# Supporting Online Materials for “MetaSee: An interactive and extendable visualization toolbox for metagenomic sample analysis and comparison”

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# Introduction

To evaluate the ability of MetaSee to visualize metagenomics, here we take the visualization results of four saliva metagenomic samples [[1](#_ENREF_1)] as the example data, and compare MetaSee against other metagenomic visualization tool. As for the biological background [[1](#_ENREF_1)], the study’s focuses include: 1) the difference between caries-active and healthy human populations, and find some taxa that may distinguish caries-active from healthy human populations, 2) whether there is a organismal core and the phylogenetic diversity between two caries-active or two healthy human, 3) the difference of community structure between two kind of samples. There are 4 samples used in [[1](#_ENREF_1)], with details as in Table S1.

The Strainer[[2](#_ENREF_2)] and BlastTaslas[[3](#_ENREF_3)] can’t provide the comparison of multiple metagenomics and IMG/M[[4](#_ENREF_4)] provide the comparison of evolutional relationship and structure among multiple metagenomics by table. So here we visualization the analysis result of Parallel-META[[5](#_ENREF_5)] with MetaSee, Krona[[6](#_ENREF_6)], iTOL[[7](#_ENREF_7)] and MEGAN[[8](#_ENREF_8)].

Firstly, we get the gDNA sequence of these four saliva dataset and analyzed them with Parallel-META, when do sequence alignment, we set 1e-10 as the E-value and selected greengenes[[9](#_ENREF_9)] as reference database, the command just like: parallel-meta -m c2.fa -o ggc2 -d $ParallelMETA/databases/gg\_coreset -e 1e-10.

Secondly we input the result file (classification.txt) to every visualization tool separately.

Finally we compared the visualization result of these tools, and try to get some useful information of these four dataset.

# The visualization result

## Result of Krona

The Krona is a great tool to show the structure of single sample, it can show the detail information of a specific node; the max depth also can be set.



Figure S1 (A) The visualization result of the Krona of Decayed Saliva Sample 1.

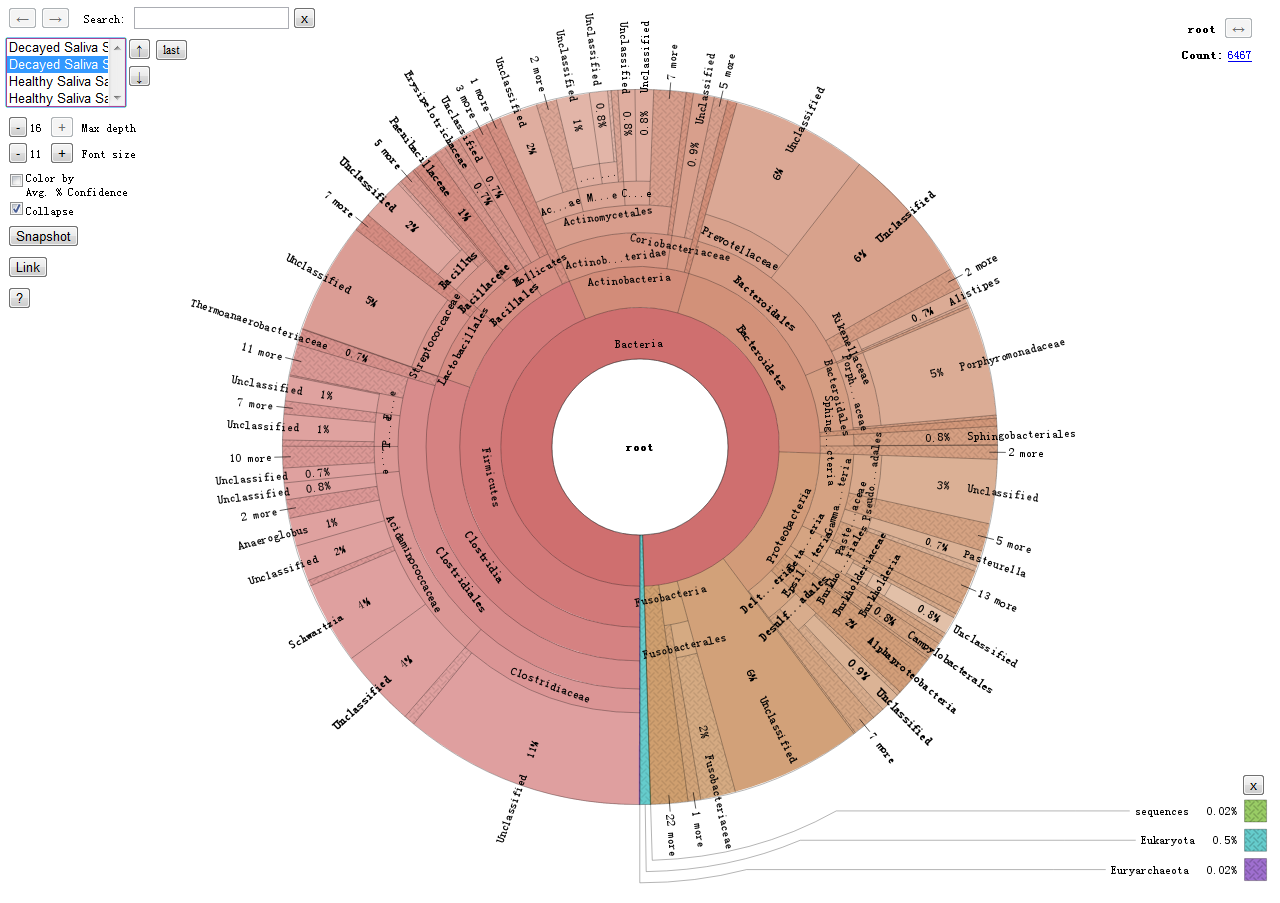


Figure S1 (B) The visualization result of the Krona of Decayed Saliva Sample 2.

