

Diversidades alfa y beta en datos metagenomicos de shotgun de cultivo de fresa, a diferentes niveles taxonomicos

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2023-04-08

Observacion en diferentes niveles taxonomicos

```
library("phyloseq")
library("ggplot2")
library("igraph")

## 
## Attaching package: 'igraph'

## The following objects are masked from 'package:stats':
## 
##     decompose, spectrum

## The following object is masked from 'package:base':
## 
##     union

library("readr")
library("patchwork")
#library("vegan")
library("GUniFrac")
#library("pbkrtest")
#library("BiodiversityR")
library("kableExtra")

## Registered S3 method overwritten by 'httr':
##   method      from
##   print.response rmutil

library("RColorBrewer")
```

Cargado de datos originales

```

setwd("/home/camila/GIT/Tesis_Maestria/Data/fresa_solena/Data1")
outpath = "/home/camila/GIT/Tesis_Maestria/Analisis_Comparativo/Fresa_Solena/Results_img"

fresa_kraken <- import_biom("fresa_kraken.biom")
colnames(fresa_kraken@tax_table@.Data) <- c("Kingdom", "Phylum", "Class", "Order", "Family", "Genus", "Species")
fresa_kraken@tax_table@.Data <- substr(fresa_kraken@tax_table@.Data, 4, 100)
colnames(fresa_kraken@otu_table@.Data) <- substr(colnames(fresa_kraken@otu_table@.Data), 1, 6)
metadata_fresa <- read.csv2("/home/camila/GIT/Tesis_Maestria/Data/fresa_solena/Data1/metadata.csv", header=TRUE)
fresa_kraken@sam_data <- sample_data(metadata_fresa)
fresa_kraken@sam_data$Sample <- row.names(fresa_kraken@sam_data)
colnames(fresa_kraken@sam_data) <- c('Treatment', 'Samples')
samples_to_remove <- c("MP2079", "MP2080", "MP2088", "MP2109", "MP2137")
fresa_kraken_fil <- prune_samples(!sample_names(fresa_kraken) %in% samples_to_remove), fresakraken
percentages_fil <- transform_sample_counts(fresa_kraken_fil, function(x) x*100 / sum(x))
percentages_df <- psmelt(percentages_fil)

```

De aqui en adelante solo trabajaremos con los datos filtrados por calidad, ya que no vale la pena continuar con los datos que contiene muestras en ceros, ya que esto altera las visualizaciones.

Queremos explorar nuestras muestras a diferentes niveles taxonómicos específicos, empezando por una aglomeración de los datos a nivel de reino y filo, Para agrupar todas las OTU que tienen la misma taxonomía en un determinado rango taxonómico, utilizaremos la función *tax_grom()*.

A nivel de Kingdom

```

percentages_grom_kingdom <- tax_grom(percentages_fil, taxrank = 'Kingdom')
percentages_grom_kingdom@tax_table@.Data

```

```

##      Kingdom     Phylum Class Order Family Genus Species
## 1883 "Bacteria"    NA    NA    NA    NA    NA
## 5515 "Eukaryota"   NA    NA    NA    NA    NA

```

En reino podemos ver que tenemos solamente dos grupos que son: Bacteria y Eucariota.

A nivel de Phylum

```

percentages_grom_phylum <- tax_grom(percentages_fil, taxrank = 'Phylum')
percentages_grom_phylum@tax_table@.Data

```

	Kingdom	Phylum	Class	Order	Family	Genus
## 1883	"Bacteria"	"Actinobacteria"	NA	NA	NA	NA
## 1406	"Bacteria"	"Firmicutes"	NA	NA	NA	NA
## 1298	"Bacteria"	"Deinococcus-Thermus"	NA	NA	NA	NA
## 1173025	"Bacteria"	"Cyanobacteria"	NA	NA	NA	NA
## 2057	"Bacteria"	"Chloroflexi"	NA	NA	NA	NA
## 1005039	"Bacteria"	"Armatimonadetes"	NA	NA	NA	NA
## 2132	"Bacteria"	"Tenericutes"	NA	NA	NA	NA
## 374	"Bacteria"	"Proteobacteria"	NA	NA	NA	NA

## 2528023	"Bacteria"	"Planctomycetes"	NA	NA	NA	NA
## 1882749	"Bacteria"	"Verrucomicrobia"	NA	NA	NA	NA
## 1307763	"Bacteria"	"Kiritimatiellaeota"	NA	NA	NA	NA
## 389348	"Bacteria"	"Chlamydiae"	NA	NA	NA	NA
## 1930593	"Bacteria"	"Candidatus Omnitrophica"	NA	NA	NA	NA
## 354356	"Bacteria"	"Bacteroidetes"	NA	NA	NA	NA
## 274537	"Bacteria"	"Chlorobi"	NA	NA	NA	NA
## 1457365	"Bacteria"	"Balneolaeota"	NA	NA	NA	NA
## 1134405	"Bacteria"	"Ignavibacteriae"	NA	NA	NA	NA
## 861299	"Bacteria"	"Gemmatimonadetes"	NA	NA	NA	NA
## 833	"Bacteria"	"Fibrobacteres"	NA	NA	NA	NA
## 456827	"Bacteria"	"Candidatus Cloacimonetes"	NA	NA	NA	NA
## 2802971	"Bacteria"	"Acidobacteria"	NA	NA	NA	NA
## 42253	"Bacteria"	"Nitrospirae"	NA	NA	NA	NA
## 154	"Bacteria"	"Spirochaetes"	NA	NA	NA	NA
## 638849	"Bacteria"	"Synergistetes"	NA	NA	NA	NA
## 2026885	"Bacteria"	"Candidatus Bipolaricauota"	NA	NA	NA	NA
## 1332188	"Bacteria"	"Candidatus Saccharibacteria"	NA	NA	NA	NA
## 2735562	"Bacteria"	"Candidatus Absconditabacteria"	NA	NA	NA	NA
## 2335	"Bacteria"	"Thermotogae"	NA	NA	NA	NA
## 412593	"Bacteria"	"Aquificae"	NA	NA	NA	NA
## 2047767	"Bacteria"	"Thermodesulfobacteria"	NA	NA	NA	NA
## 139438	"Bacteria"	"Deferrribacteres"	NA	NA	NA	NA
## 848	"Bacteria"	"Fusobacteria"	NA	NA	NA	NA
## 936456	"Bacteria"	"Chrysiogenetes"	NA	NA	NA	NA
## 187145	"Bacteria"	"Calditrichaeota"	NA	NA	NA	NA
## 423605	"Bacteria"	"Elusimicrobia"	NA	NA	NA	NA
## 693075	"Bacteria"	"Caldisericia"	NA	NA	NA	NA
## 35786	"Bacteria"	"Coprothermobacterota"	NA	NA	NA	NA
## 2847778	"Bacteria"	"Atribacterota"	NA	NA	NA	NA
## 13	"Bacteria"	"Dictyoglomi"	NA	NA	NA	NA
## 5515	"Eukaryota"	"Ascomycota"	NA	NA	NA	NA
## 84751	"Eukaryota"	"Basidiomycota"	NA	NA	NA	NA
## 6035	"Eukaryota"	"Microsporidia"	NA	NA	NA	NA
## 4785	"Eukaryota"	"Oomycota"	NA	NA	NA	NA
##	Species					
## 1883		NA				
## 1406		NA				
## 1298		NA				
## 1173025		NA				
## 2057		NA				
## 1005039		NA				
## 2132		NA				
## 374		NA				
## 2528023		NA				
## 1882749		NA				
## 1307763		NA				
## 389348		NA				
## 1930593		NA				
## 354356		NA				
## 274537		NA				
## 1457365		NA				
## 1134405		NA				
## 861299		NA				

```

## 833      NA
## 456827    NA
## 2802971   NA
## 42253     NA
## 154       NA
## 638849    NA
## 2026885   NA
## 1332188   NA
## 2735562   NA
## 2335      NA
## 412593    NA
## 2047767   NA
## 139438    NA
## 848       NA
## 936456    NA
## 187145    NA
## 423605    NA
## 693075    NA
## 35786     NA
## 2847778   NA
## 13        NA
## 5515      NA
## 84751     NA
## 6035      NA
## 4785      NA

```

A nivel de filo, ya podemos ver mas variedad en nuestras muestras, teniendo como mayoria los filo pertenecientes a bacteria.

Usaremos la función de phyloseq ***psmelt()***, que fusiona objetos de phyloseq en un data.frame para manipularlos con paquetes como ggplot2 y vegan. Con esta creamos un dataframe con los porcentajes de “phylum”, este nos dará los porcentajes de cada OTU, perteneciente a cada muestra, a nivel taxonomico de filo.

```

percentages_df_phylum <- psmelt(percentages_glom_phylum)
str(percentages_df_phylum)

## 'data.frame': 2279 obs. of 7 variables:
## $ OTU      : chr "1883" "1883" "1883" "1883" ...
## $ Sample   : chr "MP2060" "MP2058" "MP2059" "MP2049" ...
## $ Abundance: num 56.3 52.7 52.7 52.7 52.4 ...
## $ Treatment: chr "healthy" "healthy" "healthy" "healthy" ...
## $ Samples  : chr "MP2060" "MP2058" "MP2059" "MP2049" ...
## $ Kingdom  : chr "Bacteria" "Bacteria" "Bacteria" "Bacteria" ...
## $ Phylum   : chr "Actinobacteria" "Actinobacteria" "Actinobacteria" "Actinobacteria" ...

percentages_df_phylum

##      OTU Sample  Abundance Treatment Samples  Kingdom
## 738 1883 MP2060 5.628736e+01 healthy  MP2060 Bacteria
## 709 1883 MP2058 5.271057e+01 healthy  MP2058 Bacteria
## 726 1883 MP2059 5.270278e+01 healthy  MP2059 Bacteria
## 701 1883 MP2049 5.270204e+01 healthy  MP2049 Bacteria
## 690 1883 MD2055 5.235707e+01 wilted  MD2055 Bacteria

```

## 725	1883	MP2120	5.164839e+01	healthy	MP2120	Bacteria
## 718	1883	MP2050	5.151821e+01	healthy	MP2050	Bacteria
## 735	1883	MP2089	5.130678e+01	healthy	MP2089	Bacteria
## 717	1883	MD2105	5.119276e+01	wilted	MD2105	Bacteria
## 693	1883	MD2136	5.106394e+01	wilted	MD2136	Bacteria
## 712	1883	MP2108	5.099219e+01	healthy	MP2108	Bacteria
## 724	1883	MD2065	5.093750e+01	wilted	MD2065	Bacteria
## 739	1883	MD2116	5.083253e+01	wilted	MD2116	Bacteria
## 737	1883	MP2077	5.080421e+01	healthy	MP2077	Bacteria
## 729	1883	MP2098	5.069273e+01	healthy	MP2098	Bacteria
## 697	1883	MP2107	5.051848e+01	healthy	MP2107	Bacteria
## 721	1883	MP2057	5.035690e+01	healthy	MP2057	Bacteria
## 705	1883	MP2117	5.029338e+01	healthy	MP2117	Bacteria
## 692	1883	MP2129	5.021144e+01	healthy	MP2129	Bacteria
## 707	1883	MD2056	5.016439e+01	wilted	MD2056	Bacteria
## 732	1883	MP2087	5.012550e+01	healthy	MP2087	Bacteria
## 703	1883	MP2067	5.006951e+01	healthy	MP2067	Bacteria
## 698	1883	MD2066	4.993136e+01	wilted	MD2066	Bacteria
## 694	1883	MP2100	4.973473e+01	healthy	MP2100	Bacteria
## 1473	374	MD2076	4.959772e+01	wilted	MD2076	Bacteria
## 1469	374	MP2139	4.957150e+01	healthy	MP2139	Bacteria
## 727	1883	MP2048	4.941552e+01	healthy	MP2048	Bacteria
## 716	1883	MD2126	4.937783e+01	wilted	MD2126	Bacteria
## 714	1883	MP2127	4.934591e+01	healthy	MP2127	Bacteria
## 1480	374	MD2135	4.919944e+01	wilted	MD2135	Bacteria
## 695	1883	MP2130	4.896403e+01	healthy	MP2130	Bacteria
## 740	1883	MD2095	4.889214e+01	wilted	MD2095	Bacteria
## 734	1883	MP2138	4.887073e+01	healthy	MP2138	Bacteria
## 1459	374	MP2128	4.862025e+01	healthy	MP2128	Bacteria
## 700	1883	MD2096	4.847764e+01	wilted	MD2096	Bacteria
## 1471	374	MD2125	4.844800e+01	wilted	MD2125	Bacteria
## 1439	374	MP2118	4.805693e+01	healthy	MP2118	Bacteria
## 722	1883	MP2119	4.787035e+01	healthy	MP2119	Bacteria
## 1463	374	MD2115	4.784715e+01	wilted	MD2115	Bacteria
## 706	1883	MD2085	4.777885e+01	wilted	MD2085	Bacteria
## 720	1883	MP2068	4.775131e+01	healthy	MP2068	Bacteria
## 710	1883	MP2047	4.707692e+01	healthy	MP2047	Bacteria
## 1444	374	MP2140	4.703881e+01	healthy	MP2140	Bacteria
## 1475	374	MD2106	4.690285e+01	wilted	MD2106	Bacteria
## 715	1883	MP2110	4.660102e+01	healthy	MP2110	Bacteria
## 736	1883	MP2069	4.654024e+01	healthy	MP2069	Bacteria
## 1438	374	MD2075	4.647544e+01	wilted	MD2075	Bacteria
## 731	1883	MP2078	4.629451e+01	healthy	MP2078	Bacteria
## 713	1883	MP2097	4.589956e+01	healthy	MP2097	Bacteria
## 728	1883	MD2075	4.578154e+01	wilted	MD2075	Bacteria
## 691	1883	MP2099	4.577337e+01	healthy	MP2099	Bacteria
## 696	1883	MP2090	4.564826e+01	healthy	MP2090	Bacteria
## 1468	374	MP2097	4.559650e+01	healthy	MP2097	Bacteria
## 1466	374	MP2090	4.539616e+01	healthy	MP2090	Bacteria
## 704	1883	MP2128	4.532095e+01	healthy	MP2128	Bacteria
## 1442	374	MP2110	4.522469e+01	healthy	MP2110	Bacteria
## 1450	374	MP2070	4.511713e+01	healthy	MP2070	Bacteria
## 719	1883	MP2118	4.492279e+01	healthy	MP2118	Bacteria
## 1449	374	MP2069	4.483309e+01	healthy	MP2069	Bacteria

## 1432	374	MP2099	4.482014e+01	healthy	MP2099	Bacteria
## 711	1883	MP2070	4.460301e+01	healthy	MP2070	Bacteria
## 1458	374	MP2078	4.458518e+01	healthy	MP2078	Bacteria
## 708	1883	MD2115	4.428580e+01	wilted	MD2115	Bacteria
## 730	1883	MD2106	4.415891e+01	wilted	MD2106	Bacteria
## 1435	374	MP2068	4.402905e+01	healthy	MP2068	Bacteria
## 1443	374	MP2119	4.398762e+01	healthy	MP2119	Bacteria
## 1482	374	MP2047	4.397514e+01	healthy	MP2047	Bacteria
## 1484	374	MD2126	4.347999e+01	wilted	MD2126	Bacteria
## 742	1883	MD2125	4.343275e+01	wilted	MD2125	Bacteria
## 1462	374	MD2085	4.332281e+01	wilted	MD2085	Bacteria
## 733	1883	MD2135	4.327506e+01	wilted	MD2135	Bacteria
## 1470	374	MP2130	4.324276e+01	healthy	MP2130	Bacteria
## 1474	374	MD2065	4.317001e+01	wilted	MD2065	Bacteria
## 1483	374	MP2138	4.311667e+01	healthy	MP2138	Bacteria
## 702	1883	MP2140	4.288387e+01	healthy	MP2140	Bacteria
## 1437	374	MD2096	4.279114e+01	wilted	MD2096	Bacteria
## 1460	374	MP2057	4.275677e+01	healthy	MP2057	Bacteria
## 1446	374	MP2100	4.264156e+01	healthy	MP2100	Bacteria
## 1456	374	MD2095	4.244452e+01	wilted	MD2095	Bacteria
## 1455	374	MP2127	4.235376e+01	healthy	MP2127	Bacteria
## 1445	374	MP2117	4.232419e+01	healthy	MP2117	Bacteria
## 1472	374	MP2048	4.227421e+01	healthy	MP2048	Bacteria
## 1461	374	MP2129	4.202258e+01	healthy	MP2129	Bacteria
## 1479	374	MD2056	4.186767e+01	wilted	MD2056	Bacteria
## 1454	374	MD2066	4.186223e+01	wilted	MD2066	Bacteria
## 1448	374	MP2087	4.176260e+01	healthy	MP2087	Bacteria
## 1447	374	MP2067	4.173441e+01	healthy	MP2067	Bacteria
## 723	1883	MD2086	4.173039e+01	wilted	MD2086	Bacteria
## 1441	374	MP2077	4.151633e+01	healthy	MP2077	Bacteria
## 1440	374	MP2107	4.139446e+01	healthy	MP2107	Bacteria
## 1465	374	MD2136	4.125413e+01	wilted	MD2136	Bacteria
## 1433	374	MP2098	4.120108e+01	healthy	MP2098	Bacteria
## 1467	374	MD2116	4.118541e+01	wilted	MD2116	Bacteria
## 1436	374	MD2105	4.110569e+01	wilted	MD2105	Bacteria
## 1451	374	MP2108	4.107740e+01	healthy	MP2108	Bacteria
## 1464	374	MP2120	4.103723e+01	healthy	MP2120	Bacteria
## 1478	374	MP2089	4.081338e+01	healthy	MP2089	Bacteria
## 1434	374	MP2050	4.016393e+01	healthy	MP2050	Bacteria
## 1477	374	MP2058	4.008783e+01	healthy	MP2058	Bacteria
## 741	1883	MD2076	3.990921e+01	wilted	MD2076	Bacteria
## 1476	374	MD2055	3.959780e+01	wilted	MD2055	Bacteria
## 699	1883	MP2139	3.952440e+01	healthy	MP2139	Bacteria
## 1481	374	MP2059	3.942536e+01	healthy	MP2059	Bacteria
## 1453	374	MP2049	3.940301e+01	healthy	MP2049	Bacteria
## 1452	374	MD2086	3.923510e+01	wilted	MD2086	Bacteria
## 1457	374	MP2060	3.642280e+01	healthy	MP2060	Bacteria
## 459	1406	MD2086	1.318472e+01	wilted	MD2086	Bacteria
## 454	1406	MD2076	3.029567e+00	wilted	MD2076	Bacteria
## 1107	2528023	MP2070	2.886140e+00	healthy	MP2070	Bacteria
## 1063	2528023	MP2099	2.818094e+00	healthy	MP2099	Bacteria
## 1111	2528023	MP2078	2.658541e+00	healthy	MP2078	Bacteria
## 1108	2528023	MP2047	2.445549e+00	healthy	MP2047	Bacteria
## 1092	2528023	MD2106	2.433847e+00	wilted	MD2106	Bacteria

```

## 1093 2528023 MP2107 2.379381e+00 healthy MP2107 Bacteria
## 1096 2528023 MP2090 2.367792e+00 healthy MP2090 Bacteria
## 1086 2528023 MD2096 2.359806e+00 wilted MD2096 Bacteria
## 1083 2528023 MD2066 2.349220e+00 wilted MD2066 Bacteria
## 1074 2528023 MP2140 2.320242e+00 healthy MP2140 Bacteria
## 1102 2528023 MD2055 2.310438e+00 wilted MD2055 Bacteria
## 1065 2528023 MD2085 2.309262e+00 wilted MD2085 Bacteria
## 1098 2528023 MP2059 2.304610e+00 healthy MP2059 Bacteria
## 1112 2528023 MP2138 2.286814e+00 healthy MP2138 Bacteria
## 1106 2528023 MD2116 2.284977e+00 wilted MD2116 Bacteria
## 1073 2528023 MP2119 2.275176e+00 healthy MP2119 Bacteria
## 1088 2528023 MD2125 2.266447e+00 wilted MD2125 Bacteria
## 1061 2528023 MD2095 2.245191e+00 wilted MD2095 Bacteria
## 1099 2528023 MP2139 2.243098e+00 healthy MP2139 Bacteria
## 1067 2528023 MP2108 2.221649e+00 healthy MP2108 Bacteria
## 1080 2528023 MD2115 2.218079e+00 wilted MD2115 Bacteria
## 1084 2528023 MP2110 2.203147e+00 healthy MP2110 Bacteria
## 1081 2528023 MD2086 2.195826e+00 wilted MD2086 Bacteria
## 1078 2528023 MP2068 2.188908e+00 healthy MP2068 Bacteria
## 1085 2528023 MP2048 2.187616e+00 healthy MP2048 Bacteria
## 1105 2528023 MD2056 2.182880e+00 wilted MD2056 Bacteria
## 1068 2528023 MD2075 2.169862e+00 wilted MD2075 Bacteria
## 1082 2528023 MD2136 2.122475e+00 wilted MD2136 Bacteria
## 1104 2528023 MP2069 2.121521e+00 healthy MP2069 Bacteria
## 1113 2528023 MP2087 2.112050e+00 healthy MP2087 Bacteria
## 450 1406 MP2140 2.102682e+00 healthy MP2140 Bacteria
## 440 1406 MP2050 2.100286e+00 healthy MP2050 Bacteria
## 1091 2528023 MP2129 2.087621e+00 healthy MP2129 Bacteria
## 433 1406 MP2067 2.076651e+00 healthy MP2067 Bacteria
## 1097 2528023 MP2097 2.068883e+00 healthy MP2097 Bacteria
## 463 1406 MP2077 2.040800e+00 healthy MP2077 Bacteria
## 1087 2528023 MP2060 2.022887e+00 healthy MP2060 Bacteria
## 1070 2528023 MD2105 2.004834e+00 wilted MD2105 Bacteria
## 1109 2528023 MP2089 1.979237e+00 healthy MP2089 Bacteria
## 447 1406 MP2070 1.977074e+00 healthy MP2070 Bacteria
## 1071 2528023 MP2098 1.972024e+00 healthy MP2098 Bacteria
## 1062 2528023 MP2118 1.971080e+00 healthy MP2118 Bacteria
## 1094 2528023 MP2120 1.970915e+00 healthy MP2120 Bacteria
## 453 1406 MP2078 1.927620e+00 healthy MP2078 Bacteria
## 1077 2528023 MP2049 1.927438e+00 healthy MP2049 Bacteria
## 1110 2528023 MD2135 1.915201e+00 wilted MD2135 Bacteria
## 429 1406 MP2139 1.912226e+00 healthy MP2139 Bacteria
## 1064 2528023 MP2050 1.909110e+00 healthy MP2050 Bacteria
## 456 1406 MD2085 1.852651e+00 wilted MD2085 Bacteria
## 1095 2528023 MP2130 1.821930e+00 healthy MP2130 Bacteria
## 1090 2528023 MD2076 1.815646e+00 wilted MD2076 Bacteria
## 1076 2528023 MP2128 1.791554e+00 healthy MP2128 Bacteria
## 437 1406 MP2100 1.791075e+00 healthy MP2100 Bacteria
## 1079 2528023 MP2057 1.726927e+00 healthy MP2057 Bacteria
## 1103 2528023 MP2058 1.722661e+00 healthy MP2058 Bacteria
## 477 1406 MP2089 1.715475e+00 healthy MP2089 Bacteria
## 471 1406 MD2095 1.695838e+00 wilted MD2095 Bacteria
## 473 1406 MP2138 1.689291e+00 healthy MP2138 Bacteria
## 425 1406 MD2055 1.654507e+00 wilted MD2055 Bacteria

