_GCA_002011685.1:0.18677)100.0:0.09229,(GB_GCA_002085035.1:0.26251,GB_GCA_013151735.1:0.23831)64.0:0.0421)'100.0:p__JdFR-76;c__JdFR-76;o__JdFR-76':0.11405,(GB_GCA_011363065.1:0.30892,((GB_GCA_016931965.1:0.27294,GB_GCA_003645915.1:0.39413)38.0:0.02937,(GB_GCA_013202295.1:5.5426e-06,bin.322:6.11352e-06):0.363234)57.0:0.03778)'100.0:p__QNDG01;c__QNDG01;o__QNDG01':0.16273)48.0:0.02835)87.0:0.04054)74.0:0.0309)48.0:0.0272,((GB_GCA_004402895.1:0.54107,(((GB_GCA_016784265.1:0.58112,(((GB_GCA_014381485.1:0.30135,(GB_GCA_002471865.1:0.28593,GB_GCA_002329125.1:0.37013)54.0:0.03335)100.0:0.1281,(GB_GCA_902576865.1:0.71135,(((GB_GCA_001577055.1:0.175658,bin.522:0.154694):0.000420454,bin.120:0.154723):0.151641,((GB_GCA_002713885.1:0.49763,GB_GCA_902615915.1:0.51944)37.0:0.02887,((GB_GCA_013203145.1:8.69415e-06,bin.159:6.11352e-06):0.284881,((GB_GCA_013152835.1:0.31649,GB_GCA_018812885.1:0.27398)26.0:0.02184,GB_GCA_002346675.1:0.38673)17.0:0.02264)30.0:0.03289)26.0:0.03139)100.0:0.05764)100.0:0.09701)'100.0:o__Marinisomatales':0.09002,(GB_GCA_004124295.1:0.47,((((GB_GCA_002731795.1:0.39137,(GB_GCA_002711465.1:0.37711,GB_GCA_002719095.1:0.45201)62.0:0.05832)28.0:0.03003,GB_GCA_002705605.1:0.4717)33.0:0.04392,(GB_GCA_002170735.1:0.39615,GB_GCA_000405805.1:0.32814)15.0:0.03563)61.0:0.06498,GB_GCA_004124405.1:0.30722)64.0:0.0576,((GB_GCA_002703375.1:0.37823,GB_GCA_014381925.1:0.35584)34.0:0.04698,(GB_GCA_014381725.1:0.219464,bin.70:0.293281):0.053096)18.0:0.02665)100.0:0.15388)'100.0:o__SCGC-AAA003-L08':0.07487)'100.0:c__Marinisomatia':0.05585)33.0:0.03331,((GB_GCA_011049095.1:0.35802,GB_GCA_002452555.1:0.38745)'100.0:c__AB16;o__AB16':0.18699,((((GB_GCA_013202385.1:9.43283e-06,bin.509:6.11352e-

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_GCA_003285105.1:0.13827,GB_GCA_011682235.1:0.13583)59.0:0.03588,((RS_GCF_002894645.1:0.
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595.1:0.23958)23.0:0.03388)28.0:0.01724)92.0:0.03057,(GB_GCA_013003255.1:0.229412,bin.449:0.
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2)'100.0:c__DSM-

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7.0:0.05002)'100.0:o__2-02-FULL-50-
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.38521)31.0:0.03972,((GB_GCA_016792625.1:0.41412,(GB_GCA_002296975.1:0.32842,GB_GCA_002
683315.1:0.49681)92.0:0.08451)92.0:0.07691,(GB_GCA_016927815.1:0.41026,GB_GCA_005776735.
1:0.58251)76.0:0.04472)59.0:0.03185)'100.0:o__UBA796':0.18763)'100.0:c__UBA796':0.11243)'24.0:
p__Myxococcota_A':0.0514)2.0:0.02704)0.0:0.0218)0.0:0.02362)0.0:0.02135)0.0:0.02185)3.0:0.0481
6)2.0:0.0291)5.0:0.04713)0.0:0.01621)0.0:0.02719)0.0:0.02463)1.0:0.02787)0.0:0.01994)0.0:0.02862
)0.0:0.02079)14.0:0.03449)d__Bacteria;