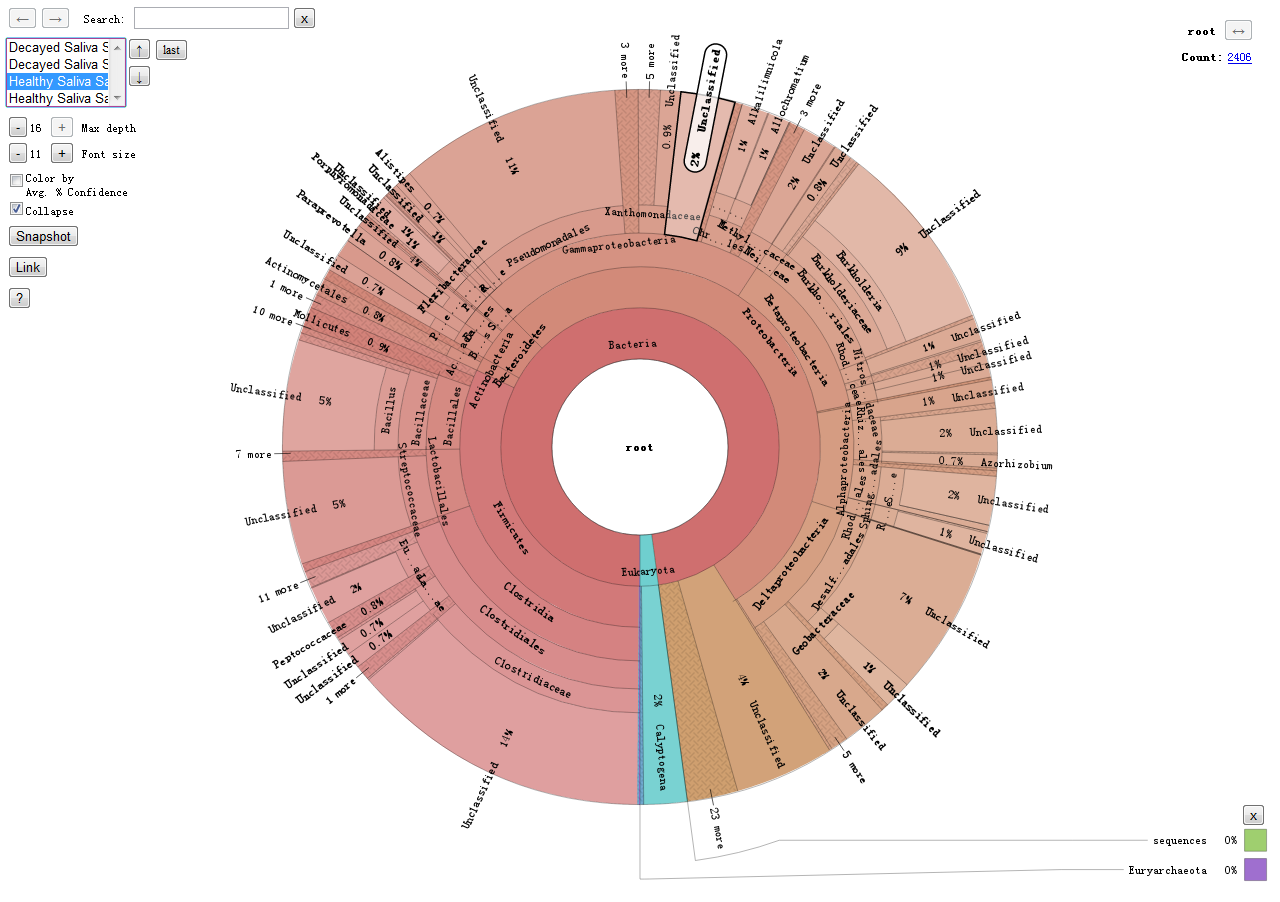


Figure S1 (C) The visualization result of the Krona of Healthy Saliva Sample 1

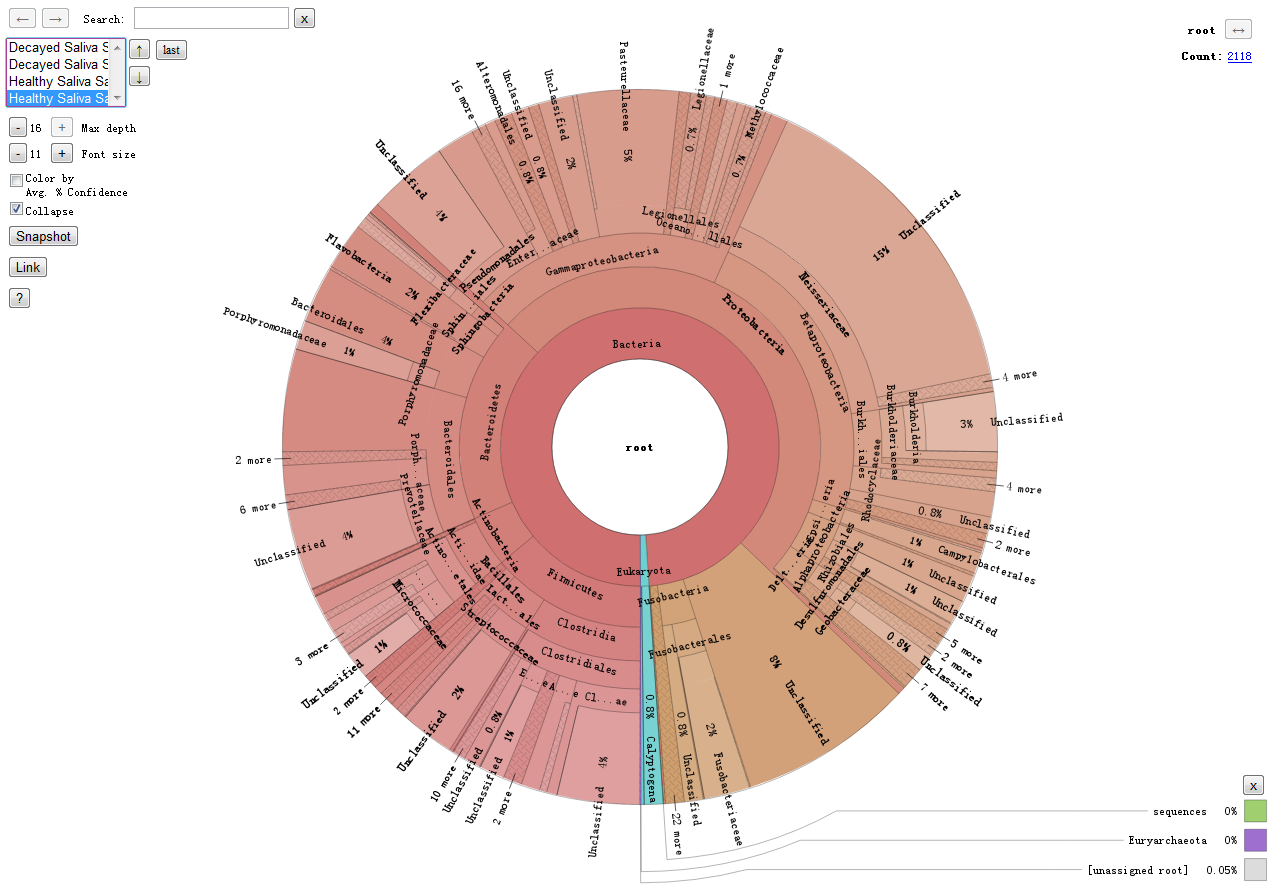


Figure S1 (D) The visualization result of the Krona of Healthy Saliva Sample 2.

But when showing multiple metagenomic samples, it can’t provide a “real” multiple samples visualization result. Though can switch among visualizations of different samples dynamically and interactively, it is still difficult to be used to compare multiple samples.

## Result of iTOL

Though it can be used to visualize metagenomic data, the iTOL was not designed for the visualization of this kind of data. And it will miss a lot of information of middle nodes. What’s more it can only be used to visualization of small metagenomic dataset or else it will be a hard work to use the visualization result to analysis the metagenomic data. Finally, there have no API for the producing of dataset file, needed by iTOL, from other popular metagenomic analysis software.

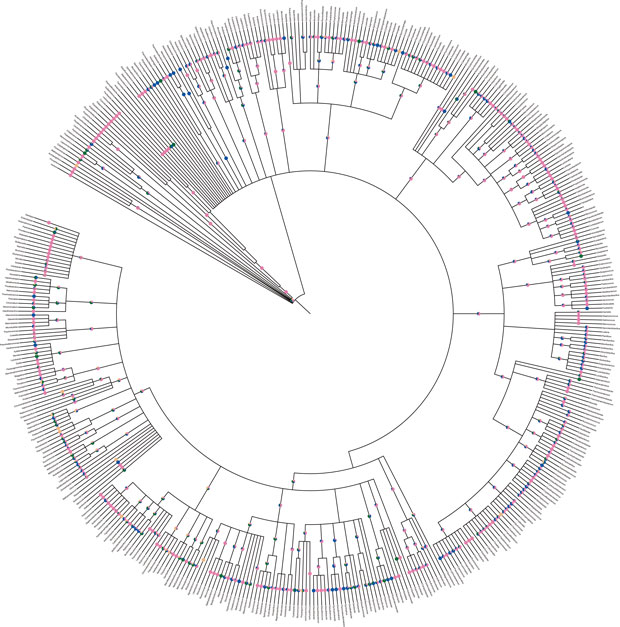


Figure S2 (A) The visualization result of the iTOL of comparison four saliva metagenomic dataset.

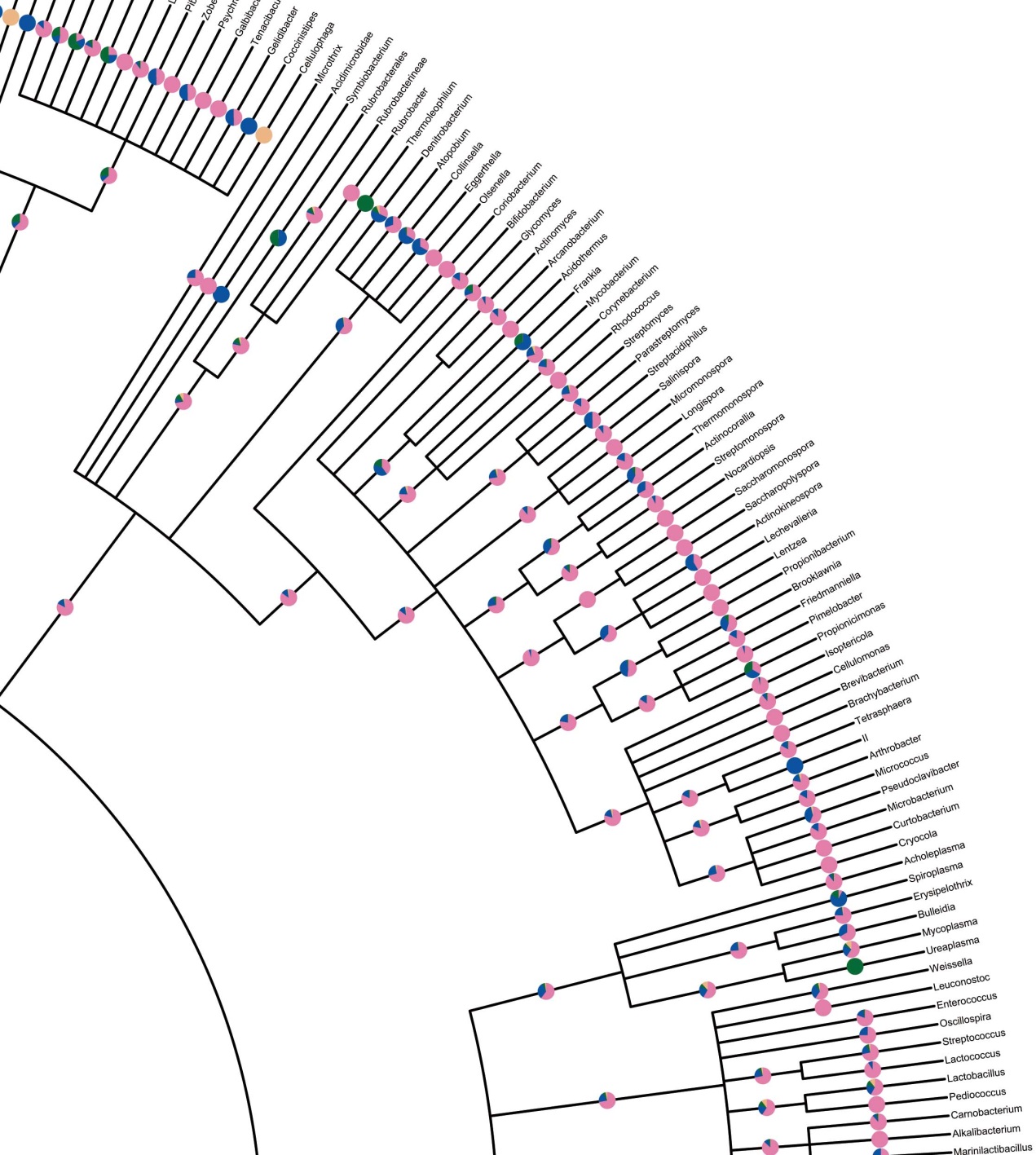


Figure S2 (B) The zoom-in visualization result of the iTOL of comparison four saliva metagenomic dataset.

## Result of MEGAN

The MEGAN software can be used to compare multiple metagenomic samples. But it is not an independent and open source visualization tool, and it cannot be easily imported into other applications or used as an online visualization solution.

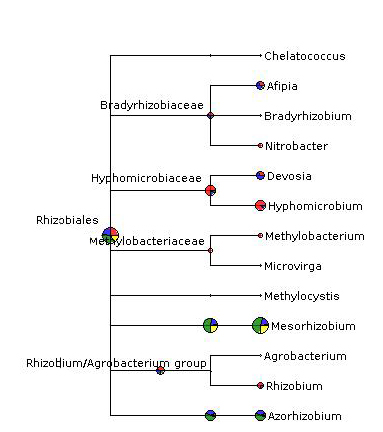


Figure S3 The zoom-in visualization result of the MEGAN of comparison four saliva metagenomic dataset.

## Result of MetaSee

The MetaSee provided a lot of ways to comparison multiple samples. Here we used our Global view for example to analysis these four datasets.

The Global view of MetaSee is a taxonomical hierarchy tree that contains every taxa and their proportion in the sample and shows the whole picture of all samples been compared. In Global view all the taxonomy units in the same level are in the same rank, and the height of each pillar stands for the relative abundance of each sample at this taxonomy unit. If you are interested in the detail information of a certain taxonomy unit, just click a small bar chart, then you can get a pair of pie charts and a pair of bar charts with relative abundance and absolutely abundance. Combined with Taxa view, Global view can show the difference among multiple samples at the global level as well as a taxonomy level.