```

```

## 1075 2528023 MP2067 1.649642e+00 healthy MP2067 Bacteria
## 1359 354356 MP2127 1.631899e+00 healthy MP2127 Bacteria
## 451     1406 MP2049 1.631624e+00 healthy MP2049 Bacteria
## 431     1406 MP2090 1.629279e+00 healthy MP2090 Bacteria
## 1349 354356 MP2058 1.618720e+00 healthy MP2058 Bacteria
## 460     1406 MP2130 1.613384e+00 healthy MP2130 Bacteria
## 1089 2528023 MP2077 1.603311e+00 healthy MP2077 Bacteria
## 1344 354356 MD2125 1.589030e+00 wilted MD2125 Bacteria
## 1072 2528023 MP2127 1.581819e+00 healthy MP2127 Bacteria
## 1100 2528023 MD2065 1.580176e+00 wilted MD2065 Bacteria
## 432     1406 MP2047 1.569114e+00 healthy MP2047 Bacteria
## 457     1406 MP2087 1.567710e+00 healthy MP2087 Bacteria
## 458     1406 MP2069 1.551270e+00 healthy MP2069 Bacteria
## 469     1406 MD2106 1.514447e+00 wilted MD2106 Bacteria
## 462     1406 MP2048 1.513275e+00 healthy MP2048 Bacteria
## 435     1406 MD2096 1.497440e+00 wilted MD2096 Bacteria
## 476     1406 MP2060 1.495964e+00 healthy MP2060 Bacteria
## 455     1406 MP2068 1.492829e+00 healthy MP2068 Bacteria
## 1066 2528023 MP2100 1.485251e+00 healthy MP2100 Bacteria
## 470     1406 MP2117 1.450499e+00 healthy MP2117 Bacteria
## 1069 2528023 MP2117 1.445698e+00 healthy MP2117 Bacteria
## 438     1406 MP2098 1.426491e+00 healthy MP2098 Bacteria
## 461     1406 MP2059 1.426216e+00 healthy MP2059 Bacteria
## 436     1406 MP2127 1.416225e+00 healthy MP2127 Bacteria
## 1239 2802971 MP2139 1.406639e+00 healthy MP2139 Bacteria
## 442     1406 MD2056 1.403943e+00 wilted MD2056 Bacteria
## 474     1406 MD2116 1.402498e+00 wilted MD2116 Bacteria
## 443     1406 MP2129 1.401170e+00 healthy MP2129 Bacteria
## 448     1406 MP2097 1.396850e+00 healthy MP2097 Bacteria
## 1377 354356 MD2135 1.387824e+00 wilted MD2135 Bacteria
## 427     1406 MP2107 1.367003e+00 healthy MP2107 Bacteria
## 449     1406 MP2108 1.366033e+00 healthy MP2108 Bacteria
## 121    1173025 MP2139 1.361288e+00 healthy MP2139 Bacteria
## 426     1406 MP2099 1.351283e+00 healthy MP2099 Bacteria
## 466     1406 MP2110 1.346695e+00 healthy MP2110 Bacteria
## 428     1406 MD2136 1.346096e+00 wilted MD2136 Bacteria
## 1228 2802971 MP2140 1.343367e+00 healthy MP2140 Bacteria
## 465     1406 MD2075 1.338827e+00 wilted MD2075 Bacteria
## 1101 2528023 MD2126 1.308960e+00 wilted MD2126 Bacteria
## 446     1406 MD2065 1.308880e+00 wilted MD2065 Bacteria
## 430     1406 MP2057 1.296835e+00 healthy MP2057 Bacteria
## 467     1406 MD2115 1.288360e+00 wilted MD2115 Bacteria
## 452     1406 MD2105 1.287253e+00 wilted MD2105 Bacteria
## 472     1406 MD2066 1.284010e+00 wilted MD2066 Bacteria
## 444     1406 MP2119 1.255220e+00 healthy MP2119 Bacteria
## 441     1406 MP2118 1.189712e+00 healthy MP2118 Bacteria
## 1346 354356 MP2097 1.179700e+00 healthy MP2097 Bacteria
## 475     1406 MD2126 1.175532e+00 wilted MD2126 Bacteria
## 1247 2802971 MD2106 1.171763e+00 wilted MD2106 Bacteria
## 1328 354356 MD2075 1.160885e+00 wilted MD2075 Bacteria
## 434     1406 MP2120 1.148928e+00 healthy MP2120 Bacteria
## 1244 2802971 MP2070 1.134456e+00 healthy MP2070 Bacteria
## 445     1406 MP2058 1.130886e+00 healthy MP2058 Bacteria
## 1233 2802971 MP2099 1.103574e+00 healthy MP2099 Bacteria

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## 2177 861299 MD2096 1.063369e+00    wilted  MD2096  Bacteria
## 2208 861299 MD2126 1.056425e+00    wilted  MD2126  Bacteria
## 1367 354356 MP2090 1.050875e+00    healthy  MP2090  Bacteria
## 1358 354356 MP2047 1.047007e+00    healthy  MP2047  Bacteria
## 1335 354356 MD2076 1.039082e+00    wilted  MD2076  Bacteria
## 439    1406 MP2128 1.020967e+00    healthy  MP2128  Bacteria
## 468    1406 MD2135 1.018933e+00    wilted  MD2135  Bacteria
## 1339 354356 MD2066 1.004701e+00    wilted  MD2066  Bacteria
## 464    1406 MD2125 1.002710e+00    wilted  MD2125  Bacteria
## 127   1173025 MD2076 9.971534e-01    wilted  MD2076  Bacteria
## 1331 354356 MP2098 9.894132e-01    healthy  MP2098  Bacteria
## 1235 2802971 MD2095 9.880615e-01    wilted  MD2095  Bacteria
## 1252 2802971 MP2047 9.848377e-01    healthy  MP2047  Bacteria
## 1847  5515 MD2115 9.789313e-01    wilted  MD2115  Eukaryota
## 1267 2802971 MP2069 9.660480e-01    healthy  MP2069  Bacteria
## 1340 354356 MP2048 9.507641e-01    healthy  MP2048  Bacteria
## 1348 354356 MP2139 9.495207e-01    healthy  MP2139  Bacteria
## 1254 2802971 MP2097 9.451255e-01    healthy  MP2097  Bacteria
## 1373 354356 MP2078 9.422586e-01    healthy  MP2078  Bacteria
## 1368 354356 MP2070 9.374953e-01    healthy  MP2070  Bacteria
## 2196 861299 MD2076 9.320295e-01    wilted  MD2076  Bacteria
## 1262 2802971 MP2129 9.231453e-01    healthy  MP2129  Bacteria
## 1332 354356 MP2140 9.208146e-01    healthy  MP2140  Bacteria
## 1330 354356 MD2096 9.192728e-01    wilted  MD2096  Bacteria
## 1371 354356 MD2126 9.159584e-01    wilted  MD2126  Bacteria
## 1355 354356 MP2100 9.105759e-01    healthy  MP2100  Bacteria
## 1364 354356 MP2120 9.095355e-01    healthy  MP2120  Bacteria
## 1241 2802971 MP2110 9.053413e-01    healthy  MP2110  Bacteria
## 1378 354356 MP2130 9.050264e-01    healthy  MP2130  Bacteria
## 1221 2802971 MD2085 8.954558e-01    wilted  MD2085  Bacteria
## 1268 2802971 MP2127 8.953268e-01    healthy  MP2127  Bacteria
## 1326 354356 MD2105 8.939489e-01    wilted  MD2105  Bacteria
## 1263 2802971 MP2068 8.909020e-01    healthy  MP2068  Bacteria
## 2191 861299 MP2067 8.881947e-01    healthy  MP2067  Bacteria
## 1220 2802971 MP2048 8.790754e-01    healthy  MP2048  Bacteria
## 1272 2802971 MP2078 8.762402e-01    healthy  MP2078  Bacteria
## 2205 861299 MP2117 8.759187e-01    healthy  MP2117  Bacteria
## 1353 354356 MD2086 8.729877e-01    wilted  MD2086  Bacteria
## 1236 2802971 MD2136 8.697633e-01    wilted  MD2136  Bacteria
## 1255 2802971 MD2116 8.677333e-01    wilted  MD2116  Bacteria
## 1248 2802971 MP2107 8.615310e-01    healthy  MP2107  Bacteria
## 1360 354356 MP2068 8.606056e-01    healthy  MP2068  Bacteria
## 2190 861299 MP2090 8.540741e-01    healthy  MP2090  Bacteria
## 1250 2802971 MD2056 8.536855e-01    wilted  MD2056  Bacteria
## 1225 2802971 MP2049 8.532782e-01    healthy  MP2049  Bacteria
## 1374 354356 MP2089 8.482425e-01    healthy  MP2089  Bacteria
## 1258 2802971 MP2117 8.454134e-01    healthy  MP2117  Bacteria
## 1337 354356 MP2110 8.440626e-01    healthy  MP2110  Bacteria
## 1266 2802971 MP2119 8.436731e-01    healthy  MP2119  Bacteria
## 1342 354356 MP2119 8.373490e-01    healthy  MP2119  Bacteria
## 1365 354356 MP2069 8.369928e-01    healthy  MP2069  Bacteria
## 1852  5515 MD2085 8.363485e-01    wilted  MD2085  Eukaryota
## 1370 354356 MD2136 8.340072e-01    wilted  MD2136  Bacteria
## 2174 861299 MP2049 8.324764e-01    healthy  MP2049  Bacteria

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## 2213 861299 MP2119 8.297234e-01 healthy MP2119 Bacteria
## 1343 354356 MP2117 8.248652e-01 healthy MP2117 Bacteria
## 1261 2802971 MP2087 8.213327e-01 healthy MP2087 Bacteria
## 1357 354356 MP2057 8.190975e-01 healthy MP2057 Bacteria
## 1226 2802971 MD2096 8.190812e-01 wilted MD2096 Bacteria
## 2217 861299 MP2127 8.168079e-01 healthy MP2127 Bacteria
## 1231 2802971 MP2098 8.142675e-01 healthy MP2098 Bacteria
## 1375 354356 MP2087 8.070978e-01 healthy MP2087 Bacteria
## 1223 2802971 MP2108 8.036986e-01 healthy MP2108 Bacteria
## 1237 2802971 MP2130 8.029887e-01 healthy MP2130 Bacteria
## 1352 354356 MP2099 8.028206e-01 healthy MP2099 Bacteria
## 2184 861299 MD2105 8.020846e-01 wilted MD2105 Bacteria
## 1362 354356 MD2085 8.017734e-01 wilted MD2085 Bacteria
## 1260 2802971 MD2055 8.007927e-01 wilted MD2055 Bacteria
## 2179 861299 MP2097 7.998463e-01 healthy MP2097 Bacteria
## 2219 861299 MP2100 7.972373e-01 healthy MP2100 Bacteria
## 1224 2802971 MD2066 7.963951e-01 wilted MD2066 Bacteria
## 2212 861299 MP2069 7.953066e-01 healthy MP2069 Bacteria
## 1354 354356 MP2107 7.937746e-01 healthy MP2107 Bacteria
## 1229 2802971 MP2059 7.932636e-01 healthy MP2059 Bacteria
## 1336 354356 MD2106 7.915535e-01 wilted MD2106 Bacteria
## 1238 2802971 MP2090 7.905227e-01 healthy MP2090 Bacteria
## 1814 5515 MD2086 7.897257e-01 wilted MD2086 Eukaryota
## 1270 2802971 MP2077 7.877751e-01 healthy MP2077 Bacteria
## 2203 861299 MP2098 7.858328e-01 healthy MP2098 Bacteria
## 1251 2802971 MP2089 7.857063e-01 healthy MP2089 Bacteria
## 1264 2802971 MD2115 7.853889e-01 wilted MD2115 Bacteria
## 2198 861299 MP2047 7.831001e-01 healthy MP2047 Bacteria
## 2194 861299 MP2140 7.820014e-01 healthy MP2140 Bacteria
## 2187 861299 MD2095 7.815752e-01 wilted MD2095 Bacteria
## 1345 354356 MD2116 7.785322e-01 wilted MD2116 Bacteria
## 2181 861299 MP2099 7.753281e-01 healthy MP2099 Bacteria
## 1243 2802971 MD2105 7.732355e-01 wilted MD2105 Bacteria
## 1333 354356 MP2067 7.648862e-01 healthy MP2067 Bacteria
## 1329 354356 MP2118 7.644696e-01 healthy MP2118 Bacteria
## 1259 2802971 MP2067 7.624636e-01 healthy MP2067 Bacteria
## 2220 861299 MD2056 7.612688e-01 wilted MD2056 Bacteria
## 1256 2802971 MP2120 7.591398e-01 healthy MP2120 Bacteria
## 1334 354356 MP2050 7.576237e-01 healthy MP2050 Bacteria
## 1230 2802971 MP2050 7.557726e-01 healthy MP2050 Bacteria
## 1351 354356 MD2095 7.522968e-01 wilted MD2095 Bacteria
## 1338 354356 MP2060 7.503719e-01 healthy MP2060 Bacteria
## 2202 861299 MD2106 7.491436e-01 wilted MD2106 Bacteria
## 1369 354356 MD2056 7.473137e-01 wilted MD2056 Bacteria
## 2185 861299 MP2048 7.446139e-01 healthy MP2048 Bacteria
## 1356 354356 MP2108 7.444538e-01 healthy MP2108 Bacteria
## 1821 5515 MP2099 7.443864e-01 healthy MP2099 Eukaryota
## 2186 861299 MP2139 7.388877e-01 healthy MP2139 Bacteria
## 1829 5515 MP2070 7.375491e-01 healthy MP2070 Eukaryota
## 1816 5515 MP2090 7.335385e-01 healthy MP2090 Eukaryota
## 1249 2802971 MP2118 7.328070e-01 healthy MP2118 Bacteria
## 1372 354356 MP2129 7.326276e-01 healthy MP2129 Bacteria
## 1253 2802971 MP2138 7.323217e-01 healthy MP2138 Bacteria
## 1341 354356 MP2128 7.302057e-01 healthy MP2128 Bacteria

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## 2216 861299 MP2070 7.299422e-01 healthy MP2070 Bacteria
## 1222 2802971 MD2076 7.299052e-01 wilted MD2076 Bacteria
## 2218 861299 MP2130 7.295628e-01 healthy MP2130 Bacteria
## 2176 861299 MP2050 7.269567e-01 healthy MP2050 Bacteria
## 1327 354356 MP2049 7.193209e-01 healthy MP2049 Bacteria
## 2215 861299 MD2136 7.160298e-01 wilted MD2136 Bacteria
## 1845 5515 MP2108 7.154854e-01 healthy MP2108 Eukaryota
## 2204 861299 MP2120 7.123638e-01 healthy MP2120 Bacteria
## 1363 354356 MD2115 7.031072e-01 wilted MD2115 Bacteria
## 1245 2802971 MP2100 6.991734e-01 healthy MP2100 Bacteria
## 2182 861299 MP2110 6.980894e-01 healthy MP2110 Bacteria
## 2210 861299 MD2125 6.955723e-01 wilted MD2125 Bacteria
## 1350 354356 MP2077 6.902168e-01 healthy MP2077 Bacteria
## 1347 354356 MP2059 6.866251e-01 healthy MP2059 Bacteria
## 2178 861299 MD2066 6.731486e-01 wilted MD2066 Bacteria
## 1265 2802971 MD2125 6.706317e-01 wilted MD2125 Bacteria
## 2192 861299 MD2116 6.697192e-01 wilted MD2116 Bacteria
## 1242 2802971 MP2060 6.685463e-01 healthy MP2060 Bacteria
## 1271 2802971 MD2135 6.639974e-01 wilted MD2135 Bacteria
## 2195 861299 MP2068 6.621127e-01 healthy MP2068 Bacteria
## 1376 354356 MD2055 6.565136e-01 wilted MD2055 Bacteria
## 1849 5515 MP2078 6.505387e-01 healthy MP2078 Eukaryota
## 1269 2802971 MD2126 6.451108e-01 wilted MD2126 Bacteria
## 1817 5515 MP2139 6.437197e-01 healthy MP2139 Eukaryota
## 2214 861299 MD2135 6.409366e-01 wilted MD2135 Bacteria
## 2225 861299 MP2129 6.380216e-01 healthy MP2129 Bacteria
## 2222 861299 MP2087 6.345578e-01 healthy MP2087 Bacteria
## 1828 5515 MP2107 6.343115e-01 healthy MP2107 Eukaryota
## 2200 861299 MP2138 6.300156e-01 healthy MP2138 Bacteria
## 2193 861299 MD2085 6.225321e-01 wilted MD2085 Bacteria
## 1820 5515 MP2110 6.182635e-01 healthy MP2110 Eukaryota
## 2224 861299 MD2055 6.115862e-01 wilted MD2055 Bacteria
## 2211 861299 MP2107 6.057763e-01 healthy MP2107 Bacteria
## 1257 2802971 MP2128 6.014821e-01 healthy MP2128 Bacteria
## 1823 5515 MD2076 5.992343e-01 wilted MD2076 Eukaryota
## 1246 2802971 MP2057 5.971440e-01 healthy MP2057 Bacteria
## 2201 861299 MP2089 5.948112e-01 healthy MP2089 Bacteria
## 2209 861299 MP2118 5.924463e-01 healthy MP2118 Bacteria
## 672 1882749 MD2135 5.901177e-01 wilted MD2135 Bacteria
## 1361 354356 MP2138 5.900299e-01 healthy MP2138 Bacteria
## 1854 5515 MD2096 5.889480e-01 wilted MD2096 Eukaryota
## 2188 861299 MP2059 5.879626e-01 healthy MP2059 Bacteria
## 1818 5515 MD2066 5.878971e-01 wilted MD2066 Eukaryota
## 1366 354356 MD2065 5.691474e-01 wilted MD2065 Bacteria
## 1240 2802971 MD2075 5.690866e-01 wilted MD2075 Bacteria
## 2207 861299 MP2058 5.634238e-01 healthy MP2058 Bacteria
## 1834 5515 MP2140 5.610621e-01 healthy MP2140 Eukaryota
## 1846 5515 MP2077 5.601150e-01 healthy MP2077 Eukaryota
## 2189 861299 MD2075 5.573895e-01 wilted MD2075 Bacteria
## 1831 5515 MD2095 5.563381e-01 wilted MD2095 Eukaryota
## 1851 5515 MD2106 5.531302e-01 wilted MD2106 Eukaryota
## 1234 2802971 MP2058 5.506153e-01 healthy MP2058 Bacteria
## 2175 861299 MP2060 5.491117e-01 healthy MP2060 Bacteria
## 1810 5515 MP2048 5.452802e-01 healthy MP2048 Eukaryota

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## 1833	5515	MD2125	5.446601e-01	wilted	MD2125	Eukaryota
## 2183	861299	MP2057	5.436654e-01	healthy	MP2057	Bacteria
## 1804	5515	MP2138	5.436090e-01	healthy	MP2138	Eukaryota
## 1839	5515	MP2057	5.434203e-01	healthy	MP2057	Eukaryota
## 1844	5515	MP2059	5.413595e-01	healthy	MP2059	Eukaryota
## 1855	5515	MP2087	5.398375e-01	healthy	MP2087	Eukaryota
## 1838	5515	MD2055	5.222321e-01	wilted	MD2055	Eukaryota
## 1848	5515	MD2075	5.136717e-01	wilted	MD2075	Eukaryota
## 1843	5515	MP2060	5.136643e-01	healthy	MP2060	Eukaryota
## 1808	5515	MP2068	5.130358e-01	healthy	MP2068	Eukaryota
## 143	1173025	MP2138	5.108735e-01	healthy	MP2138	Bacteria
## 669	1882749	MD2126	5.029877e-01	wilted	MD2126	Bacteria
## 639	1882749	MD2076	5.019032e-01	wilted	MD2076	Bacteria
## 1232	2802971	MD2086	5.017169e-01	wilted	MD2086	Bacteria
## 1840	5515	MP2089	5.015256e-01	healthy	MP2089	Eukaryota
## 1805	5515	MP2047	5.000827e-01	healthy	MP2047	Eukaryota
## 2180	861299	MP2108	4.978582e-01	healthy	MP2108	Bacteria
## 2206	861299	MD2115	4.960789e-01	wilted	MD2115	Bacteria
## 189	1298	MP2140	4.947499e-01	healthy	MP2140	Bacteria
## 2221	861299	MP2078	4.906186e-01	healthy	MP2078	Bacteria
## 1827	5515	MP2119	4.905582e-01	healthy	MP2119	Eukaryota
## 640	1882749	MD2075	4.890835e-01	wilted	MD2075	Bacteria
## 1809	5515	MP2050	4.814036e-01	healthy	MP2050	Eukaryota
## 1811	5515	MP2069	4.804045e-01	healthy	MP2069	Eukaryota
## 1815	5515	MD2116	4.783146e-01	wilted	MD2116	Eukaryota
## 2223	861299	MP2077	4.745033e-01	healthy	MP2077	Bacteria
## 1227	2802971	MD2065	4.678958e-01	wilted	MD2065	Bacteria
## 1822	5515	MD2105	4.600931e-01	wilted	MD2105	Eukaryota
## 1836	5515	MP2067	4.549221e-01	healthy	MP2067	Eukaryota
## 2226	861299	MP2128	4.521968e-01	healthy	MP2128	Bacteria
## 1837	5515	MP2129	4.463540e-01	healthy	MP2129	Eukaryota
## 1807	5515	MP2049	4.426496e-01	healthy	MP2049	Eukaryota
## 186	1298	MP2139	4.419037e-01	healthy	MP2139	Bacteria
## 1832	5515	MP2097	4.413608e-01	healthy	MP2097	Eukaryota
## 1830	5515	MP2120	4.377484e-01	healthy	MP2120	Eukaryota
## 1841	5515	MD2056	4.355848e-01	wilted	MD2056	Eukaryota
## 2199	861299	MD2065	4.346410e-01	wilted	MD2065	Bacteria
## 1806	5515	MP2098	4.289614e-01	healthy	MP2098	Eukaryota
## 1825	5515	MP2100	4.282911e-01	healthy	MP2100	Eukaryota
## 1819	5515	MD2065	4.262321e-01	wilted	MD2065	Eukaryota
## 1826	5515	MP2118	4.253783e-01	healthy	MP2118	Eukaryota
## 1842	5515	MP2058	4.149162e-01	healthy	MP2058	Eukaryota
## 637	1882749	MP2098	4.139638e-01	healthy	MP2098	Bacteria
## 678	1882749	MP2130	4.069408e-01	healthy	MP2130	Bacteria
## 182	1298	MP2070	4.021551e-01	healthy	MP2070	Bacteria
## 181	1298	MP2069	3.948697e-01	healthy	MP2069	Bacteria
## 656	1882749	MP2110	3.944204e-01	healthy	MP2110	Bacteria
## 644	1882749	MP2127	3.891190e-01	healthy	MP2127	Bacteria
## 1813	5515	MP2130	3.862363e-01	healthy	MP2130	Eukaryota
## 204	1298	MP2099	3.844506e-01	healthy	MP2099	Bacteria
## 680	1882749	MP2069	3.829952e-01	healthy	MP2069	Bacteria
## 191	1298	MD2106	3.814181e-01	wilted	MD2106	Bacteria
## 1803	5515	MP2117	3.754039e-01	healthy	MP2117	Eukaryota
## 2197	861299	MD2086	3.730631e-01	wilted	MD2086	Bacteria

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## 648 1882749 MP2050 3.679849e-01 healthy MP2050 Bacteria
## 194 1298 MP2100 3.664279e-01 healthy MP2100 Bacteria
## 688 1882749 MP2087 3.640260e-01 healthy MP2087 Bacteria
## 203 1298 MD2095 3.635443e-01 wilted MD2095 Bacteria
## 647 1882749 MP2099 3.629134e-01 healthy MP2099 Bacteria
## 161 1298 MP2047 3.625689e-01 healthy MP2047 Bacteria
## 645 1882749 MP2119 3.612590e-01 healthy MP2119 Bacteria
## 124 1173025 MP2140 3.597525e-01 healthy MP2140 Bacteria
## 671 1882749 MP2070 3.568908e-01 healthy MP2070 Bacteria
## 184 1298 MP2059 3.550040e-01 healthy MP2059 Bacteria
## 646 1882749 MP2067 3.549824e-01 healthy MP2067 Bacteria
## 1812 5515 MD2136 3.532841e-01 wilted MD2136 Eukaryota
## 1850 5515 MD2126 3.525191e-01 wilted MD2126 Eukaryota
## 649 1882749 MP2139 3.522240e-01 healthy MP2139 Bacteria
## 180 1298 MD2056 3.508755e-01 wilted MD2056 Bacteria
## 1835 5515 MP2128 3.508620e-01 healthy MP2128 Eukaryota
## 118 1173025 MP2069 3.507893e-01 healthy MP2069 Bacteria
## 164 1298 MP2068 3.507748e-01 healthy MP2068 Bacteria
## 665 1882749 MD2125 3.495753e-01 wilted MD2125 Bacteria
## 177 1298 MD2055 3.492383e-01 wilted MD2055 Bacteria
## 1853 5515 MP2127 3.482413e-01 healthy MP2127 Eukaryota
## 162 1298 MD2105 3.476138e-01 wilted MD2105 Bacteria
## 931 2057 MP2139 3.474664e-01 healthy MP2139 Bacteria
## 677 1882749 MP2097 3.472768e-01 healthy MP2097 Bacteria
## 206 1298 MP2087 3.468490e-01 healthy MP2087 Bacteria
## 199 1298 MP2108 3.467736e-01 healthy MP2108 Bacteria
## 165 1298 MP2050 3.457969e-01 healthy MP2050 Bacteria
## 174 1298 MP2067 3.448963e-01 healthy MP2067 Bacteria
## 170 1298 MD2116 3.442600e-01 wilted MD2116 Bacteria
## 120 1173025 MP2070 3.442046e-01 healthy MP2070 Bacteria
## 172 1298 MP2077 3.441623e-01 healthy MP2077 Bacteria
## 196 1298 MP2119 3.429780e-01 healthy MP2119 Bacteria
## 651 1882749 MP2140 3.426287e-01 healthy MP2140 Bacteria
## 187 1298 MP2049 3.417686e-01 healthy MP2049 Bacteria
## 190 1298 MP2098 3.389573e-01 healthy MP2098 Bacteria
## 200 1298 MP2097 3.377241e-01 healthy MP2097 Bacteria
## 192 1298 MP2117 3.374366e-01 healthy MP2117 Bacteria
## 176 1298 MP2078 3.373925e-01 healthy MP2078 Bacteria
## 1824 5515 MD2135 3.364213e-01 wilted MD2135 Eukaryota
## 179 1298 MP2129 3.361041e-01 healthy MP2129 Bacteria
## 171 1298 MP2048 3.357299e-01 healthy MP2048 Bacteria
## 686 1882749 MP2090 3.345328e-01 healthy MP2090 Bacteria
## 208 1298 MP2089 3.326116e-01 healthy MP2089 Bacteria
## 682 1882749 MD2095 3.326057e-01 wilted MD2095 Bacteria
## 178 1298 MD2085 3.318410e-01 wilted MD2085 Bacteria
## 676 1882749 MD2056 3.312420e-01 wilted MD2056 Bacteria
## 654 1882749 MP2117 3.283507e-01 healthy MP2117 Bacteria
## 198 1298 MD2066 3.278617e-01 wilted MD2066 Bacteria
## 211 1298 MP2127 3.274155e-01 healthy MP2127 Bacteria
## 112 1173025 MP2099 3.265351e-01 healthy MP2099 Bacteria
## 655 1882749 MD2106 3.259324e-01 wilted MD2106 Bacteria
## 650 1882749 MD2096 3.257643e-01 wilted MD2096 Bacteria
## 197 1298 MP2107 3.218314e-01 healthy MP2107 Bacteria
## 673 1882749 MD2066 3.206478e-01 wilted MD2066 Bacteria

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## 185      1298 MD2096 3.199703e-01    wilted   MD2096  Bacteria
## 670      1882749 MP2129 3.195378e-01  healthy   MP2129  Bacteria
## 681      1882749 MP2068 3.193622e-01  healthy   MP2068  Bacteria
## 662      1882749 MP2108 3.187713e-01  healthy   MP2108  Bacteria
## 169      1298 MD2136 3.183057e-01    wilted   MD2136  Bacteria
## 202      1298 MP2110 3.172752e-01    healthy   MP2110  Bacteria
## 175      1298 MD2126 3.172015e-01    wilted   MD2126  Bacteria
## 167      1298 MD2115 3.166711e-01    wilted   MD2115  Bacteria
## 908      2057 MP2140 3.165632e-01    healthy   MP2140  Bacteria
## 934      2057 MP2077 3.164638e-01    healthy   MP2077  Bacteria
## 183      1298 MP2090 3.141781e-01    healthy   MP2090  Bacteria
## 658      1882749 MP2120 3.138020e-01  healthy   MP2120  Bacteria
## 142      1173025 MD2106 3.134487e-01  wilted   MD2106  Bacteria
## 657      1882749 MD2085 3.097506e-01  wilted   MD2085  Bacteria
## 195      1298 MP2130 3.090342e-01    healthy   MP2130  Bacteria
## 684      1882749 MP2047 3.038348e-01  healthy   MP2047  Bacteria
## 912      2057 MP2100 3.017765e-01    healthy   MP2100  Bacteria
## 146      1173025 MP2047 3.016606e-01  healthy   MP2047  Bacteria
## 138      1173025 MP2098 2.998090e-01  healthy   MP2098  Bacteria
## 659      1882749 MD2136 2.996742e-01  wilted   MD2136  Bacteria
## 207      1298 MP2120 2.980581e-01    healthy   MP2120  Bacteria
## 638      1882749 MP2118 2.978375e-01  healthy   MP2118  Bacteria
## 166      1298 MP2057 2.976882e-01    healthy   MP2057  Bacteria
## 157      1173025 MP2090 2.938860e-01  healthy   MP2090  Bacteria
## 135      1173025 MD2095 2.927999e-01  wilted   MD2095  Bacteria
## 642      1882749 MD2105 2.926716e-01  wilted   MD2105  Bacteria
## 687      1882749 MD2086 2.906066e-01  wilted   MD2086  Bacteria
## 155      1173025 MP2087 2.893955e-01  healthy   MP2087  Bacteria
## 109      1173025 MD2085 2.874986e-01  wilted   MD2085  Bacteria
## 119      1173025 MP2068 2.867999e-01  healthy   MP2068  Bacteria
## 212      1298 MP2138 2.861894e-01    healthy   MP2138  Bacteria
## 150      1173025 MP2097 2.861875e-01  healthy   MP2097  Bacteria
## 193      1298 MP2118 2.855341e-01    healthy   MP2118  Bacteria
## 661      1882749 MP2048 2.849930e-01  healthy   MP2048  Bacteria
## 201      1298 MP2060 2.837169e-01    healthy   MP2060  Bacteria
## 153      1173025 MP2078 2.816787e-01  healthy   MP2078  Bacteria
## 131      1173025 MP2119 2.810786e-01  healthy   MP2119  Bacteria
## 641      1882749 MP2049 2.801663e-01  healthy   MP2049  Bacteria
## 675      1882749 MP2078 2.799525e-01  healthy   MP2078  Bacteria
## 123      1173025 MP2077 2.787214e-01  healthy   MP2077  Bacteria
## 163      1298 MD2076 2.784506e-01    wilted   MD2076  Bacteria
## 145      1173025 MD2056 2.777554e-01  wilted   MD2056  Bacteria
## 151      1173025 MP2059 2.769714e-01  healthy   MP2059  Bacteria
## 689      1882749 MP2089 2.769381e-01  healthy   MP2089  Bacteria
## 160      1298 MP2058 2.743566e-01    healthy   MP2058  Bacteria
## 110      1173025 MP2127 2.730854e-01  healthy   MP2127  Bacteria
## 917      2057 MP2070 2.728136e-01    healthy   MP2070  Bacteria
## 140      1173025 MP2117 2.725047e-01  healthy   MP2117  Bacteria
## 126      1173025 MP2067 2.723375e-01  healthy   MP2067  Bacteria
## 115      1173025 MP2108 2.718185e-01  healthy   MP2108  Bacteria
## 667      1882749 MP2107 2.711617e-01  healthy   MP2107  Bacteria
## 905      2057 MD2106 2.703480e-01    wilted   MD2106  Bacteria
## 128      1173025 MD2055 2.695138e-01  wilted   MD2055  Bacteria
## 134      1173025 MD2116 2.686554e-01  wilted   MD2116  Bacteria

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##	107	1173025	MP2049	2.679376e-01	healthy	MP2049	Bacteria	
##	935	2057	MP2099	2.676630e-01	healthy	MP2099	Bacteria	
##	136	1173025	MD2096	2.676509e-01	wilted	MD2096	Bacteria	
##	122	1173025	MP2048	2.673754e-01	healthy	MP2048	Bacteria	
##	149	1173025	MD2066	2.673648e-01	wilted	MD2066	Bacteria	
##	952	2057	MP2069	2.670180e-01	healthy	MP2069	Bacteria	
##	679	1882749	MD2116	2.659490e-01	wilted	MD2116	Bacteria	
##	173	1298	MD2125	2.656701e-01	wilted	MD2125	Bacteria	
##	147	1173025	MP2107	2.651877e-01	healthy	MP2107	Bacteria	
##	159	1173025	MD2105	2.643483e-01	wilted	MD2105	Bacteria	
##	114	1173025	MP2129	2.628557e-01	healthy	MP2129	Bacteria	
##	113	1173025	MP2050	2.623991e-01	healthy	MP2050	Bacteria	
##	660	1882749	MP2057	2.611276e-01	healthy	MP2057	Bacteria	
##	152	1173025	MP2089	2.603060e-01	healthy	MP2089	Bacteria	
##	674	1882749	MP2059	2.597314e-01	healthy	MP2059	Bacteria	
##	205	1298	MD2135	2.585997e-01	wilted	MD2135	Bacteria	
##	919	2057	MP2059	2.585283e-01	healthy	MP2059	Bacteria	
##	116	1173025	MP2057	2.568048e-01	healthy	MP2057	Bacteria	
##	930	2057	MP2108	2.549041e-01	healthy	MP2108	Bacteria	
##	902	2057	MD2085	2.547003e-01	wilted	MD2085	Bacteria	
##	141	1173025	MD2126	2.538073e-01	wilted	MD2126	Bacteria	
##	111	1173025	MP2110	2.532289e-01	healthy	MP2110	Bacteria	
##	129	1173025	MP2100	2.528869e-01	healthy	MP2100	Bacteria	
##	925	2057	MP2078	2.526095e-01	healthy	MP2078	Bacteria	
##	910	2057	MP2067	2.521771e-01	healthy	MP2067	Bacteria	
##	683	1882749	MD2055	2.521050e-01	wilted	MD2055	Bacteria	
##	117	1173025	MD2115	2.508137e-01	wilted	MD2115	Bacteria	
##	209	1298	MD2065	2.504868e-01	wilted	MD2065	Bacteria	
##	643	1882749	MP2058	2.489210e-01	healthy	MP2058	Bacteria	
##	130	1173025	MD2136	2.483649e-01	wilted	MD2136	Bacteria	
##	144	1173025	MP2130	2.482924e-01	healthy	MP2130	Bacteria	
##	188	1298	MD2075	2.458739e-01	wilted	MD2075	Bacteria	
##	916	2057	MD2116	2.456384e-01	wilted	MD2116	Bacteria	
##	664	1882749	MP2060	2.411829e-01	healthy	MP2060	Bacteria	
##	652	1882749	MD2115	2.406706e-01	wilted	MD2115	Bacteria	
##	913	2057	MD2115	2.392434e-01	wilted	MD2115	Bacteria	
##	210	1298	MP2128	2.369858e-01	healthy	MP2128	Bacteria	
##	911	2057	MP2050	2.367698e-01	healthy	MP2050	Bacteria	
##	946	2057	MD2095	2.367585e-01	wilted	MD2095	Bacteria	
##	137	1173025	MD2125	2.365527e-01	wilted	MD2125	Bacteria	
##	937	2057	MD2055	2.351869e-01	wilted	MD2055	Bacteria	
##	148	1173025	MP2120	2.348094e-01	healthy	MP2120	Bacteria	
##	939	2057	MP2068	2.346915e-01	healthy	MP2068	Bacteria	
##	944	2057	MP2047	2.340234e-01	healthy	MP2047	Bacteria	
##	663	1882749	MD2065	2.326689e-01	wilted	MD2065	Bacteria	
##	920	2057	MP2097	2.319447e-01	healthy	MP2097	Bacteria	
##	154	1173025	MP2060	2.317100e-01	healthy	MP2060	Bacteria	
##	922	2057	MP2117	2.314638e-01	healthy	MP2117	Bacteria	
##	950	2057	MP2087	2.310937e-01	healthy	MP2087	Bacteria	
##	906	2057	MP2129	2.310768e-01	healthy	MP2129	Bacteria	
##	932	2057	MP2127	2.303222e-01	healthy	MP2127	Bacteria	
##	108	1173025	MP2118	2.301960e-01	healthy	MP2118	Bacteria	
##	938	2057	MP2107	2.273920e-01	healthy	MP2107	Bacteria	
##	668	1882749	MP2100	2.273217e-01	healthy	MP2100	Bacteria	

## 666	1882749	MP2077	2.266204e-01	healthy	MP2077	Bacteria
## 927	2057	MD2136	2.258128e-01	wilted	MD2136	Bacteria
## 947	2057	MP2098	2.234890e-01	healthy	MP2098	Bacteria
## 954	2057	MP2048	2.233809e-01	healthy	MP2048	Bacteria
## 904	2057	MP2110	2.220462e-01	healthy	MP2110	Bacteria
## 125	1173025	MD2075	2.219762e-01	wilted	MD2075	Bacteria
## 653	1882749	MP2128	2.215670e-01	healthy	MP2128	Bacteria
## 685	1882749	MP2138	2.214117e-01	healthy	MP2138	Bacteria
## 914	2057	MP2119	2.202774e-01	healthy	MP2119	Bacteria
## 942	2057	MD2056	2.191037e-01	wilted	MD2056	Bacteria
## 945	2057	MD2066	2.179391e-01	wilted	MD2066	Bacteria
## 929	2057	MP2138	2.179083e-01	healthy	MP2138	Bacteria
## 903	2057	MP2049	2.178986e-01	healthy	MP2049	Bacteria
## 951	2057	MP2090	2.171197e-01	healthy	MP2090	Bacteria
## 933	2057	MP2089	2.171157e-01	healthy	MP2089	Bacteria
## 156	1173025	MD2135	2.154723e-01	wilted	MD2135	Bacteria
## 948	2057	MD2105	2.150199e-01	wilted	MD2105	Bacteria
## 133	1173025	MP2058	2.139412e-01	healthy	MP2058	Bacteria
## 168	1298	MD2086	2.119059e-01	wilted	MD2086	Bacteria
## 936	2057	MP2060	2.105591e-01	healthy	MP2060	Bacteria
## 941	2057	MP2057	2.084891e-01	healthy	MP2057	Bacteria
## 926	2057	MP2130	2.044144e-01	healthy	MP2130	Bacteria
## 918	2057	MD2096	2.019500e-01	wilted	MD2096	Bacteria
## 943	2057	MP2120	1.966797e-01	healthy	MP2120	Bacteria
## 923	2057	MD2126	1.934815e-01	wilted	MD2126	Bacteria
## 139	1173025	MP2128	1.889350e-01	healthy	MP2128	Bacteria
## 953	2057	MD2065	1.877213e-01	wilted	MD2065	Bacteria
## 158	1173025	MD2065	1.873318e-01	wilted	MD2065	Bacteria
## 924	2057	MP2118	1.871953e-01	healthy	MP2118	Bacteria
## 909	2057	MD2076	1.860611e-01	wilted	MD2076	Bacteria
## 132	1173025	MD2086	1.843969e-01	wilted	MD2086	Bacteria
## 940	2057	MD2135	1.779212e-01	wilted	MD2135	Bacteria
## 915	2057	MP2058	1.772409e-01	healthy	MP2058	Bacteria
## 907	2057	MD2125	1.723104e-01	wilted	MD2125	Bacteria
## 949	2057	MP2128	1.657467e-01	healthy	MP2128	Bacteria
## 921	2057	MD2075	1.644169e-01	wilted	MD2075	Bacteria
## 928	2057	MD2086	1.579049e-01	wilted	MD2086	Bacteria
## 1601	42253	MP2097	1.434096e-01	healthy	MP2097	Bacteria
## 1641	42253	MP2140	1.411103e-01	healthy	MP2140	Bacteria
## 1639	42253	MP2069	1.308509e-01	healthy	MP2069	Bacteria
## 1635	42253	MD2126	1.271168e-01	wilted	MD2126	Bacteria
## 1615	42253	MP2070	1.255541e-01	healthy	MP2070	Bacteria
## 1613	42253	MP2139	1.163580e-01	healthy	MP2139	Bacteria
## 1599	42253	MP2099	1.158984e-01	healthy	MP2099	Bacteria
## 1627	42253	MD2106	1.080109e-01	wilted	MD2106	Bacteria
## 1642	42253	MP2078	1.045490e-01	healthy	MP2078	Bacteria
## 1634	42253	MP2068	1.005759e-01	healthy	MP2068	Bacteria
## 1597	42253	MD2095	9.783501e-02	wilted	MD2095	Bacteria
## 1629	42253	MP2117	9.694232e-02	healthy	MP2117	Bacteria
## 1637	42253	MP2119	9.643808e-02	healthy	MP2119	Bacteria
## 1622	42253	MP2129	9.628299e-02	healthy	MP2129	Bacteria
## 1594	42253	MP2098	9.470413e-02	healthy	MP2098	Bacteria
## 1621	42253	MD2056	9.426134e-02	wilted	MD2056	Bacteria
## 1638	42253	MP2130	8.995074e-02	healthy	MP2130	Bacteria

## 1604	42253	MD2085	8.906482e-02	wilted	MD2085	Bacteria
## 1632	42253	MP2128	8.866289e-02	healthy	MP2128	Bacteria
## 1602	42253	MD2076	8.839397e-02	wilted	MD2076	Bacteria
## 1607	42253	MP2110	8.411501e-02	healthy	MP2110	Bacteria
## 1630	42253	MP2127	8.244487e-02	healthy	MP2127	Bacteria
## 1643	42253	MP2118	8.224248e-02	healthy	MP2118	Bacteria
## 1636	42253	MP2087	8.182308e-02	healthy	MP2087	Bacteria
## 1628	42253	MD2116	8.094518e-02	wilted	MD2116	Bacteria
## 1593	42253	MD2055	8.086946e-02	wilted	MD2055	Bacteria
## 1596	42253	MD2066	8.067539e-02	wilted	MD2066	Bacteria
## 1783	4785	MP2070	7.936702e-02	healthy	MP2070	Eukaryota
## 1605	42253	MD2105	7.935622e-02	wilted	MD2105	Bacteria
## 1595	42253	MP2059	7.851391e-02	healthy	MP2059	Bacteria
## 1623	42253	MP2089	7.823353e-02	healthy	MP2089	Bacteria
## 1624	42253	MP2047	7.814913e-02	healthy	MP2047	Bacteria
## 1608	42253	MP2108	7.733330e-02	healthy	MP2108	Bacteria
## 1591	42253	MD2096	7.715558e-02	wilted	MD2096	Bacteria
## 1610	42253	MP2090	7.715101e-02	healthy	MP2090	Bacteria
## 1776	4785	MP2099	7.652904e-02	healthy	MP2099	Eukaryota
## 1598	42253	MP2049	7.471815e-02	healthy	MP2049	Bacteria
## 1611	42253	MP2048	7.469354e-02	healthy	MP2048	Bacteria
## 1614	42253	MP2120	7.398153e-02	healthy	MP2120	Bacteria
## 1796	4785	MP2047	7.360519e-02	healthy	MP2047	Eukaryota
## 1754	4785	MP2068	7.348929e-02	healthy	MP2068	Eukaryota
## 1606	42253	MP2107	7.294047e-02	healthy	MP2107	Bacteria
## 1633	42253	MD2136	7.222511e-02	wilted	MD2136	Bacteria
## 1785	4785	MP2139	7.167235e-02	healthy	MP2139	Eukaryota
## 1770	4785	MD2095	7.164388e-02	wilted	MD2095	Eukaryota
## 1802	4785	MP2140	7.134301e-02	healthy	MP2140	Eukaryota
## 1774	4785	MP2078	7.132892e-02	healthy	MP2078	Eukaryota
## 1603	42253	MP2057	7.131845e-02	healthy	MP2057	Bacteria
## 1640	42253	MD2135	7.127012e-02	wilted	MD2135	Bacteria
## 1766	4785	MP2069	7.100871e-02	healthy	MP2069	Eukaryota
## 1789	4785	MP2067	7.095749e-02	healthy	MP2067	Eukaryota
## 1793	4785	MD2056	7.069801e-02	wilted	MD2056	Eukaryota
## 1791	4785	MP2087	7.067068e-02	healthy	MP2087	Eukaryota
## 1759	4785	MP2098	7.055358e-02	healthy	MP2098	Eukaryota
## 1799	4785	MP2097	6.971999e-02	healthy	MP2097	Eukaryota
## 1756	4785	MP2059	6.956839e-02	healthy	MP2059	Eukaryota
## 1618	42253	MD2125	6.949620e-02	wilted	MD2125	Bacteria
## 1784	4785	MP2108	6.948552e-02	healthy	MP2108	Eukaryota
## 1771	4785	MP2077	6.898633e-02	healthy	MP2077	Eukaryota
## 1790	4785	MD2055	6.876613e-02	wilted	MD2055	Eukaryota
## 1617	42253	MP2067	6.831630e-02	healthy	MP2067	Bacteria
## 1761	4785	MP2050	6.827235e-02	healthy	MP2050	Eukaryota
## 1760	4785	MP2049	6.798816e-02	healthy	MP2049	Eukaryota
## 1757	4785	MP2048	6.769591e-02	healthy	MP2048	Eukaryota
## 1600	42253	MP2060	6.764525e-02	healthy	MP2060	Bacteria
## 1797	4785	MD2066	6.731935e-02	wilted	MD2066	Eukaryota
## 1782	4785	MP2090	6.714813e-02	healthy	MP2090	Eukaryota
## 1765	4785	MP2089	6.707110e-02	healthy	MP2089	Eukaryota
## 1786	4785	MP2127	6.705066e-02	healthy	MP2127	Eukaryota
## 1801	4785	MD2126	6.677007e-02	wilted	MD2126	Eukaryota
## 1752	4785	MP2119	6.662718e-02	healthy	MP2119	Eukaryota

## 1592	42253	MP2050	6.500502e-02	healthy	MP2050	Bacteria
## 1750	4785	MP2100	6.465889e-02	healthy	MP2100	Eukaryota
## 1780	4785	MD2115	6.459809e-02	wilted	MD2115	Eukaryota
## 1775	4785	MP2117	6.398922e-02	healthy	MP2117	Eukaryota
## 1773	4785	MD2096	6.358067e-02	wilted	MD2096	Eukaryota
## 1753	4785	MP2107	6.330768e-02	healthy	MP2107	Eukaryota
## 1755	4785	MP2057	6.271940e-02	healthy	MP2057	Eukaryota
## 1795	4785	MD2116	6.247371e-02	wilted	MD2116	Eukaryota
## 1788	4785	MD2076	6.237927e-02	wilted	MD2076	Eukaryota
## 1777	4785	MD2106	6.170289e-02	wilted	MD2106	Eukaryota
## 1778	4785	MD2085	6.161568e-02	wilted	MD2085	Eukaryota
## 1764	4785	MP2129	6.147354e-02	healthy	MP2129	Eukaryota
## 1616	42253	MP2100	6.126368e-02	healthy	MP2100	Bacteria
## 1626	42253	MD2115	6.114838e-02	wilted	MD2115	Bacteria
## 1787	4785	MD2105	6.039485e-02	wilted	MD2105	Eukaryota
## 1781	4785	MP2058	6.012856e-02	healthy	MP2058	Eukaryota
## 1762	4785	MP2110	6.010492e-02	healthy	MP2110	Eukaryota
## 1772	4785	MP2060	5.883961e-02	healthy	MP2060	Eukaryota
## 1625	42253	MP2138	5.696782e-02	healthy	MP2138	Bacteria
## 2120	84751	MP2070	5.675492e-02	healthy	MP2070	Eukaryota
## 1798	4785	MD2125	5.671474e-02	wilted	MD2125	Eukaryota
## 2105	84751	MP2099	5.664227e-02	healthy	MP2099	Eukaryota
## 1612	42253	MD2075	5.604031e-02	wilted	MD2075	Bacteria
## 1794	4785	MP2130	5.564229e-02	healthy	MP2130	Eukaryota
## 1792	4785	MP2118	5.531774e-02	healthy	MP2118	Eukaryota
## 1769	4785	MP2120	5.457505e-02	healthy	MP2120	Eukaryota
## 1800	4785	MD2075	5.450507e-02	wilted	MD2075	Eukaryota
## 1779	4785	MD2136	5.398251e-02	wilted	MD2136	Eukaryota
## 2113	84751	MP2108	5.267523e-02	healthy	MP2108	Eukaryota
## 2084	84751	MD2095	5.212685e-02	wilted	MD2095	Eukaryota
## 2096	84751	MP2069	5.203530e-02	healthy	MP2069	Eukaryota
## 2093	84751	MP2087	5.193308e-02	healthy	MP2087	Eukaryota
## 2103	84751	MP2140	5.158035e-02	healthy	MP2140	Eukaryota
## 2099	84751	MP2059	5.132349e-02	healthy	MP2059	Eukaryota
## 2097	84751	MP2047	5.132036e-02	healthy	MP2047	Eukaryota
## 2115	84751	MP2078	5.108853e-02	healthy	MP2078	Eukaryota
## 2079	84751	MP2068	5.092032e-02	healthy	MP2068	Eukaryota
## 2094	84751	MD2056	5.085605e-02	wilted	MD2056	Eukaryota
## 2075	84751	MP2098	5.077761e-02	healthy	MP2098	Eukaryota
## 1758	4785	MD2065	5.024076e-02	wilted	MD2065	Eukaryota
## 2085	84751	MD2066	5.020872e-02	wilted	MD2066	Eukaryota
## 2091	84751	MD2055	5.003868e-02	wilted	MD2055	Eukaryota
## 1768	4785	MP2138	5.003387e-02	healthy	MP2138	Eukaryota
## 2100	84751	MP2139	4.989786e-02	healthy	MP2139	Eukaryota
## 1763	4785	MD2135	4.987123e-02	wilted	MD2135	Eukaryota
## 2074	84751	MP2049	4.954188e-02	healthy	MP2049	Eukaryota
## 2109	84751	MP2089	4.952237e-02	healthy	MP2089	Eukaryota
## 2081	84751	MD2115	4.948654e-02	wilted	MD2115	Eukaryota
## 2119	84751	MP2090	4.920021e-02	healthy	MP2090	Eukaryota
## 2077	84751	MP2119	4.857999e-02	healthy	MP2119	Eukaryota
## 2114	84751	MP2077	4.855557e-02	healthy	MP2077	Eukaryota
## 1620	42253	MD2086	4.846296e-02	wilted	MD2086	Bacteria
## 2104	84751	MP2050	4.843231e-02	healthy	MP2050	Eukaryota
## 2072	84751	MP2048	4.776501e-02	healthy	MP2048	Eukaryota

## 2111	84751	MP2097	4.771214e-02	healthy	MP2097	Eukaryota
## 1177	274537	MP2139	4.770579e-02	healthy	MP2139	Bacteria
## 1767	4785	MD2086	4.760707e-02	wilted	MD2086	Eukaryota
## 2083	84751	MD2116	4.751183e-02	wilted	MD2116	Eukaryota
## 1185	274537	MP2140	4.734685e-02	healthy	MP2140	Bacteria
## 2088	84751	MD2105	4.708966e-02	wilted	MD2105	Eukaryota
## 2106	84751	MP2067	4.692684e-02	healthy	MP2067	Eukaryota
## 2107	84751	MP2100	4.688838e-02	healthy	MP2100	Eukaryota
## 2087	84751	MD2096	4.669873e-02	wilted	MD2096	Eukaryota
## 2108	84751	MP2057	4.668806e-02	healthy	MP2057	Eukaryota
## 543	154	MP2140	4.653052e-02	healthy	MP2140	Bacteria
## 1631	42253	MP2077	4.619537e-02	healthy	MP2077	Bacteria
## 2076	84751	MD2126	4.596951e-02	wilted	MD2126	Eukaryota
## 553	154	MP2139	4.588719e-02	healthy	MP2139	Bacteria
## 2069	84751	MD2085	4.568206e-02	wilted	MD2085	Eukaryota
## 2070	84751	MD2076	4.566264e-02	wilted	MD2076	Eukaryota
## 2118	84751	MP2117	4.547686e-02	healthy	MP2117	Eukaryota
## 2089	84751	MP2110	4.529604e-02	healthy	MP2110	Eukaryota
## 2092	84751	MP2129	4.491929e-02	healthy	MP2129	Eukaryota
## 1751	4785	MP2128	4.491291e-02	healthy	MP2128	Eukaryota
## 2078	84751	MD2106	4.482773e-02	wilted	MD2106	Eukaryota
## 2098	84751	MP2058	4.445719e-02	healthy	MP2058	Eukaryota
## 2110	84751	MP2107	4.443249e-02	healthy	MP2107	Eukaryota
## 2116	84751	MP2060	4.423126e-02	healthy	MP2060	Eukaryota
## 569	154	MP2070	4.418105e-02	healthy	MP2070	Bacteria
## 2071	84751	MP2138	4.400013e-02	healthy	MP2138	Eukaryota
## 2112	84751	MP2120	4.219316e-02	healthy	MP2120	Eukaryota
## 1619	42253	MP2058	4.215356e-02	healthy	MP2058	Bacteria
## 1909	638849	MP2140	4.214515e-02	healthy	MP2140	Bacteria
## 1911	638849	MP2139	4.173039e-02	healthy	MP2139	Bacteria
## 1187	274537	MP2070	4.161332e-02	healthy	MP2070	Bacteria
## 562	154	MD2106	4.149710e-02	wilted	MD2106	Bacteria
## 574	154	MP2069	4.139011e-02	healthy	MP2069	Bacteria
## 2102	84751	MP2127	4.113097e-02	healthy	MP2127	Eukaryota
## 1210	274537	MD2106	4.095433e-02	wilted	MD2106	Bacteria
## 2095	84751	MP2118	4.082555e-02	healthy	MP2118	Eukaryota
## 1169	274537	MP2099	4.046069e-02	healthy	MP2099	Bacteria
## 2086	84751	MD2125	4.017543e-02	wilted	MD2125	Eukaryota
## 1205	274537	MP2069	3.990982e-02	healthy	MP2069	Bacteria
## 534	154	MP2099	3.982070e-02	healthy	MP2099	Bacteria
## 2080	84751	MD2136	3.972543e-02	wilted	MD2136	Eukaryota
## 565	154	MP2047	3.961266e-02	healthy	MP2047	Bacteria
## 2082	84751	MP2130	3.945633e-02	healthy	MP2130	Eukaryota
## 567	154	MP2097	3.923510e-02	healthy	MP2097	Bacteria
## 2101	84751	MD2075	3.919329e-02	wilted	MD2075	Eukaryota
## 573	154	MP2078	3.780578e-02	healthy	MP2078	Bacteria
## 578	154	MP2087	3.724254e-02	healthy	MP2087	Bacteria
## 532	154	MP2098	3.718992e-02	healthy	MP2098	Bacteria
## 2068	84751	MD2065	3.683968e-02	wilted	MD2065	Eukaryota
## 2090	84751	MD2135	3.645228e-02	wilted	MD2135	Eukaryota
## 561	154	MP2068	3.628953e-02	healthy	MP2068	Bacteria
## 537	154	MD2095	3.620229e-02	wilted	MD2095	Bacteria
## 568	154	MP2119	3.605371e-02	healthy	MP2119	Bacteria
## 1956	638849	MP2069	3.601602e-02	healthy	MP2069	Bacteria

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## 1937 638849 MP2070 3.569951e-02 healthy MP2070 Bacteria
## 557    154 MP2077 3.552770e-02 healthy MP2077 Bacteria
## 1188 274537 MP2097 3.546184e-02 healthy MP2097 Bacteria
## 1609 42253 MD2065 3.539690e-02 wilted MD2065 Bacteria
## 546    154 MD2076 3.539368e-02 wilted MD2076 Bacteria
## 535    154 MD2085 3.535419e-02 wilted MD2085 Bacteria
## 531    154 MP2050 3.534434e-02 healthy MP2050 Bacteria
## 552    154 MP2048 3.521867e-02 healthy MP2048 Bacteria
## 1193 274537 MD2095 3.513621e-02 wilted MD2095 Bacteria
## 560    154 MP2117 3.504435e-02 healthy MP2117 Bacteria
## 1186 274537 MP2047 3.496002e-02 healthy MP2047 Bacteria
## 544    154 MP2067 3.475493e-02 healthy MP2067 Bacteria
## 564    154 MD2056 3.473546e-02 wilted MD2056 Bacteria
## 582    154 MP2127 3.462994e-02 healthy MP2127 Bacteria
## 1207 274537 MP2119 3.419307e-02 healthy MP2119 Bacteria
## 554    154 MD2096 3.404393e-02 wilted MD2096 Bacteria
## 566    154 MD2066 3.400946e-02 wilted MD2066 Bacteria
## 2073 84751 MD2086 3.399355e-02 wilted MD2086 Eukaryota
## 542    154 MP2049 3.398643e-02 healthy MP2049 Bacteria
## 1195 274537 MD2085 3.389100e-02 wilted MD2085 Bacteria
## 536    154 MP2059 3.387124e-02 healthy MP2059 Bacteria
## 539    154 MP2108 3.378409e-02 healthy MP2108 Bacteria
## 1170 274537 MP2068 3.372651e-02 healthy MP2068 Bacteria
## 551    154 MP2090 3.362327e-02 healthy MP2090 Bacteria
## 575    154 MD2055 3.361127e-02 wilted MD2055 Bacteria
## 1206 274537 MD2056 3.338005e-02 wilted MD2056 Bacteria
## 1910 638849 MP2099 3.315136e-02 healthy MP2099 Bacteria
## 1197 274537 MP2127 3.313836e-02 healthy MP2127 Bacteria
## 1179 274537 MP2110 3.305191e-02 healthy MP2110 Bacteria
## 556    154 MP2110 3.300844e-02 healthy MP2110 Bacteria
## 2117 84751 MP2128 3.297289e-02 healthy MP2128 Eukaryota
## 1184 274537 MP2100 3.297026e-02 healthy MP2100 Bacteria
## 1202 274537 MP2108 3.292202e-02 healthy MP2108 Bacteria
## 1174 274537 MP2048 3.289710e-02 healthy MP2048 Bacteria
## 555    154 MD2116 3.284709e-02 wilted MD2116 Bacteria
## 563    154 MP2129 3.283300e-02 healthy MP2129 Bacteria
## 1168 274537 MP2098 3.279124e-02 healthy MP2098 Bacteria
## 570    154 MD2126 3.276647e-02 wilted MD2126 Bacteria
## 11    1005039 MP2140 3.267198e-02 healthy MP2140 Bacteria
## 1216 274537 MD2055 3.267081e-02 wilted MD2055 Bacteria
## 1176 274537 MP2117 3.254911e-02 healthy MP2117 Bacteria
## 579    154 MP2130 3.237194e-02 healthy MP2130 Bacteria
## 1219 274537 MP2129 3.231793e-02 healthy MP2129 Bacteria
## 1172 274537 MP2049 3.224275e-02 healthy MP2049 Bacteria
## 1212 274537 MD2136 3.224046e-02 wilted MD2136 Bacteria
## 40    1005039 MP2139 3.216650e-02 healthy MP2139 Bacteria
## 1200 274537 MP2078 3.208681e-02 healthy MP2078 Bacteria
## 1167 274537 MP2067 3.204875e-02 healthy MP2067 Bacteria
## 1961 638849 MD2106 3.204800e-02 wilted MD2106 Bacteria
## 549    154 MD2136 3.198124e-02 wilted MD2136 Bacteria
## 538    154 MP2100 3.192097e-02 healthy MP2100 Bacteria
## 1217 274537 MP2087 3.188202e-02 healthy MP2087 Bacteria
## 548    154 MP2107 3.172193e-02 healthy MP2107 Bacteria
## 580    154 MD2115 3.160453e-02 wilted MD2115 Bacteria

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##	583	154	MP2089	3.153343e-02	healthy	MP2089	Bacteria
##	1214	274537	MP2130	3.137141e-02	healthy	MP2130	Bacteria
##	1199	274537	MP2090	3.129702e-02	healthy	MP2090	Bacteria
##	1192	274537	MP2107	3.124075e-02	healthy	MP2107	Bacteria
##	1943	638849	MP2047	3.115529e-02	healthy	MP2047	Bacteria
##	572	154	MD2135	3.101328e-02	wilted	MD2135	Bacteria
##	1180	274537	MD2066	3.094803e-02	wilted	MD2066	Bacteria
##	1218	274537	MD2126	3.091427e-02	wilted	MD2126	Bacteria
##	1171	274537	MP2050	3.090301e-02	healthy	MP2050	Bacteria
##	545	154	MD2105	3.087583e-02	wilted	MD2105	Bacteria
##	1189	274537	MP2059	3.079268e-02	healthy	MP2059	Bacteria
##	1175	274537	MD2096	3.075688e-02	wilted	MD2096	Bacteria
##	1191	274537	MD2116	3.071082e-02	wilted	MD2116	Bacteria
##	1944	638849	MP2068	3.070837e-02	healthy	MP2068	Bacteria
##	1183	274537	MD2105	3.061294e-02	wilted	MD2105	Bacteria
##	1178	274537	MP2077	3.031864e-02	healthy	MP2077	Bacteria
##	1960	638849	MP2087	3.016626e-02	healthy	MP2087	Bacteria
##	1917	638849	MP2100	3.011469e-02	healthy	MP2100	Bacteria
##	541	154	MD2075	3.009557e-02	wilted	MD2075	Bacteria
##	1920	638849	MD2095	3.005567e-02	wilted	MD2095	Bacteria
##	577	154	MP2118	3.003798e-02	healthy	MP2118	Bacteria
##	1215	274537	MP2089	3.003183e-02	healthy	MP2089	Bacteria
##	571	154	MP2120	2.969283e-02	healthy	MP2120	Bacteria
##	1209	274537	MD2115	2.949807e-02	wilted	MD2115	Bacteria
##	533	154	MP2057	2.925077e-02	healthy	MP2057	Bacteria
##	8	1005039	MP2099	2.916996e-02	healthy	MP2099	Bacteria
##	1922	638849	MP2097	2.899095e-02	healthy	MP2097	Bacteria
##	1919	638849	MP2059	2.893847e-02	healthy	MP2059	Bacteria
##	12	1005039	MD2106	2.891475e-02	wilted	MD2106	Bacteria
##	1926	638849	MP2077	2.888380e-02	healthy	MP2077	Bacteria
##	1952	638849	MD2055	2.887830e-02	wilted	MD2055	Bacteria
##	1936	638849	MD2116	2.883958e-02	wilted	MD2116	Bacteria
##	1921	638849	MP2108	2.883463e-02	healthy	MP2108	Bacteria
##	1925	638849	MD2085	2.880782e-02	wilted	MD2085	Bacteria
##	1208	274537	MD2076	2.860372e-02	wilted	MD2076	Bacteria
##	1198	274537	MP2120	2.853573e-02	healthy	MP2120	Bacteria
##	1916	638849	MP2049	2.843419e-02	healthy	MP2049	Bacteria
##	1912	638849	MP2048	2.841862e-02	healthy	MP2048	Bacteria
##	1957	638849	MD2056	2.827920e-02	wilted	MD2056	Bacteria
##	1940	638849	MP2067	2.825537e-02	healthy	MP2067	Bacteria
##	31	1005039	MP2070	2.818087e-02	healthy	MP2070	Bacteria
##	1946	638849	MP2119	2.815362e-02	healthy	MP2119	Bacteria
##	1915	638849	MP2050	2.813261e-02	healthy	MP2050	Bacteria
##	1203	274537	MP2118	2.807351e-02	healthy	MP2118	Bacteria
##	1959	638849	MP2078	2.781736e-02	healthy	MP2078	Bacteria
##	1958	638849	MP2127	2.779120e-02	healthy	MP2127	Bacteria
##	558	154	MD2125	2.777694e-02	wilted	MD2125	Bacteria
##	1935	638849	MP2089	2.768597e-02	healthy	MP2089	Bacteria
##	1913	638849	MP2098	2.766949e-02	healthy	MP2098	Bacteria
##	540	154	MP2060	2.747590e-02	healthy	MP2060	Bacteria
##	43	1005039	MP2047	2.744840e-02	healthy	MP2047	Bacteria
##	1941	638849	MD2105	2.728877e-02	wilted	MD2105	Bacteria
##	1934	638849	MD2066	2.719987e-02	wilted	MD2066	Bacteria
##	1942	638849	MP2129	2.713125e-02	healthy	MP2129	Bacteria

##	1951	638849	MP2117	2.709125e-02	healthy	MP2117	Bacteria
##	1930	638849	MP2107	2.691008e-02	healthy	MP2107	Bacteria
##	1947	638849	MP2110	2.667627e-02	healthy	MP2110	Bacteria
##	1948	638849	MD2115	2.653681e-02	wilted	MD2115	Bacteria
##	1924	638849	MD2096	2.640305e-02	wilted	MD2096	Bacteria
##	1204	274537	MD2135	2.638464e-02	wilted	MD2135	Bacteria
##	547	154	MD2086	2.622014e-02	wilted	MD2086	Bacteria
##	1201	274537	MP2138	2.620301e-02	healthy	MP2138	Bacteria
##	576	154	MP2138	2.608136e-02	healthy	MP2138	Bacteria
##	559	154	MP2058	2.601859e-02	healthy	MP2058	Bacteria
##	1190	274537	MP2057	2.591966e-02	healthy	MP2057	Bacteria
##	1213	274537	MD2125	2.586211e-02	wilted	MD2125	Bacteria
##	1181	274537	MD2075	2.566044e-02	wilted	MD2075	Bacteria
##	1173	274537	MP2060	2.554649e-02	healthy	MP2060	Bacteria
##	1953	638849	MD2126	2.548348e-02	wilted	MD2126	Bacteria
##	1933	638849	MP2090	2.542771e-02	healthy	MP2090	Bacteria
##	1	1005039	MD2085	2.536837e-02	wilted	MD2085	Bacteria
##	1918	638849	MP2130	2.512618e-02	healthy	MP2130	Bacteria
##	1950	638849	MP2120	2.509177e-02	healthy	MP2120	Bacteria
##	1931	638849	MD2136	2.496610e-02	wilted	MD2136	Bacteria
##	25	1005039	MD2055	2.453378e-02	wilted	MD2055	Bacteria
##	44	1005039	MP2077	2.451692e-02	healthy	MP2077	Bacteria
##	9	1005039	MP2127	2.437182e-02	healthy	MP2127	Bacteria
##	52	1005039	MP2097	2.436401e-02	healthy	MP2097	Bacteria
##	29	1005039	MP2069	2.430888e-02	healthy	MP2069	Bacteria
##	33	1005039	MP2048	2.416241e-02	healthy	MP2048	Bacteria
##	1927	638849	MP2057	2.394783e-02	healthy	MP2057	Bacteria
##	15	1005039	MP2050	2.387141e-02	healthy	MP2050	Bacteria
##	550	154	MD2065	2.356253e-02	wilted	MD2065	Bacteria
##	1955	638849	MP2118	2.356000e-02	healthy	MP2118	Bacteria
##	24	1005039	MP2117	2.352661e-02	healthy	MP2117	Bacteria
##	1923	638849	MP2060	2.352279e-02	healthy	MP2060	Bacteria
##	7	1005039	MD2116	2.346679e-02	wilted	MD2116	Bacteria
##	32	1005039	MP2108	2.339470e-02	healthy	MP2108	Bacteria
##	581	154	MP2128	2.323842e-02	healthy	MP2128	Bacteria
##	1182	274537	MP2058	2.320357e-02	healthy	MP2058	Bacteria
##	34	1005039	MP2098	2.318043e-02	healthy	MP2098	Bacteria
##	46	1005039	MD2056	2.317836e-02	wilted	MD2056	Bacteria
##	19	1005039	MP2059	2.314228e-02	healthy	MP2059	Bacteria
##	17	1005039	MP2119	2.301906e-02	healthy	MP2119	Bacteria
##	1938	638849	MD2076	2.295268e-02	wilted	MD2076	Bacteria
##	42	1005039	MD2066	2.294467e-02	wilted	MD2066	Bacteria
##	47	1005039	MP2087	2.293004e-02	healthy	MP2087	Bacteria
##	6	1005039	MP2100	2.285958e-02	healthy	MP2100	Bacteria
##	1932	638849	MP2138	2.280902e-02	healthy	MP2138	Bacteria
##	2	1005039	MD2096	2.271596e-02	wilted	MD2096	Bacteria
##	21	1005039	MP2049	2.259899e-02	healthy	MP2049	Bacteria
##	28	1005039	MP2107	2.256125e-02	healthy	MP2107	Bacteria
##	18	1005039	MD2095	2.237657e-02	wilted	MD2095	Bacteria
##	48	1005039	MP2078	2.232241e-02	healthy	MP2078	Bacteria
##	3	1005039	MD2115	2.227047e-02	wilted	MD2115	Bacteria
##	38	1005039	MP2130	2.218914e-02	healthy	MP2130	Bacteria
##	1211	274537	MP2128	2.209555e-02	healthy	MP2128	Bacteria
##	1949	638849	MD2125	2.197262e-02	wilted	MD2125	Bacteria

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## 26 1005039 MP2068 2.197014e-02 healthy MP2068 Bacteria
## 23 1005039 MP2067 2.196261e-02 healthy MP2067 Bacteria
## 1928 638849 MP2058 2.164552e-02 healthy MP2058 Bacteria
## 1939 638849 MD2135 2.161865e-02 wilted MD2135 Bacteria
## 27 1005039 MD2136 2.151524e-02 wilted MD2136 Bacteria
## 4 1005039 MD2105 2.151386e-02 wilted MD2105 Bacteria
## 37 1005039 MD2126 2.133175e-02 wilted MD2126 Bacteria
## 35 1005039 MP2110 2.130044e-02 healthy MP2110 Bacteria
## 39 1005039 MP2129 2.120190e-02 healthy MP2129 Bacteria
## 1194 274537 MD2086 2.117548e-02 wilted MD2086 Bacteria
## 1196 274537 MD2065 2.105757e-02 wilted MD2065 Bacteria
## 53 1005039 MD2135 2.078082e-02 wilted MD2135 Bacteria
## 30 1005039 MP2120 2.025381e-02 healthy MP2120 Bacteria
## 36 1005039 MP2060 2.015721e-02 healthy MP2060 Bacteria
## 1914 638849 MD2075 2.012870e-02 wilted MD2075 Bacteria
## 51 1005039 MP2090 2.011312e-02 healthy MP2090 Bacteria
## 1945 638849 MD2065 2.002195e-02 wilted MD2065 Bacteria
## 5 1005039 MP2118 1.968545e-02 healthy MP2118 Bacteria
## 50 1005039 MP2089 1.950863e-02 healthy MP2089 Bacteria
## 45 1005039 MP2138 1.917174e-02 healthy MP2138 Bacteria
## 10 1005039 MD2076 1.905048e-02 wilted MD2076 Bacteria
## 1954 638849 MP2128 1.900778e-02 healthy MP2128 Bacteria
## 41 1005039 MP2057 1.826569e-02 healthy MP2057 Bacteria
## 20 1005039 MD2125 1.802329e-02 wilted MD2125 Bacteria
## 1929 638849 MD2086 1.729885e-02 wilted MD2086 Bacteria
## 16 1005039 MP2058 1.606806e-02 healthy MP2058 Bacteria
## 22 1005039 MD2075 1.593725e-02 wilted MD2075 Bacteria
## 13 1005039 MP2128 1.555911e-02 healthy MP2128 Bacteria
## 276 1307763 MP2140 1.530135e-02 healthy MP2140 Bacteria
## 14 1005039 MD2086 1.491245e-02 wilted MD2086 Bacteria
## 297 1307763 MP2139 1.425653e-02 healthy MP2139 Bacteria
## 49 1005039 MD2065 1.364007e-02 wilted MD2065 Bacteria
## 274 1307763 MP2069 1.343843e-02 healthy MP2069 Bacteria
## 291 1307763 MP2070 1.327999e-02 healthy MP2070 Bacteria
## 270 1307763 MP2099 1.287386e-02 healthy MP2099 Bacteria
## 292 1307763 MD2106 1.240966e-02 wilted MD2106 Bacteria
## 307 1307763 MD2095 1.234876e-02 wilted MD2095 Bacteria
## 1008 2335 MP2140 1.190316e-02 healthy MP2140 Bacteria
## 296 1307763 MP2047 1.179466e-02 healthy MP2047 Bacteria
## 1039 2335 MP2139 1.156110e-02 healthy MP2139 Bacteria
## 288 1307763 MP2119 1.141803e-02 healthy MP2119 Bacteria
## 287 1307763 MD2085 1.141101e-02 wilted MD2085 Bacteria
## 311 1307763 MD2056 1.121223e-02 wilted MD2056 Bacteria
## 267 1307763 MP2068 1.116232e-02 healthy MP2068 Bacteria
## 300 1307763 MD2116 1.108288e-02 wilted MD2116 Bacteria
## 317 1307763 MP2129 1.108009e-02 healthy MP2129 Bacteria
## 974 2132 MD2086 1.102575e-02 wilted MD2086 Bacteria
## 273 1307763 MP2048 1.102333e-02 healthy MP2048 Bacteria
## 294 1307763 MP2097 1.100393e-02 healthy MP2097 Bacteria
## 313 1307763 MP2087 1.097308e-02 healthy MP2087 Bacteria
## 290 1307763 MP2059 1.087758e-02 healthy MP2059 Bacteria
## 284 1307763 MD2066 1.084657e-02 wilted MD2066 Bacteria
## 302 1307763 MD2055 1.078464e-02 wilted MD2055 Bacteria
## 283 1307763 MP2127 1.077876e-02 healthy MP2127 Bacteria

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## 275 1307763 MP2049 1.077563e-02 healthy MP2049 Bacteria
## 298 1307763 MP2117 1.073352e-02 healthy MP2117 Bacteria
## 301 1307763 MP2100 1.071028e-02 healthy MP2100 Bacteria
## 309 1307763 MP2130 1.060237e-02 healthy MP2130 Bacteria
## 271 1307763 MP2067 1.058247e-02 healthy MP2067 Bacteria
## 992 2132 MD2076 1.049923e-02 wilted MD2076 Bacteria
## 282 1307763 MP2110 1.038940e-02 healthy MP2110 Bacteria
## 268 1307763 MP2050 1.037968e-02 healthy MP2050 Bacteria
## 277 1307763 MP2098 1.033388e-02 healthy MP2098 Bacteria
## 306 1307763 MP2090 1.031603e-02 healthy MP2090 Bacteria
## 1486 389348 MD2075 1.025118e-02 wilted MD2075 Bacteria
## 286 1307763 MP2078 1.023879e-02 healthy MP2078 Bacteria
## 278 1307763 MP2108 1.019616e-02 healthy MP2108 Bacteria
## 303 1307763 MP2107 1.017753e-02 healthy MP2107 Bacteria
## 304 1307763 MD2136 1.014197e-02 wilted MD2136 Bacteria
## 308 1307763 MP2089 1.013122e-02 healthy MP2089 Bacteria
## 316 1307763 MD2115 1.009727e-02 wilted MD2115 Bacteria
## 318 1307763 MD2126 1.009274e-02 wilted MD2126 Bacteria
## 285 1307763 MD2096 1.008783e-02 wilted MD2096 Bacteria
## 279 1307763 MD2105 1.004885e-02 wilted MD2105 Bacteria
## 1016 2335 MP2070 9.990085e-03 healthy MP2070 Bacteria
## 1038 2335 MP2069 9.975846e-03 healthy MP2069 Bacteria
## 280 1307763 MD2076 9.889320e-03 wilted MD2076 Bacteria
## 961 2132 MP2139 9.823692e-03 healthy MP2139 Bacteria
## 310 1307763 MP2120 9.685021e-03 healthy MP2120 Bacteria
## 289 1307763 MP2118 9.604812e-03 healthy MP2118 Bacteria
## 295 1307763 MP2077 9.586345e-03 healthy MP2077 Bacteria
## 320 1332188 MD2075 9.382021e-03 wilted MD2075 Bacteria
## 366 1332188 MD2136 9.218503e-03 wilted MD2136 Bacteria
## 1488 389348 MD2085 9.197220e-03 wilted MD2085 Bacteria
## 1030 2335 MP2047 8.913936e-03 healthy MP2047 Bacteria
## 281 1307763 MP2057 8.861573e-03 healthy MP2057 Bacteria
## 1501 389348 MD2076 8.856200e-03 wilted MD2076 Bacteria
## 326 1332188 MD2125 8.856068e-03 wilted MD2125 Bacteria
## 1018 2335 MP2099 8.750988e-03 healthy MP2099 Bacteria
## 266 1307763 MP2060 8.638804e-03 healthy MP2060 Bacteria
## 299 1307763 MD2125 8.568844e-03 wilted MD2125 Bacteria
## 1052 2335 MD2106 8.511594e-03 wilted MD2106 Bacteria
## 972 2132 MP2070 8.505615e-03 healthy MP2070 Bacteria
## 810 2026885 MP2139 8.492216e-03 healthy MP2139 Bacteria
## 315 1307763 MP2138 8.491039e-03 healthy MP2138 Bacteria
## 1017 2335 MP2097 8.477036e-03 healthy MP2097 Bacteria
## 364 1332188 MD2126 8.394311e-03 wilted MD2126 Bacteria
## 312 1307763 MD2135 8.391991e-03 wilted MD2135 Bacteria
## 963 2132 MP2077 8.390651e-03 healthy MP2077 Bacteria
## 352 1332188 MP2127 8.259966e-03 healthy MP2127 Bacteria
## 799 2026885 MP2140 8.182234e-03 healthy MP2140 Bacteria
## 968 2132 MP2098 8.134541e-03 healthy MP2098 Bacteria
## 272 1307763 MD2075 8.066101e-03 wilted MD2075 Bacteria
## 1050 2335 MP2068 7.914232e-03 healthy MP2068 Bacteria
## 269 1307763 MP2058 7.823738e-03 healthy MP2058 Bacteria
## 319 1332188 MD2076 7.767068e-03 wilted MD2076 Bacteria
## 1031 2335 MP2048 7.713860e-03 healthy MP2048 Bacteria
## 1010 2335 MP2050 7.708670e-03 healthy MP2050 Bacteria

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## 1020      2335 MP2078 7.656033e-03   healthy  MP2078  Bacteria
## 858       2047767 MP2139 7.647866e-03  healthy  MP2139  Bacteria
## 1023      2335 MD2085 7.553502e-03   wilted   MD2085  Bacteria
## 967       2132 MP2078 7.524259e-03   healthy  MP2078  Bacteria
## 988       2132 MP2047 7.500751e-03   healthy  MP2047  Bacteria
## 1534      389348 MP2129 7.486548e-03  healthy  MP2129  Bacteria
## 1051      2335 MP2087 7.483405e-03   healthy  MP2087  Bacteria
## 1040      2335 MP2127 7.471962e-03   healthy  MP2127  Bacteria
## 1021      2335 MP2077 7.454891e-03   healthy  MP2077  Bacteria
## 1056      2335 MP2067 7.450861e-03   healthy  MP2067  Bacteria
## 1035      2335 MP2110 7.447910e-03   healthy  MP2110  Bacteria
## 314       1307763 MP2128 7.428675e-03  healthy  MP2128  Bacteria
## 1541      412593 MP2140 7.403878e-03  healthy  MP2140  Bacteria
## 1022      2335 MP2098 7.351215e-03   healthy  MP2098  Bacteria
## 1009      2335 MP2049 7.349451e-03   healthy  MP2049  Bacteria
## 990       2132 MP2127 7.345319e-03   healthy  MP2127  Bacteria
## 833       2026885 MP2069 7.343510e-03  healthy  MP2069  Bacteria
## 1036      2335 MD2095 7.329297e-03   wilted   MD2095  Bacteria
## 293       1307763 MD2065 7.328990e-03  wilted   MD2065  Bacteria
## 851       2047767 MP2140 7.327941e-03  healthy  MP2140  Bacteria
## 1520      389348 MP2070 7.326063e-03   healthy  MP2070  Bacteria
## 1519      389348 MD2125 7.324207e-03  wilted   MD2125  Bacteria
## 1047      2335 MD2056 7.322437e-03   wilted   MD2056  Bacteria
## 1015      2335 MP2059 7.317773e-03   healthy  MP2059  Bacteria
## 1046      2335 MP2119 7.310383e-03   healthy  MP2119  Bacteria
## 1011      2335 MD2076 7.294074e-03   wilted   MD2076  Bacteria
## 1028      2335 MP2100 7.292582e-03   healthy  MP2100  Bacteria
## 1049      2335 MP2108 7.223522e-03   healthy  MP2108  Bacteria
## 999       2132 MP2097 7.153833e-03   healthy  MP2097  Bacteria
## 1054      2335 MP2117 7.113434e-03   healthy  MP2117  Bacteria
## 1037      2335 MD2136 7.063738e-03   wilted   MD2136  Bacteria
## 1060      2335 MP2130 6.971424e-03   healthy  MP2130  Bacteria
## 1551      412593 MP2139 6.965890e-03  healthy  MP2139  Bacteria
## 1494      389348 MP2140 6.948254e-03  healthy  MP2140  Bacteria
## 1029      2335 MD2115 6.914682e-03   wilted   MD2115  Bacteria
## 1026      2335 MD2096 6.900797e-03   wilted   MD2096  Bacteria
## 1034      2335 MD2116 6.890660e-03   wilted   MD2116  Bacteria
## 1045      2335 MP2107 6.872782e-03   healthy  MP2107  Bacteria
## 958       2132 MP2140 6.834349e-03   healthy  MP2140  Bacteria
## 956       2132 MP2050 6.795556e-03   healthy  MP2050  Bacteria
## 1004      2132 MP2130 6.777774e-03   healthy  MP2130  Bacteria
## 1505      389348 MP2097 6.735530e-03  healthy  MP2097  Bacteria
## 1059      2335 MP2129 6.731904e-03   healthy  MP2129  Bacteria
## 305       1307763 MD2086 6.726211e-03  wilted   MD2086  Bacteria
## 1012      2335 MD2066 6.713322e-03   wilted   MD2066  Bacteria
## 1568      412593 MP2069 6.693471e-03  healthy  MP2069  Bacteria
## 1506      389348 MP2078 6.680910e-03  healthy  MP2078  Bacteria
## 987       2132 MP2090 6.674551e-03   healthy  MP2090  Bacteria
## 1511      389348 MP2108 6.673583e-03  healthy  MP2108  Bacteria
## 1537      389348 MD2135 6.661401e-03  wilted   MD2135  Bacteria
## 1044      2335 MD2055 6.654787e-03   wilted   MD2055  Bacteria
## 1055      2335 MD2126 6.598026e-03   wilted   MD2126  Bacteria
## 800       2026885 MP2100 6.573067e-03  healthy  MP2100  Bacteria
## 965       2132 MP2067 6.570466e-03   healthy  MP2067  Bacteria

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## 1024	2335	MP2090	6.504556e-03	healthy	MP2090	Bacteria
## 1490	389348	MP2118	6.498372e-03	healthy	MP2118	Bacteria
## 957	2132	MD2085	6.451356e-03	wilted	MD2085	Bacteria
## 1048	2335	MP2089	6.416440e-03	healthy	MP2089	Bacteria
## 955	2132	MP2068	6.414743e-03	healthy	MP2068	Bacteria
## 983	2132	MP2087	6.407423e-03	healthy	MP2087	Bacteria
## 798	2026885	MP2059	6.404821e-03	healthy	MP2059	Bacteria
## 1053	2335	MD2105	6.393950e-03	wilted	MD2105	Bacteria
## 842	2026885	MP2047	6.348462e-03	healthy	MP2047	Bacteria
## 979	2132	MD2075	6.344033e-03	wilted	MD2075	Bacteria
## 973	2132	MP2108	6.331729e-03	healthy	MP2108	Bacteria
## 837	2026885	MP2070	6.323042e-03	healthy	MP2070	Bacteria
## 834	2026885	MD2106	6.291178e-03	wilted	MD2106	Bacteria
## 2146	848	MD2086	6.273098e-03	wilted	MD2086	Bacteria
## 980	2132	MD2125	6.259086e-03	wilted	MD2125	Bacteria
## 1058	2335	MP2118	6.219677e-03	healthy	MP2118	Bacteria
## 815	2026885	MP2077	6.217608e-03	healthy	MP2077	Bacteria
## 1033	2335	MP2060	6.136380e-03	healthy	MP2060	Bacteria
## 805	2026885	MP2099	6.103461e-03	healthy	MP2099	Bacteria
## 1019	2335	MP2120	6.077054e-03	healthy	MP2120	Bacteria
## 826	2026885	MP2067	6.038684e-03	healthy	MP2067	Bacteria
## 982	2132	MP2100	6.018441e-03	healthy	MP2100	Bacteria
## 796	2026885	MP2098	5.995458e-03	healthy	MP2098	Bacteria
## 1003	2132	MP2138	5.960758e-03	healthy	MP2138	Bacteria
## 970	2132	MP2119	5.9377780e-03	healthy	MP2119	Bacteria
## 823	2026885	MP2049	5.911681e-03	healthy	MP2049	Bacteria
## 828	2026885	MP2127	5.910027e-03	healthy	MP2127	Bacteria
## 846	2026885	MP2068	5.882976e-03	healthy	MP2068	Bacteria
## 827	2026885	MD2085	5.881280e-03	wilted	MD2085	Bacteria
## 964	2132	MP2099	5.881149e-03	healthy	MP2099	Bacteria
## 1057	2335	MD2135	5.878514e-03	wilted	MD2135	Bacteria
## 984	2132	MP2069	5.863223e-03	healthy	MP2069	Bacteria
## 978	2132	MD2096	5.847342e-03	wilted	MD2096	Bacteria
## 1492	389348	MP2098	5.8444818e-03	healthy	MP2098	Bacteria
## 830	2026885	MD2095	5.835675e-03	wilted	MD2095	Bacteria
## 806	2026885	MP2050	5.814113e-03	healthy	MP2050	Bacteria
## 880	2047767	MP2069	5.792426e-03	healthy	MP2069	Bacteria
## 985	2132	MD2115	5.785132e-03	wilted	MD2115	Bacteria
## 1014	2335	MD2075	5.767303e-03	wilted	MD2075	Bacteria
## 1521	389348	MP2119	5.764933e-03	healthy	MP2119	Bacteria
## 824	2026885	MD2116	5.758279e-03	wilted	MD2116	Bacteria
## 991	2132	MD2095	5.752388e-03	wilted	MD2095	Bacteria
## 996	2132	MP2089	5.734995e-03	healthy	MP2089	Bacteria
## 989	2132	MD2116	5.734186e-03	wilted	MD2116	Bacteria
## 977	2132	MP2110	5.709098e-03	healthy	MP2110	Bacteria
## 1027	2335	MP2138	5.705297e-03	healthy	MP2138	Bacteria
## 1043	2335	MP2057	5.682141e-03	healthy	MP2057	Bacteria
## 981	2132	MD2105	5.673147e-03	wilted	MD2105	Bacteria
## 816	2026885	MP2117	5.663814e-03	healthy	MP2117	Bacteria
## 2142	848	MD2076	5.651040e-03	wilted	MD2076	Bacteria
## 1507	389348	MD2106	5.649724e-03	wilted	MD2106	Bacteria
## 843	2026885	MD2055	5.642769e-03	wilted	MD2055	Bacteria
## 844	2026885	MP2119	5.632757e-03	healthy	MP2119	Bacteria
## 817	2026885	MP2129	5.629884e-03	healthy	MP2129	Bacteria

##	820	2026885	MD2056	5.614136e-03	wilted	MD2056	Bacteria
##	878	2047767	MP2070	5.592843e-03	healthy	MP2070	Bacteria
##	1504	389348	MD2096	5.580644e-03	wilted	MD2096	Bacteria
##	811	2026885	MP2097	5.565989e-03	healthy	MP2097	Bacteria
##	1042	2335	MD2125	5.564961e-03	wilted	MD2125	Bacteria
##	1500	389348	MP2110	5.564197e-03	healthy	MP2110	Bacteria
##	998	2132	MP2107	5.547252e-03	healthy	MP2107	Bacteria
##	975	2132	MP2049	5.529296e-03	healthy	MP2049	Bacteria
##	797	2026885	MP2107	5.501857e-03	healthy	MP2107	Bacteria
##	1515	389348	MD2116	5.501285e-03	wilted	MD2116	Bacteria
##	976	2132	MD2066	5.500303e-03	wilted	MD2066	Bacteria
##	971	2132	MP2058	5.467536e-03	healthy	MP2058	Bacteria
##	832	2026885	MD2136	5.459816e-03	wilted	MD2136	Bacteria
##	1575	412593	MP2070	5.456432e-03	healthy	MP2070	Bacteria
##	1001	2132	MP2129	5.450207e-03	healthy	MP2129	Bacteria
##	1491	389348	MP2049	5.445171e-03	healthy	MP2049	Bacteria
##	848	2026885	MP2087	5.428376e-03	healthy	MP2087	Bacteria
##	1006	2132	MD2126	5.423801e-03	wilted	MD2126	Bacteria
##	825	2026885	MD2105	5.410266e-03	wilted	MD2105	Bacteria
##	890	2047767	MD2106	5.403012e-03	wilted	MD2106	Bacteria
##	1526	389348	MD2056	5.381550e-03	wilted	MD2056	Bacteria
##	808	2026885	MP2108	5.380483e-03	healthy	MP2108	Bacteria
##	1495	389348	MP2050	5.342027e-03	healthy	MP2050	Bacteria
##	1514	389348	MD2095	5.319293e-03	wilted	MD2095	Bacteria
##	835	2026885	MD2115	5.311941e-03	wilted	MD2115	Bacteria
##	335	1332188	MP2100	5.306421e-03	healthy	MP2100	Bacteria
##	802	2026885	MP2110	5.288885e-03	healthy	MP2110	Bacteria
##	1528	389348	MP2087	5.278127e-03	healthy	MP2087	Bacteria
##	997	2132	MD2056	5.277288e-03	wilted	MD2056	Bacteria
##	1527	389348	MP2139	5.277190e-03	healthy	MP2139	Bacteria
##	1013	2335	MP2058	5.262025e-03	healthy	MP2058	Bacteria
##	1524	389348	MP2047	5.261396e-03	healthy	MP2047	Bacteria
##	1578	412593	MD2106	5.254984e-03	wilted	MD2106	Bacteria
##	1558	412593	MP2047	5.250526e-03	healthy	MP2047	Bacteria
##	959	2132	MP2060	5.229704e-03	healthy	MP2060	Bacteria
##	803	2026885	MD2096	5.213935e-03	wilted	MD2096	Bacteria
##	1032	2335	MD2086	5.205765e-03	wilted	MD2086	Bacteria
##	966	2132	MP2117	5.204372e-03	healthy	MP2117	Bacteria
##	1523	389348	MP2107	5.202251e-03	healthy	MP2107	Bacteria
##	969	2132	MP2057	5.197934e-03	healthy	MP2057	Bacteria
##	1005	2132	MD2055	5.192983e-03	wilted	MD2055	Bacteria
##	838	2026885	MP2078	5.191871e-03	healthy	MP2078	Bacteria
##	807	2026885	MP2048	5.186480e-03	healthy	MP2048	Bacteria
##	962	2132	MP2118	5.172868e-03	healthy	MP2118	Bacteria
##	822	2026885	MP2089	5.144007e-03	healthy	MP2089	Bacteria
##	1498	389348	MP2057	5.139595e-03	healthy	MP2057	Bacteria
##	1545	412593	MP2097	5.130613e-03	healthy	MP2097	Bacteria
##	2129	848	MP2070	5.119417e-03	healthy	MP2070	Bacteria
##	1002	2132	MP2048	5.104155e-03	healthy	MP2048	Bacteria
##	1485	389348	MP2099	5.092954e-03	healthy	MP2099	Bacteria
##	839	2026885	MD2126	5.074329e-03	wilted	MD2126	Bacteria
##	1539	412593	MP2099	5.072744e-03	healthy	MP2099	Bacteria
##	1562	412593	MP2127	5.051666e-03	healthy	MP2127	Bacteria
##	819	2026885	MP2130	5.034918e-03	healthy	MP2130	Bacteria

##	960	2132	MP2059	5.003545e-03	healthy	MP2059	Bacteria
##	1525	389348	MP2138	4.999738e-03	healthy	MP2138	Bacteria
##	1557	412593	MP2050	4.987963e-03	healthy	MP2050	Bacteria
##	1553	412593	MP2098	4.971108e-03	healthy	MP2098	Bacteria
##	1535	389348	MP2089	4.969123e-03	healthy	MP2089	Bacteria
##	330	1332188	MP2097	4.959877e-03	healthy	MP2097	Bacteria
##	2132	848	MP2139	4.936202e-03	healthy	MP2139	Bacteria
##	1550	412593	MD2095	4.930618e-03	wilted	MD2095	Bacteria
##	1041	2335	MP2128	4.912349e-03	healthy	MP2128	Bacteria
##	1542	412593	MP2048	4.881877e-03	healthy	MP2048	Bacteria
##	821	2026885	MD2066	4.871330e-03	wilted	MD2066	Bacteria
##	1007	2132	MD2135	4.862136e-03	wilted	MD2135	Bacteria
##	860	2047767	MP2047	4.848311e-03	healthy	MP2047	Bacteria
##	1509	389348	MP2117	4.832065e-03	healthy	MP2117	Bacteria
##	856	2047767	MP2099	4.823485e-03	healthy	MP2099	Bacteria
##	1569	412593	MD2136	4.795566e-03	wilted	MD2136	Bacteria
##	1025	2335	MD2065	4.788628e-03	wilted	MD2065	Bacteria
##	829	2026885	MP2118	4.778615e-03	healthy	MP2118	Bacteria
##	1585	412593	MP2087	4.764370e-03	healthy	MP2087	Bacteria
##	836	2026885	MP2090	4.733026e-03	healthy	MP2090	Bacteria
##	324	1332188	MP2050	4.727073e-03	healthy	MP2050	Bacteria
##	1560	412593	MD2085	4.703124e-03	wilted	MD2085	Bacteria
##	1531	389348	MP2090	4.697238e-03	healthy	MP2090	Bacteria
##	812	2026885	MP2120	4.673956e-03	healthy	MP2120	Bacteria
##	986	2132	MP2120	4.673956e-03	healthy	MP2120	Bacteria
##	753	1930593	MP2140	4.670138e-03	healthy	MP2140	Bacteria
##	1565	412593	MD2116	4.666053e-03	wilted	MD2116	Bacteria
##	367	1332188	MP2130	4.663754e-03	healthy	MP2130	Bacteria
##	1554	412593	MD2096	4.660538e-03	wilted	MD2096	Bacteria
##	1540	412593	MP2049	4.657457e-03	healthy	MP2049	Bacteria
##	1530	389348	MD2115	4.655581e-03	wilted	MD2115	Bacteria
##	1584	412593	MP2068	4.632604e-03	healthy	MP2068	Bacteria
##	1544	412593	MP2100	4.594401e-03	healthy	MP2100	Bacteria
##	818	2026885	MP2057	4.573715e-03	healthy	MP2057	Bacteria
##	1533	389348	MP2130	4.566928e-03	healthy	MP2130	Bacteria
##	809	2026885	MP2138	4.561805e-03	healthy	MP2138	Bacteria
##	1572	412593	MD2055	4.548971e-03	wilted	MD2055	Bacteria
##	1574	412593	MP2117	4.546894e-03	healthy	MP2117	Bacteria
##	362	1332188	MP2077	4.543636e-03	healthy	MP2077	Bacteria
##	847	2026885	MP2128	4.541417e-03	healthy	MP2128	Bacteria
##	841	2026885	MD2135	4.518765e-03	wilted	MD2135	Bacteria
##	1489	389348	MP2068	4.517627e-03	healthy	MP2068	Bacteria
##	1536	389348	MD2126	4.494206e-03	wilted	MD2126	Bacteria
##	1513	389348	MD2066	4.492663e-03	wilted	MD2066	Bacteria
##	1503	389348	MP2127	4.488806e-03	healthy	MP2127	Bacteria
##	1516	389348	MP2128	4.481265e-03	healthy	MP2128	Bacteria
##	1508	389348	MD2105	4.452021e-03	wilted	MD2105	Bacteria
##	1548	412593	MP2108	4.414375e-03	healthy	MP2108	Bacteria
##	1499	389348	MP2048	4.404392e-03	healthy	MP2048	Bacteria
##	1576	412593	MP2129	4.396101e-03	healthy	MP2129	Bacteria
##	342	1332188	MD2135	4.381416e-03	wilted	MD2135	Bacteria
##	2163	848	MP2078	4.374876e-03	healthy	MP2078	Bacteria
##	1552	412593	MP2059	4.359525e-03	healthy	MP2059	Bacteria
##	1590	412593	MP2067	4.354706e-03	healthy	MP2067	Bacteria

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## 1487 389348 MP2067 4.348798e-03 healthy MP2067 Bacteria