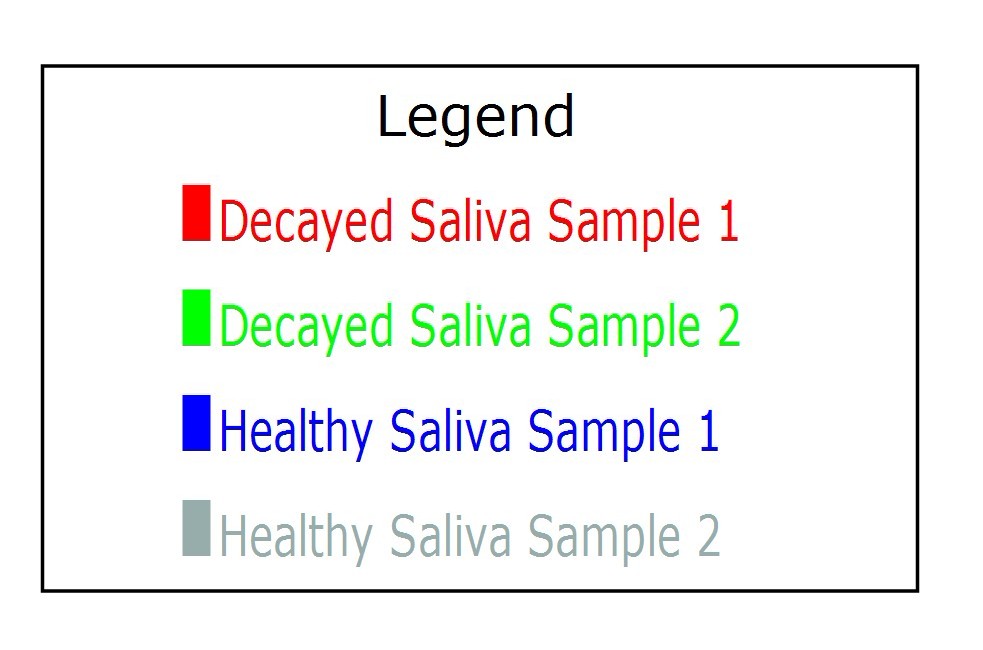


Figure 4S (A) The legend in global view of MetaSee

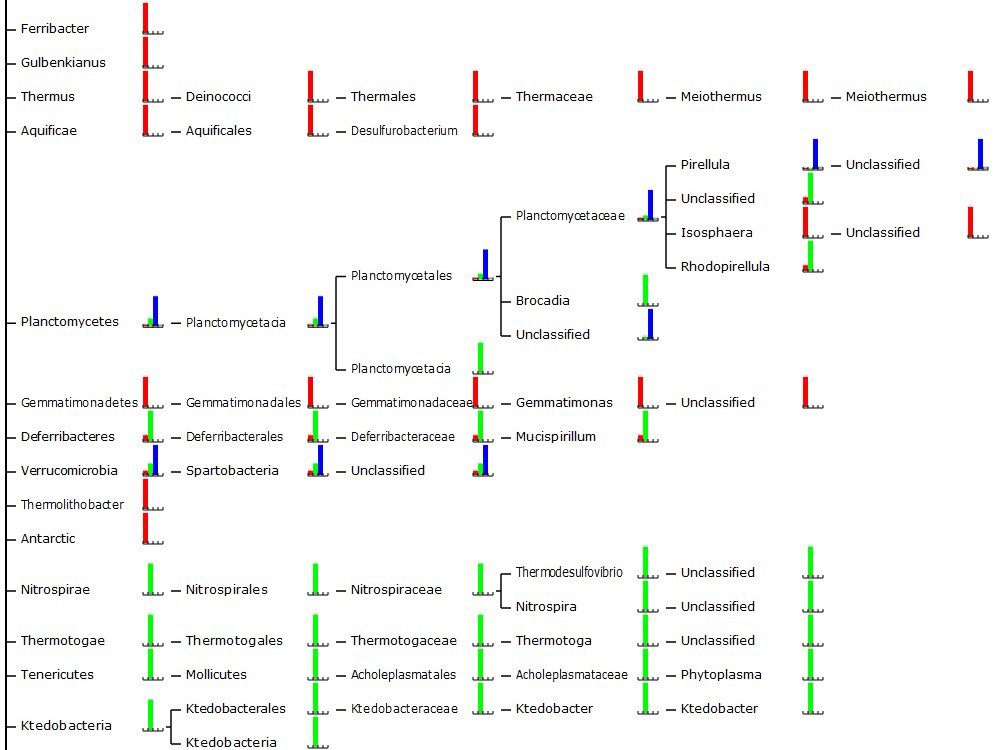


Figure 4S (B) The decayed saliva sample may more diversity in community structure. From this figure we can see that the two saliva samples distribute in some taxonomy with diversity number.

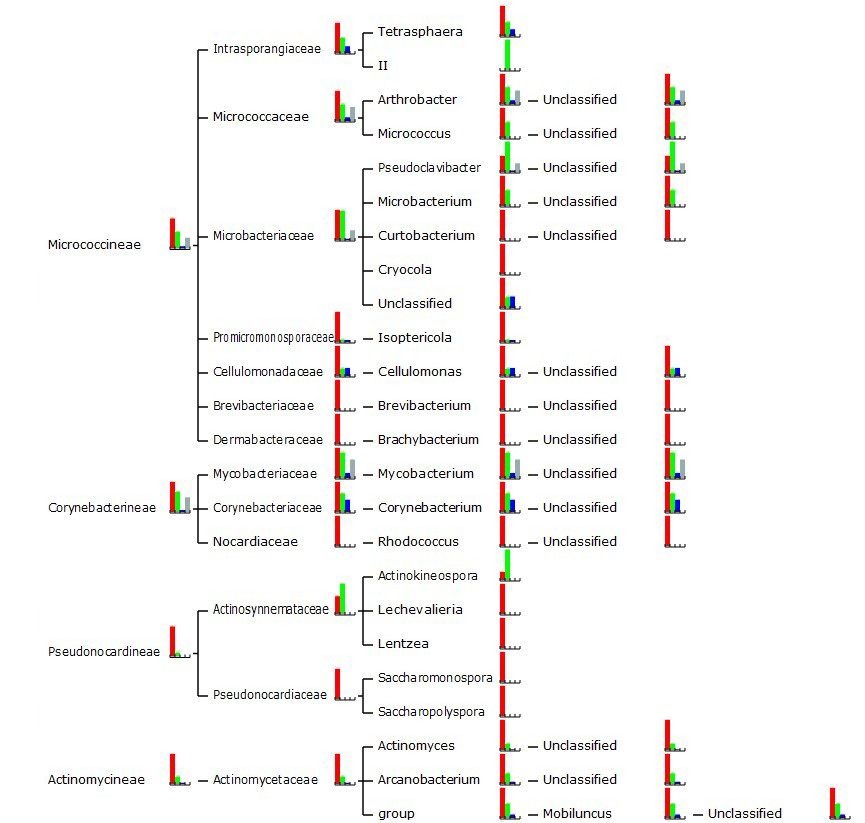


Figure 4S (C) The decayed saliva samples may share a common community structure core. From this figure we can see that the two decayed saliva samples distribute in some taxonomy with similar number but healthy saliva samples almost have no distribution at these taxonomies.

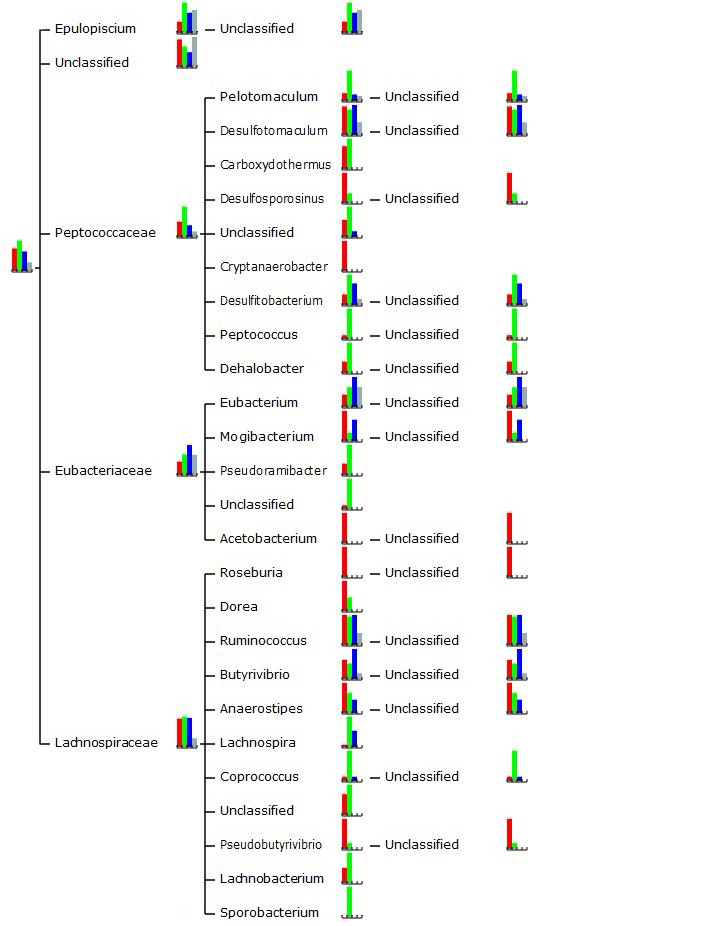


Fig 4S (D) All the saliva samples may share a common community structure core. From this figure we can see that the both two decayed saliva samples and healthy saliva samples distribute in some taxonomy with similar number.