## 865 2047767 MP2127 4.348091e-03 healthy MP2127 Bacteria
## 850 2047767 MP2098 4.338422e-03 healthy MP2098 Bacteria
## 813 2026885 MP2060 4.330282e-03 healthy MP2060 Bacteria
## 1510 389348 MD2086 4.319677e-03 wilted MD2086 Bacteria
## 1581 412593 MD2105 4.307860e-03 wilted MD2105 Bacteria
## 801 2026885 MD2076 4.306740e-03 wilted MD2076 Bacteria
## 1583 412593 MP2089 4.305769e-03 healthy MP2089 Bacteria
## 368 1332188 MP2118 4.295995e-03 healthy MP2118 Bacteria
## 995 2132 MD2136 4.293327e-03 wilted MD2136 Bacteria
## 590 187145 MP2140 4.290452e-03 healthy MP2140 Bacteria
## 597 187145 MP2139 4.286702e-03 healthy MP2139 Bacteria
## 853 2047767 MP2048 4.272672e-03 healthy MP2048 Bacteria
## 993 2132 MD2106 4.268132e-03 wilted MD2106 Bacteria
## 1571 412593 MP2090 4.267776e-03 healthy MP2090 Bacteria
## 1586 412593 MP2078 4.256280e-03 healthy MP2078 Bacteria
## 1566 412593 MP2107 4.248959e-03 healthy MP2107 Bacteria
## 1577 412593 MP2130 4.244177e-03 healthy MP2130 Bacteria
## 893 2047767 MP2078 4.243102e-03 healthy MP2078 Bacteria
## 873 2047767 MD2116 4.224344e-03 wilted MD2116 Bacteria
## 2134 848 MP2090 4.223040e-03 healthy MP2090 Bacteria
## 1567 412593 MP2077 4.221319e-03 healthy MP2077 Bacteria
## 895 2047767 MD2055 4.211632e-03 wilted MD2055 Bacteria
## 857 2047767 MP2097 4.208639e-03 healthy MP2097 Bacteria
## 885 2047767 MD2095 4.197688e-03 wilted MD2095 Bacteria
## 862 2047767 MP2059 4.196750e-03 healthy MP2059 Bacteria
## 845 2026885 MD2065 4.186730e-03 wilted MD2065 Bacteria
## 831 2026885 MP2058 4.153224e-03 healthy MP2058 Bacteria
## 2127 848 MP2047 4.152590e-03 healthy MP2047 Bacteria
## 1547 412593 MP2110 4.129678e-03 healthy MP2110 Bacteria
## 1580 412593 MD2056 4.122380e-03 wilted MD2056 Bacteria
## 1555 412593 MD2115 4.121334e-03 wilted MD2115 Bacteria
## 889 2047767 MP2068 4.119999e-03 healthy MP2068 Bacteria
## 900 2047767 MP2087 4.110056e-03 healthy MP2087 Bacteria
## 852 2047767 MP2049 4.106821e-03 healthy MP2049 Bacteria
## 854 2047767 MP2050 4.105907e-03 healthy MP2050 Bacteria
## 1496 389348 MP2100 4.099735e-03 healthy MP2100 Bacteria
## 1588 412593 MD2126 4.081830e-03 wilted MD2126 Bacteria
## 377 139438 MP2139 4.075614e-03 healthy MP2139 Bacteria
## 901 2047767 MP2117 4.071609e-03 healthy MP2117 Bacteria
## 1532 389348 MD2136 4.050309e-03 wilted MD2136 Bacteria
## 1518 389348 MD2055 4.048073e-03 wilted MD2055 Bacteria
## 2171 848 MP2067 4.041546e-03 healthy MP2067 Bacteria
## 881 2047767 MD2136 4.034107e-03 wilted MD2136 Bacteria
## 2170 848 MP2127 4.024447e-03 healthy MP2127 Bacteria
## 2121 848 MP2098 4.013040e-03 healthy MP2098 Bacteria
## 1493 389348 MP2069 4.009646e-03 healthy MP2069 Bacteria
## 879 2047767 MD2056 3.994057e-03 wilted MD2056 Bacteria
## 868 2047767 MD2085 3.990530e-03 wilted MD2085 Bacteria
## 1564 412593 MP2119 3.985633e-03 healthy MP2119 Bacteria
## 1563 412593 MP2120 3.972407e-03 healthy MP2120 Bacteria
## 994 2132 MP2128 3.969980e-03 healthy MP2128 Bacteria
## 773 1930593 MP2139 3.961952e-03 healthy MP2139 Bacteria
## 2160 848 MP2077 3.950988e-03 healthy MP2077 Bacteria

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## 814 2026885 MD2075 3.931513e-03    wilted  MD2075  Bacteria
## 869 2047767 MP2090 3.927785e-03    healthy  MP2090  Bacteria
## 840 2026885 MD2125 3.913425e-03    wilted  MD2125  Bacteria
## 882 2047767 MP2107 3.894879e-03    healthy  MP2107  Bacteria
## 884 2047767 MD2105 3.892338e-03    wilted  MD2105  Bacteria
## 883 2047767 MP2100 3.874887e-03    healthy  MP2100  Bacteria
## 1000 2132 MD2065 3.868078e-03    wilted  MD2065  Bacteria
## 1502 389348 MP2059 3.864124e-03    healthy  MP2059  Bacteria
## 2140 848 MP2140 3.853813e-03    healthy  MP2140  Bacteria
## 2141 848 MP2068 3.851720e-03    healthy  MP2068  Bacteria
## 2152 848 MP2050 3.845017e-03    healthy  MP2050  Bacteria
## 349 1332188 MP2128 3.839653e-03   healthy  MP2128  Bacteria
## 1543 412593 MD2066 3.838018e-03   wilted  MD2066  Bacteria
## 870 2047767 MP2077 3.836617e-03   healthy  MP2077  Bacteria
## 871 2047767 MD2115 3.831314e-03   wilted  MD2115  Bacteria
## 1561 412593 MP2138 3.807586e-03   healthy  MP2138  Bacteria
## 864 2047767 MP2108 3.790120e-03   healthy  MP2108  Bacteria
## 894 2047767 MP2067 3.775655e-03   healthy  MP2067  Bacteria
## 849 2047767 MD2066 3.767419e-03   wilted  MD2066  Bacteria
## 2126 848 MP2097 3.764726e-03    healthy  MP2097  Bacteria
## 876 2047767 MP2119 3.761950e-03   healthy  MP2119  Bacteria
## 887 2047767 MP2089 3.756994e-03   healthy  MP2089  Bacteria
## 891 2047767 MP2110 3.738445e-03   healthy  MP2110  Bacteria
## 899 2047767 MP2129 3.725306e-03   healthy  MP2129  Bacteria
## 1497 389348 MP2077 3.722247e-03   healthy  MP2077  Bacteria
## 389 139438 MP2140 3.720923e-03   healthy  MP2140  Bacteria
## 630 187145 MP2070 3.707164e-03   healthy  MP2070  Bacteria
## 1546 412593 MD2076 3.696826e-03   wilted  MD2076  Bacteria
## 1579 412593 MP2057 3.686974e-03   healthy  MP2057  Bacteria
## 2243 936456 MP2140 3.663970e-03   healthy  MP2140  Bacteria
## 1549 412593 MP2128 3.659199e-03   healthy  MP2128  Bacteria
## 1589 412593 MD2135 3.653469e-03   wilted  MD2135  Bacteria
## 874 2047767 MP2120 3.644410e-03   healthy  MP2120  Bacteria
## 2167 848 MP2087 3.639920e-03    healthy  MP2087  Bacteria
## 804 2026885 MD2086 3.624904e-03   wilted  MD2086  Bacteria
## 888 2047767 MP2130 3.614813e-03   healthy  MP2130  Bacteria
## 354 1332188 MP2067 3.592485e-03   healthy  MP2067  Bacteria
## 1582 412593 MP2118 3.582262e-03   healthy  MP2118  Bacteria
## 785 1930593 MP2069 3.571996e-03   healthy  MP2069  Bacteria
## 875 2047767 MD2126 3.564612e-03   wilted  MD2126  Bacteria
## 1512 389348 MP2120 3.544189e-03   healthy  MP2120  Bacteria
## 896 2047767 MD2135 3.529856e-03   wilted  MD2135  Bacteria
## 2136 848 MP2138 3.515631e-03    healthy  MP2138  Bacteria
## 2155 848 MD2085 3.505965e-03    wilted  MD2085  Bacteria
## 329 1332188 MP2058 3.498458e-03   healthy  MP2058  Bacteria
## 2137 848 MD2095 3.453654e-03    wilted  MD2095  Bacteria
## 2276 936456 MP2070 3.410270e-03   healthy  MP2070  Bacteria
## 2124 848 MD2075 3.403521e-03    wilted  MD2075  Bacteria
## 886 2047767 MD2076 3.391869e-03   wilted  MD2076  Bacteria
## 494 1457365 MP2140 3.379206e-03   healthy  MP2140  Bacteria
## 2168 848 MD2096 3.373723e-03    wilted  MD2096  Bacteria
## 1587 412593 MP2060 3.365580e-03   healthy  MP2060  Bacteria
## 2227 936456 MP2099 3.354882e-03   healthy  MP2099  Bacteria
## 2255 936456 MP2069 3.333863e-03   healthy  MP2069  Bacteria

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## 2128      848 MP2108 3.329360e-03 healthy  MP2108  Bacteria
## 1556    412593 MD2065 3.328140e-03 wilted   MD2065  Bacteria
## 2156      848 MP2069 3.327427e-03 healthy  MP2069  Bacteria
## 2277    936456 MP2078 3.320689e-03 healthy  MP2078  Bacteria
## 898     2047767 MD2096 3.293714e-03 wilted   MD2096  Bacteria
## 617     187145 MD2106 3.281281e-03 wilted   MD2106  Bacteria
## 2239    936456 MP2047 3.250325e-03 healthy  MP2047  Bacteria
## 2159      848 MP2089 3.244403e-03 healthy  MP2089  Bacteria
## 2139      848 MP2100 3.230321e-03 healthy  MP2100  Bacteria
## 897     2047767 MP2118 3.228794e-03 healthy  MP2118  Bacteria
## 1538    412593 MD2075 3.224816e-03 wilted   MD2075  Bacteria
## 361     1332188 MP2117 3.224017e-03 healthy  MP2117  Bacteria
## 877     2047767 MP2057 3.191100e-03 healthy  MP2057  Bacteria
## 775     1930593 MP2070 3.185593e-03 healthy  MP2070  Bacteria
## 1570    412593 MP2058 3.183024e-03 healthy  MP2058  Bacteria
## 384     139438 MP2070 3.177569e-03 healthy  MP2070  Bacteria
## 2125      848 MD2066 3.176955e-03 wilted   MD2066  Bacteria
## 2264    936456 MP2077 3.160791e-03 healthy  MP2077  Bacteria
## 1573    412593 MD2125 3.159462e-03 wilted   MD2125  Bacteria
## 358     1332188 MP2119 3.141736e-03 healthy  MP2119  Bacteria
## 604     187145 MP2099 3.119097e-03 healthy  MP2099  Bacteria
## 866     2047767 MD2065 3.115706e-03 wilted   MD2065  Bacteria
## 599     187145 MP2069 3.115038e-03 healthy  MP2069  Bacteria
## 2147      848 MD2115 3.113897e-03 wilted   MD2115  Bacteria
## 867     2047767 MP2060 3.104457e-03 healthy  MP2060  Bacteria
## 376     139438 MP2099 3.098887e-03 healthy  MP2099  Bacteria
## 855     2047767 MD2075 3.078602e-03 wilted   MD2075  Bacteria
## 587     187145 MP2047 3.076395e-03 healthy  MP2047  Bacteria
## 2122      848 MP2099 3.071940e-03 healthy  MP2099  Bacteria
## 2234    936456 MP2139 3.068889e-03 healthy  MP2139  Bacteria
## 872     2047767 MD2125 3.063721e-03 wilted   MD2125  Bacteria
## 1517    389348 MP2060 3.060937e-03 healthy  MP2060  Bacteria
## 323     1332188 MP2049 3.051437e-03 healthy  MP2049  Bacteria
## 2145      848 MP2130 3.049998e-03 healthy  MP2130  Bacteria
## 359     1332188 MD2056 3.031633e-03 wilted   MD2056  Bacteria
## 341     1332188 MD2086 3.030823e-03 wilted   MD2086  Bacteria
## 491     1457365 MP2139 3.020176e-03 healthy  MP2139  Bacteria
## 403     139438 MP2069 3.018498e-03 healthy  MP2069  Bacteria
## 375     139438 MP2098 3.012793e-03 healthy  MP2098  Bacteria
## 861     2047767 MP2138 3.004709e-03 healthy  MP2138  Bacteria
## 2161      848 MP2057 2.998583e-03 healthy  MP2057  Bacteria
## 892     2047767 MP2128 2.997536e-03 healthy  MP2128  Bacteria
## 2144      848 MP2119 2.989225e-03 healthy  MP2119  Bacteria
## 2150      848 MP2117 2.986375e-03 healthy  MP2117  Bacteria
## 2135      848 MD2116 2.979528e-03 wilted   MD2116  Bacteria
## 1529    389348 MP2058 2.944058e-03 healthy  MP2058  Bacteria
## 745     1930593 MP2099 2.943943e-03 healthy  MP2099  Bacteria
## 614     187145 MP2097 2.936657e-03 healthy  MP2097  Bacteria
## 2172      848 MP2129 2.922748e-03 healthy  MP2129  Bacteria
## 2263    936456 MD2106 2.911212e-03 wilted   MD2106  Bacteria
## 2165      848 MP2059 2.908709e-03 healthy  MP2059  Bacteria
## 2143      848 MP2107 2.905271e-03 healthy  MP2107  Bacteria
## 331     1332188 MP2098 2.904332e-03 healthy  MP2098  Bacteria
## 859     2047767 MP2058 2.901044e-03 healthy  MP2058  Bacteria

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## 2130      848 MP2049 2.898483e-03   healthy  MP2049  Bacteria
## 2169      848 MP2060 2.894108e-03   healthy  MP2060  Bacteria
## 2149      848 MD2105 2.891694e-03   wilted   MD2105  Bacteria
## 767   1930593 MP2119 2.887550e-03   healthy  MP2119  Bacteria
## 2162      848 MD2125 2.884206e-03   wilted   MD2125  Bacteria
## 2257      936456 MD2095 2.876194e-03   wilted   MD2095  Bacteria
## 2123      848 MP2048 2.873145e-03   healthy  MP2048  Bacteria
## 770   1930593 MP2108 2.868600e-03   healthy  MP2108  Bacteria
## 601   187145 MP2098 2.868179e-03   healthy  MP2098  Bacteria
## 372   139438 MP2097 2.859826e-03   healthy  MP2097  Bacteria
## 591   187145 MP2119 2.846881e-03   healthy  MP2119  Bacteria
## 751   1930593 MP2097 2.842752e-03   healthy  MP2097  Bacteria
## 410   139438 MP2110 2.840059e-03   healthy  MP2110  Bacteria
## 404   139438 MP2068 2.836093e-03   healthy  MP2068  Bacteria
## 2273      936456 MP2129 2.814942e-03   healthy  MP2129  Bacteria
## 383   139438 MP2049 2.814358e-03   healthy  MP2049  Bacteria
## 757   1930593 MD2106 2.812527e-03   wilted   MD2106  Bacteria
## 625   187145 MP2078 2.806773e-03   healthy  MP2078  Bacteria
## 768   1930593 MD2095 2.804011e-03   wilted   MD2095  Bacteria
## 616   187145 MP2127 2.800227e-03   healthy  MP2127  Bacteria
## 863   2047767 MD2086 2.799232e-03   wilted   MD2086  Bacteria
## 411   139438 MP2078 2.793595e-03   healthy  MP2078  Bacteria
## 609   187145 MP2068 2.792976e-03   healthy  MP2068  Bacteria
## 2241      936456 MP2097 2.782995e-03   healthy  MP2097  Bacteria
## 2173      848 MD2126 2.781795e-03   wilted   MD2126  Bacteria
## 390   139438 MP2077 2.776089e-03   healthy  MP2077  Bacteria
## 2151      848 MP2110 2.767609e-03   healthy  MP2110  Bacteria
## 613   187145 MP2077 2.765692e-03   healthy  MP2077  Bacteria
## 346   1332188 MP2138 2.761412e-03   healthy  MP2138  Bacteria
## 402   139438 MP2100 2.758140e-03   healthy  MP2100  Bacteria
## 2262      936456 MD2085 2.755366e-03   wilted   MD2085  Bacteria
## 787   1930593 MP2047 2.750275e-03   healthy  MP2047  Bacteria
## 423   139438 MP2087 2.743269e-03   healthy  MP2087  Bacteria
## 369   1332188 MP2078 2.740886e-03   healthy  MP2078  Bacteria
## 414   139438 MD2055 2.739605e-03   wilted   MD2055  Bacteria
## 417   139438 MD2106 2.738513e-03   wilted   MD2106  Bacteria
## 762   1930593 MP2127 2.729869e-03   healthy  MP2127  Bacteria
## 584   187145 MP2048 2.724960e-03   healthy  MP2048  Bacteria
## 2138      848 MP2058 2.724209e-03   healthy  MP2058  Bacteria
## 371   1332188 MP2087 2.723882e-03   healthy  MP2087  Bacteria
## 629   187145 MD2085 2.717361e-03   wilted   MD2085  Bacteria
## 400   139438 MD2095 2.715172e-03   wilted   MD2095  Bacteria
## 2245      936456 MP2107 2.714613e-03   healthy  MP2107  Bacteria
## 525   1457365 MP2070 2.712168e-03   healthy  MP2070  Bacteria
## 1522      389348 MD2065 2.699688e-03   wilted   MD2065  Bacteria
## 628   187145 MD2095 2.698514e-03   wilted   MD2095  Bacteria
## 618   187145 MP2110 2.695158e-03   healthy  MP2110  Bacteria
## 2131      848 MD2056 2.694785e-03   wilted   MD2056  Bacteria
## 416   139438 MD2136 2.689405e-03   wilted   MD2136  Bacteria
## 635   187145 MD2096 2.686977e-03   wilted   MD2096  Bacteria
## 624   187145 MD2056 2.686765e-03   wilted   MD2056  Bacteria
## 621   187145 MP2108 2.675378e-03   healthy  MP2108  Bacteria
## 2229      936456 MP2108 2.675378e-03   healthy  MP2108  Bacteria
## 483   1457365 MP2099 2.667738e-03   healthy  MP2099  Bacteria

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## 632    187145 MP2087 2.660874e-03   healthy  MP2087  Bacteria
## 1559   412593 MD2086 2.658263e-03   wilted   MD2086  Bacteria
## 356    1332188 MP2129 2.647243e-03  healthy   MP2129  Bacteria
## 421    139438  MP2129 2.647243e-03  healthy   MP2129  Bacteria
## 744    1930593 MP2049 2.646108e-03  healthy   MP2049  Bacteria
## 772    1930593 MP2068 2.639674e-03  healthy   MP2068  Bacteria
## 752    1930593 MP2098 2.639207e-03  healthy   MP2098  Bacteria
## 2237   936456  MP2048 2.634402e-03  healthy   MP2048  Bacteria
## 381    139438  MP2047 2.630698e-03  healthy   MP2047  Bacteria
## 482    1457365 MP2067 2.629368e-03  healthy   MP2067  Bacteria
## 2279   936456  MP2068 2.625302e-03  healthy   MP2068  Bacteria
## 485    1457365 MP2117 2.621989e-03  healthy   MP2117  Bacteria
## 631    187145  MP2117 2.621989e-03  healthy   MP2117  Bacteria
## 758    1930593 MP2117 2.614068e-03  healthy   MP2117  Bacteria
## 514    1457365 MP2047 2.608957e-03  healthy   MP2047  Bacteria
## 523    1457365 MP2069 2.606592e-03  healthy   MP2069  Bacteria
## 499    1457365 MD2056 2.606563e-03  wilted   MD2056  Bacteria
## 755    1930593 MP2067 2.605733e-03  healthy   MP2067  Bacteria
## 2271   936456  MP2059 2.604391e-03  healthy   MP2059  Bacteria
## 748    1930593 MD2085 2.603345e-03  wilted   MD2085  Bacteria
## 771    1930593 MP2120 2.596642e-03  healthy   MP2120  Bacteria
## 418    139438  MD2096 2.593633e-03  wilted   MD2096  Bacteria
## 633    187145  MP2129 2.587351e-03  healthy   MP2129  Bacteria
## 789    1930593 MP2129 2.587351e-03  healthy   MP2129  Bacteria
## 2261   936456  MP2130 2.582009e-03  healthy   MP2130  Bacteria
## 393    139438  MP2107 2.578428e-03  healthy   MP2107  Bacteria
## 374    139438  MP2050 2.577839e-03  healthy   MP2050  Bacteria
## 419    139438  MP2127 2.575083e-03  healthy   MP2127  Bacteria
## 585    187145  MP2049 2.569631e-03  healthy   MP2049  Bacteria
## 2154   848     MP2118 2.569440e-03  healthy   MP2118  Bacteria
## 2268   936456  MD2135 2.568416e-03  wilted   MD2135  Bacteria
## 2266   936456  MP2117 2.566540e-03  healthy   MP2117  Bacteria
## 401    139438  MD2076 2.557905e-03  wilted   MD2076  Bacteria
## 63     1134405 MP2139 2.549289e-03  healthy   MP2139  Bacteria
## 750    1930593 MP2110 2.535767e-03  healthy   MP2110  Bacteria
## 2238   936456  MP2119 2.531690e-03  healthy   MP2119  Bacteria
## 626    187145  MD2126 2.530175e-03  wilted   MD2126  Bacteria
## 795    1930593 MD2136 2.527393e-03  wilted   MD2136  Bacteria
## 2246   936456  MP2100 2.525796e-03  healthy   MP2100  Bacteria
## 405    139438  MD2085 2.517834e-03  wilted   MD2085  Bacteria
## 412    139438  MP2067 2.517103e-03  healthy   MP2067  Bacteria
## 2166   848     MD2135 2.513477e-03  wilted   MD2135  Bacteria
## 492    1457365 MD2095 2.509729e-03  wilted   MD2095  Bacteria
## 593    187145  MP2059 2.505311e-03  healthy   MP2059  Bacteria
## 382    139438  MP2059 2.505311e-03  healthy   MP2059  Bacteria
## 759    1930593 MD2096 2.500289e-03  wilted   MD2096  Bacteria
## 606    187145  MD2116 2.497664e-03  wilted   MD2116  Bacteria
## 2242   936456  MD2116 2.497664e-03  wilted   MD2116  Bacteria
## 387    139438  MP2108 2.497020e-03  healthy   MP2108  Bacteria
## 594    187145  MP2107 2.496717e-03  healthy   MP2107  Bacteria
## 2269   936456  MD2055 2.494267e-03  wilted   MD2055  Bacteria
## 2274   936456  MP2067 2.493468e-03  healthy   MP2067  Bacteria
## 398    139438  MD2116 2.489632e-03  wilted   MD2116  Bacteria
## 2231   936456  MD2076 2.489445e-03  wilted   MD2076  Bacteria

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## 481 1457365 MP2098 2.488567e-03 healthy MP2098 Bacteria
## 399 139438 MP2119 2.480853e-03 healthy MP2119 Bacteria
## 424 139438 MP2117 2.479404e-03 healthy MP2117 Bacteria
## 774 1930593 MD2116 2.473570e-03 wilted MD2116 Bacteria
## 2236 936456 MD2066 2.470965e-03 wilted MD2066 Bacteria
## 620 187145 MD2076 2.464550e-03 wilted MD2076 Bacteria
## 779 1930593 MP2077 2.464169e-03 healthy MP2077 Bacteria
## 394 139438 MD2056 2.462200e-03 wilted MD2056 Bacteria
## 761 1930593 MP2048 2.461520e-03 healthy MP2048 Bacteria
## 627 187145 MP2067 2.458016e-03 healthy MP2067 Bacteria
## 2164 848 MD2055 2.453378e-03 wilted MD2055 Bacteria
## 611 187145 MD2115 2.449904e-03 wilted MD2115 Bacteria
## 502 1457365 MP2119 2.430016e-03 healthy MP2119 Bacteria
## 608 187145 MP2100 2.428362e-03 healthy MP2100 Bacteria
## 497 1457365 MD2076 2.427209e-03 wilted MD2076 Bacteria
## 422 139438 MD2126 2.425334e-03 wilted MD2126 Bacteria
## 793 1930593 MP2078 2.424630e-03 healthy MP2078 Bacteria
## 781 1930593 MD2066 2.406784e-03 wilted MD2066 Bacteria
## 2270 936456 MP2087 2.394302e-03 healthy MP2087 Bacteria
## 2272 936456 MP2089 2.394104e-03 healthy MP2089 Bacteria
## 503 1457365 MD2106 2.393115e-03 wilted MD2106 Bacteria
## 373 139438 MP2048 2.387427e-03 healthy MP2048 Bacteria
## 784 1930593 MP2087 2.384608e-03 healthy MP2087 Bacteria
## 360 1332188 MP2089 2.382043e-03 healthy MP2089 Bacteria
## 598 187145 MP2050 2.379066e-03 healthy MP2050 Bacteria
## 2253 936456 MP2110 2.376376e-03 healthy MP2110 Bacteria
## 780 1930593 MD2115 2.373583e-03 wilted MD2115 Bacteria
## 353 1332188 MP2107 2.369612e-03 healthy MP2107 Bacteria
## 2148 848 MP2120 2.368867e-03 healthy MP2120 Bacteria
## 2251 936456 MD2136 2.365380e-03 wilted MD2136 Bacteria
## 505 1457365 MP2068 2.361814e-03 healthy MP2068 Bacteria
## 747 1930593 MP2100 2.360908e-03 healthy MP2100 Bacteria
## 501 1457365 MP2097 2.356155e-03 healthy MP2097 Bacteria
## 2232 936456 MP2049 2.355495e-03 healthy MP2049 Bacteria
## 379 139438 MD2066 2.355439e-03 wilted MD2066 Bacteria
## 380 139438 MP2090 2.353092e-03 healthy MP2090 Bacteria
## 2249 936456 MP2090 2.353092e-03 healthy MP2090 Bacteria
## 2248 936456 MD2056 2.349917e-03 wilted MD2056 Bacteria
## 2153 848 MD2136 2.349179e-03 wilted MD2136 Bacteria
## 486 1457365 MP2110 2.347396e-03 healthy MP2110 Bacteria
## 328 1332188 MD2085 2.346811e-03 wilted MD2085 Bacteria
## 496 1457365 MP2100 2.345918e-03 healthy MP2100 Bacteria
## 2233 936456 MP2098 2.343953e-03 healthy MP2098 Bacteria
## 2158 848 MD2106 2.343772e-03 wilted MD2106 Bacteria
## 790 1930593 MD2056 2.341897e-03 wilted MD2056 Bacteria
## 622 187145 MD2055 2.340931e-03 wilted MD2055 Bacteria
## 340 1332188 MD2105 2.340491e-03 wilted MD2105 Bacteria
## 334 1332188 MD2116 2.337042e-03 wilted MD2116 Bacteria
## 386 139438 MP2130 2.323808e-03 healthy MP2130 Bacteria
## 2247 936456 MD2105 2.315051e-03 wilted MD2105 Bacteria
## 603 187145 MD2075 2.315044e-03 wilted MD2075 Bacteria
## 619 187145 MD2105 2.306571e-03 wilted MD2105 Bacteria
## 520 1457365 MD2126 2.306513e-03 wilted MD2126 Bacteria
## 2256 936456 MD2096 2.300266e-03 wilted MD2096 Bacteria

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##	498	1457365	MD2085	2.299305e-03	wilted	MD2085	Bacteria
##	764	1930593	MP2059	2.292997e-03	healthy	MP2059	Bacteria
##	509	1457365	MP2108	2.288935e-03	healthy	MP2108	Bacteria
##	524	1457365	MP2129	2.287889e-03	healthy	MP2129	Bacteria
##	595	187145	MD2066	2.284840e-03	wilted	MD2066	Bacteria
##	786	1930593	MP2090	2.281515e-03	healthy	MP2090	Bacteria
##	512	1457365	MP2118	2.277149e-03	healthy	MP2118	Bacteria
##	518	1457365	MP2050	2.273467e-03	healthy	MP2050	Bacteria
##	528	1457365	MP2078	2.266502e-03	healthy	MP2078	Bacteria
##	515	1457365	MP2127	2.265510e-03	healthy	MP2127	Bacteria
##	589	187145	MP2090	2.263621e-03	healthy	MP2090	Bacteria
##	57	1134405	MP2140	2.259132e-03	healthy	MP2140	Bacteria
##	84	1134405	MP2069	2.259046e-03	healthy	MP2069	Bacteria
##	478	1457365	MD2066	2.252750e-03	wilted	MD2066	Bacteria
##	743	1930593	MD2105	2.247211e-03	wilted	MD2105	Bacteria
##	2259	936456	MP2050	2.236197e-03	healthy	MP2050	Bacteria
##	2275	936456	MD2126	2.229630e-03	wilted	MD2126	Bacteria
##	636	187145	MD2135	2.225045e-03	wilted	MD2135	Bacteria
##	82	1134405	MP2127	2.223296e-03	healthy	MP2127	Bacteria
##	409	139438	MD2105	2.221771e-03	wilted	MD2105	Bacteria
##	769	1930593	MP2107	2.215269e-03	healthy	MP2107	Bacteria
##	490	1457365	MP2048	2.214545e-03	healthy	MP2048	Bacteria
##	385	139438	MP2138	2.213996e-03	healthy	MP2138	Bacteria
##	406	139438	MP2089	2.207159e-03	healthy	MP2089	Bacteria
##	480	1457365	MD2096	2.206921e-03	wilted	MD2096	Bacteria
##	487	1457365	MP2049	2.202541e-03	healthy	MP2049	Bacteria
##	605	187145	MD2125	2.202049e-03	wilted	MD2125	Bacteria
##	493	1457365	MD2116	2.200514e-03	wilted	MD2116	Bacteria
##	749	1930593	MP2118	2.195580e-03	healthy	MP2118	Bacteria
##	794	1930593	MP2089	2.195098e-03	healthy	MP2089	Bacteria
##	529	1457365	MP2087	2.190738e-03	healthy	MP2087	Bacteria
##	2260	936456	MP2118	2.188782e-03	healthy	MP2118	Bacteria
##	596	187145	MD2136	2.187167e-03	wilted	MD2136	Bacteria
##	2267	936456	MD2115	2.182781e-03	wilted	MD2115	Bacteria
##	791	1930593	MD2126	2.180704e-03	wilted	MD2126	Bacteria
##	1899	6035	MD2086	2.174943e-03	wilted	MD2086	Eukaryota
##	2157	848	MP2128	2.165444e-03	healthy	MP2128	Bacteria
##	395	139438	MP2060	2.161514e-03	healthy	MP2060	Bacteria
##	506	1457365	MP2120	2.159313e-03	healthy	MP2120	Bacteria
##	408	139438	MP2118	2.154795e-03	healthy	MP2118	Bacteria
##	407	139438	MP2120	2.150202e-03	healthy	MP2120	Bacteria
##	58	1134405	MP2099	2.135538e-03	healthy	MP2099	Bacteria
##	623	187145	MP2118	2.134403e-03	healthy	MP2118	Bacteria
##	2258	936456	MP2127	2.124795e-03	healthy	MP2127	Bacteria
##	2278	936456	MP2060	2.117994e-03	healthy	MP2060	Bacteria
##	77	1134405	MP2097	2.117125e-03	healthy	MP2097	Bacteria
##	600	187145	MP2130	2.114020e-03	healthy	MP2130	Bacteria
##	1652	423605	MP2139	2.110876e-03	healthy	MP2139	Bacteria
##	612	187145	MP2089	2.110671e-03	healthy	MP2089	Bacteria
##	79	1134405	MP2070	2.110355e-03	healthy	MP2070	Bacteria
##	397	139438	MD2115	2.106460e-03	wilted	MD2115	Bacteria
##	495	1457365	MP2077	2.100262e-03	healthy	MP2077	Bacteria
##	2250	936456	MP2057	2.094341e-03	healthy	MP2057	Bacteria
##	526	1457365	MP2130	2.081745e-03	healthy	MP2130	Bacteria

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## 788 1930593 MP2130 2.081745e-03 healthy MP2130 Bacteria
## 2228 936456 MD2075 2.079478e-03 wilted MD2075 Bacteria
## 91 1134405 MP2047 2.076295e-03 healthy MP2047 Bacteria
## 756 1930593 MP2050 2.074694e-03 healthy MP2050 Bacteria
## 500 1457365 MP2059 2.073605e-03 healthy MP2059 Bacteria
## 2133 848 MD2065 2.071236e-03 wilted MD2065 Bacteria
## 2240 936456 MP2120 2.068203e-03 healthy MP2120 Bacteria
## 504 1457365 MP2107 2.060927e-03 healthy MP2107 Bacteria
## 489 1457365 MD2115 2.053035e-03 wilted MD2115 Bacteria
## 778 1930593 MD2055 2.044481e-03 wilted MD2055 Bacteria
## 92 1134405 MP2119 2.043654e-03 healthy MP2119 Bacteria
## 378 139438 MD2075 2.038863e-03 wilted MD2075 Bacteria
## 516 1457365 MD2135 2.032757e-03 wilted MD2135 Bacteria
## 586 187145 MP2120 2.031759e-03 healthy MP2120 Bacteria
## 2043 833 MP2139 2.029688e-03 healthy MP2139 Bacteria
## 479 1457365 MD2075 2.022617e-03 wilted MD2075 Bacteria
## 2252 936456 MP2138 2.019359e-03 healthy MP2138 Bacteria
## 415 139438 MD2135 2.019022e-03 wilted MD2135 Bacteria
## 420 139438 MD2125 2.010567e-03 wilted MD2125 Bacteria
## 510 1457365 MD2125 2.010567e-03 wilted MD2125 Bacteria
## 54 1134405 MP2117 1.996197e-03 healthy MP2117 Bacteria
## 101 1134405 MP2078 1.989778e-03 healthy MP2078 Bacteria
## 508 1457365 MP2090 1.977313e-03 healthy MP2090 Bacteria
## 2254 936456 MP2058 1.973857e-03 healthy MP2058 Bacteria
## 1654 423605 MP2070 1.965920e-03 healthy MP2070 Bacteria
## 396 139438 MD2086 1.963490e-03 wilted MD2086 Bacteria
## 70 1134405 MP2049 1.957814e-03 healthy MP2049 Bacteria
## 507 1457365 MP2089 1.953878e-03 healthy MP2089 Bacteria
## 592 187145 MP2060 1.943912e-03 healthy MP2060 Bacteria
## 754 1930593 MD2076 1.935543e-03 wilted MD2076 Bacteria
## 610 187145 MP2138 1.934205e-03 healthy MP2138 Bacteria
## 2235 936456 MD2086 1.933282e-03 wilted MD2086 Bacteria
## 388 139438 MP2057 1.930994e-03 healthy MP2057 Bacteria
## 521 1457365 MD2136 1.927947e-03 wilted MD2136 Bacteria
## 339 1332188 MP2108 1.917355e-03 healthy MP2108 Bacteria
## 484 1457365 MD2105 1.916489e-03 wilted MD2105 Bacteria
## 763 1930593 MP2060 1.907645e-03 healthy MP2060 Bacteria
## 2032 833 MP2070 1.885679e-03 healthy MP2070 Bacteria
## 2244 936456 MD2125 1.866955e-03 wilted MD2125 Bacteria
## 2265 936456 MP2128 1.864688e-03 healthy MP2128 Bacteria
## 488 1457365 MP2060 1.864125e-03 healthy MP2060 Bacteria
## 776 1930593 MP2138 1.861216e-03 healthy MP2138 Bacteria
## 343 1332188 MP2110 1.854732e-03 healthy MP2110 Bacteria
## 325 1332188 MP2139 1.851076e-03 healthy MP2139 Bacteria
## 103 1134405 MD2106 1.850346e-03 wilted MD2106 Bacteria
## 2061 833 MD2106 1.850346e-03 wilted MD2106 Bacteria
## 391 139438 MD2065 1.849950e-03 wilted MD2065 Bacteria
## 607 187145 MP2057 1.849321e-03 healthy MP2057 Bacteria
## 2020 833 MP2140 1.841477e-03 healthy MP2140 Bacteria
## 530 1457365 MD2055 1.840033e-03 wilted MD2055 Bacteria
## 80 1134405 MP2068 1.839628e-03 healthy MP2068 Bacteria
## 602 187145 MP2058 1.830478e-03 healthy MP2058 Bacteria
## 513 1457365 MP2138 1.824722e-03 healthy MP2138 Bacteria
## 413 139438 MP2128 1.824587e-03 healthy MP2128 Bacteria

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## 1655 423605 MP2140 1.822493e-03 healthy MP2140 Bacteria