# Appendix

## File used for iTOL

### Tree file

((((((Desulfuromonas),(Pelobacter),(Geobacter,Geoalkalibacter)),((Bdellovibrio,Bacteriovorax),(Bacteriovorax)),((Desulfobacula,Desulfococcus,Desulfobacterium,Desulfobacter),(Desulfoarculus)),(((Myxococcus),(Cystobacter)),((Chondromyces)),Enhygromyxa,((Polyangium))),((Desulfovibrio)),((Thermodesulforhabdus,Desulforhabdus,Syntrophobacter),(Syntrophus)),((Desulfurella))),(((Pseudomonas),(Acinetobacter,Moraxella,Psychrobacter)),((Stenotrophomonas,Panacagrimonas,Dyella,Lysobacter,Nevskia,Xylella,Xanthomonas)),((Vibrio)),((Halomonas,((Portiera)),Chromohalobacter),Marinomonas,Oceanospirillum,Neptunomonas),((Pectobacterium,Citrobacter,Sodalis,Serratia,Escherichia,Buchnera,Rahnella,Buttiauxella,Photorhabdus,(Saintpaul),Klebsiella,Providencia,Pantoea,Arsenophonus,Enterobacter)),((Microbulbifer,Marinobacter,Glaciecola,Alteromonas),(Pseudoalteromonas),(Shewanella),(Colwellia),(Psychromonas)),((Dichelobacter)),((Legionella),(Coxiella,Rickettsiella)),((Halothiobacillus),(Natronocella,Thioalkalivibrio,Alkalilimnicola,Halorhodospira,Aquasalina),(Allochromatium,Chromatium,Thiocapsa,Thiorhodococcus)),((Methylocaldum,Methylobacter,Methylococcus)),symbionts,((Pasteurella,Gallibacterium,Haemophilus,Mannheimia)),((Methylophaga,Thiomicrospira),(Thioploca,Thiothrix,Beggiatoa),(Francisella)),((Succinimonas),(Aeromonas,Zobellella)),Nitrincola,((Acidithiobacillus)),Solimonas,Riesia,Methylonatronum),(((Burkholderia,Ralstonia),(Hydrogenophaga,Variovorax,Rhodoferax,Acidovorax,Diaphorobacter,Comamonas,Polaromonas,Delftia),(Herbaspirillum,Janthinobacterium,Collimonas),Rubrivivax,(Bordetella,Achromobacter,Taylorella),Leptothrix,Thiomonas,Mitsuaria),((Sterolibacterium,Garrityella,Thauera)),((Nitrosospira,Nitrosomonas)),((Neisseria,Iodobacter,Paludimonas,Chromobacterium,Laribacter)),((Methylophilus,Methylobacillus))),(((Sphingomonas,Kaistobacter,Sphingobium,Zymomonas),(Erythrobacter)),((Nitrobacter,Afipia,Bradyrhizobium),(Hyphomicrobium,Devosia),(Mesorhizobium),(Azorhizobium),(Methylobacterium,Microvirga,Roseomonas),(Rhizobium,Liberibacter,(Rhizobium),Agrobacterium),Kaistina,(Methylocystis),(Chelatococcus)),(Rhodocista,Magnetospirillum,Azospirillum),(Stella,Acetobacter)),((Kopriimonas)),(Odyssella,((Rickettsia)),(Anaplasma),Holosporaceae),((Roseinatronobacter,Rhodobacter,Paracoccus),(Maricaulis))),(((Sulfurospirillum,Campylobacter,Arcobacter),(Helicobacter,Sulfurimonas)),Nitratiruptor,Sulfurovum),Magnetococcus),(((Streptococcus,Lactococcus),Weissella,(Carnobacterium,Alkalibacterium,Marinilactibacillus),(Lactobacillus,Pediococcus),(Enterococcus),(Aerococcus,Globicatella,Facklamia),(Oscillospira),Leuconostoc),((Bacillus,Geobacillus,Exiguobacterium,Anoxybacillus,Lysinibacillus,Lentibacillus),(Paenibacillus,Brevibacillus),Gemella,Staphylococcus,(Sulfobacillus,Alicyclobacillus),(Sporolactobacillus),Salinicoccus,(Listeria),(Planifilum),Macrococcus),(((Clostridium,Faecalibacterium,Alkaliphilus,Tepidimicrobium,Geosporobacter,Tindallia,Acetivibrio,Caloramator,Dorea,Gracilibacter),(Peptoniphilus,Sporanaerobacter,Peptostreptococcus,Sedimentibacter,Anaerococcus),(Schwartzia,Megasphaera,Acidaminococcus,Selenomonas,Anaeroglobus,Dialister,Veillonella,Sporomusa,Thermosinus),(Acidaminococcus),Epulopiscium,(Pelotomaculum,Desulfotomaculum,Carboxydothermus,Desulfosporosinus,Cryptanaerobacter,Desulfitobacterium,Peptococcus,Dehalobacter),(Eubacterium,Mogibacterium,Pseudoramibacter,Acetobacterium),(Roseburia,Dorea,Ruminococcus,Butyrivibrio,Anaerostipes,Lachnospira,Coprococcus,Pseudobutyrivibrio,Lachnobacterium,Sporobacterium),Heliobacteriaceae,Natronoanaerobium,(Ruminococcus),(Thermaerobacter),(Syntrophomonas,Thermaerobacter,Syntrophospora,Caldicellulosiruptor),(Oscillibacter)),(((Moorella),Thermoanaerobacter,Thermovenabulum,Thermosediminibacter,Thermoanaerobacterium)),((Halanaerobium)),((Natranaerobius))),(((Erysipelothrix,Bulleidia)),((Acholeplasma)),((Spiroplasma)),(Mycoplasma,Ureaplasma))),(((((Tetrasphaera,II),(Arthrobacter,Micrococcus),(Pseudoclavibacter,Microbacterium,Curtobacterium,Cryocola),(Isoptericola),(Cellulomonas),(Brevibacterium),(Brachybacterium)),((Mycobacterium),(Corynebacterium),(Rhodococcus)),((Actinokineospora,Lechevalieria,Lentzea),(Saccharomonospora,Saccharopolyspora)),((Actinomyces,Arcanobacterium)),((Streptomyces,Parastreptomyces,Streptacidiphilus)),((Friedmanniella,Pimelobacter,Propionicimonas),(Propionibacterium,Brooklawnia)),((Salinispora,Micromonospora,Longispora)),((Glycomyces)),((Thermomonospora,Actinocorallia),(Streptomonospora,Nocardiopsis)),((Acidothermus),(Frankia))),((Bifidobacterium))),((((Denitrobacterium,Atopobium,Collinsella,Eggerthella,Olsenella,Coriobacterium)))),Microthrix,(((Rubrobacterineae,(Rubrobacter),(Thermoleophilum)),Rubrobacterales)),Acidimicrobidae,Symbiobacterium),((((Paraprevotella),(Porphyromonadaceae,Parabacteroides),(Bacteroides),(Alistipes))),(((Polaribacter,Flavobacterium,Capnocytophaga,Chryseobacterium,Empedobacter,Wautersiella,Leptobacterium,Pibocella,Zobellia,Psychroserpens,Galbibacter,Tenacibaculum,Gelidibacter,Coccinistipes,Cellulophaga),(Owenweeksia))),(((Cytophaga,Marinicola,Flexibacter,Hongiella,Sporocytophaga,Arcicella),(Sphingobacterium,Pedobacter,Sphingoterrabacterium),(Lewinella,Saprospira),(Chitinophaga),(Sediminibacterium),(Rhodothermus),(Persicobacter))),((Prevotella),(Bacteroides),(Tannerella,Parabacteroides,Porphyromonas,Dysgonomonas,Barnesiella,Paludibacter),(Alistipes,Ruminofilibacter)),Niastella),(((Leptotrichia,Streptobacillus,Fusobacterium,Ilyobacter),(Cetobacterium)),((Fusobacterium))),(((Holophaga)),(((Solibacter)))),(((Anabaena)),(Synechococcus,Cyanobium),((Prochlorococcus)),(Limnothrix,Leptolyngbya,Microcoleus)),(((Spirochaeta,Treponema),Sphaerochaeta,(Leptospira))),((((Chlorobaculum,(Pelodictyon,Chlorobium))))),(((Roseiflexus,Chloroflexus)),(Dehalococcoides),((Herpetosiphon))),Ferribacter,Gulbenkianus,(((((Meiothermus))))),((Desulfurobacterium)),((((Pirellula,Isosphaera,Rhodopirellula),Brocadia),Planctomycetacia)),(((Gemmatimonas))),(((Mucispirillum))),(Spartobacteria),Thermolithobacter,Antarctic,(((Thermodesulfovibrio,Nitrospira))),(((Thermotoga))),((((Phytoplasma)))),((((Ktedobacter))),Ktedobacteria),Tammella,Fervidomicrobium,(((Thermodesulfatator)))),(((Pyrenomonas)),(((((((Calyptogena))))))),(((((((Polytrichum))),((((Physcomitrella))))),((((((((((Cuscuta)))),(((((Lactuca))))))),((Platanus))))),(((((Angiopteris)))),((((Equisetum)))))))),((((Auxenochlorella,Chlorella))))),((((Palmaria)),((Ceramium)),((Paralemanea)))),(((Lepocinclis,Monomorphina))),((((((Thalassiosira))),(((Chaetoceros))))))),((vectors)),(((((Picrophilus))),(((Archaeoglobus))),(((Methanopyrus))))));

### Dataset file

LABELS,Decayed Saliva Sample 1,Decayed Saliva Sample 2,Healthy Saliva Sample 1,Healthy Saliva Sample 2,