## 392 139438 MP2058 1.820919e-03 healthy MP2058 Bacteria
## 68 1134405 MD2095 1.815667e-03 wilted MD2095 Bacteria
## 588 187145 MD2065 1.814545e-03 wilted MD2065 Bacteria
## 777 1930593 MP2057 1.814318e-03 healthy MP2057 Bacteria
## 56 1134405 MP2098 1.801650e-03 healthy MP2098 Bacteria
## 345 1332188 MD2065 1.787990e-03 wilted MD2065 Bacteria
## 1693 423605 MP2078 1.778940e-03 healthy MP2078 Bacteria
## 75 1134405 MP2090 1.771530e-03 healthy MP2090 Bacteria
## 765 1930593 MD2125 1.771214e-03 wilted MD2125 Bacteria
## 89 1134405 MP2130 1.758994e-03 healthy MP2130 Bacteria
## 69 1134405 MP2050 1.757900e-03 healthy MP2050 Bacteria
## 517 1457365 MP2057 1.750146e-03 healthy MP2057 Bacteria
## 746 1930593 MD2075 1.738314e-03 wilted MD2075 Bacteria
## 60 1134405 MD2066 1.732884e-03 wilted MD2066 Bacteria
## 62 1134405 MP2110 1.724322e-03 healthy MP2110 Bacteria
## 615 187145 MD2086 1.721829e-03 wilted MD2086 Bacteria
## 2024 833 MP2099 1.711125e-03 healthy MP2099 Bacteria
## 2230 936456 MD2065 1.699476e-03 wilted MD2065 Bacteria
## 2042 833 MP2130 1.694443e-03 healthy MP2130 Bacteria
## 2038 833 MP2117 1.687262e-03 healthy MP2117 Bacteria
## 1678 423605 MP2077 1.684369e-03 healthy MP2077 Bacteria
## 96 1134405 MD2056 1.684241e-03 wilted MD2056 Bacteria
## 1669 423605 MP2100 1.678868e-03 healthy MP2100 Bacteria
## 1661 423605 MP2047 1.674081e-03 healthy MP2047 Bacteria
## 2057 833 MP2078 1.673522e-03 healthy MP2078 Bacteria
## 64 1134405 MD2076 1.649257e-03 wilted MD2076 Bacteria
## 66 1134405 MP2067 1.648525e-03 healthy MP2067 Bacteria
## 365 1332188 MD2115 1.640901e-03 wilted MD2115 Bacteria
## 1659 423605 MP2069 1.634751e-03 healthy MP2069 Bacteria
## 1685 423605 MD2085 1.634217e-03 wilted MD2085 Bacteria
## 527 1457365 MP2128 1.634108e-03 healthy MP2128 Bacteria
## 344 1332188 MP2048 1.630037e-03 healthy MP2048 Bacteria
## 783 1930593 MP2058 1.629746e-03 healthy MP2058 Bacteria
## 102 1134405 MP2129 1.629073e-03 healthy MP2129 Bacteria
## 71 1134405 MD2085 1.624716e-03 wilted MD2085 Bacteria
## 634 187145 MP2128 1.614058e-03 healthy MP2128 Bacteria
## 55 1134405 MD2096 1.613520e-03 wilted MD2096 Bacteria
## 348 1332188 MP2120 1.612652e-03 healthy MP2120 Bacteria
## 2050 833 MP2068 1.609674e-03 healthy MP2068 Bacteria
## 792 1930593 MD2135 1.606977e-03 wilted MD2135 Bacteria
## 90 1134405 MP2059 1.606513e-03 healthy MP2059 Bacteria
## 338 1332188 MP2070 1.604833e-03 healthy MP2070 Bacteria
## 2036 833 MP2127 1.604150e-03 healthy MP2127 Bacteria
## 332 1332188 MD2095 1.599119e-03 wilted MD2095 Bacteria
## 522 1457365 MP2058 1.596291e-03 healthy MP2058 Bacteria
## 782 1930593 MD2065 1.575556e-03 wilted MD2065 Bacteria
## 336 1332188 MD2096 1.566848e-03 wilted MD2096 Bacteria
## 370 1332188 MP2068 1.566558e-03 healthy MP2068 Bacteria
## 347 1332188 MP2090 1.565746e-03 healthy MP2090 Bacteria
## 355 1332188 MP2047 1.565374e-03 healthy MP2047 Bacteria
## 106 1134405 MD2126 1.558644e-03 wilted MD2126 Bacteria
## 363 1332188 MD2106 1.554291e-03 wilted MD2106 Bacteria
## 1673 423605 MD2106 1.554291e-03 wilted MD2106 Bacteria

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## 2037      833 MP2067 1.548077e-03 healthy  MP2067  Bacteria
## 85       1134405 MP2107 1.543425e-03 healthy  MP2107  Bacteria
## 65       1134405 MP2048 1.539479e-03 healthy  MP2048  Bacteria
## 1660     423605 MD2136 1.539117e-03 wilted   MD2136  Bacteria
## 321      1332188 MP2140 1.537728e-03 healthy  MP2140  Bacteria
## 2065     833 MP2069 1.531775e-03 healthy  MP2069  Bacteria
## 104      1134405 MP2087 1.531578e-03 healthy  MP2087  Bacteria
## 1644     423605 MP2049 1.521895e-03 healthy  MP2049  Bacteria
## 73       1134405 MP2108 1.516048e-03 healthy  MP2108  Bacteria
## 1675     423605 MP2097 1.511012e-03 healthy  MP2097  Bacteria
## 760      1930593 MD2086 1.510377e-03 wilted   MD2086  Bacteria
## 1677     423605 MP2108 1.501185e-03 healthy  MP2108  Bacteria
## 100      1134405 MP2089 1.495561e-03 healthy  MP2089  Bacteria
## 67       1134405 MD2116 1.493779e-03 wilted   MD2116  Bacteria
## 98       1134405 MD2136 1.490514e-03 wilted   MD2136  Bacteria
## 2035     833 MD2085 1.482197e-03 wilted   MD2085  Bacteria
## 1647     423605 MP2098 1.476269e-03 healthy  MP2098  Bacteria
## 105      1134405 MD2055 1.472027e-03 wilted   MD2055  Bacteria
## 1656     423605 MP2099 1.468603e-03 healthy  MP2099  Bacteria
## 2049     833 MP2129 1.461374e-03 healthy  MP2129  Bacteria
## 72       1134405 MD2105 1.458567e-03 wilted   MD2105  Bacteria
## 322      1332188 MP2057 1.458455e-03 healthy  MP2057  Bacteria
## 76       1134405 MD2115 1.457731e-03 wilted   MD2115  Bacteria
## 2041     833 MP2048 1.457154e-03 healthy  MP2048  Bacteria
## 1682     423605 MP2067 1.447630e-03 healthy  MP2067  Bacteria
## 1665     423605 MP2110 1.434520e-03 healthy  MP2110  Bacteria
## 1651     423605 MP2107 1.434478e-03 healthy  MP2107  Bacteria
## 2023     833 MP2100 1.431535e-03 healthy  MP2100  Bacteria
## 327      1332188 MD2066 1.431234e-03 wilted   MD2066  Bacteria
## 2027     833 MP2047 1.424056e-03 healthy  MP2047  Bacteria
## 2025     833 MP2050 1.416258e-03 healthy  MP2050  Bacteria
## 350      1332188 MP2060 1.414414e-03 healthy  MP2060  Bacteria
## 2033     833 MP2119 1.413273e-03 healthy  MP2119  Bacteria
## 2028     833 MP2108 1.412005e-03 healthy  MP2108  Bacteria
## 1684     423605 MD2095 1.410334e-03 wilted   MD2095  Bacteria
## 357      1332188 MP2069 1.409490e-03 healthy  MP2069  Bacteria
## 61       1134405 MP2060 1.407160e-03 healthy  MP2060  Bacteria
## 1680     423605 MP2087 1.405562e-03 healthy  MP2087  Bacteria
## 1674     423605 MP2130 1.403967e-03 healthy  MP2130  Bacteria
## 83       1134405 MP2077 1.403641e-03 healthy  MP2077  Bacteria
## 78       1134405 MP2120 1.403098e-03 healthy  MP2120  Bacteria
## 2045     833 MP2077 1.393243e-03 healthy  MP2077  Bacteria
## 2029     833 MP2110 1.391049e-03 healthy  MP2110  Bacteria
## 2058     833 MD2126 1.390897e-03 wilted   MD2126  Bacteria
## 511      1457365 MD2065 1.389676e-03 wilted   MD2065  Bacteria
## 2019     833 MD2095 1.388124e-03 wilted   MD2095  Bacteria
## 1681     423605 MD2076 1.387866e-03 wilted   MD2076  Bacteria
## 97       1134405 MD2135 1.387220e-03 wilted   MD2135  Bacteria
## 2067     833 MD2135 1.387220e-03 wilted   MD2135  Bacteria
## 1687     423605 MP2117 1.386248e-03 healthy  MP2117  Bacteria
## 2022     833 MP2098 1.385885e-03 healthy  MP2098  Bacteria
## 337      1332188 MP2099 1.381026e-03 healthy  MP2099  Bacteria
## 2015     833 MP2049 1.376588e-03 healthy  MP2049  Bacteria
## 81       1134405 MD2075 1.364658e-03 wilted   MD2075  Bacteria

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## 351 1332188 MD2055 1.359580e-03    wilted  MD2055  Bacteria
## 2064     833 MD2055 1.359580e-03    wilted  MD2055  Bacteria
## 94   1134405 MP2057 1.359280e-03    healthy  MP2057  Bacteria
## 1692  423605 MP2127 1.350863e-03    healthy  MP2127  Bacteria
## 2016     833 MD2076 1.350524e-03    wilted  MD2076  Bacteria
## 1646  423605 MP2050 1.347930e-03    healthy  MP2050  Bacteria
## 2040     833 MP2087 1.347401e-03    healthy  MP2087  Bacteria
## 766   1930593 MP2128 1.343377e-03    healthy  MP2128  Bacteria
## 2021     833 MP2090 1.342068e-03    healthy  MP2090  Bacteria
## 2066     833 MD2116 1.325127e-03    wilted  MD2116  Bacteria
## 1696  423605 MP2119 1.321766e-03    healthy  MP2119  Bacteria
## 1690  423605 MD2115 1.320353e-03    wilted  MD2115  Bacteria
## 2031     833 MP2097 1.314666e-03    healthy  MP2097  Bacteria
## 2053     833 MD2056 1.307292e-03    wilted  MD2056  Bacteria
## 1649  423605 MP2090 1.306279e-03    healthy  MP2090  Bacteria
## 2055     833 MD2115 1.305089e-03    wilted  MD2115  Bacteria
## 2044     833 MD2066 1.296454e-03    wilted  MD2066  Bacteria
## 1418   35786 MD2135 1.291076e-03    wilted  MD2135  Bacteria
## 1695  423605 MD2096 1.286815e-03    wilted  MD2096  Bacteria
## 1670   423605 MP2068 1.283907e-03    healthy  MP2068  Bacteria
## 1658   423605 MD2056 1.275211e-03    wilted  MD2056  Bacteria
## 2034     833 MD2096 1.273480e-03    wilted  MD2096  Bacteria
## 93    1134405 MD2125 1.268572e-03    wilted  MD2125  Bacteria
## 59    1134405 MP2100 1.266646e-03    healthy  MP2100  Bacteria
## 1662  423605 MD2066 1.264364e-03    wilted  MD2066  Bacteria
## 1671  423605 MP2118 1.264328e-03    healthy  MP2118  Bacteria
## 1683  423605 MD2055 1.257356e-03    wilted  MD2055  Bacteria
## 1689  423605 MP2129 1.245762e-03    healthy  MP2129  Bacteria
## 74    1134405 MP2118 1.243935e-03    healthy  MP2118  Bacteria
## 1653  423605 MP2059 1.238501e-03    healthy  MP2059  Bacteria
## 2017     833 MP2060 1.233079e-03    healthy  MP2060  Bacteria
## 2056     833 MP2089 1.224189e-03    healthy  MP2089  Bacteria
## 2063     833 MD2125 1.208734e-03    wilted  MD2125  Bacteria
## 2039     833 MP2107 1.207503e-03    healthy  MP2107  Bacteria
## 1672  423605 MP2089 1.200067e-03    healthy  MP2089  Bacteria
## 1691  423605 MD2125 1.196766e-03    wilted  MD2125  Bacteria
## 1668  423605 MP2057 1.195933e-03    healthy  MP2057  Bacteria
## 99    1134405 MP2138 1.192152e-03    healthy  MP2138  Bacteria
## 2047     833 MD2105 1.170246e-03    wilted  MD2105  Bacteria
## 2030     833 MP2059 1.160653e-03    healthy  MP2059  Bacteria
## 1664  423605 MD2116 1.156474e-03    wilted  MD2116  Bacteria
## 1657  423605 MP2138 1.155657e-03    healthy  MP2138  Bacteria
## 87    1134405 MD2086 1.137817e-03    wilted  MD2086  Bacteria
## 519   1457365 MD2086 1.137817e-03    wilted  MD2086  Bacteria
## 1648  423605 MP2048 1.136086e-03    healthy  MP2048  Bacteria
## 2059     833 MP2120 1.129767e-03    healthy  MP2120  Bacteria
## 1694  423605 MD2126 1.118310e-03    wilted  MD2126  Bacteria
## 333   1332188 MP2059 1.118190e-03    healthy  MP2059  Bacteria
## 2046     833 MD2075 1.104723e-03    wilted  MD2075  Bacteria
## 2052     833 MD2136 1.085483e-03    wilted  MD2136  Bacteria
## 230      13 MP2140 1.082105e-03    healthy  MP2140  Bacteria
## 1666  423605 MD2075 1.072231e-03    wilted  MD2075  Bacteria
## 1679  423605 MP2060 1.058997e-03    healthy  MP2060  Bacteria
## 86    1134405 MP2058 1.056229e-03    healthy  MP2058  Bacteria

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## 88	1134405	MD2065	1.044470e-03	wilted	MD2065	Bacteria
## 1389	35786	MP2139	1.039200e-03	healthy	MP2139	Bacteria
## 2026	833	MP2058	1.013215e-03	healthy	MP2058	Bacteria
## 2060	833	MP2118	1.012822e-03	healthy	MP2118	Bacteria
## 2018	833	MP2138	1.009679e-03	healthy	MP2138	Bacteria
## 2051	833	MD2086	9.968486e-04	wilted	MD2086	Bacteria
## 1650	423605	MP2058	9.940975e-04	healthy	MP2058	Bacteria
## 1686	423605	MD2135	9.889090e-04	wilted	MD2135	Bacteria
## 1688	423605	MD2105	9.836847e-04	wilted	MD2105	Bacteria
## 1663	423605	MD2086	9.767103e-04	wilted	MD2086	Bacteria
## 1676	423605	MP2120	9.748798e-04	healthy	MP2120	Bacteria
## 95	1134405	MP2128	9.624194e-04	healthy	MP2128	Bacteria
## 2048	833	MP2057	9.334112e-04	healthy	MP2057	Bacteria
## 2054	833	MD2065	9.294009e-04	wilted	MD2065	Bacteria
## 1399	35786	MP2047	9.131349e-04	healthy	MP2047	Bacteria
## 2062	833	MP2128	9.022682e-04	healthy	MP2128	Bacteria
## 1406	35786	MP2100	8.993934e-04	healthy	MP2100	Bacteria
## 1381	35786	MP2140	8.922622e-04	healthy	MP2140	Bacteria
## 1667	423605	MP2128	8.822178e-04	healthy	MP2128	Bacteria
## 1645	423605	MD2065	8.762923e-04	wilted	MD2065	Bacteria
## 225	13	MP2139	8.605879e-04	healthy	MP2139	Bacteria
## 1967	693075	MP2139	8.281128e-04	healthy	MP2139	Bacteria
## 1978	693075	MD2136	8.262630e-04	wilted	MD2136	Bacteria
## 248	13	MP2069	8.238118e-04	healthy	MP2069	Bacteria
## 1426	35786	MP2069	8.173757e-04	healthy	MP2069	Bacteria
## 1970	693075	MP2140	7.783564e-04	healthy	MP2140	Bacteria
## 260	13	MP2100	7.719793e-04	healthy	MP2100	Bacteria
## 1310	2847778	MP2070	7.542715e-04	healthy	MP2070	Bacteria
## 1981	693075	MP2097	7.512378e-04	healthy	MP2097	Bacteria
## 1980	693075	MP2047	7.500751e-04	healthy	MP2047	Bacteria
## 2004	693075	MD2106	7.401386e-04	wilted	MD2106	Bacteria
## 1417	35786	MP2077	7.278136e-04	healthy	MP2077	Bacteria
## 1380	35786	MP2099	7.208281e-04	healthy	MP2099	Bacteria
## 1280	2847778	MP2139	7.144503e-04	healthy	MP2139	Bacteria
## 235	13	MD2085	6.840908e-04	wilted	MD2085	Bacteria
## 1307	2847778	MP2069	6.693471e-04	healthy	MP2069	Bacteria
## 1413	35786	MD2115	6.487285e-04	wilted	MD2115	Bacteria
## 1419	35786	MP2050	6.460126e-04	healthy	MP2050	Bacteria
## 1891	6035	MP2139	6.332628e-04	healthy	MP2139	Eukaryota
## 1429	35786	MP2127	6.332171e-04	healthy	MP2127	Bacteria
## 2012	693075	MP2078	6.193348e-04	healthy	MP2078	Bacteria
## 2003	693075	MD2095	6.163273e-04	wilted	MD2095	Bacteria
## 1410	35786	MP2130	6.132271e-04	healthy	MP2130	Bacteria
## 1983	693075	MP2108	6.093918e-04	healthy	MP2108	Bacteria
## 1962	693075	MP2099	5.995673e-04	healthy	MP2099	Bacteria
## 1409	35786	MD2106	5.921109e-04	wilted	MD2106	Bacteria
## 1407	35786	MP2129	5.869454e-04	healthy	MP2129	Bacteria
## 1393	35786	MP2110	5.796039e-04	healthy	MP2110	Bacteria
## 1993	693075	MP2087	5.767650e-04	healthy	MP2087	Bacteria
## 1989	693075	MP2068	5.748836e-04	healthy	MP2068	Bacteria
## 1994	693075	MP2120	5.739947e-04	healthy	MP2120	Bacteria
## 1397	35786	MP2107	5.719753e-04	healthy	MP2107	Bacteria
## 1975	693075	MP2100	5.696158e-04	healthy	MP2100	Bacteria
## 1990	693075	MP2119	5.693761e-04	healthy	MP2119	Bacteria

## 1405	35786	MP2117	5.624207e-04	healthy	MP2117	Bacteria
## 252	13	MP2070	5.616915e-04	healthy	MP2070	Bacteria
## 1966	693075	MP2098	5.603795e-04	healthy	MP2098	Bacteria
## 1422	35786	MD2126	5.591548e-04	wilted	MD2126	Bacteria
## 1388	35786	MD2116	5.541440e-04	wilted	MD2116	Bacteria
## 1965	693075	MP2069	5.534985e-04	healthy	MP2069	Bacteria
## 1301	2847778	MP2140	5.505448e-04	healthy	MP2140	Bacteria
## 1416	35786	MD2095	5.496973e-04	wilted	MD2095	Bacteria
## 1984	693075	MP2127	5.487882e-04	healthy	MP2127	Bacteria
## 1415	35786	MP2070	5.456432e-04	healthy	MP2070	Bacteria
## 1286	2847778	MD2056	5.453732e-04	wilted	MD2056	Bacteria
## 2014	693075	MD2126	5.451759e-04	wilted	MD2126	Bacteria
## 1394	35786	MP2128	5.413609e-04	healthy	MP2128	Bacteria
## 1402	35786	MP2059	5.378634e-04	healthy	MP2059	Bacteria
## 1274	2847778	MD2136	5.346408e-04	wilted	MD2136	Bacteria
## 1289	2847778	MP2099	5.322002e-04	healthy	MP2099	Bacteria
## 1977	693075	MD2056	5.293328e-04	wilted	MD2056	Bacteria
## 240	13	MP2097	5.292812e-04	healthy	MP2097	Bacteria
## 1403	35786	MP2049	5.276921e-04	healthy	MP2049	Bacteria
## 1421	35786	MP2067	5.258736e-04	healthy	MP2067	Bacteria
## 2010	693075	MP2117	5.228136e-04	healthy	MP2117	Bacteria
## 1971	693075	MP2110	5.216435e-04	healthy	MP2110	Bacteria
## 2002	693075	MD2055	5.213427e-04	wilted	MD2055	Bacteria
## 1390	35786	MP2048	5.186480e-04	healthy	MP2048	Bacteria
## 247	13	MD2136	5.184395e-04	wilted	MD2136	Bacteria
## 1387	35786	MD2136	5.184395e-04	wilted	MD2136	Bacteria
## 1865	6035	MP2098	5.182004e-04	healthy	MP2098	Eukaryota
## 1291	2847778	MD2106	5.180970e-04	wilted	MD2106	Bacteria
## 231	13	MP2068	5.173953e-04	healthy	MP2068	Bacteria
## 2009	693075	MP2118	5.098096e-04	healthy	MP2118	Bacteria
## 1285	2847778	MP2077	5.094695e-04	healthy	MP2077	Bacteria
## 1988	693075	MP2050	5.093561e-04	healthy	MP2050	Bacteria
## 2001	693075	MD2105	5.088024e-04	wilted	MD2105	Bacteria
## 1427	35786	MP2068	5.078139e-04	healthy	MP2068	Bacteria
## 1323	2847778	MP2108	5.053493e-04	healthy	MP2108	Bacteria
## 1294	2847778	MD2115	5.037186e-04	wilted	MD2115	Bacteria
## 1311	2847778	MP2078	5.007388e-04	healthy	MP2078	Bacteria
## 1430	35786	MP2078	5.007388e-04	healthy	MP2078	Bacteria
## 1974	693075	MP2089	5.005306e-04	healthy	MP2089	Bacteria
## 222	13	MP2130	5.002643e-04	healthy	MP2130	Bacteria
## 226	13	MP2077	4.990722e-04	healthy	MP2077	Bacteria
## 1969	693075	MP2070	4.974982e-04	healthy	MP2070	Bacteria
## 244	13	MP2099	4.917799e-04	healthy	MP2099	Bacteria
## 246	13	MP2129	4.911175e-04	healthy	MP2129	Bacteria
## 1999	693075	MP2067	4.904215e-04	healthy	MP2067	Bacteria
## 237	13	MD2115	4.884544e-04	wilted	MD2115	Bacteria
## 215	13	MP2059	4.883234e-04	healthy	MP2059	Bacteria
## 1701	456827	MP2139	4.871252e-04	healthy	MP2139	Bacteria
## 1391	35786	MP2097	4.865972e-04	healthy	MP2097	Bacteria
## 1305	2847778	MP2087	4.846765e-04	healthy	MP2087	Bacteria
## 1992	693075	MP2130	4.841267e-04	healthy	MP2130	Bacteria
## 1408	35786	MP2118	4.826197e-04	healthy	MP2118	Bacteria
## 1273	2847778	MP2098	4.820469e-04	healthy	MP2098	Bacteria
## 229	13	MD2116	4.818644e-04	wilted	MD2116	Bacteria

##	1979	693075	MP2107	4.811856e-04	healthy	MP2107	Bacteria
##	1392	35786	MD2076	4.792181e-04	wilted	MD2076	Bacteria
##	1704	456827	MD2076	4.792181e-04	wilted	MD2076	Bacteria
##	265	13	MP2127	4.784307e-04	healthy	MP2127	Bacteria
##	1395	35786	MP2119	4.778693e-04	healthy	MP2119	Bacteria
##	1893	6035	MP2078	4.743841e-04	healthy	MP2078	Eukaryota
##	1890	6035	MD2075	4.711318e-04	wilted	MD2075	Eukaryota
##	1997	693075	MP2059	4.670919e-04	healthy	MP2059	Bacteria
##	2005	693075	MP2057	4.667056e-04	healthy	MP2057	Bacteria
##	1396	35786	MD2085	4.655618e-04	wilted	MD2085	Bacteria
##	1425	35786	MD2056	4.651713e-04	wilted	MD2056	Bacteria
##	227	13	MP2098	4.639701e-04	healthy	MP2098	Bacteria
##	1321	2847778	MD2096	4.600531e-04	wilted	MD2096	Bacteria
##	1998	693075	MP2049	4.588627e-04	healthy	MP2049	Bacteria
##	216	13	MP2047	4.565674e-04	healthy	MP2047	Bacteria
##	1991	693075	MD2085	4.560605e-04	wilted	MD2085	Bacteria
##	241	13	MD2066	4.556844e-04	wilted	MD2066	Bacteria
##	264	13	MP2087	4.555959e-04	healthy	MP2087	Bacteria
##	1282	2847778	MP2057	4.550380e-04	healthy	MP2057	Bacteria
##	251	13	MP2107	4.539486e-04	healthy	MP2107	Bacteria
##	1299	2847778	MP2097	4.524501e-04	healthy	MP2097	Bacteria
##	1379	35786	MP2098	4.519189e-04	healthy	MP2098	Bacteria
##	1705	456827	MP2099	4.513597e-04	healthy	MP2099	Bacteria
##	1325	2847778	MP2127	4.502877e-04	healthy	MP2127	Bacteria
##	1428	35786	MD2055	4.497859e-04	wilted	MD2055	Bacteria
##	262	13	MP2110	4.491930e-04	healthy	MP2110	Bacteria
##	1748	456827	MD2126	4.473238e-04	wilted	MD2126	Bacteria
##	1424	35786	MD2096	4.467182e-04	wilted	MD2096	Bacteria
##	1317	2847778	MD2085	4.465593e-04	wilted	MD2085	Bacteria
##	254	13	MP2108	4.458964e-04	healthy	MP2108	Bacteria
##	1276	2847778	MP2048	4.445554e-04	healthy	MP2048	Bacteria
##	1968	693075	MP2048	4.445554e-04	healthy	MP2048	Bacteria
##	263	13	MD2106	4.440831e-04	wilted	MD2106	Bacteria
##	2008	693075	MP2129	4.432036e-04	healthy	MP2129	Bacteria
##	1411	35786	MP2087	4.410556e-04	healthy	MP2087	Bacteria
##	1302	2847778	MD2105	4.409621e-04	wilted	MD2105	Bacteria
##	1315	2847778	MD2055	4.395635e-04	wilted	MD2055	Bacteria
##	1412	35786	MP2120	4.373293e-04	healthy	MP2120	Bacteria
##	1733	456827	MP2127	4.362162e-04	healthy	MP2127	Bacteria
##	1894	6035	MD2076	4.356529e-04	wilted	MD2076	Eukaryota
##	1902	6035	MP2047	4.348261e-04	healthy	MP2047	Eukaryota
##	1309	2847778	MD2095	4.330948e-04	wilted	MD2095	Bacteria
##	1297	2847778	MP2059	4.317062e-04	healthy	MP2059	Bacteria
##	1382	35786	MD2066	4.300120e-04	wilted	MD2066	Bacteria
##	1976	693075	MD2066	4.300120e-04	wilted	MD2066	Bacteria
##	1964	693075	MP2090	4.294617e-04	healthy	MP2090	Bacteria
##	1987	693075	MD2076	4.294292e-04	wilted	MD2076	Bacteria
##	1308	2847778	MP2119	4.270321e-04	healthy	MP2119	Bacteria
##	1303	2847778	MP2067	4.254259e-04	healthy	MP2067	Bacteria
##	1420	35786	MD2105	4.240020e-04	wilted	MD2105	Bacteria
##	218	13	MD2076	4.232056e-04	wilted	MD2076	Bacteria
##	249	13	MP2118	4.214426e-04	healthy	MP2118	Bacteria
##	1300	2847778	MP2060	4.206974e-04	healthy	MP2060	Bacteria
##	1283	2847778	MP2090	4.205146e-04	healthy	MP2090	Bacteria

## 257	13	MP2067	4.195172e-04	healthy	MP2067	Bacteria
## 1711	456827	MD2106	4.194119e-04	wilted	MD2106	Bacteria
## 1320	2847778	MD2125	4.188681e-04	wilted	MD2125	Bacteria
## 1706	456827	MP2140	4.176546e-04	healthy	MP2140	Bacteria
## 1730	456827	MP2070	4.172566e-04	healthy	MP2070	Bacteria
## 221	13	MP2119	4.168647e-04	healthy	MP2119	Bacteria
## 1290	2847778	MP2068	4.167906e-04	healthy	MP2068	Bacteria
## 242	13	MP2050	4.161812e-04	healthy	MP2050	Bacteria
## 1699	456827	MP2050	4.161812e-04	healthy	MP2050	Bacteria
## 1423	35786	MP2057	4.142012e-04	healthy	MP2057	Bacteria
## 228	13	MP2060	4.134440e-04	healthy	MP2060	Bacteria
## 1275	2847778	MP2047	4.130848e-04	healthy	MP2047	Bacteria
## 1400	35786	MD2086	4.128363e-04	wilted	MD2086	Bacteria
## 2013	693075	MD2135	4.120454e-04	wilted	MD2135	Bacteria
## 1313	2847778	MD2076	4.107584e-04	wilted	MD2076	Bacteria
## 1888	6035	MP2070	4.092324e-04	healthy	MP2070	Eukaryota
## 1870	6035	MP2057	4.083674e-04	healthy	MP2057	Eukaryota
## 1324	2847778	MP2118	4.078476e-04	healthy	MP2118	Bacteria
## 1736	456827	MD2136	4.050309e-04	wilted	MD2136	Bacteria
## 1995	693075	MD2115	4.045013e-04	wilted	MD2115	Bacteria
## 1322	2847778	MP2117	4.039923e-04	healthy	MP2117	Bacteria
## 1145	2735562	MP2047	4.022142e-04	healthy	MP2047	Bacteria
## 1900	6035	MP2067	4.017911e-04	healthy	MP2067	Eukaryota
## 1401	35786	MP2108	4.013068e-04	healthy	MP2108	Bacteria
## 258	13	MP2128	4.010081e-04	healthy	MP2128	Bacteria
## 1128	2735562	MD2095	3.997799e-04	wilted	MD2095	Bacteria
## 1712	456827	MD2095	3.997799e-04	wilted	MD2095	Bacteria
## 1319	2847778	MP2107	3.994748e-04	healthy	MP2107	Bacteria
## 1717	456827	MP2117	3.960709e-04	healthy	MP2117	Bacteria
## 2006	693075	MD2116	3.935226e-04	wilted	MD2116	Bacteria
## 1122	2735562	MP2097	3.926925e-04	healthy	MP2097	Bacteria
## 1739	456827	MP2069	3.925978e-04	healthy	MP2069	Bacteria
## 1431	35786	MP2060	3.916838e-04	healthy	MP2060	Bacteria
## 1119	2735562	MP2050	3.913346e-04	healthy	MP2050	Bacteria
## 261	13	MD2075	3.899022e-04	wilted	MD2075	Bacteria
## 1148	2735562	MP2117	3.881495e-04	healthy	MP2117	Bacteria
## 1866	6035	MP2108	3.864436e-04	healthy	MP2108	Eukaryota
## 1731	456827	MP2077	3.847015e-04	healthy	MP2077	Bacteria
## 1986	693075	MP2077	3.847015e-04	healthy	MP2077	Bacteria
## 253	13	MD2095	3.831224e-04	wilted	MD2095	Bacteria
## 1296	2847778	MD2086	3.826288e-04	wilted	MD2086	Bacteria
## 1279	2847778	MP2049	3.823856e-04	healthy	MP2049	Bacteria
## 1316	2847778	MP2128	3.809577e-04	healthy	MP2128	Bacteria
## 213	13	MP2089	3.799208e-04	healthy	MP2089	Bacteria
## 1123	2735562	MP2098	3.796119e-04	healthy	MP2098	Bacteria
## 234	13	MP2048	3.786954e-04	healthy	MP2048	Bacteria
## 232	13	MD2126	3.774295e-04	wilted	MD2126	Bacteria
## 1697	456827	MP2110	3.767425e-04	healthy	MP2110	Bacteria
## 1398	35786	MP2090	3.757790e-04	healthy	MP2090	Bacteria
## 1306	2847778	MP2100	3.747473e-04	healthy	MP2100	Bacteria
## 1384	35786	MP2089	3.738903e-04	healthy	MP2089	Bacteria
## 1385	35786	MD2075	3.736562e-04	wilted	MD2075	Bacteria
## 1985	693075	MD2075	3.736562e-04	wilted	MD2075	Bacteria
## 1312	2847778	MP2120	3.735521e-04	healthy	MP2120	Bacteria

## 243	13	MD2096	3.733764e-04	wilted	MD2096	Bacteria
## 1304	2847778	MP2129	3.713328e-04	healthy	MP2129	Bacteria
## 2000	693075	MD2125	3.709974e-04	wilted	MD2125	Bacteria
## 1856	6035	MP2048	3.704628e-04	healthy	MP2048	Eukaryota
## 2011	693075	MP2060	3.699236e-04	healthy	MP2060	Bacteria
## 1719	456827	MP2098	3.675607e-04	healthy	MP2098	Bacteria
## 214	13	MP2138	3.649444e-04	healthy	MP2138	Bacteria
## 1383	35786	MD2065	3.629089e-04	wilted	MD2065	Bacteria
## 1155	2735562	MP2089	3.618293e-04	healthy	MP2089	Bacteria
## 1908	6035	MP2140	3.607017e-04	healthy	MP2140	Eukaryota
## 1718	456827	MP2067	3.604302e-04	healthy	MP2067	Bacteria
## 1744	456827	MP2129	3.593543e-04	healthy	MP2129	Bacteria
## 223	13	MP2090	3.578848e-04	healthy	MP2090	Bacteria
## 220	13	MD2135	3.571060e-04	wilted	MD2135	Bacteria
## 1858	6035	MP2099	3.570457e-04	healthy	MP2099	Eukaryota
## 1143	2735562	MD2136	3.564272e-04	wilted	MD2136	Bacteria
## 256	13	MP2078	3.557881e-04	healthy	MP2078	Bacteria
## 1724	456827	MP2130	3.550262e-04	healthy	MP2130	Bacteria
## 1892	6035	MD2096	3.533741e-04	wilted	MD2096	Eukaryota
## 2007	693075	MD2096	3.533741e-04	wilted	MD2096	Bacteria
## 1135	2735562	MD2116	3.533672e-04	wilted	MD2116	Bacteria
## 1288	2847778	MD2066	3.529950e-04	wilted	MD2066	Bacteria
## 236	13	MD2056	3.528885e-04	wilted	MD2056	Bacteria
## 1138	2735562	MD2085	3.515466e-04	wilted	MD2085	Bacteria
## 1884	6035	MD2115	3.510766e-04	wilted	MD2115	Eukaryota
## 1293	2847778	MP2089	3.497683e-04	healthy	MP2089	Bacteria
## 1318	2847778	MD2126	3.494717e-04	wilted	MD2126	Bacteria
## 1883	6035	MD2055	3.475618e-04	wilted	MD2055	Eukaryota
## 1738	456827	MP2119	3.456927e-04	healthy	MP2119	Bacteria
## 1867	6035	MD2106	3.453980e-04	wilted	MD2106	Eukaryota
## 1158	2735562	MD2106	3.453980e-04	wilted	MD2106	Bacteria
## 1298	2847778	MD2116	3.453361e-04	wilted	MD2116	Bacteria
## 1709	456827	MP2100	3.447675e-04	healthy	MP2100	Bacteria
## 1116	2735562	MP2049	3.441470e-04	healthy	MP2049	Bacteria
## 1295	2847778	MP2058	3.441107e-04	healthy	MP2058	Bacteria
## 1710	456827	MP2108	3.418539e-04	healthy	MP2108	Bacteria
## 1115	2735562	MP2140	3.417174e-04	healthy	MP2140	Bacteria
## 1887	6035	MP2138	3.406147e-04	healthy	MP2138	Eukaryota
## 1160	2735562	MP2130	3.388887e-04	healthy	MP2130	Bacteria
## 1284	2847778	MP2130	3.388887e-04	healthy	MP2130	Bacteria
## 1278	2847778	MP2050	3.354296e-04	healthy	MP2050	Bacteria
## 1880	6035	MP2050	3.354296e-04	healthy	MP2050	Eukaryota
## 1414	35786	MP2058	3.345520e-04	healthy	MP2058	Bacteria
## 1996	693075	MP2058	3.345520e-04	healthy	MP2058	Bacteria
## 1314	2847778	MP2110	3.332722e-04	healthy	MP2110	Bacteria
## 1727	456827	MP2097	3.329349e-04	healthy	MP2097	Bacteria
## 224	13	MD2086	3.322829e-04	wilted	MD2086	Bacteria
## 1159	2735562	MP2068	3.305581e-04	healthy	MP2068	Bacteria
## 1745	456827	MD2135	3.296363e-04	wilted	MD2135	Bacteria
## 1725	456827	MP2047	3.261196e-04	healthy	MP2047	Bacteria
## 1875	6035	MP2059	3.255489e-04	healthy	MP2059	Eukaryota
## 1287	2847778	MD2075	3.249185e-04	wilted	MD2075	Bacteria
## 1905	6035	MP2097	3.243982e-04	healthy	MP2097	Eukaryota
## 1139	2735562	MP2129	3.234189e-04	healthy	MP2129	Bacteria

##	1889	6035	MD2095	3.220449e-04	wilted	MD2095	Eukaryota
##	1723	456827	MP2048	3.210678e-04	healthy	MP2048	Bacteria
##	1859	6035	MP2107	3.177640e-04	healthy	MP2107	Eukaryota
##	219	13	MP2117	3.168567e-04	healthy	MP2117	Bacteria
##	1713	456827	MP2138	3.162851e-04	healthy	MP2138	Bacteria
##	1130	2735562	MP2069	3.153654e-04	healthy	MP2069	Bacteria
##	1872	6035	MP2069	3.153654e-04	healthy	MP2069	Eukaryota
##	1862	6035	MP2119	3.151904e-04	healthy	MP2119	Eukaryota
##	1150	2735562	MP2087	3.150397e-04	healthy	MP2087	Bacteria
##	1882	6035	MP2087	3.150397e-04	healthy	MP2087	Eukaryota
##	233	13	MP2057	3.150263e-04	healthy	MP2057	Bacteria
##	1157	2735562	MD2056	3.127876e-04	wilted	MD2056	Bacteria
##	1903	6035	MP2077	3.119201e-04	healthy	MP2077	Eukaryota
##	255	13	MD2125	3.111591e-04	wilted	MD2125	Bacteria
##	1896	6035	MD2125	3.111591e-04	wilted	MD2125	Eukaryota
##	239	13	MP2120	3.097749e-04	healthy	MP2120	Bacteria
##	1154	2735562	MP2067	3.072520e-04	healthy	MP2067	Bacteria
##	1698	456827	MP2049	3.059085e-04	healthy	MP2049	Bacteria
##	1715	456827	MP2090	3.042021e-04	healthy	MP2090	Bacteria
##	1901	6035	MP2090	3.042021e-04	healthy	MP2090	Eukaryota
##	1277	2847778	MP2138	3.041203e-04	healthy	MP2138	Bacteria
##	1386	35786	MP2138	3.041203e-04	healthy	MP2138	Bacteria
##	1708	456827	MD2086	3.020753e-04	wilted	MD2086	Bacteria
##	1735	456827	MP2068	3.018139e-04	healthy	MP2068	Bacteria
##	1873	6035	MD2066	3.016502e-04	wilted	MD2066	Eukaryota
##	1746	456827	MP2089	3.015244e-04	healthy	MP2089	Bacteria
##	1281	2847778	MD2065	3.009489e-04	wilted	MD2065	Bacteria
##	1874	6035	MP2120	3.006639e-04	healthy	MP2120	Eukaryota
##	1869	6035	MP2100	2.997978e-04	healthy	MP2100	Eukaryota
##	1404	35786	MD2125	2.991915e-04	wilted	MD2125	Bacteria
##	1741	456827	MD2125	2.991915e-04	wilted	MD2125	Bacteria
##	1149	2735562	MP2127	2.955013e-04	healthy	MP2127	Bacteria
##	1131	2735562	MD2066	2.952321e-04	wilted	MD2066	Bacteria
##	1146	2735562	MD2096	2.933672e-04	wilted	MD2096	Bacteria
##	1703	456827	MD2096	2.933672e-04	wilted	MD2096	Bacteria
##	1716	456827	MD2075	2.924266e-04	wilted	MD2075	Bacteria
##	1124	2735562	MP2139	2.922751e-04	healthy	MP2139	Bacteria
##	1857	6035	MP2068	2.922325e-04	healthy	MP2068	Eukaryota
##	217	13	MP2049	2.906131e-04	healthy	MP2049	Bacteria
##	1737	456827	MD2115	2.900198e-04	wilted	MD2115	Bacteria
##	1117	2735562	MP2110	2.898019e-04	healthy	MP2110	Bacteria
##	1864	6035	MP2110	2.898019e-04	healthy	MP2110	Eukaryota
##	1114	2735562	MP2099	2.896786e-04	healthy	MP2099	Bacteria
##	1871	6035	MP2089	2.894635e-04	healthy	MP2089	Eukaryota
##	1728	456827	MD2116	2.891186e-04	wilted	MD2116	Bacteria
##	1906	6035	MD2116	2.891186e-04	wilted	MD2116	Eukaryota
##	1904	6035	MD2056	2.887270e-04	wilted	MD2056	Eukaryota
##	1164	2735562	MD2135	2.884318e-04	wilted	MD2135	Bacteria
##	1292	2847778	MD2135	2.884318e-04	wilted	MD2135	Bacteria
##	245	13	MD2105	2.883214e-04	wilted	MD2105	Bacteria
##	1868	6035	MP2129	2.874834e-04	healthy	MP2129	Eukaryota
##	1734	456827	MP2118	2.854933e-04	healthy	MP2118	Bacteria
##	1152	2735562	MP2119	2.846881e-04	healthy	MP2119	Bacteria
##	1126	2735562	MP2077	2.807281e-04	healthy	MP2077	Bacteria

##	1973	693075	MP2128	2.807057e-04	healthy	MP2128	Bacteria
##	1120	2735562	MP2048	2.799053e-04	healthy	MP2048	Bacteria
##	1707	456827	MD2105	2.798413e-04	wilted	MD2105	Bacteria
##	238	13	MD2065	2.743946e-04	wilted	MD2065	Bacteria
##	1907	6035	MD2126	2.725879e-04	wilted	MD2126	Eukaryota
##	1982	693075	MD2086	2.718678e-04	wilted	MD2086	Bacteria
##	259	13	MD2055	2.657826e-04	wilted	MD2055	Bacteria
##	1749	456827	MD2055	2.657826e-04	wilted	MD2055	Bacteria
##	1121	2735562	MD2065	2.655431e-04	wilted	MD2065	Bacteria
##	1722	456827	MP2107	2.632902e-04	healthy	MP2107	Bacteria
##	1702	456827	MP2059	2.618546e-04	healthy	MP2059	Bacteria
##	1742	456827	MP2087	2.617253e-04	healthy	MP2087	Bacteria
##	1881	6035	MP2117	2.614068e-04	healthy	MP2117	Eukaryota
##	1129	2735562	MP2090	2.594665e-04	healthy	MP2090	Bacteria
##	1963	693075	MD2065	2.566917e-04	wilted	MD2065	Bacteria
##	1137	2735562	MP2057	2.566881e-04	healthy	MP2057	Bacteria
##	1972	693075	MP2138	2.554611e-04	healthy	MP2138	Bacteria
##	1729	456827	MP2120	2.551087e-04	healthy	MP2120	Bacteria
##	1140	2735562	MP2060	2.538691e-04	healthy	MP2060	Bacteria
##	1732	456827	MP2057	2.508543e-04	healthy	MP2057	Bacteria
##	1125	2735562	MD2076	2.489445e-04	wilted	MD2076	Bacteria
##	1747	456827	MD2056	2.486260e-04	wilted	MD2056	Bacteria
##	1895	6035	MD2135	2.472272e-04	wilted	MD2135	Eukaryota
##	1897	6035	MD2085	2.470328e-04	wilted	MD2085	Eukaryota
##	1166	2735562	MD2105	2.459212e-04	wilted	MD2105	Bacteria
##	1165	2735562	MP2118	2.447086e-04	healthy	MP2118	Bacteria
##	1147	2735562	MD2115	2.442272e-04	wilted	MD2115	Bacteria
##	1740	456827	MD2066	2.438874e-04	wilted	MD2066	Bacteria
##	1886	6035	MP2058	2.437450e-04	healthy	MP2058	Eukaryota
##	1861	6035	MP2130	2.420633e-04	healthy	MP2130	Eukaryota
##	1136	2735562	MP2059	2.406231e-04	healthy	MP2059	Bacteria
##	1879	6035	MP2128	2.406049e-04	healthy	MP2128	Eukaryota
##	1860	6035	MD2065	2.389888e-04	wilted	MD2065	Eukaryota
##	250	13	MP2058	2.389657e-04	healthy	MP2058	Bacteria
##	1163	2735562	MD2055	2.351154e-04	wilted	MD2055	Bacteria
##	1878	6035	MP2060	2.321089e-04	healthy	MP2060	Eukaryota
##	1720	456827	MP2128	2.305797e-04	healthy	MP2128	Bacteria
##	1876	6035	MP2049	2.294314e-04	healthy	MP2049	Eukaryota
##	1134	2735562	MP2070	2.246766e-04	healthy	MP2070	Bacteria
##	1133	2735562	MP2120	2.186646e-04	healthy	MP2120	Bacteria
##	1863	6035	MD2105	2.120010e-04	wilted	MD2105	Eukaryota
##	1151	2735562	MP2078	2.108374e-04	healthy	MP2078	Bacteria
##	1743	456827	MP2078	2.108374e-04	healthy	MP2078	Bacteria
##	1162	2735562	MD2126	2.096830e-04	wilted	MD2126	Bacteria
##	1132	2735562	MP2138	2.068018e-04	healthy	MP2138	Bacteria
##	1161	2735562	MD2125	2.034502e-04	wilted	MD2125	Bacteria
##	1153	2735562	MP2107	1.997374e-04	healthy	MP2107	Bacteria
##	1700	456827	MD2085	1.995265e-04	wilted	MD2085	Bacteria
##	1885	6035	MD2136	1.944148e-04	wilted	MD2136	Eukaryota
##	1141	2735562	MP2058	1.863933e-04	healthy	MP2058	Bacteria
##	1721	456827	MP2058	1.863933e-04	healthy	MP2058	Bacteria
##	1156	2735562	MP2128	1.804536e-04	healthy	MP2128	Bacteria
##	1898	6035	MP2118	1.767340e-04	healthy	MP2118	Eukaryota
##	1877	6035	MP2127	1.688579e-04	healthy	MP2127	Eukaryota

```

## 1142 2735562 MD2086 1.611069e-04    wilted  MD2086  Bacteria
## 1714 456827 MP2060 1.595749e-04    healthy  MP2060  Bacteria
## 1127 2735562 MP2100 1.498989e-04    healthy  MP2100  Bacteria
## 1144 2735562 MP2108 1.486321e-04    healthy  MP2108  Bacteria
## 1118 2735562 MD2075 1.218444e-04    wilted   MD2075  Bacteria
## 1726 456827 MD2065 7.966294e-05    wilted   MD2065  Bacteria
##
## Phylum
## 738          Actinobacteria
## 709          Actinobacteria
## 726          Actinobacteria
## 701          Actinobacteria
## 690          Actinobacteria
## 725          Actinobacteria
## 718          Actinobacteria
## 735          Actinobacteria
## 717          Actinobacteria
## 693          Actinobacteria
## 712          Actinobacteria
## 724          Actinobacteria
## 739          Actinobacteria
## 737          Actinobacteria
## 729          Actinobacteria
## 697          Actinobacteria
## 721          Actinobacteria
## 705          Actinobacteria
## 692          Actinobacteria
## 707          Actinobacteria
## 732          Actinobacteria
## 703          Actinobacteria
## 698          Actinobacteria
## 694          Actinobacteria
## 1473         Proteobacteria
## 1469         Proteobacteria
## 727          Actinobacteria
## 716          Actinobacteria
## 714          Actinobacteria
## 1480         Proteobacteria
## 695          Actinobacteria
## 740          Actinobacteria
## 734          Actinobacteria
## 1459         Proteobacteria
## 700          Actinobacteria
## 1471         Proteobacteria
## 1439         Proteobacteria
## 722          Actinobacteria
## 1463         Proteobacteria
## 706          Actinobacteria
## 720          Actinobacteria
## 710          Actinobacteria
## 1444         Proteobacteria
## 1475         Proteobacteria
## 715          Actinobacteria
## 736          Actinobacteria
## 1438         Proteobacteria

```

## 731	Actinobacteria
## 713	Actinobacteria
## 728	Actinobacteria
## 691	Actinobacteria
## 696	Actinobacteria
## 1468	Proteobacteria
## 1466	Proteobacteria
## 704	Actinobacteria
## 1442	Proteobacteria
## 1450	Proteobacteria
## 719	Actinobacteria
## 1449	Proteobacteria
## 1432	Proteobacteria
## 711	Actinobacteria
## 1458	Proteobacteria
## 708	Actinobacteria
## 730	Actinobacteria
## 1435	Proteobacteria
## 1443	Proteobacteria
## 1482	Proteobacteria
## 1484	Proteobacteria
## 742	Actinobacteria
## 1462	Proteobacteria
## 733	Actinobacteria
## 1470	Proteobacteria
## 1474	Proteobacteria
## 1483	Proteobacteria
## 702	Actinobacteria
## 1437	Proteobacteria
## 1460	Proteobacteria
## 1446	Proteobacteria
## 1456	Proteobacteria
## 1455	Proteobacteria
## 1445	Proteobacteria
## 1472	Proteobacteria
## 1461	Proteobacteria
## 1479	Proteobacteria
## 1454	Proteobacteria
## 1448	Proteobacteria
## 1447	Proteobacteria
## 723	Actinobacteria
## 1441	Proteobacteria
## 1440	Proteobacteria
## 1465	Proteobacteria
## 1433	Proteobacteria
## 1467	Proteobacteria
## 1436	Proteobacteria
## 1451	Proteobacteria
## 1464	Proteobacteria
## 1478	Proteobacteria
## 1434	Proteobacteria
## 1477	Proteobacteria
## 741	Actinobacteria
## 1476	Proteobacteria

## 699	Actinobacteria
## 1481	Proteobacteria
## 1453	Proteobacteria
## 1452	Proteobacteria
## 1457	Proteobacteria
## 459	Firmicutes
## 454	Firmicutes
## 1107	Planctomycetes
## 1063	Planctomycetes
## 1111	Planctomycetes
## 1108	Planctomycetes
## 1092	Planctomycetes
## 1093	Planctomycetes
## 1096	Planctomycetes
## 1086	Planctomycetes
## 1083	Planctomycetes
## 1074	Planctomycetes
## 1102	Planctomycetes
## 1065	Planctomycetes
## 1098	Planctomycetes
## 1112	Planctomycetes
## 1106	Planctomycetes
## 1073	Planctomycetes
## 1088	Planctomycetes
## 1061	Planctomycetes
## 1099	Planctomycetes
## 1067	Planctomycetes
## 1080	Planctomycetes
## 1084	Planctomycetes
## 1081	Planctomycetes
## 1078	Planctomycetes
## 1085	Planctomycetes
## 1105	Planctomycetes
## 1068	Planctomycetes
## 1082	Planctomycetes
## 1104	Planctomycetes
## 1113	Planctomycetes
## 450	Firmicutes
## 440	Firmicutes
## 1091	Planctomycetes
## 433	Firmicutes
## 1097	Planctomycetes
## 463	Firmicutes
## 1087	Planctomycetes
## 1070	Planctomycetes
## 1109	Planctomycetes
## 447	Firmicutes
## 1071	Planctomycetes
## 1062	Planctomycetes
## 1094	Planctomycetes
## 453	Firmicutes
## 1077	Planctomycetes
## 1110	Planctomycetes
## 429	Firmicutes

## 1064	Planctomycetes
## 456	Firmicutes
## 1095	Planctomycetes
## 1090	Planctomycetes
## 1076	Planctomycetes
## 437	Firmicutes
## 1079	Planctomycetes
## 1103	Planctomycetes
## 477	Firmicutes
## 471	Firmicutes
## 473	Firmicutes
## 425	Firmicutes
## 1075	Planctomycetes
## 1359	Bacteroidetes
## 451	Firmicutes
## 431	Firmicutes
## 1349	Bacteroidetes
## 460	Firmicutes
## 1089	Planctomycetes
## 1344	Bacteroidetes
## 1072	Planctomycetes
## 1100	Planctomycetes
## 432	Firmicutes
## 457	Firmicutes
## 458	Firmicutes
## 469	Firmicutes
## 462	Firmicutes
## 435	Firmicutes
## 476	Firmicutes
## 455	Firmicutes
## 1066	Planctomycetes
## 470	Firmicutes
## 1069	Planctomycetes
## 438	Firmicutes
## 461	Firmicutes
## 436	Firmicutes
## 1239	Acidobacteria
## 442	Firmicutes
## 474	Firmicutes
## 443	Firmicutes
## 448	Firmicutes
## 1377	Bacteroidetes
## 427	Firmicutes
## 449	Firmicutes
## 121	Cyanobacteria
## 426	Firmicutes
## 466	Firmicutes
## 428	Firmicutes
## 1228	Acidobacteria
## 465	Firmicutes
## 1101	Planctomycetes
## 446	Firmicutes
## 430	Firmicutes
## 467	Firmicutes