COLORS,#F082B2,#0057AE,#006E28,#F2BA88,

Geobacteraceae|Archaeoglobus,R50,17107,6467,2406,2118

Geobacteraceae|Thermodesulfatator,R1000,16545,6436,2355,2096

Geobacteraceae|Nitratiruptor,R1000,1908,921,1288,1064

Geobacteraceae|Desulfoarculus,R1000,126,174,267,51

Desulfuromonas|Geobacteraceae,R1000,53,106,191,30

Desulfuromonas,R1000,20,12,0,0

Pelobacter,R1000,18,58,161,13

Geobacter|Geoalkalibacter,R1000,15,36,30,17

Geobacter,R1000,14,32,30,17

Geoalkalibacter,R1000,1,4,0,0

Bdellovibrio|Bacteriovoracaceae,R1000,16,22,15,2

Bdellovibrio|Bacteriovorax,R1000,15,21,15,2

Bdellovibrio,R1000,14,18,11,2

Bacteriovorax,R1000,1,3,4,0

Bacteriovoracaceae,R1000,1,1,0,0

Desulfobacula|Desulfoarculus,R1000,7,3,0,0

Desulfobacula|Desulfobacterium,R1000,5,1,0,0

Desulfobacula,R1000,2,0,0,0

Desulfococcus,R1000,1,0,0,0

Desulfobacterium,R1000,2,0,0,0

Desulfobacter,R1000,0,1,0,0

Desulfoarculus,R1000,2,2,0,0

Myxococcus|Polyangium,R1000,22,10,8,4

Myxococcus|Cystobacter,R1000,9,9,7,2

Myxococcus,R1000,9,8,6,2

Cystobacter,R1000,0,1,1,0

Chondromyces,R1000,1,0,0,0

Enhygromyxa,R1000,5,0,0,0

Polyangium,R1000,0,1,1,2

Desulfovibrio,R1000,8,5,1,2

Thermodesulforhabdus|Syntrophus,R1000,1,4,0,0

Thermodesulforhabdus|Syntrophobacter,R1000,1,2,0,0

Thermodesulforhabdus,R1000,1,0,0,0

Desulforhabdus,R1000,0,1,0,0

Syntrophobacter,R1000,0,1,0,0

Syntrophus,R1000,0,2,0,0

Desulfurella,R1000,0,6,3,0

Pseudomonas|Methylonatronum,R1000,957,430,520,421

Pseudomonas|Psychrobacter,R1000,266,187,272,113

Pseudomonas,R1000,246,187,272,77

Moraxellaceae|Acinetobacter,R1000,20,36,0,0

Acinetobacter,R1000,20,4,0,0

Moraxella,R1000,0,0,0,26

Psychrobacter,R1000,0,0,0,6

Stenotrophomonas|Panacagrimonas,R1000,57,21,46,10

Stenotrophomonas,R1000,39,6,15,1

Panacagrimonas,R1000,3,0,0,0

Dyella,R1000,9,1,0,0

Lysobacter,R1000,1,1,22,1

Nevskia,R1000,2,4,9,6

Xylella,R1000,3,0,0,0

Xanthomonas,R1000,0,10,1,0

Vibrio,R1000,87,9,6,17

Halomonas|Neptunomonas,R1000,31,9,16,18

Halomonas|Portiera,R1000,20,1,7,0

Halomonas,R1000,19,1,6,0

Portiera,R1000,1,0,0,0

Chromohalobacter,R1000,0,0,0,1

Marinomonas,R1000,4,1,0,0

Oceanospirillum,R1000,3,7,16,10

Neptunomonas,R1000,4,1,0,0

Pectobacterium|Citrobacter,R1000,159,17,10,24

Pectobacterium,R1000,31,2,1,9

Citrobacter,R1000,52,3,3,1

Sodalis,R1000,6,1,0,0

Serratia,R1000,10,3,6,0

Escherichia,R1000,26,3,1,2

Buchnera,R1000,5,0,0,0

Rahnella,R1000,2,0,0,0

Buttiauxella,R1000,14,0,0,0

Photorhabdus,R1000,1,0,0,0

Salmonella,R1000,8,0,0,0

Saintpaul,R1000,8,0,0,0

Klebsiella,R1000,2,0,0,0

Providencia,R1000,1,0,0,0

Pantoea,R1000,1,0,0,0

Arsenophonus,R1000,0,2,3,0

Enterobacter,R1000,0,0,1,1

Microbulbifer|Psychromonas,R1000,94,27,9,17

Microbulbifer|Glaciecola,R1000,6,2,2,0

Microbulbifer,R1000,3,2,0,0

Marinobacter,R1000,2,0,0,0

Glaciecola,R1000,1,0,0,0

Alteromonas,R1000,0,2,0,0

Pseudoalteromonas,R1000,19,21,7,9

Shewanella,R1000,49,3,2,5

Colwellia,R1000,19,1,1,0

Psychromonas,R1000,1,0,0,0

Dichelobacter,R1000,3,3,0,0

Legionella|Coxiella,R1000,34,26,6,23

Legionella,R1000,12,1,3,0

Coxiella|Rickettsiella,R1000,7,5,3,8

Coxiella,R1000,2,3,0,0

Rickettsiella,R1000,5,5,3,5

Halothiobacillus|Natronocella,R1000,32,13,55,12

Halothiobacillus,R1000,5,0,0,0

Natronocella|Thioalkalivibrio,R1000,18,4,29,11

Natronocella,R1000,4,0,0,0

Thioalkalivibrio,R1000,9,2,0,0

Alkalilimnicola,R1000,4,3,29,8

Halorhodospira,R1000,1,0,0,0

Aquasalina,R1000,0,1,1,0

Allochromatium|Thiorhodococcus,R1000,9,9,26,1

Allochromatium,R1000,2,8,24,0

Chromatium,R1000,6,2,1,0

Thiocapsa,R1000,1,0,0,0

Thiorhodococcus,R1000,0,1,0,0

Methylocaldum|Methylobacter,R1000,6,5,38,15

Methylocaldum,R1000,1,1,1,0

Methylobacter,R1000,4,5,37,14

Methylococcus,R1000,1,0,0,0

symbionts,R1000,2,3,13,0

Pasteurella|Gallibacterium,R1000,47,62,2,101

Pasteurella,R1000,30,46,67,0

Gallibacterium,R1000,3,1,6,0

Haemophilus,R1000,5,13,0,0

Mannheimia,R1000,0,1,2,4

Methylophaga|Francisella,R1000,18,1,1,5

Methylophaga|Thiomicrospira,R1000,10,1,4,0

Methylophaga,R1000,10,3,0,0

Thiomicrospira,R1000,0,0,1,1

Thioploca|Thiothrix,R1000,7,1,0,0

Thioploca,R1000,1,1,0,0

Thiothrix,R1000,2,0,0,0

Beggiatoa,R1000,4,0,0,0

Francisella,R1000,1,1,0,0

Succinimonas|Aeromonas,R1000,44,25,1,11

Succinimonas,R1000,5,1,0,0

Aeromonas|Zobellella,R1000,39,24,1,11

Aeromonas,R1000,34,19,1,5

Zobellella,R1000,5,5,6,0

Nitrincola,R1000,1,0,0,0

Acidithiobacillus,R1000,19,14,0,0

Solimonas,R1000,1,0,0,0

Riesia,R1000,0,4,0,0

Methylonatronum,R1000,0,0,0,6

Ralstonia|Methylophilus,R1000,373,133,305,486

Ralstonia|Mitsuaria,R1000,126,76,212,82

Burkholderia|Ralstonia,R1000,42,51,205,67

Burkholderia,R1000,38,51,205,57

Ralstonia,R1000,4,10,0,0

Hydrogenophaga|Variovorax,R1000,59,13,3,0

Hydrogenophaga,R1000,6,1,1,0

Variovorax,R1000,27,1,1,0

Rhodoferax,R1000,2,0,0,0

Acidovorax,R1000,7,0,0,0

Diaphorobacter,R1000,8,0,0,0

Comamonas,R1000,6,11,1,0

Polaromonas,R1000,1,0,0,0

Delftia,R1000,2,0,0,0

Herbaspirillum|Janthinobacterium,R1000,3,3,4,0

Herbaspirillum,R1000,1,3,0,0

Janthinobacterium,R1000,1,3,1,0

Collimonas,R1000,1,0,0,0

Rubrivivax,R1000,9,3,1,2

Bordetella|Achromobacter,R1000,8,4,5,6

Bordetella,R1000,7,3,5,5

Achromobacter,R1000,1,1,0,0

Taylorella,R1000,0,0,0,1

Leptothrix,R1000,3,2,1,0

Thiomonas,R1000,1,0,0,0

Mitsuaria,R1000,1,0,0,0

Garrityella|Thauera,R1000,29,9,26,37

Sterolibacterium,R1000,13,4,26,13

Garrityella,R1000,1,0,0,0

Thauera,R1000,2,0,0,0

Nitrosospira|Nitrosomonas,R1000,6,6,27,14

Nitrosospira,R1000,3,5,27,8

Nitrosomonas,R1000,3,1,6,0

Neisseria|Laribacter,R1000,188,34,28,334

Neisseria,R1000,163,26,20,317

Iodobacter,R1000,13,8,7,13

Paludimonas,R1000,4,1,4,0

Chromobacterium,R1000,7,0,0,0

Laribacter,R1000,1,0,0,0

Methylophilus|Methylobacillus,R1000,3,1,3,0

Methylophilus,R1000,3,0,0,0

Methylobacillus,R1000,0,1,3,0

Sphingomonas|Maricaulis,R1000,187,122,190,72

Sphingomonas|Erythrobacter,R1000,25,17,60,12

Sphingomonas|Kaistobacter,R1000,21,17,60,11

Sphingomonas,R1000,17,17,53,11

Kaistobacter,R1000,1,7,0,0

Sphingobium,R1000,1,0,0,0

Zymomonas,R1000,2,0,0,0

Erythrobacter,R1000,4,1,0,0

Nitrobacter|Chelatococcus,R1000,45,39,70,30

Nitrobacter|Afipia,R1000,4,3,2,0

Nitrobacter,R1000,2,0,0,0

Afipia,R1000,2,3,1,0

Bradyrhizobium,R1000,0,0,1,0

Hyphomicrobium|Devosia,R1000,18,4,2,0

Hyphomicrobium,R1000,16,2,0,0

Devosia,R1000,2,4,0,0

Mesorhizobium,R1000,3,16,48,23

Azorhizobium,R1000,2,12,17,1

Methylobacterium|Roseomonas,R1000,6,0,0,0

Methylobacterium,R1000,2,0,0,0

Microvirga,R1000,1,0,0,0

Roseomonas,R1000,3,0,0,0

Rhizobium|Agrobacterium,R1000,5,2,2,0

Rhizobium,R1000,3,1,0,0

group,R1000,1,1,1,0

Rhizobium,R1000,1,1,1,0

Agrobacterium,R1000,0,0,0,1

Kaistina,R1000,3,1,0,0

Methylocystis,R1000,1,0,0,0

Chelatococcus,R1000,0,1,0,0

Rhodocista|Acetobacter,R1000,34,16,9,1

Rhodospirillaceae,R1000,28,15,9,1

Rhodocista,R1000,11,11,1,0

Magnetospirillum,R1000,9,0,0,0

Azospirillum,R1000,4,1,0,0

Stella|Acetobacter,R1000,6,1,0,0

Stella,R1000,4,0,0,0

Acetobacter,R1000,2,1,0,0

Kopriimonas,R1000,1,0,0,0

Odyssella|Holosporaceae,R1000,3,1,0,0

Odyssella,R1000,1,0,0,0

Rickettsia,R1000,1,0,0,0

Anaplasma,R1000,1,0,0,0

Holosporaceae,R1000,0,0,1,0

Roseinatronobacter|Maricaulis,R1000,3,14,25,3

Roseinatronobacter|Paracoccus,R1000,3,12,25,3

Roseinatronobacter,R1000,1,9,2,0

Rhodobacter,R1000,1,3,23,2

Paracoccus,R1000,1,1,0,0

Maricaulis,R1000,0,2,0,0

Sulfurospirillum|Sulfurovum,R1000,241,57,3,25

Sulfurospirillum|Sulfurimonas,R1000,233,49,1,22

Sulfurospirillum|Arcobacter,R1000,178,33,19,0

Sulfurospirillum,R1000,10,5,1,0

Campylobacter,R1000,148,27,18,0

Arcobacter,R1000,20,1,0,0

Helicobacter|Sulfurimonas,R1000,49,16,1,2

Helicobacter,R1000,35,16,1,2

Sulfurimonas,R1000,14,0,0,0

Nitratiruptor,R1000,2,2,0,0

Sulfurovum,R1000,6,6,2,3

Magnetococcus,R1000,4,2,3,2

Streptococcus|Ureaplasma,R1000,6206,2819,770,295

Streptococcus|Leuconostoc,R1000,1482,380,123,70

Streptococcus|Lactococcus,R1000,1253,325,112,53

Streptococcus,R1000,1243,325,112,52

Lactococcus,R1000,10,1,0,0

Weissella,R1000,16,8,2,1

Carnobacterium|Marinilactibacillus,R1000,40,4,2,0

Carnobacterium,R1000,37,3,2,0

Alkalibacterium,R1000,1,0,0,0

Marinilactibacillus,R1000,2,1,0,0

Lactobacillus|Pediococcus,R1000,51,17,9,9

Lactobacillus,R1000,48,17,9,9

Pediococcus,R1000,2,0,0,0

Enterococcus,R1000,90,18,4,0

Aerococcus|Facklamia,R1000,7,2,0,0

Aerococcus,R1000,6,1,0,0

Globicatella,R1000,1,0,0,0

Facklamia,R1000,0,1,0,0

Oscillospira,R1000,18,6,0,0

Leuconostoc,R1000,1,0,0,0

Bacillales,R1000,436,295,136,22

Bacillus|Lentibacillus,R1000,245,181,129,10

Bacillus,R1000,219,135,121,8

Geobacillus,R1000,4,5,0,0

Exiguobacterium,R1000,17,37,8,2

Anoxybacillus,R1000,3,2,0,0

Lysinibacillus,R1000,1,2,0,0

Lentibacillus,R1000,1,0,0,0

Paenibacillus|Brevibacillus,R1000,40,74,6,3

Paenibacillus,R1000,23,30,4,3

Brevibacillus,R1000,17,40,2,0

Gemella,R1000,51,6,7,0

Staphylococcus,R1000,28,1,0,0

Sulfobacillus|Alicyclobacillus,R1000,19,12,0,0

Sulfobacillus,R1000,12,10,0,0

Alicyclobacillus,R1000,7,2,0,0

Sporolactobacillus,R1000,8,7,1,0

Salinicoccus,R1000,1,0,0,0

Listeria,R1000,4,2,0,0

Planifilum,R1000,11,9,0,0

Macrococcus,R1000,1,0,0,0

Clostridium|Natranaerobius,R1000,3895,1964,474,189

Clostridium|Oscillibacter,R1000,3796,1916,465,185

Clostridium|Geosporobacter,R1000,1692,738,332,89

Clostridium,R1000,1545,705,330,79

Faecalibacterium,R1000,12,14,0,0

Alkaliphilus,R1000,5,0,0,0

Tepidimicrobium,R1000,1,0,0,0

Geosporobacter,R1000,10,2,1,0

Tindallia,R1000,21,5,4,0

Acetivibrio,R1000,12,3,0,0

Caloramator,R1000,2,1,2,0

Dorea,R1000,9,0,0,0

Gracilibacter,R1000,2,0,0,0

Peptoniphilus|Anaerococcus,R1000,26,18,1,10

Peptoniphilus,R1000,20,9,0,0

Sporanaerobacter,R1000,1,0,0,0

Peptostreptococcus,R1000,5,2,7,0

Sedimentibacter,R1000,0,4,1,3

Anaerococcus,R1000,0,3,0,0

Schwartzia|Thermosinus,R1000,1273,775,16,25

Schwartzia,R1000,305,240,12,5

Megasphaera,R1000,36,24,0,0

Acidaminococcus,R1000,65,105,3,0

Selenomonas,R1000,109,17,1,0

Anaeroglobus,R1000,43,82,1,0

Dialister,R1000,33,49,1,0

Veillonella,R1000,644,228,15,0

Sporomusa,R1000,38,30,1,1

Thermosinus,R1000,0,0,0,1

Acidaminococcus,R1000,27,18,0,0

Epulopiscium,R1000,4,4,1,1

Pelotomaculum|Dehalobacter,R1000,175,131,19,8

Pelotomaculum,R1000,52,75,6,4

Desulfotomaculum,R1000,54,18,8,3

Carboxydothermus,R1000,4,2,0,0

Desulfosporosinus,R1000,25,3,0,0

Cryptanaerobacter,R1000,3,0,0,0

Desulfitobacterium,R1000,14,15,4,1

Peptococcus,R1000,1,3,0,0

Dehalobacter,R1000,1,1,0,0

Eubacterium|Acetobacterium,R1000,132,76,42,25

Eubacterium,R1000,119,72,41,24

Mogibacterium,R1000,10,1,1,0

Pseudoramibacter,R1000,1,1,0,0

Acetobacterium,R1000,1,0,0,0

Roseburia|Sporobacterium,R1000,264,106,38,10

Roseburia,R1000,3,0,0,0

Dorea,R1000,6,1,0,0

Ruminococcus,R1000,121,43,17,6

Butyrivibrio,R1000,81,24,18,3

Anaerostipes,R1000,16,4,1,0

Lachnospira,R1000,1,5,1,0

Coprococcus,R1000,7,19,1,0

Pseudobutyrivibrio,R1000,14,1,0,0

Lachnobacterium,R1000,4,3,0,0

Sporobacterium,R1000,0,1,0,0

Heliobacteriaceae,R1000,12,0,0,0

Natronoanaerobium,R1000,3,4,0,0

Ruminococcus,R1000,9,0,0,0

Thermaerobacter,R1000,9,5,2,0

Syntrophomonas|Caldicellulosiruptor,R1000,13,2,5,1

Syntrophomonas,R1000,6,2,5,1

Thermaerobacter,R1000,1,0,0,0

Syntrophospora,R1000,5,0,0,0

Caldicellulosiruptor,R1000,1,0,0,0

Oscillibacter,R1000,2,1,0,0

Thermoanaerobacter|Thermoanaerobacterium,R1000,90,46,8,1

Thermoanaerobacter,R1000,17,14,5,0

Thermovenabulum,R1000,15,13,2,0

Thermosediminibacter,R1000,1,0,0,0

Thermoanaerobacterium,R1000,1,0,0,0

Halanaerobium,R1000,8,2,3,0

Natranaerobius,R1000,0,0,1,0

Erysipelothrix|Ureaplasma,R1000,256,137,22,10

Erysipelothrix|Bulleidia,R1000,147,46,3,3

Erysipelothrix,R1000,125,35,3,3

Bulleidia,R1000,22,11,0,0

Acholeplasma,R1000,16,1,1,0

Spiroplasma,R1000,3,29,7,0

Mycoplasma|Ureaplasma,R1000,35,14,4,7

Mycoplasma,R1000,35,14,3,7

Ureaplasma,R1000,0,0,1,0

Tetrasphaera|Symbiobacterium,R1000,3973,697,30,97

Tetrasphaera|Bifidobacterium,R1000,3759,569,19,90

Tetrasphaera|Frankia,R1000,3647,548,19,89

Tetrasphaera|Brachybacterium,R1000,870,180,9,39

Tetrasphaera|II,R1000,64,12,2,0

Tetrasphaera,R1000,64,11,2,0

II,R1000,0,1,0,0

Arthrobacter|Micrococcus,R1000,468,97,8,27

Arthrobacter,R1000,463,97,8,26

Micrococcus,R1000,5,1,0,0

Pseudoclavibacter|Cryocola,R1000,172,63,1,7

Pseudoclavibacter,R1000,75,53,1,5

Microbacterium,R1000,25,5,0,0

Curtobacterium,R1000,7,0,0,0

Cryocola,R1000,28,0,0,0

Isoptericola,R1000,107,3,1,0

Cellulomonas,R1000,54,5,2,0

Brevibacterium,R1000,4,0,0,0

Brachybacterium,R1000,1,0,0,0

Mycobacterium|Corynebacterium,R1000,408,103,4,25

Mycobacterium,R1000,170,54,4,13

Corynebacterium,R1000,209,49,12,0

Rhodococcus,R1000,29,0,0,0

Actinokineospora|Saccharopolyspora,R1000,151,7,0,0

Actinokineospora|Lentzea,R1000,11,7,0,0

Actinokineospora,R1000,5,7,0,0

Lechevalieria,R1000,5,0,0,0

Lentzea,R1000,1,0,0,0

Saccharomonospora|Saccharopolyspora,R1000,140,0,0,0

Saccharomonospora,R1000,127,0,0,0

Saccharopolyspora,R1000,13,0,0,0

Actinomyces|Mobiluncus,R1000,1883,171,11,0

Actinomyces,R1000,1477,112,6,0

Arcanobacterium,R1000,286,38,3,0

Mobiluncus,R1000,120,21,2,0

Streptomyces|Streptacidiphilus,R1000,139,40,5,7

Streptomyces,R1000,133,39,5,6

Parastreptomyces,R1000,5,1,0,0

Streptacidiphilus,R1000,1,1,0,0

Friedmanniella|Brooklawnia,R1000,114,31,2,0

Friedmanniella|Propionicimonas,R1000,99,18,1,0

Friedmanniella,R1000,79,16,0,0

Pimelobacter,R1000,19,1,0,0

Propionicimonas,R1000,1,1,1,0

Propionibacterium|Brooklawnia,R1000,15,13,1,0

Propionibacterium,R1000,4,0,0,0

Brooklawnia,R1000,6,4,1,0

Salinispora|Longispora,R1000,48,5,1,0

Salinispora,R1000,43,5,0,0

Micromonospora,R1000,1,0,0,0

Longispora,R1000,4,1,0,0

Glycomyces,R1000,9,2,2,0

Thermomonospora|Nocardiopsis,R1000,23,7,2,0

Thermomonospora|Actinocorallia,R1000,10,6,1,0

Thermomonospora,R1000,8,5,1,0