```
## 452          Firmicutes
## 472          Firmicutes
## 444          Firmicutes
## 441          Firmicutes
## 1346         Bacteroidetes
## 475          Firmicutes
## 1247         Acidobacteria
## 1328         Bacteroidetes
## 434          Firmicutes
## 1244         Acidobacteria
## 445          Firmicutes
## 1233         Acidobacteria
## 2177         Gemmatimonadetes
## 2208         Gemmatimonadetes
## 1367         Bacteroidetes
## 1358         Bacteroidetes
## 1335         Bacteroidetes
## 439          Firmicutes
## 468          Firmicutes
## 1339         Bacteroidetes
## 464          Firmicutes
## 127          Cyanobacteria
## 1331         Bacteroidetes
## 1235         Acidobacteria
## 1252         Acidobacteria
## 1847          Ascomycota
## 1267         Acidobacteria
## 1340         Bacteroidetes
## 1348         Bacteroidetes
## 1254         Acidobacteria
## 1373         Bacteroidetes
## 1368         Bacteroidetes
## 2196         Gemmatimonadetes
## 1262         Acidobacteria
## 1332         Bacteroidetes
## 1330         Bacteroidetes
## 1371         Bacteroidetes
## 1355         Bacteroidetes
## 1364         Bacteroidetes
## 1241         Acidobacteria
## 1378         Bacteroidetes
## 1221         Acidobacteria
## 1268         Acidobacteria
## 1326         Bacteroidetes
## 1263         Acidobacteria
## 2191         Gemmatimonadetes
## 1220         Acidobacteria
## 1272         Acidobacteria
## 2205         Gemmatimonadetes
## 1353         Bacteroidetes
## 1236         Acidobacteria
## 1255         Acidobacteria
## 1248         Acidobacteria
## 1360         Bacteroidetes
```

```
## 2190      Gemmatimonadetes
## 1250      Acidobacteria
## 1225      Acidobacteria
## 1374      Bacteroidetes
## 1258      Acidobacteria
## 1337      Bacteroidetes
## 1266      Acidobacteria
## 1342      Bacteroidetes
## 1365      Bacteroidetes
## 1852      Ascomycota
## 1370      Bacteroidetes
## 2174      Gemmatimonadetes
## 2213      Gemmatimonadetes
## 1343      Bacteroidetes
## 1261      Acidobacteria
## 1357      Bacteroidetes
## 1226      Acidobacteria
## 2217      Gemmatimonadetes
## 1231      Acidobacteria
## 1375      Bacteroidetes
## 1223      Acidobacteria
## 1237      Acidobacteria
## 1352      Bacteroidetes
## 2184      Gemmatimonadetes
## 1362      Bacteroidetes
## 1260      Acidobacteria
## 2179      Gemmatimonadetes
## 2219      Gemmatimonadetes
## 1224      Acidobacteria
## 2212      Gemmatimonadetes
## 1354      Bacteroidetes
## 1229      Acidobacteria
## 1336      Bacteroidetes
## 1238      Acidobacteria
## 1814      Ascomycota
## 1270      Acidobacteria
## 2203      Gemmatimonadetes
## 1251      Acidobacteria
## 1264      Acidobacteria
## 2198      Gemmatimonadetes
## 2194      Gemmatimonadetes
## 2187      Gemmatimonadetes
## 1345      Bacteroidetes
## 2181      Gemmatimonadetes
## 1243      Acidobacteria
## 1333      Bacteroidetes
## 1329      Bacteroidetes
## 1259      Acidobacteria
## 2220      Gemmatimonadetes
## 1256      Acidobacteria
## 1334      Bacteroidetes
## 1230      Acidobacteria
## 1351      Bacteroidetes
## 1338      Bacteroidetes
```

```
## 2202      Gemmatimonadetes
## 1369      Bacteroidetes
## 2185      Gemmatimonadetes
## 1356      Bacteroidetes
## 1821      Ascomycota
## 2186      Gemmatimonadetes
## 1829      Ascomycota
## 1816      Ascomycota
## 1249      Acidobacteria
## 1372      Bacteroidetes
## 1253      Acidobacteria
## 1341      Bacteroidetes
## 2216      Gemmatimonadetes
## 1222      Acidobacteria
## 2218      Gemmatimonadetes
## 2176      Gemmatimonadetes
## 1327      Bacteroidetes
## 2215      Gemmatimonadetes
## 1845      Ascomycota
## 2204      Gemmatimonadetes
## 1363      Bacteroidetes
## 1245      Acidobacteria
## 2182      Gemmatimonadetes
## 2210      Gemmatimonadetes
## 1350      Bacteroidetes
## 1347      Bacteroidetes
## 2178      Gemmatimonadetes
## 1265      Acidobacteria
## 2192      Gemmatimonadetes
## 1242      Acidobacteria
## 1271      Acidobacteria
## 2195      Gemmatimonadetes
## 1376      Bacteroidetes
## 1849      Ascomycota
## 1269      Acidobacteria
## 1817      Ascomycota
## 2214      Gemmatimonadetes
## 2225      Gemmatimonadetes
## 2222      Gemmatimonadetes
## 1828      Ascomycota
## 2200      Gemmatimonadetes
## 2193      Gemmatimonadetes
## 1820      Ascomycota
## 2224      Gemmatimonadetes
## 2211      Gemmatimonadetes
## 1257      Acidobacteria
## 1823      Ascomycota
## 1246      Acidobacteria
## 2201      Gemmatimonadetes
## 2209      Gemmatimonadetes
## 672       Verrucomicrobia
## 1361      Bacteroidetes
## 1854      Ascomycota
## 2188      Gemmatimonadetes
```

## 1818	Ascomycota
## 1366	Bacteroidetes
## 1240	Acidobacteria
## 2207	Gemmatimonadetes
## 1834	Ascomycota
## 1846	Ascomycota
## 2189	Gemmatimonadetes
## 1831	Ascomycota
## 1851	Ascomycota
## 1234	Acidobacteria
## 2175	Gemmatimonadetes
## 1810	Ascomycota
## 1833	Ascomycota
## 2183	Gemmatimonadetes
## 1804	Ascomycota
## 1839	Ascomycota
## 1844	Ascomycota
## 1855	Ascomycota
## 1838	Ascomycota
## 1848	Ascomycota
## 1843	Ascomycota
## 1808	Ascomycota
## 143	Cyanobacteria
## 669	Verrucomicrobia
## 639	Verrucomicrobia
## 1232	Acidobacteria
## 1840	Ascomycota
## 1805	Ascomycota
## 2180	Gemmatimonadetes
## 2206	Gemmatimonadetes
## 189	Deinococcus-Thermus
## 2221	Gemmatimonadetes
## 1827	Ascomycota
## 640	Verrucomicrobia
## 1809	Ascomycota
## 1811	Ascomycota
## 1815	Ascomycota
## 2223	Gemmatimonadetes
## 1227	Acidobacteria
## 1822	Ascomycota
## 1836	Ascomycota
## 2226	Gemmatimonadetes
## 1837	Ascomycota
## 1807	Ascomycota
## 186	Deinococcus-Thermus
## 1832	Ascomycota
## 1830	Ascomycota
## 1841	Ascomycota
## 2199	Gemmatimonadetes
## 1806	Ascomycota
## 1825	Ascomycota
## 1819	Ascomycota
## 1826	Ascomycota
## 1842	Ascomycota

```

## 637          Verrucomicrobia
## 678          Verrucomicrobia
## 182          Deinococcus-Thermus
## 181          Deinococcus-Thermus
## 656          Verrucomicrobia
## 644          Verrucomicrobia
## 1813         Ascomycota
## 204          Deinococcus-Thermus
## 680          Verrucomicrobia
## 191          Deinococcus-Thermus
## 1803         Ascomycota
## 2197         Gemmatimonadetes
## 648          Verrucomicrobia
## 194          Deinococcus-Thermus
## 688          Verrucomicrobia
## 203          Deinococcus-Thermus
## 647          Verrucomicrobia
## 161          Deinococcus-Thermus
## 645          Verrucomicrobia
## 124          Cyanobacteria
## 671          Verrucomicrobia
## 184          Deinococcus-Thermus
## 646          Verrucomicrobia
## 1812         Ascomycota
## 1850         Ascomycota
## 649          Verrucomicrobia
## 180          Deinococcus-Thermus
## 1835         Ascomycota
## 118          Cyanobacteria
## 164          Deinococcus-Thermus
## 665          Verrucomicrobia
## 177          Deinococcus-Thermus
## 1853         Ascomycota
## 162          Deinococcus-Thermus
## 931          Chloroflexi
## 677          Verrucomicrobia
## 206          Deinococcus-Thermus
## 199          Deinococcus-Thermus
## 165          Deinococcus-Thermus
## 174          Deinococcus-Thermus
## 170          Deinococcus-Thermus
## 120          Cyanobacteria
## 172          Deinococcus-Thermus
## 196          Deinococcus-Thermus
## 651          Verrucomicrobia
## 187          Deinococcus-Thermus
## 190          Deinococcus-Thermus
## 200          Deinococcus-Thermus
## 192          Deinococcus-Thermus
## 176          Deinococcus-Thermus
## 1824         Ascomycota
## 179          Deinococcus-Thermus
## 171          Deinococcus-Thermus
## 686          Verrucomicrobia

```

```
## 208      Deinococcus-Thermus
## 682      Verrucomicrobia
## 178      Deinococcus-Thermus
## 676      Verrucomicrobia
## 654      Verrucomicrobia
## 198      Deinococcus-Thermus
## 211      Deinococcus-Thermus
## 112      Cyanobacteria
## 655      Verrucomicrobia
## 650      Verrucomicrobia
## 197      Deinococcus-Thermus
## 673      Verrucomicrobia
## 185      Deinococcus-Thermus
## 670      Verrucomicrobia
## 681      Verrucomicrobia
## 662      Verrucomicrobia
## 169      Deinococcus-Thermus
## 202      Deinococcus-Thermus
## 175      Deinococcus-Thermus
## 167      Deinococcus-Thermus
## 908      Chloroflexi
## 934      Chloroflexi
## 183      Deinococcus-Thermus
## 658      Verrucomicrobia
## 142      Cyanobacteria
## 657      Verrucomicrobia
## 195      Deinococcus-Thermus
## 684      Verrucomicrobia
## 912      Chloroflexi
## 146      Cyanobacteria
## 138      Cyanobacteria
## 659      Verrucomicrobia
## 207      Deinococcus-Thermus
## 638      Verrucomicrobia
## 166      Deinococcus-Thermus
## 157      Cyanobacteria
## 135      Cyanobacteria
## 642      Verrucomicrobia
## 687      Verrucomicrobia
## 155      Cyanobacteria
## 109      Cyanobacteria
## 119      Cyanobacteria
## 212      Deinococcus-Thermus
## 150      Cyanobacteria
## 193      Deinococcus-Thermus
## 661      Verrucomicrobia
## 201      Deinococcus-Thermus
## 153      Cyanobacteria
## 131      Cyanobacteria
## 641      Verrucomicrobia
## 675      Verrucomicrobia
## 123      Cyanobacteria
## 163      Deinococcus-Thermus
## 145      Cyanobacteria
```

```

## 151          Cyanobacteria
## 689          Verrucomicrobia
## 160          Deinococcus-Thermus
## 110          Cyanobacteria
## 917          Chloroflexi
## 140          Cyanobacteria
## 126          Cyanobacteria
## 115          Cyanobacteria
## 667          Verrucomicrobia
## 905          Chloroflexi
## 128          Cyanobacteria
## 134          Cyanobacteria
## 107          Cyanobacteria
## 935          Chloroflexi
## 136          Cyanobacteria
## 122          Cyanobacteria
## 149          Cyanobacteria
## 952          Chloroflexi
## 679          Verrucomicrobia
## 173          Deinococcus-Thermus
## 147          Cyanobacteria
## 159          Cyanobacteria
## 114          Cyanobacteria
## 113          Cyanobacteria
## 660          Verrucomicrobia
## 152          Cyanobacteria
## 674          Verrucomicrobia
## 205          Deinococcus-Thermus
## 919          Chloroflexi
## 116          Cyanobacteria
## 930          Chloroflexi
## 902          Chloroflexi
## 141          Cyanobacteria
## 111          Cyanobacteria
## 129          Cyanobacteria
## 925          Chloroflexi
## 910          Chloroflexi
## 683          Verrucomicrobia
## 117          Cyanobacteria
## 209          Deinococcus-Thermus
## 643          Verrucomicrobia
## 130          Cyanobacteria
## 144          Cyanobacteria
## 188          Deinococcus-Thermus
## 916          Chloroflexi
## 664          Verrucomicrobia
## 652          Verrucomicrobia
## 913          Chloroflexi
## 210          Deinococcus-Thermus
## 911          Chloroflexi
## 946          Chloroflexi
## 137          Cyanobacteria
## 937          Chloroflexi
## 148          Cyanobacteria

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## 939          Chloroflexi
## 944          Chloroflexi
## 663          Verrucomicrobia
## 920          Chloroflexi
## 154          Cyanobacteria
## 922          Chloroflexi
## 950          Chloroflexi
## 906          Chloroflexi
## 932          Chloroflexi
## 108          Cyanobacteria
## 938          Chloroflexi
## 668          Verrucomicrobia
## 666          Verrucomicrobia
## 927          Chloroflexi
## 947          Chloroflexi
## 954          Chloroflexi
## 904          Chloroflexi
## 125          Cyanobacteria
## 653          Verrucomicrobia
## 685          Verrucomicrobia
## 914          Chloroflexi
## 942          Chloroflexi
## 945          Chloroflexi
## 929          Chloroflexi
## 903          Chloroflexi
## 951          Chloroflexi
## 933          Chloroflexi
## 156          Cyanobacteria
## 948          Chloroflexi
## 133          Cyanobacteria
## 168          Deinococcus-Thermus
## 936          Chloroflexi
## 941          Chloroflexi
## 926          Chloroflexi
## 918          Chloroflexi
## 943          Chloroflexi
## 923          Chloroflexi
## 139          Cyanobacteria
## 953          Chloroflexi
## 158          Cyanobacteria
## 924          Chloroflexi
## 909          Chloroflexi
## 132          Cyanobacteria
## 940          Chloroflexi
## 915          Chloroflexi
## 907          Chloroflexi
## 949          Chloroflexi
## 921          Chloroflexi
## 928          Chloroflexi
## 1601         Nitrospirae
## 1641         Nitrospirae
## 1639         Nitrospirae
## 1635         Nitrospirae
## 1615         Nitrospirae

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## 1613	Nitrospirae
## 1599	Nitrospirae
## 1627	Nitrospirae
## 1642	Nitrospirae
## 1634	Nitrospirae
## 1597	Nitrospirae
## 1629	Nitrospirae
## 1637	Nitrospirae
## 1622	Nitrospirae
## 1594	Nitrospirae
## 1621	Nitrospirae
## 1638	Nitrospirae
## 1604	Nitrospirae
## 1632	Nitrospirae
## 1602	Nitrospirae
## 1607	Nitrospirae
## 1630	Nitrospirae
## 1643	Nitrospirae
## 1636	Nitrospirae
## 1628	Nitrospirae
## 1593	Nitrospirae
## 1596	Nitrospirae
## 1783	Oomycota
## 1605	Nitrospirae
## 1595	Nitrospirae
## 1623	Nitrospirae
## 1624	Nitrospirae
## 1608	Nitrospirae
## 1591	Nitrospirae
## 1610	Nitrospirae
## 1776	Oomycota
## 1598	Nitrospirae
## 1611	Nitrospirae
## 1614	Nitrospirae
## 1796	Oomycota
## 1754	Oomycota
## 1606	Nitrospirae
## 1633	Nitrospirae
## 1785	Oomycota
## 1770	Oomycota
## 1802	Oomycota
## 1774	Oomycota
## 1603	Nitrospirae
## 1640	Nitrospirae
## 1766	Oomycota
## 1789	Oomycota
## 1793	Oomycota
## 1791	Oomycota
## 1759	Oomycota
## 1799	Oomycota
## 1756	Oomycota
## 1618	Nitrospirae
## 1784	Oomycota
## 1771	Oomycota

## 1790	Oomycota
## 1617	Nitrospirae
## 1761	Oomycota
## 1760	Oomycota
## 1757	Oomycota
## 1600	Nitrospirae
## 1797	Oomycota
## 1782	Oomycota
## 1765	Oomycota
## 1786	Oomycota
## 1801	Oomycota
## 1752	Oomycota
## 1592	Nitrospirae
## 1750	Oomycota
## 1780	Oomycota
## 1775	Oomycota
## 1773	Oomycota
## 1753	Oomycota
## 1755	Oomycota
## 1795	Oomycota
## 1788	Oomycota
## 1777	Oomycota
## 1778	Oomycota
## 1764	Oomycota
## 1616	Nitrospirae
## 1626	Nitrospirae
## 1787	Oomycota
## 1781	Oomycota
## 1762	Oomycota
## 1772	Oomycota
## 1625	Nitrospirae
## 2120	Basidiomycota
## 1798	Oomycota
## 2105	Basidiomycota
## 1612	Nitrospirae
## 1794	Oomycota
## 1792	Oomycota
## 1769	Oomycota
## 1800	Oomycota
## 1779	Oomycota
## 2113	Basidiomycota
## 2084	Basidiomycota
## 2096	Basidiomycota
## 2093	Basidiomycota
## 2103	Basidiomycota
## 2099	Basidiomycota
## 2097	Basidiomycota
## 2115	Basidiomycota
## 2079	Basidiomycota
## 2094	Basidiomycota
## 2075	Basidiomycota
## 1758	Oomycota
## 2085	Basidiomycota
## 2091	Basidiomycota

## 1768	Oomycota
## 2100	Basidiomycota
## 1763	Oomycota
## 2074	Basidiomycota
## 2109	Basidiomycota
## 2081	Basidiomycota
## 2119	Basidiomycota
## 2077	Basidiomycota
## 2114	Basidiomycota
## 1620	Nitrospirae
## 2104	Basidiomycota
## 2072	Basidiomycota
## 2111	Basidiomycota
## 1177	Chlorobi
## 1767	Oomycota
## 2083	Basidiomycota
## 1185	Chlorobi
## 2088	Basidiomycota
## 2106	Basidiomycota
## 2107	Basidiomycota
## 2087	Basidiomycota
## 2108	Basidiomycota
## 543	Spirochaetes
## 1631	Nitrospirae
## 2076	Basidiomycota
## 553	Spirochaetes
## 2069	Basidiomycota
## 2070	Basidiomycota
## 2118	Basidiomycota
## 2089	Basidiomycota
## 2092	Basidiomycota
## 1751	Oomycota
## 2078	Basidiomycota
## 2098	Basidiomycota
## 2110	Basidiomycota
## 2116	Basidiomycota
## 569	Spirochaetes
## 2071	Basidiomycota
## 2112	Basidiomycota
## 1619	Nitrospirae
## 1909	Synergistetes
## 1911	Synergistetes
## 1187	Chlorobi
## 562	Spirochaetes
## 574	Spirochaetes
## 2102	Basidiomycota
## 1210	Chlorobi
## 2095	Basidiomycota
## 1169	Chlorobi
## 2086	Basidiomycota
## 1205	Chlorobi
## 534	Spirochaetes
## 2080	Basidiomycota
## 565	Spirochaetes

## 2082	Basidiomycota
## 567	Spirochaetes
## 2101	Basidiomycota
## 573	Spirochaetes
## 578	Spirochaetes
## 532	Spirochaetes
## 2068	Basidiomycota
## 2090	Basidiomycota
## 561	Spirochaetes
## 537	Spirochaetes
## 568	Spirochaetes
## 1956	Synergistetes
## 1937	Synergistetes
## 557	Spirochaetes
## 1188	Chlorobi
## 1609	Nitrospirae
## 546	Spirochaetes
## 535	Spirochaetes
## 531	Spirochaetes
## 552	Spirochaetes
## 1193	Chlorobi
## 560	Spirochaetes
## 1186	Chlorobi
## 544	Spirochaetes
## 564	Spirochaetes
## 582	Spirochaetes
## 1207	Chlorobi
## 554	Spirochaetes
## 566	Spirochaetes
## 2073	Basidiomycota
## 542	Spirochaetes
## 1195	Chlorobi
## 536	Spirochaetes
## 539	Spirochaetes
## 1170	Chlorobi
## 551	Spirochaetes
## 575	Spirochaetes
## 1206	Chlorobi
## 1910	Synergistetes
## 1197	Chlorobi
## 1179	Chlorobi
## 556	Spirochaetes
## 2117	Basidiomycota
## 1184	Chlorobi
## 1202	Chlorobi
## 1174	Chlorobi
## 555	Spirochaetes
## 563	Spirochaetes
## 1168	Chlorobi
## 570	Spirochaetes
## 11	Armatimonadetes
## 1216	Chlorobi
## 1176	Chlorobi
## 579	Spirochaetes

## 1219	Chlorobi
## 1172	Chlorobi
## 1212	Chlorobi
## 40	Armatimonadetes
## 1200	Chlorobi
## 1167	Chlorobi
## 1961	Synergistetes
## 549	Spirochaetes
## 538	Spirochaetes
## 1217	Chlorobi
## 548	Spirochaetes
## 580	Spirochaetes
## 583	Spirochaetes
## 1214	Chlorobi
## 1199	Chlorobi
## 1192	Chlorobi
## 1943	Synergistetes
## 572	Spirochaetes
## 1180	Chlorobi
## 1218	Chlorobi
## 1171	Chlorobi
## 545	Spirochaetes
## 1189	Chlorobi
## 1175	Chlorobi
## 1191	Chlorobi
## 1944	Synergistetes
## 1183	Chlorobi
## 1178	Chlorobi
## 1960	Synergistetes
## 1917	Synergistetes
## 541	Spirochaetes
## 1920	Synergistetes
## 577	Spirochaetes
## 1215	Chlorobi
## 571	Spirochaetes
## 1209	Chlorobi
## 533	Spirochaetes
## 8	Armatimonadetes
## 1922	Synergistetes
## 1919	Synergistetes
## 12	Armatimonadetes
## 1926	Synergistetes
## 1952	Synergistetes
## 1936	Synergistetes
## 1921	Synergistetes
## 1925	Synergistetes
## 1208	Chlorobi
## 1198	Chlorobi
## 1916	Synergistetes
## 1912	Synergistetes
## 1957	Synergistetes
## 1940	Synergistetes
## 31	Armatimonadetes
## 1946	Synergistetes

## 1915	Synergistetes
## 1203	Chlorobi
## 1959	Synergistetes
## 1958	Synergistetes
## 558	Spirochaetes
## 1935	Synergistetes
## 1913	Synergistetes
## 540	Spirochaetes
## 43	Armatimonadetes
## 1941	Synergistetes
## 1934	Synergistetes
## 1942	Synergistetes
## 1951	Synergistetes
## 1930	Synergistetes
## 1947	Synergistetes
## 1948	Synergistetes
## 1924	Synergistetes
## 1204	Chlorobi
## 547	Spirochaetes
## 1201	Chlorobi
## 576	Spirochaetes
## 559	Spirochaetes
## 1190	Chlorobi
## 1213	Chlorobi
## 1181	Chlorobi
## 1173	Chlorobi
## 1953	Synergistetes
## 1933	Synergistetes
## 1	Armatimonadetes
## 1918	Synergistetes
## 1950	Synergistetes
## 1931	Synergistetes
## 25	Armatimonadetes
## 44	Armatimonadetes
## 9	Armatimonadetes
## 52	Armatimonadetes
## 29	Armatimonadetes
## 33	Armatimonadetes
## 1927	Synergistetes
## 15	Armatimonadetes
## 550	Spirochaetes
## 1955	Synergistetes
## 24	Armatimonadetes
## 1923	Synergistetes
## 7	Armatimonadetes
## 32	Armatimonadetes
## 581	Spirochaetes
## 1182	Chlorobi
## 34	Armatimonadetes
## 46	Armatimonadetes
## 19	Armatimonadetes
## 17	Armatimonadetes
## 1938	Synergistetes
## 42	Armatimonadetes

## 47	Armatimonadetes
## 6	Armatimonadetes
## 1932	Synergistetes
## 2	Armatimonadetes
## 21	Armatimonadetes
## 28	Armatimonadetes
## 18	Armatimonadetes
## 48	Armatimonadetes
## 3	Armatimonadetes
## 38	Armatimonadetes
## 1211	Chlorobi
## 1949	Synergistetes
## 26	Armatimonadetes
## 23	Armatimonadetes
## 1928	Synergistetes
## 1939	Synergistetes
## 27	Armatimonadetes
## 4	Armatimonadetes
## 37	Armatimonadetes
## 35	Armatimonadetes
## 39	Armatimonadetes
## 1194	Chlorobi
## 1196	Chlorobi
## 53	Armatimonadetes
## 30	Armatimonadetes
## 36	Armatimonadetes
## 1914	Synergistetes
## 51	Armatimonadetes
## 1945	Synergistetes
## 5	Armatimonadetes
## 50	Armatimonadetes
## 45	Armatimonadetes
## 10	Armatimonadetes
## 1954	Synergistetes
## 41	Armatimonadetes
## 20	Armatimonadetes
## 1929	Synergistetes
## 16	Armatimonadetes
## 22	Armatimonadetes
## 13	Armatimonadetes
## 276	Kiritimatiellaecta
## 14	Armatimonadetes
## 297	Kiritimatiellaecta
## 49	Armatimonadetes
## 274	Kiritimatiellaecta
## 291	Kiritimatiellaecta
## 270	Kiritimatiellaecta
## 292	Kiritimatiellaecta
## 307	Kiritimatiellaecta
## 1008	Thermotogae
## 296	Kiritimatiellaecta
## 1039	Thermotogae
## 288	Kiritimatiellaecta
## 287	Kiritimatiellaecta

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## 311      Kiritimatiellaecta
## 267      Kiritimatiellaecta
## 300      Kiritimatiellaecta
## 317      Kiritimatiellaecta
## 974      Tenericutes
## 273      Kiritimatiellaecta
## 294      Kiritimatiellaecta
## 313      Kiritimatiellaecta
## 290      Kiritimatiellaecta
## 284      Kiritimatiellaecta
## 302      Kiritimatiellaecta
## 283      Kiritimatiellaecta
## 275      Kiritimatiellaecta
## 298      Kiritimatiellaecta
## 301      Kiritimatiellaecta
## 309      Kiritimatiellaecta
## 271      Kiritimatiellaecta
## 992      Tenericutes
## 282      Kiritimatiellaecta
## 268      Kiritimatiellaecta
## 277      Kiritimatiellaecta
## 306      Kiritimatiellaecta
## 1486     Chlamydiae
## 286      Kiritimatiellaecta
## 278      Kiritimatiellaecta
## 303      Kiritimatiellaecta
## 304      Kiritimatiellaecta
## 308      Kiritimatiellaecta
## 316      Kiritimatiellaecta
## 318      Kiritimatiellaecta
## 285      Kiritimatiellaecta
## 279      Kiritimatiellaecta
## 1016     Thermotogae
## 1038     Thermotogae
## 280      Kiritimatiellaecta
## 961      Tenericutes
## 310      Kiritimatiellaecta
## 289      Kiritimatiellaecta
## 295      Kiritimatiellaecta
## 320      Candidatus Saccharibacteria
## 366      Candidatus Saccharibacteria
## 1488     Chlamydiae
## 1030     Thermotogae
## 281      Kiritimatiellaecta
## 1501     Chlamydiae
## 326      Candidatus Saccharibacteria
## 1018     Thermotogae
## 266      Kiritimatiellaecta
## 299      Kiritimatiellaecta
## 1052     Thermotogae
## 972      Tenericutes
## 810      Candidatus Bipolaricaulota
## 315      Kiritimatiellaecta
## 1017     Thermotogae

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## 364      Candidatus Saccharibacteria
## 312          Kiritimatiellaecta
## 963          Tenericutes
## 352      Candidatus Saccharibacteria
## 799      Candidatus Bipolaricaulota
## 968          Tenericutes
## 272          Kiritimatiellaecta
## 1050         Thermotogae
## 269          Kiritimatiellaecta
## 319      Candidatus Saccharibacteria
## 1031         Thermotogae
## 1010         Thermotogae
## 1020         Thermotogae
## 858          Thermodesulfobacteria
## 1023         Thermotogae
## 967          Tenericutes
## 988          Tenericutes
## 1534         Chlamydiae
## 1051         Thermotogae
## 1040         Thermotogae
## 1021         Thermotogae
## 1056         Thermotogae
## 1035         Thermotogae
## 314          Kiritimatiellaecta
## 1541         Aquificae
## 1022         Thermotogae
## 1009         Thermotogae
## 990          Tenericutes
## 833      Candidatus Bipolaricaulota
## 1036         Thermotogae
## 293          Kiritimatiellaecta
## 851          Thermodesulfobacteria
## 1520         Chlamydiae
## 1519         Chlamydiae
## 1047         Thermotogae
## 1015         Thermotogae
## 1046         Thermotogae
## 1011         Thermotogae
## 1028         Thermotogae
## 1049         Thermotogae
## 999          Tenericutes
## 1054         Thermotogae
## 1037         Thermotogae
## 1060         Thermotogae
## 1551         Aquificae
## 1494         Chlamydiae
## 1029         Thermotogae
## 1026         Thermotogae
## 1034         Thermotogae
## 1045         Thermotogae
## 958          Tenericutes
## 956          Tenericutes
## 1004         Tenericutes
## 1505         Chlamydiae

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## 1059           Thermotogae
## 305            Kiritimatiellaecta
## 1012           Thermotogae
## 1568           Aquificae
## 1506           Chlamydiae
## 987            Tenericutes
## 1511           Chlamydiae
## 1537           Chlamydiae
## 1044           Thermotogae
## 1055           Thermotogae
## 800            Candidatus Bipolaricaulota
## 965            Tenericutes
## 1024           Thermotogae
## 1490           Chlamydiae
## 957            Tenericutes
## 1048           Thermotogae
## 955            Tenericutes
## 983            Tenericutes
## 798            Candidatus Bipolaricaulota
## 1053           Thermotogae
## 842            Candidatus Bipolaricaulota
## 979            Tenericutes
## 973            Tenericutes
## 837            Candidatus Bipolaricaulota
## 834            Candidatus Bipolaricaulota
## 2146           Fusobacteria
## 980            Tenericutes
## 1058           Thermotogae
## 815            Candidatus Bipolaricaulota
## 1033           Thermotogae
## 805            Candidatus Bipolaricaulota
## 1019           Thermotogae
## 826            Candidatus Bipolaricaulota
## 982            Tenericutes
## 796            Candidatus Bipolaricaulota
## 1003           Tenericutes
## 970            Tenericutes
## 823            Candidatus Bipolaricaulota
## 828            Candidatus Bipolaricaulota
## 846            Candidatus Bipolaricaulota
## 827            Candidatus Bipolaricaulota
## 964            Tenericutes
## 1057           Thermotogae
## 984            Tenericutes
## 978            Tenericutes
## 1492           Chlamydiae
## 830            Candidatus Bipolaricaulota
## 806            Candidatus Bipolaricaulota
## 880            Thermodesulfobacteria
## 985            Tenericutes
## 1014           Thermotogae
## 1521           Chlamydiae
## 824            Candidatus Bipolaricaulota
## 991            Tenericutes