Actinocorallia,R1000,2,1,0,0

Streptomonospora|Nocardiopsis,R1000,13,1,1,0

Streptomonospora,R1000,12,1,0,0

Nocardiopsis,R1000,1,0,0,0

Acidothermus|Frankia,R1000,2,2,1,0

Acidothermus,R1000,2,0,0,0

Frankia,R1000,0,2,1,0

Bifidobacterium,R1000,112,21,1,0

Denitrobacterium|Coriobacterium,R1000,168,101,7,4

Denitrobacterium,R1000,16,25,6,3

Atopobium,R1000,142,61,1,0

Collinsella,R1000,7,13,1,0

Eggerthella,R1000,1,2,0,0

Olsenella,R1000,1,0,0,0

Coriobacterium,R1000,1,0,0,0

Microthrix,R1000,3,1,0,0

Rubrobacterineae|Rubrobacterales,R1000,18,2,3,2

Rubrobacterineae|Thermoleophilum,R1000,18,1,3,1

Rubrobacterineae,R1000,17,1,2,1

Rubrobacter,R1000,1,0,0,0

Thermoleophilum,R1000,0,0,1,0

Rubrobacterales,R1000,0,1,1,0

Acidimicrobidae,R1000,6,0,0,0

Symbiobacterium,R1000,0,7,0,0

Paraprevotella|Niastella,R1000,2026,1370,104,389

Paraprevotella|Alistipes,R1000,405,337,31,82

Paraprevotella,R1000,14,8,20,0

Porphyromonadaceae|Parabacteroides,R1000,116,320,31,28

Porphyromonadaceae,R1000,114,320,31,28

Parabacteroides,R1000,2,0,0,0

Bacteroides,R1000,58,9,25,0

Alistipes,R1000,2,0,0,0

Polaribacter|Owenweeksia,R1000,108,19,45,0

Polaribacter|Cellulophaga,R1000,108,18,45,0

Polaribacter,R1000,13,2,0,0

Flavobacterium,R1000,11,4,6,0

Capnocytophaga,R1000,7,8,22,0

Chryseobacterium,R1000,19,2,2,0

Empedobacter,R1000,1,1,2,0

Wautersiella,R1000,9,0,0,0

Leptobacterium,R1000,17,1,1,0

Pibocella,R1000,3,3,0,0

Zobellia,R1000,1,0,0,0

Psychroserpens,R1000,1,1,0,0

Galbibacter,R1000,1,0,0,0

Tenacibaculum,R1000,1,0,0,0

Gelidibacter,R1000,2,2,0,0

Coccinistipes,R1000,0,1,0,0

Cellulophaga,R1000,0,0,0,1

Owenweeksia,R1000,0,1,0,0

Cytophaga|Persicobacter,R1000,42,54,33,18

Cytophaga|Arcicella,R1000,21,34,29,15

Cytophaga,R1000,14,9,3,0

Marinicola,R1000,2,0,0,0

Flexibacter,R1000,3,9,27,9

Hongiella,R1000,1,0,0,0

Sporocytophaga,R1000,1,14,2,1

Arcicella,R1000,0,0,0,1

Sphingobacterium|Sphingoterrabacterium,R1000,5,8,2,2

Sphingobacterium,R1000,3,2,2,0

Pedobacter,R1000,2,4,2,0

Sphingoterrabacterium,R1000,0,2,0,0

Lewinella|Saprospira,R1000,12,6,1,0

Lewinella,R1000,7,2,0,0

Saprospira,R1000,5,0,0,0

Chitinophaga,R1000,1,6,1,0

Sediminibacterium,R1000,1,0,0,0

Rhodothermus,R1000,1,0,0,0

Persicobacter,R1000,0,0,1,0

Prevotella|Ruminofilibacter,R1000,1442,914,37,231

Prevotella,R1000,815,397,18,78

Bacteroides,R1000,489,402,98,0

Tannerella|Paludibacter,R1000,55,24,1,42

Tannerella,R1000,17,8,1,14

Parabacteroides,R1000,14,4,4,0

Porphyromonas,R1000,11,6,21,0

Dysgonomonas,R1000,9,6,0,0

Barnesiella,R1000,2,0,0,0

Paludibacter,R1000,2,3,0,0

Alistipes|Ruminofilibacter,R1000,11,55,17,11

Alistipes,R1000,8,48,17,8

Ruminofilibacter,R1000,2,7,2,0

Niastella,R1000,1,0,0,0

Leptotrichia|Fusobacterium,R1000,752,139,10,64

Leptotrichia|Cetobacterium,R1000,709,102,2,46

Leptotrichia|Ilyobacter,R1000,708,102,2,45

Leptotrichia,R1000,392,34,14,0

Streptobacillus,R1000,86,18,2,1

Fusobacterium,R1000,106,24,19,0

Ilyobacter,R1000,124,26,11,0

Cetobacterium,R1000,1,1,0,0

Fusobacterium,R1000,43,37,8,18

Holophaga|Solibacter,R1000,59,36,10,6

Holophaga,R1000,4,1,0,0

Solibacter,R1000,2,0,0,0

Anabaena|Microcoleus,R1000,36,6,2,0

Anabaena,R1000,3,1,0,0

Synechococcus|Cyanobium,R1000,18,0,0,0

Synechococcus,R1000,8,0,0,0

Cyanobium,R1000,10,0,0,0

Prochlorococcus,R1000,3,2,1,0

Limnothrix|Microcoleus,R1000,11,2,0,0

Limnothrix,R1000,9,0,0,0

Leptolyngbya,R1000,1,0,0,0

Microcoleus,R1000,0,2,0,0

Spirochaeta|Leptospira,R1000,106,11,4,8

Spirochaeta|Treponema,R1000,99,10,4,7

Spirochaeta,R1000,16,3,3,2

Treponema,R1000,80,7,1,4

Sphaerochaeta,R1000,4,0,0,0

Leptospira,R1000,3,1,1,0

Chlorobaculum|Chlorobium,R1000,3,2,0,0

Chlorobaculum,R1000,1,0,0,0

Pelodictyon|Chlorobium,R1000,2,2,0,0

Pelodictyon,R1000,1,1,0,0

Chlorobium,R1000,1,1,0,0

Roseiflexus|Herpetosiphon,R1000,40,23,9,3

Roseiflexus|Chloroflexus,R1000,24,11,7,1

Roseiflexus,R1000,7,2,0,0

Chloroflexus,R1000,17,9,7,1

Dehalococcoides,R1000,4,6,1,0

Herpetosiphon,R1000,1,0,0,0

Ferribacter,R1000,3,0,0,0

Gulbenkianus,R1000,15,0,0,0

Meiothermus,R1000,1,0,0,0

Desulfurobacterium,R1000,1,0,0,0

Pirellula|Planctomycetacia,R1000,7,12,18,1

Pirellula|Brocadia,R1000,7,9,18,1

Pirellula|Rhodopirellula,R1000,7,5,13,1

Pirellula,R1000,4,1,13,1

Isosphaera,R1000,1,0,0,0

Rhodopirellula,R1000,1,2,0,0

Brocadia,R1000,0,3,0,0

Planctomycetacia,R1000,0,3,0,0

Gemmatimonas,R1000,1,0,0,0

Mucispirillum,R1000,1,2,0,0

Spartobacteria,R1000,1,1,1,0

Thermolithobacter,R1000,1,0,0,0

Antarctic,R1000,1,0,0,0

Thermodesulfovibrio|Nitrospira,R1000,0,3,0,0

Thermodesulfovibrio,R1000,0,1,0,0

Nitrospira,R1000,0,2,0,0

Thermotoga,R1000,0,1,0,0

Phytoplasma,R1000,0,1,0,0

Ktedobacter|Ktedobacteria,R1000,0,9,0,0

Ktedobacter,R1000,0,7,0,0

Ktedobacteria,R1000,0,2,0,0

Tammella,R1000,0,1,1,0

Fervidomicrobium,R1000,0,0,1,0

Thermodesulfatator,R1000,0,0,1,0

Pyrenomonas|Chaetoceros,R1000,89,30,51,21

Pyrenomonas,R1000,1,0,0,0

Calyptogena,R1000,22,11,47,18

Polytrichum|Chlorella,R1000,56,1,0,0

Polytrichum|Equisetum,R1000,30,0,0,0

Polytrichum|Physcomitrella,R1000,5,0,0,0

Polytrichopsida,R1000,4,0,0,0

Polytrichum,R1000,4,0,0,0

Physcomitrella,R1000,1,0,0,0

lamiids|Equisetum,R1000,25,0,0,0

Cuscuta|Lactuca,R1000,13,0,0,0

Cuscuta,R1000,6,0,0,0

Lactuca,R1000,4,0,0,0

Platanus,R1000,3,0,0,0

Angiopteris|Equisetum,R1000,12,0,0,0

Angiopteris,R1000,7,0,0,0

Equisetum,R1000,5,0,0,0

Auxenochlorella|Chlorella,R1000,26,1,0,0

Auxenochlorella,R1000,24,1,0,0

Chlorella,R1000,2,0,0,0

Palmaria|Ceramium,R1000,7,17,3,0

Palmaria,R1000,3,17,3,0

Ceramium,R1000,3,0,0,0

Paralemanea,R1000,1,0,0,0

Lepocinclis|Monomorphina,R1000,1,1,0,0

Lepocinclis,R1000,1,0,0,0

Monomorphina,R1000,0,0,1,0

Thalassiosira|Chaetoceros,R1000,2,1,3,0

Thalassiosira,R1000,1,1,3,0

Chaetoceros,R1000,1,0,0,0

vectors,R1000,457,0,0,0

Picrophilus|Methanopyrus,R1000,16,1,0,0

Picrophilus,R1000,11,0,0,0

Archaeoglobus,R1000,5,0,0,0

Methanopyrus,R1000,0,0,0,1

## File used for MEGAN

#Datasets Decayed Saliva Sample 1 Decayed Saliva Sample 2 Healthy Saliva Sample 1 Healthy Saliva Sample 2

root; 17107 6467 2406 2118

root;Bacteria; 16545 6436 2355 2096

root;Bacteria;Proteobacteria; 1908 921 1288 1064

root;Bacteria;Proteobacteria;Deltaproteobacteria; 126 174 267 51

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales; 53 106 191 30

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Desulfuromonadaceae; 20 12 0 0

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Desulfuromonadaceae;Desulfuromonas; 20 12 0 0

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Desulfuromonadaceae;Desulfuromonas;Unclassified; 20 12 0 0

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Pelobacteraceae; 18 58 161 13

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Pelobacteraceae;Pelobacter; 18 58 161 13

root;Bacteria;Proteobacteria;Deltaproteobacteria;Desulfuromonadales;Pelobacteraceae;Pelobacter;Unclassified; 18 58 161 13

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root;Bacteria;Firmicutes;Bacillales;Paenibacillaceae;Brevibacillus;Unclassified; 17 40 2 0

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root;Bacteria;Firmicutes;Bacillales;Gemella; 51 6 7 0

root;Bacteria;Firmicutes;Bacillales;Gemella;Unclassified; 51 6 7 0

root;Bacteria;Firmicutes;Bacillales;Staphylococcus; 28 1 0 0

root;Bacteria;Firmicutes;Bacillales;Staphylococcus;Unclassified; 28 1 0 0

root;Bacteria;Firmicutes;Bacillales;Alicyclobacillaceae; 19 12 0 0

root;Bacteria;Firmicutes;Bacillales;Alicyclobacillaceae;Sulfobacillus; 12 10 0 0

root;Bacteria;Firmicutes;Bacillales;Alicyclobacillaceae;Sulfobacillus;Unclassified; 12 10 0 0

root;Bacteria;Firmicutes;Bacillales;Alicyclobacillaceae;Alicyclobacillus; 7 2 0 0

root;Bacteria;Firmicutes;Bacillales;Alicyclobacillaceae;Alicyclobacillus;Unclassified; 7 2 0 0

root;Bacteria;Firmicutes;Bacillales;Sporolactobacillaceae; 8 7 1 0

root;Bacteria;Firmicutes;Bacillales;Sporolactobacillaceae;Sporolactobacillus; 8 7 1 0

root;Bacteria;Firmicutes;Bacillales;Salinicoccus; 1 0 0 0

root;Bacteria;Firmicutes;Bacillales;Listeriaceae; 4 2 0 0

root;Bacteria;Firmicutes;Bacillales;Listeriaceae;Listeria; 4 2 0 0

root;Bacteria;Firmicutes;Bacillales;Thermoactinomycetaceae; 11 9 0 0

root;Bacteria;Firmicutes;Bacillales;Thermoactinomycetaceae;Planifilum; 11 9 0 0

root;Bacteria;Firmicutes;Bacillales;Macrococcus; 1 0 0 0

root;Bacteria;Firmicutes;Clostridia; 3895 1964 474 189

root;Bacteria;Firmicutes;Clostridia;Clostridiales; 3796 1916 465 185

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae; 1692 738 332 89

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Clostridium; 1545 705 330 79

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Clostridium;Unclassified; 1545 705 330 79

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Unclassified; 73 8 5 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Faecalibacterium; 12 14 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Faecalibacterium;Unclassified; 12 14 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Alkaliphilus;Unclassified; 5 0 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Acetivibrio; 12 3 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Caloramator;Unclassified; 2 1 2 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Clostridiaceae;Dorea;Unclassified; 9 0 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae; 26 18 1 10

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Peptoniphilus; 20 9 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Peptoniphilus;Unclassified; 20 9 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Sporanaerobacter; 1 0 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Peptostreptococcus;Unclassified; 5 2 7 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Sedimentibacter; 0 4 1 3

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Sedimentibacter;Unclassified; 0 4 1 3

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptostreptococcaceae;Anaerococcus; 0 3 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae; 1273 775 16 25

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Schwartzia; 305 240 12 5

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Megasphaera; 36 24 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Megasphaera;Unclassified; 36 24 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Acidaminococcus; 65 105 3 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Acidaminococcus;Unclassified; 65 105 3 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Selenomonas; 109 17 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Selenomonas;Unclassified; 109 17 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Anaeroglobus; 43 82 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Dialister; 33 49 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Dialister;Unclassified; 33 49 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Veillonella; 644 228 15 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Veillonella;Unclassified; 644 228 15 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Sporomusa; 38 30 1 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Sporomusa;Unclassified; 38 30 1 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Acidaminococcaceae;Thermosinus; 0 0 0 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Veillonellaceae; 62 23 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Veillonellaceae;Acidaminococcus; 27 18 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Veillonellaceae;Unclassified; 35 5 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Epulopiscium; 4 4 1 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Epulopiscium;Unclassified; 4 4 1 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Unclassified; 119 33 9 16

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae; 175 131 19 8

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Pelotomaculum; 52 75 6 4

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Pelotomaculum;Unclassified; 52 75 6 4

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfotomaculum; 54 18 8 3

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfotomaculum;Unclassified; 54 18 8 3

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Carboxydothermus; 4 2 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfosporosinus; 25 3 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfosporosinus;Unclassified; 25 3 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Unclassified; 21 14 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Cryptanaerobacter; 3 0 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfitobacterium; 14 15 4 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Desulfitobacterium;Unclassified; 14 15 4 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Peptococcus; 1 3 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Peptococcaceae;Peptococcus;Unclassified; 1 3 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Eubacteriaceae;Eubacterium; 119 72 41 24

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Eubacteriaceae;Eubacterium;Unclassified; 119 72 41 24

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Eubacteriaceae;Mogibacterium; 10 1 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Eubacteriaceae;Mogibacterium;Unclassified; 10 1 1 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Roseburia; 3 0 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Roseburia;Unclassified; 3 0 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Ruminococcus; 121 43 17 6

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Ruminococcus;Unclassified; 121 43 17 6

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Anaerostipes;Unclassified; 16 4 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Lachnospira; 1 5 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Coprococcus; 7 19 1 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Coprococcus;Unclassified; 7 19 1 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Pseudobutyrivibrio; 14 1 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Pseudobutyrivibrio;Unclassified; 14 1 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Lachnospiraceae;Lachnobacterium; 4 3 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Natronoanaerobium; 3 4 0 0

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Natronoanaerobium;Unclassified; 3 4 0 0

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root;Bacteria;Firmicutes;Clostridia;Clostridiales;Syntrophomonadaceae; 13 2 5 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Syntrophomonadaceae;Syntrophomonas; 6 2 5 1

root;Bacteria;Firmicutes;Clostridia;Clostridiales;Syntrophomonadaceae;Syntrophomonas;Unclassified; 6 2 5 1

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root;Bacteria;Firmicutes;Clostridia;Thermoanaerobacteriales; 90 46 8 1

root;Bacteria;Firmicutes;Clostridia;Thermoanaerobacteriales;Thermoanaerobacteriaceae; 90 46 8 1

root;Bacteria;Firmicutes;Clostridia;Thermoanaerobacteriales;Thermoanaerobacteriaceae;group; 56 19 1 1

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root;Bacteria;Firmicutes;Clostridia;Thermoanaerobacteriales;Thermoanaerobacteriaceae;Thermovenabulum; 15 13 2 0

root;Bacteria;Firmicutes;Clostridia;Thermoanaerobacteriales;Thermoanaerobacteriaceae;Thermovenabulum;Unclassified; 15 13 2 0

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root;Bacteria;Firmicutes;Clostridia;Halanaerobiales; 8 2 3 0

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root;Bacteria;Firmicutes;Clostridia;Unclassified; 1 0 0 0

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root;Bacteria;Firmicutes;Unclassified; 137 43 15 4

root;Bacteria;Firmicutes;Mollicutes; 256 137 22 10

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales; 147 46 3 3

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales;Erysipelotrichaceae; 147 46 3 3

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales;Erysipelotrichaceae;Erysipelothrix; 125 35 3 3

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales;Erysipelotrichaceae;Erysipelothrix;Unclassified; 125 35 3 3

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales;Erysipelotrichaceae;Bulleidia; 22 11 0 0

root;Bacteria;Firmicutes;Mollicutes;Anaeroplasmatales;Erysipelotrichaceae;Bulleidia;Unclassified; 22 11 0 0

root;Bacteria;Firmicutes;Mollicutes;Acholeplasmatales; 16 1 1 0

root;Bacteria;Firmicutes;Mollicutes;Acholeplasmatales;Acholeplasmataceae; 16 1 1 0

root;Bacteria;Firmicutes;Mollicutes;Acholeplasmatales;Acholeplasmataceae;Acholeplasma; 16 1 1 0

root;Bacteria;Firmicutes;Mollicutes;Acholeplasmatales;Acholeplasmataceae;Acholeplasma;Unclassified; 16 1 1 0

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root;Bacteria;Firmicutes;Mollicutes;Mycoplasmataceae; 35 14 4 7

root;Bacteria;Firmicutes;Mollicutes;Mycoplasmataceae;Mycoplasma; 35 14 3 7

root;Bacteria;Firmicutes;Mollicutes;Mycoplasmataceae;Mycoplasma;Unclassified; 35 14 3 7

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root;Bacteria;Firmicutes;Mollicutes;Unclassified; 55 47 7 0

root;Bacteria;Unclassified; 1404 382 108 167

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root;Bacteria;Actinobacteria;Actinobacteridae; 3759 569 19 90

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales; 3647 548 19 89

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae; 870 180 9 39

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Intrasporangiaceae;II; 0 1 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Micrococcaceae; 468 97 8 27

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Micrococcaceae;Arthrobacter; 463 97 8 26

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Micrococcaceae;Arthrobacter;Unclassified; 463 97 8 26

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Micrococcaceae;Micrococcus; 5 1 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Micrococcaceae;Micrococcus;Unclassified; 5 1 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae; 172 63 1 7

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Pseudoclavibacter; 75 53 1 5

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Pseudoclavibacter;Unclassified; 75 53 1 5

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Microbacterium; 25 5 0 0

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Curtobacterium; 7 0 0 0

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Cryocola; 28 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Microbacteriaceae;Unclassified; 37 5 2 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Promicromonosporaceae; 107 3 1 0

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Cellulomonadaceae; 54 5 2 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Cellulomonadaceae;Cellulomonas; 54 5 2 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Cellulomonadaceae;Cellulomonas;Unclassified; 54 5 2 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Brevibacteriaceae; 4 0 0 0

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Dermabacteraceae; 1 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Dermabacteraceae;Brachybacterium; 1 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Micrococcineae;Dermabacteraceae;Brachybacterium;Unclassified; 1 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Corynebacterineae; 408 103 4 25

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Corynebacterineae;Mycobacteriaceae; 170 54 4 13

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root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Corynebacterineae;Nocardiaceae; 29 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Corynebacterineae;Nocardiaceae;Rhodococcus; 29 0 0 0

root;Bacteria;Actinobacteria;Actinobacteridae;Actinomycetales;Corynebacterineae;Nocardiaceae;Rhodococcus;Unclassified; 29 0 0 0

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root;Eukaryota;Viridiplantae;Streptophyta;Embryophyta;Tracheophyta;Spermatophyta;Magnoliophyta;eudicotyledons;eudicotyledons;asterids; 10 0 0 0

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