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## 996 Tenericutes
## 989 Tenericutes
## 977 Tenericutes
## 1027 Thermotogae
## 1043 Thermotogae
## 981 Tenericutes
## 816 Candidatus Bipolaricaulota
## 2142 Fusobacteria
## 1507 Chlamydiae
## 843 Candidatus Bipolaricaulota
## 844 Candidatus Bipolaricaulota
## 817 Candidatus Bipolaricaulota
## 820 Candidatus Bipolaricaulota
## 878 Thermodesulfobacteria
## 1504 Chlamydiae
## 811 Candidatus Bipolaricaulota
## 1042 Thermotogae
## 1500 Chlamydiae
## 998 Tenericutes
## 975 Tenericutes
## 797 Candidatus Bipolaricaulota
## 1515 Chlamydiae
## 976 Tenericutes
## 971 Tenericutes
## 832 Candidatus Bipolaricaulota
## 1575 Aquificae
## 1001 Tenericutes
## 1491 Chlamydiae
## 848 Candidatus Bipolaricaulota
## 1006 Tenericutes
## 825 Candidatus Bipolaricaulota
## 890 Thermodesulfobacteria
## 1526 Chlamydiae
## 808 Candidatus Bipolaricaulota
## 1495 Chlamydiae
## 1514 Chlamydiae
## 835 Candidatus Bipolaricaulota
## 335 Candidatus Saccharibacteria
## 802 Candidatus Bipolaricaulota
## 1528 Chlamydiae
## 997 Tenericutes
## 1527 Chlamydiae
## 1013 Thermotogae
## 1524 Chlamydiae
## 1578 Aquificae
## 1558 Aquificae
## 959 Tenericutes
## 803 Candidatus Bipolaricaulota
## 1032 Thermotogae
## 966 Tenericutes
## 1523 Chlamydiae
## 969 Tenericutes
## 1005 Tenericutes
## 838 Candidatus Bipolaricaulota

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## 807      Candidatus Bipolaricaulota
## 962          Tenericutes
## 822      Candidatus Bipolaricaulota
## 1498          Chlamydiae
## 1545          Aquificae
## 2129      Fusobacteria
## 1002          Tenericutes
## 1485          Chlamydiae
## 839      Candidatus Bipolaricaulota
## 1539          Aquificae
## 1562          Aquificae
## 819      Candidatus Bipolaricaulota
## 960          Tenericutes
## 1525          Chlamydiae
## 1557          Aquificae
## 1553          Aquificae
## 1535          Chlamydiae
## 330      Candidatus Saccharibacteria
## 2132          Fusobacteria
## 1550          Aquificae
## 1041          Thermotogae
## 1542          Aquificae
## 821      Candidatus Bipolaricaulota
## 1007          Tenericutes
## 860      Thermodesulfobacteria
## 1509          Chlamydiae
## 856      Thermodesulfobacteria
## 1569          Aquificae
## 1025          Thermotogae
## 829      Candidatus Bipolaricaulota
## 1585          Aquificae
## 836      Candidatus Bipolaricaulota
## 324      Candidatus Saccharibacteria
## 1560          Aquificae
## 1531          Chlamydiae
## 812      Candidatus Bipolaricaulota
## 986          Tenericutes
## 753      Candidatus Omnitrophica
## 1565          Aquificae
## 367      Candidatus Saccharibacteria
## 1554          Aquificae
## 1540          Aquificae
## 1530          Chlamydiae
## 1584          Aquificae
## 1544          Aquificae
## 818      Candidatus Bipolaricaulota
## 1533          Chlamydiae
## 809      Candidatus Bipolaricaulota
## 1572          Aquificae
## 1574          Aquificae
## 362      Candidatus Saccharibacteria
## 847      Candidatus Bipolaricaulota
## 841      Candidatus Bipolaricaulota
## 1489          Chlamydiae

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## 1536          Chlamydiae
## 1513          Chlamydiae
## 1503          Chlamydiae
## 1516          Chlamydiae
## 1508          Chlamydiae
## 1548          Aquificae
## 1499          Chlamydiae
## 1576          Aquificae
## 342           Candidatus Saccharibacteria
## 2163          Fusobacteria
## 1552          Aquificae
## 1590          Aquificae
## 1487          Chlamydiae
## 865           Thermodesulfobacteria
## 850           Thermodesulfobacteria
## 813           Candidatus Bipolaricaulota
## 1510          Chlamydiae
## 1581          Aquificae
## 801           Candidatus Bipolaricaulota
## 1583          Aquificae
## 368           Candidatus Saccharibacteria
## 995           Tenericutes
## 590           Calditrachaeota
## 597           Calditrachaeota
## 853           Thermodesulfobacteria
## 993           Tenericutes
## 1571          Aquificae
## 1586          Aquificae
## 1566          Aquificae
## 1577          Aquificae
## 893           Thermodesulfobacteria
## 873           Thermodesulfobacteria
## 2134          Fusobacteria
## 1567          Aquificae
## 895           Thermodesulfobacteria
## 857           Thermodesulfobacteria
## 885           Thermodesulfobacteria
## 862           Thermodesulfobacteria
## 845           Candidatus Bipolaricaulota
## 831           Candidatus Bipolaricaulota
## 2127          Fusobacteria
## 1547          Aquificae
## 1580          Aquificae
## 1555          Aquificae
## 889           Thermodesulfobacteria
## 900           Thermodesulfobacteria
## 852           Thermodesulfobacteria
## 854           Thermodesulfobacteria
## 1496          Chlamydiae
## 1588          Aquificae
## 377           Deferrribacteres
## 901           Thermodesulfobacteria
## 1532          Chlamydiae
## 1518          Chlamydiae

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## 2171          Fusobacteria
## 881          Thermodesulfobacteria
## 2170          Fusobacteria
## 2121          Fusobacteria
## 1493          Chlamydiae
## 879          Thermodesulfobacteria
## 868          Thermodesulfobacteria
## 1564          Aquificae
## 1563          Aquificae
## 994          Tenericutes
## 773          Candidatus Omnitrophica
## 2160          Fusobacteria
## 814          Candidatus Bipolaricaulota
## 869          Thermodesulfobacteria
## 840          Candidatus Bipolaricaulota
## 882          Thermodesulfobacteria
## 884          Thermodesulfobacteria
## 883          Thermodesulfobacteria
## 1000         Tenericutes
## 1502         Chlamydiae
## 2140         Fusobacteria
## 2141         Fusobacteria
## 2152         Fusobacteria
## 349          Candidatus Saccharibacteria
## 1543         Aquificae
## 870          Thermodesulfobacteria
## 871          Thermodesulfobacteria
## 1561         Aquificae
## 864          Thermodesulfobacteria
## 894          Thermodesulfobacteria
## 849          Thermodesulfobacteria
## 2126         Fusobacteria
## 876          Thermodesulfobacteria
## 887          Thermodesulfobacteria
## 891          Thermodesulfobacteria
## 899          Thermodesulfobacteria
## 1497         Chlamydiae
## 389          Deferribacteres
## 630          Calditrarchaeota
## 1546         Aquificae
## 1579         Aquificae
## 2243         Chrysiogenetes
## 1549         Aquificae
## 1589         Aquificae
## 874          Thermodesulfobacteria
## 2167         Fusobacteria
## 804          Candidatus Bipolaricaulota
## 888          Thermodesulfobacteria
## 354          Candidatus Saccharibacteria
## 1582         Aquificae
## 785          Candidatus Omnitrophica
## 875          Thermodesulfobacteria
## 1512         Chlamydiae
## 896          Thermodesulfobacteria
```

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## 2136          Fusobacteria
## 2155          Fusobacteria
## 329    Candidatus Saccharibacteria
## 2137          Fusobacteria
## 2276          Chrysiogenetes
## 2124          Fusobacteria
## 886    Thermodesulfobacteria
## 494           Balneolaeota
## 2168          Fusobacteria
## 1587          Aquificae
## 2227          Chrysiogenetes
## 2255          Chrysiogenetes
## 2128          Fusobacteria
## 1556          Aquificae
## 2156          Fusobacteria
## 2277          Chrysiogenetes
## 898    Thermodesulfobacteria
## 617           Calditrichaeota
## 2239          Chrysiogenetes
## 2159          Fusobacteria
## 2139          Fusobacteria
## 897    Thermodesulfobacteria
## 1538          Aquificae
## 361    Candidatus Saccharibacteria
## 877    Thermodesulfobacteria
## 775    Candidatus Omnitrophica
## 1570          Aquificae
## 384           Deferrribacteres
## 2125          Fusobacteria
## 2264          Chrysiogenetes
## 1573          Aquificae
## 358    Candidatus Saccharibacteria
## 604           Calditrichaeota
## 866    Thermodesulfobacteria
## 599           Calditrichaeota
## 2147          Fusobacteria
## 867    Thermodesulfobacteria
## 376           Deferrribacteres
## 855    Thermodesulfobacteria
## 587           Calditrichaeota
## 2122          Fusobacteria
## 2234          Chrysiogenetes
## 872    Thermodesulfobacteria
## 1517          Chlamydiae
## 323    Candidatus Saccharibacteria
## 2145          Fusobacteria
## 359    Candidatus Saccharibacteria
## 341    Candidatus Saccharibacteria
## 491           Balneolaeota
## 403           Deferrribacteres
## 375           Deferrribacteres
## 861    Thermodesulfobacteria
## 2161          Fusobacteria
## 892    Thermodesulfobacteria

```

```
## 2144          Fusobacteria
## 2150          Fusobacteria
## 2135          Fusobacteria
## 1529          Chlamydiae
## 745           Candidatus Omnitrophica
## 614           Calditrarchaeota
## 2172          Fusobacteria
## 2263          Chrysiogenetes
## 2165          Fusobacteria
## 2143          Fusobacteria
## 331           Candidatus Saccharibacteria
## 859           Thermodesulfobacteria
## 2130          Fusobacteria
## 2169          Fusobacteria
## 2149          Fusobacteria
## 767           Candidatus Omnitrophica
## 2162          Fusobacteria
## 2257          Chrysiogenetes
## 2123          Fusobacteria
## 770           Candidatus Omnitrophica
## 601           Calditrarchaeota
## 372           Deferrribacteres
## 591           Calditrarchaeota
## 751           Candidatus Omnitrophica
## 410           Deferrribacteres
## 404           Deferrribacteres
## 2273          Chrysiogenetes
## 383           Deferrribacteres
## 757           Candidatus Omnitrophica
## 625           Calditrarchaeota
## 768           Candidatus Omnitrophica
## 616           Calditrarchaeota
## 863           Thermodesulfobacteria
## 411           Deferrribacteres
## 609           Calditrarchaeota
## 2241          Chrysiogenetes
## 2173          Fusobacteria
## 390           Deferrribacteres
## 2151          Fusobacteria
## 613           Calditrarchaeota
## 346           Candidatus Saccharibacteria
## 402           Deferrribacteres
## 2262          Chrysiogenetes
## 787           Candidatus Omnitrophica
## 423           Deferrribacteres
## 369           Candidatus Saccharibacteria
## 414           Deferrribacteres
## 417           Deferrribacteres
## 762           Candidatus Omnitrophica
## 584           Calditrarchaeota
## 2138          Fusobacteria
## 371           Candidatus Saccharibacteria
## 629           Calditrarchaeota
## 400           Deferrribacteres
```

```

## 2245          Chrysiogenetes
## 525           Balneolaecta
## 1522          Chlamydiae
## 628           Calditrarchaeota
## 618           Calditrarchaeota
## 2131          Fusobacteria
## 416           Deferribacteres
## 635           Calditrarchaeota
## 624           Calditrarchaeota
## 621           Calditrarchaeota
## 2229          Chrysiogenetes
## 483           Balneolaecta
## 632           Calditrarchaeota
## 1559          Aquificae
## 356   Candidatus Saccharibacteria
## 421           Deferribacteres
## 744   Candidatus Omnitrophica
## 772   Candidatus Omnitrophica
## 752   Candidatus Omnitrophica
## 2237          Chrysiogenetes
## 381           Deferribacteres
## 482           Balneolaecta
## 2279          Chrysiogenetes
## 485           Balneolaecta
## 631           Calditrarchaeota
## 758   Candidatus Omnitrophica
## 514           Balneolaecta
## 523           Balneolaecta
## 499           Balneolaecta
## 755   Candidatus Omnitrophica
## 2271          Chrysiogenetes
## 748   Candidatus Omnitrophica
## 771   Candidatus Omnitrophica
## 418           Deferribacteres
## 633           Calditrarchaeota
## 789   Candidatus Omnitrophica
## 2261          Chrysiogenetes
## 393           Deferribacteres
## 374           Deferribacteres
## 419           Deferribacteres
## 585           Calditrarchaeota
## 2154          Fusobacteria
## 2268          Chrysiogenetes
## 2266          Chrysiogenetes
## 401           Deferribacteres
## 63            Ignavibacteriae
## 750   Candidatus Omnitrophica
## 2238          Chrysiogenetes
## 626           Calditrarchaeota
## 795   Candidatus Omnitrophica
## 2246          Chrysiogenetes
## 405           Deferribacteres
## 412           Deferribacteres
## 2166          Fusobacteria

```

```
## 492           Balneolaecta
## 593           Calditrichaeota
## 382           Deferribacteres
## 759           Candidatus Omnitrophica
## 606           Calditrichaeota
## 2242          Chrysiogenetes
## 387           Deferribacteres
## 594           Calditrichaeota
## 2269          Chrysiogenetes
## 2274          Chrysiogenetes
## 398           Deferribacteres
## 2231          Chrysiogenetes
## 481           Balneolaecta
## 399           Deferribacteres
## 424           Deferribacteres
## 774           Candidatus Omnitrophica
## 2236          Chrysiogenetes
## 620           Calditrichaeota
## 779           Candidatus Omnitrophica
## 394           Deferribacteres
## 761           Candidatus Omnitrophica
## 627           Calditrichaeota
## 2164          Fusobacteria
## 611           Calditrichaeota
## 502           Balneolaecta
## 608           Calditrichaeota
## 497           Balneolaecta
## 422           Deferribacteres
## 793           Candidatus Omnitrophica
## 781           Candidatus Omnitrophica
## 2270          Chrysiogenetes
## 2272          Chrysiogenetes
## 503           Balneolaecta
## 373           Deferribacteres
## 784           Candidatus Omnitrophica
## 360           Candidatus Saccharibacteria
## 598           Calditrichaeota
## 2253          Chrysiogenetes
## 780           Candidatus Omnitrophica
## 353           Candidatus Saccharibacteria
## 2148          Fusobacteria
## 2251          Chrysiogenetes
## 505           Balneolaecta
## 747           Candidatus Omnitrophica
## 501           Balneolaecta
## 2232          Chrysiogenetes
## 379           Deferribacteres
## 380           Deferribacteres
## 2249          Chrysiogenetes
## 2248          Chrysiogenetes
## 2153          Fusobacteria
## 486           Balneolaecta
## 328           Candidatus Saccharibacteria
## 496           Balneolaecta
```

```

## 2233          Chrysiogenetes
## 2158          Fusobacteria
## 790           Candidatus Omnitrophica
## 622           Calditrichaeota
## 340           Candidatus Saccharibacteria
## 334           Candidatus Saccharibacteria
## 386           Deferribacteres
## 2247           Chrysiogenetes
## 603            Calditrichaeota
## 619            Calditrichaeota
## 520            Balneolaecta
## 2256           Chrysiogenetes
## 498            Balneolaecta
## 764           Candidatus Omnitrophica
## 509            Balneolaecta
## 524            Balneolaecta
## 595            Calditrichaeota
## 786           Candidatus Omnitrophica
## 512            Balneolaecta
## 518            Balneolaecta
## 528            Balneolaecta
## 515            Balneolaecta
## 589            Calditrichaeota
## 57             Ignavibacteriae
## 84             Ignavibacteriae
## 478            Balneolaecta
## 743           Candidatus Omnitrophica
## 2259           Chrysiogenetes
## 2275           Chrysiogenetes
## 636            Calditrichaeota
## 82             Ignavibacteriae
## 409            Deferribacteres
## 769           Candidatus Omnitrophica
## 490            Balneolaecta
## 385            Deferribacteres
## 406            Deferribacteres
## 480            Balneolaecta
## 487            Balneolaecta
## 605            Calditrichaeota
## 493            Balneolaecta
## 749           Candidatus Omnitrophica
## 794           Candidatus Omnitrophica
## 529            Balneolaecta
## 2260           Chrysiogenetes
## 596            Calditrichaeota
## 2267           Chrysiogenetes
## 791           Candidatus Omnitrophica
## 1899           Microsporidia
## 2157           Fusobacteria
## 395            Deferribacteres
## 506            Balneolaecta
## 408            Deferribacteres
## 407            Deferribacteres
## 58             Ignavibacteriae

```

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## 623          Calditrichaeota
## 2258         Chrysiogenetes
## 2278         Chrysiogenetes
## 77           Ignavibacteriae
## 600          Calditrichaeota
## 1652         Elusimicrobia
## 612          Calditrichaeota
## 79           Ignavibacteriae
## 397          Deferribacteres
## 495          Balneolaecta
## 2250         Chrysiogenetes
## 526          Balneolaecta
## 788          Candidatus Omnitrophica
## 2228         Chrysiogenetes
## 91           Ignavibacteriae
## 756          Candidatus Omnitrophica
## 500          Balneolaecta
## 2133         Fusobacteria
## 2240         Chrysiogenetes
## 504          Balneolaecta
## 489          Balneolaecta
## 778          Candidatus Omnitrophica
## 92           Ignavibacteriae
## 378          Deferribacteres
## 516          Balneolaecta
## 586          Calditrichaeota
## 2043         Fibrobacteres
## 479          Balneolaecta
## 2252         Chrysiogenetes
## 415          Deferribacteres
## 420          Deferribacteres
## 510          Balneolaecta
## 54           Ignavibacteriae
## 101          Ignavibacteriae
## 508          Balneolaecta
## 2254         Chrysiogenetes
## 1654         Elusimicrobia
## 396          Deferribacteres
## 70            Ignavibacteriae
## 507          Balneolaecta
## 592          Calditrichaeota
## 754          Candidatus Omnitrophica
## 610          Calditrichaeota
## 2235         Chrysiogenetes
## 388          Deferribacteres
## 521          Balneolaecta
## 339          Candidatus Saccharibacteria
## 484          Balneolaecta
## 763          Candidatus Omnitrophica
## 2032         Fibrobacteres
## 2244         Chrysiogenetes
## 2265         Chrysiogenetes
## 488          Balneolaecta
## 776          Candidatus Omnitrophica

```

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## 343      Candidatus Saccharibacteria
## 325      Candidatus Saccharibacteria
## 103          Ignavibacteriae
## 2061         Fibrobacteres
## 391          Deferribacteres
## 607          Calditrichaeota
## 2020         Fibrobacteres
## 530          Balneolaeota
## 80           Ignavibacteriae
## 602          Calditrichaeota
## 513          Balneolaeota
## 413          Deferribacteres
## 1655         Elusimicrobia
## 392          Deferribacteres
## 68           Ignavibacteriae
## 588          Calditrichaeota
## 777          Candidatus Omnitrophica
## 56           Ignavibacteriae
## 345          Candidatus Saccharibacteria
## 1693         Elusimicrobia
## 75           Ignavibacteriae
## 765          Candidatus Omnitrophica
## 89           Ignavibacteriae
## 69           Ignavibacteriae
## 517          Balneolaeota
## 746          Candidatus Omnitrophica
## 60           Ignavibacteriae
## 62           Ignavibacteriae
## 615          Calditrichaeota
## 2024         Fibrobacteres
## 2230         Chrysiogenetes
## 2042         Fibrobacteres
## 2038         Fibrobacteres
## 1678         Elusimicrobia
## 96           Ignavibacteriae
## 1669         Elusimicrobia
## 1661         Elusimicrobia
## 2057         Fibrobacteres
## 64           Ignavibacteriae
## 66           Ignavibacteriae
## 365          Candidatus Saccharibacteria
## 1659         Elusimicrobia
## 1685         Elusimicrobia
## 527          Balneolaeota
## 344          Candidatus Saccharibacteria
## 783          Candidatus Omnitrophica
## 102         Ignavibacteriae
## 71           Ignavibacteriae
## 634          Calditrichaeota
## 55           Ignavibacteriae
## 348          Candidatus Saccharibacteria
## 2050         Fibrobacteres
## 792          Candidatus Omnitrophica
## 90           Ignavibacteriae

```

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## 338      Candidatus Saccharibacteria
## 2036      Fibrobacteres
## 332      Candidatus Saccharibacteria
## 522      Balneolaeota
## 782      Candidatus Omnitrophica
## 336      Candidatus Saccharibacteria
## 370      Candidatus Saccharibacteria
## 347      Candidatus Saccharibacteria
## 355      Candidatus Saccharibacteria
## 106      Ignavibacteriae
## 363      Candidatus Saccharibacteria
## 1673     Elusimicrobia
## 2037     Fibrobacteres
## 85       Ignavibacteriae
## 65       Ignavibacteriae
## 1660     Elusimicrobia
## 321      Candidatus Saccharibacteria
## 2065     Fibrobacteres
## 104      Ignavibacteriae
## 1644     Elusimicrobia
## 73       Ignavibacteriae
## 1675     Elusimicrobia
## 760      Candidatus Omnitrophica
## 1677     Elusimicrobia
## 100      Ignavibacteriae
## 67       Ignavibacteriae
## 98       Ignavibacteriae
## 2035     Fibrobacteres
## 1647     Elusimicrobia
## 105      Ignavibacteriae
## 1656     Elusimicrobia
## 2049     Fibrobacteres
## 72       Ignavibacteriae
## 322      Candidatus Saccharibacteria
## 76       Ignavibacteriae
## 2041     Fibrobacteres
## 1682     Elusimicrobia
## 1665     Elusimicrobia
## 1651     Elusimicrobia
## 2023     Fibrobacteres
## 327      Candidatus Saccharibacteria
## 2027     Fibrobacteres
## 2025     Fibrobacteres
## 350      Candidatus Saccharibacteria
## 2033     Fibrobacteres
## 2028     Fibrobacteres
## 1684     Elusimicrobia
## 357      Candidatus Saccharibacteria
## 61       Ignavibacteriae
## 1680     Elusimicrobia
## 1674     Elusimicrobia
## 83       Ignavibacteriae
## 78       Ignavibacteriae
## 2045     Fibrobacteres

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## 2029      Fibrobacteres
## 2058      Fibrobacteres
## 511       Balneolaecta
## 2019      Fibrobacteres
## 1681      Elusimicrobia
## 97        Ignavibacteriae
## 2067      Fibrobacteres
## 1687      Elusimicrobia
## 2022      Fibrobacteres
## 337       Candidatus Saccharibacteria
## 2015      Fibrobacteres
## 81        Ignavibacteriae
## 351       Candidatus Saccharibacteria
## 2064      Fibrobacteres
## 94        Ignavibacteriae
## 1692      Elusimicrobia
## 2016      Fibrobacteres
## 1646      Elusimicrobia
## 2040      Fibrobacteres
## 766       Candidatus Omnitrophica
## 2021      Fibrobacteres
## 2066      Fibrobacteres
## 1696      Elusimicrobia
## 1690      Elusimicrobia
## 2031      Fibrobacteres
## 2053      Fibrobacteres
## 1649      Elusimicrobia
## 2055      Fibrobacteres
## 2044      Fibrobacteres
## 1418      Coprothermobacterota
## 1695      Elusimicrobia
## 1670      Elusimicrobia
## 1658      Elusimicrobia
## 2034      Fibrobacteres
## 93        Ignavibacteriae
## 59        Ignavibacteriae
## 1662      Elusimicrobia
## 1671      Elusimicrobia
## 1683      Elusimicrobia
## 1689      Elusimicrobia
## 74        Ignavibacteriae
## 1653      Elusimicrobia
## 2017      Fibrobacteres
## 2056      Fibrobacteres
## 2063      Fibrobacteres
## 2039      Fibrobacteres
## 1672      Elusimicrobia
## 1691      Elusimicrobia
## 1668      Elusimicrobia
## 99        Ignavibacteriae
## 2047      Fibrobacteres
## 2030      Fibrobacteres
## 1664      Elusimicrobia
## 1657      Elusimicrobia

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## 87           Ignavibacteriae
## 519          Balneolaecta
## 1648         Elusimicrobia
## 2059         Fibrobacteres
## 1694         Elusimicrobia
## 333          Candidatus Saccharibacteria
## 2046         Fibrobacteres
## 2052         Fibrobacteres
## 230          Dictyoglomi
## 1666         Elusimicrobia
## 1679         Elusimicrobia
## 86           Ignavibacteriae
## 88           Ignavibacteriae
## 1389         Coprothermobacterota
## 2026         Fibrobacteres
## 2060         Fibrobacteres
## 2018         Fibrobacteres
## 2051         Fibrobacteres
## 1650         Elusimicrobia
## 1686         Elusimicrobia
## 1688         Elusimicrobia
## 1663         Elusimicrobia
## 1676         Elusimicrobia
## 95           Ignavibacteriae
## 2048         Fibrobacteres
## 2054         Fibrobacteres
## 1399         Coprothermobacterota
## 2062         Fibrobacteres
## 1406         Coprothermobacterota
## 1381         Coprothermobacterota
## 1667         Elusimicrobia
## 1645         Elusimicrobia
## 225          Dictyoglomi
## 1967         Caldiserica
## 1978         Caldiserica
## 248          Dictyoglomi
## 1426         Coprothermobacterota
## 1970         Caldiserica
## 260          Dictyoglomi
## 1310         Atribacterota
## 1981         Caldiserica
## 1980         Caldiserica
## 2004         Caldiserica
## 1417         Coprothermobacterota
## 1380         Coprothermobacterota
## 1280         Atribacterota
## 235          Dictyoglomi
## 1307         Atribacterota
## 1413         Coprothermobacterota
## 1419         Coprothermobacterota
## 1891         Microsporidia
## 1429         Coprothermobacterota
## 2012         Caldiserica
## 2003         Caldiserica

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## 1410      Coprothermobacterota
## 1983      Caldiserica
## 1962      Caldiserica
## 1409      Coprothermobacterota
## 1407      Coprothermobacterota
## 1393      Coprothermobacterota
## 1993      Caldiserica
## 1989      Caldiserica
## 1994      Caldiserica
## 1397      Coprothermobacterota
## 1975      Caldiserica
## 1990      Caldiserica
## 1405      Coprothermobacterota
## 252       Dictyoglomi
## 1966      Caldiserica
## 1422      Coprothermobacterota
## 1388      Coprothermobacterota
## 1965      Caldiserica
## 1301      Atribacterota
## 1416      Coprothermobacterota
## 1984      Caldiserica
## 1415      Coprothermobacterota
## 1286      Atribacterota
## 2014      Caldiserica
## 1394      Coprothermobacterota
## 1402      Coprothermobacterota
## 1274      Atribacterota
## 1289      Atribacterota
## 1977      Caldiserica
## 240       Dictyoglomi
## 1403      Coprothermobacterota
## 1421      Coprothermobacterota
## 2010      Caldiserica
## 1971      Caldiserica
## 2002      Caldiserica
## 1390      Coprothermobacterota
## 247       Dictyoglomi
## 1387      Coprothermobacterota
## 1865      Microsporidia
## 1291      Atribacterota
## 231       Dictyoglomi
## 2009      Caldiserica
## 1285      Atribacterota
## 1988      Caldiserica
## 2001      Caldiserica
## 1427      Coprothermobacterota
## 1323      Atribacterota
## 1294      Atribacterota
## 1311      Atribacterota
## 1430      Coprothermobacterota
## 1974      Caldiserica
## 222       Dictyoglomi
## 226       Dictyoglomi
## 1969      Caldiserica

```

```

## 244           Dictyoglomi
## 246           Dictyoglomi
## 1999          Caldiserica
## 237           Dictyoglomi
## 215           Dictyoglomi
## 1701          Candidatus Cloacimonetes
## 1391          Coprothermobacterota
## 1305          Atribacterota
## 1992          Caldiserica
## 1408          Coprothermobacterota
## 1273          Atribacterota
## 229            Dictyoglomi
## 1979          Caldiserica
## 1392          Coprothermobacterota
## 1704          Candidatus Cloacimonetes
## 265            Dictyoglomi
## 1395          Coprothermobacterota
## 1893          Microsporidia
## 1890          Microsporidia
## 1997          Caldiserica
## 2005          Caldiserica
## 1396          Coprothermobacterota
## 1425          Coprothermobacterota
## 227            Dictyoglomi
## 1321          Atribacterota
## 1998          Caldiserica
## 216            Dictyoglomi
## 1991          Caldiserica
## 241            Dictyoglomi
## 264            Dictyoglomi
## 1282          Atribacterota
## 251            Dictyoglomi
## 1299          Atribacterota
## 1379          Coprothermobacterota
## 1705          Candidatus Cloacimonetes
## 1325          Atribacterota
## 1428          Coprothermobacterota
## 262            Dictyoglomi
## 1748          Candidatus Cloacimonetes
## 1424          Coprothermobacterota
## 1317          Atribacterota
## 254            Dictyoglomi
## 1276          Atribacterota
## 1968          Caldiserica
## 263            Dictyoglomi
## 2008          Caldiserica
## 1411          Coprothermobacterota
## 1302          Atribacterota
## 1315          Atribacterota
## 1412          Coprothermobacterota
## 1733          Candidatus Cloacimonetes
## 1894          Microsporidia
## 1902          Microsporidia
## 1309          Atribacterota

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## 1297          Atribacterota
## 1382          Coprothermobacterota
## 1976          Caldiserica
## 1964          Caldiserica
## 1987          Caldiserica
## 1308          Atribacterota
## 1303          Atribacterota
## 1420          Coprothermobacterota
## 218           Dictyoglomi
## 249           Dictyoglomi
## 1300          Atribacterota
## 1283          Atribacterota
## 257           Dictyoglomi
## 1711          Candidatus Cloacimonetes
## 1320          Atribacterota
## 1706          Candidatus Cloacimonetes
## 1730          Candidatus Cloacimonetes
## 221           Dictyoglomi
## 1290          Atribacterota
## 242           Dictyoglomi
## 1699          Candidatus Cloacimonetes
## 1423          Coprothermobacterota
## 228           Dictyoglomi
## 1275          Atribacterota
## 1400          Coprothermobacterota
## 2013          Caldiserica
## 1313          Atribacterota
## 1888          Microsporidia
## 1870          Microsporidia
## 1324          Atribacterota
## 1736          Candidatus Cloacimonetes
## 1995          Caldiserica
## 1322          Atribacterota
## 1145          Candidatus Absconditabacteria
## 1900          Microsporidia
## 1401          Coprothermobacterota
## 258           Dictyoglomi
## 1128          Candidatus Absconditabacteria
## 1712          Candidatus Cloacimonetes
## 1319          Atribacterota
## 1717          Candidatus Cloacimonetes
## 2006          Caldiserica
## 1122          Candidatus Absconditabacteria
## 1739          Candidatus Cloacimonetes
## 1431          Coprothermobacterota
## 1119          Candidatus Absconditabacteria
## 261           Dictyoglomi
## 1148          Candidatus Absconditabacteria
## 1866          Microsporidia
## 1731          Candidatus Cloacimonetes
## 1986          Caldiserica
## 253           Dictyoglomi
## 1296          Atribacterota
## 1279          Atribacterota

```

```
## 1316          Atribacterota
## 213           Dictyoglomi
## 1123 Candidatus Absconditabacteria
## 234           Dictyoglomi
## 232           Dictyoglomi
## 1697      Candidatus Cloacimonetes
## 1398      Coprothermobacterota
## 1306          Atribacterota
## 1384      Coprothermobacterota
## 1385      Coprothermobacterota
## 1985          Caldiserica
## 1312          Atribacterota
## 243           Dictyoglomi
## 1304          Atribacterota
## 2000          Caldiserica
## 1856          Microsporidia
## 2011          Caldiserica
## 1719      Candidatus Cloacimonetes
## 214           Dictyoglomi
## 1383      Coprothermobacterota
## 1155 Candidatus Absconditabacteria
## 1908          Microsporidia
## 1718      Candidatus Cloacimonetes
## 1744      Candidatus Cloacimonetes
## 223            Dictyoglomi
## 220            Dictyoglomi
## 1858          Microsporidia
## 1143 Candidatus Absconditabacteria
## 256           Dictyoglomi
## 1724      Candidatus Cloacimonetes
## 1892          Microsporidia
## 2007          Caldiserica
## 1135 Candidatus Absconditabacteria
## 1288          Atribacterota
## 236           Dictyoglomi
## 1138 Candidatus Absconditabacteria
## 1884          Microsporidia
## 1293          Atribacterota
## 1318          Atribacterota
## 1883          Microsporidia
## 1738      Candidatus Cloacimonetes
## 1867          Microsporidia
## 1158 Candidatus Absconditabacteria
## 1298          Atribacterota
## 1709      Candidatus Cloacimonetes
## 1116 Candidatus Absconditabacteria
## 1295          Atribacterota
## 1710      Candidatus Cloacimonetes
## 1115 Candidatus Absconditabacteria
## 1887          Microsporidia
## 1160 Candidatus Absconditabacteria
## 1284          Atribacterota
## 1278          Atribacterota
## 1880          Microsporidia
```

```
## 1414          Coprothermobacterota
## 1996          Caldiserica
## 1314          Atribacterota
## 1727          Candidatus Cloacimonetes
## 224           Dictyoglomi
## 1159          Candidatus Absconditabacteria
## 1745          Candidatus Cloacimonetes
## 1725          Candidatus Cloacimonetes
## 1875           Microsporidia
## 1287          Atribacterota
## 1905           Microsporidia
## 1139          Candidatus Absconditabacteria
## 1889           Microsporidia
## 1723          Candidatus Cloacimonetes
## 1859           Microsporidia
## 219            Dictyoglomi
## 1713          Candidatus Cloacimonetes
## 1130          Candidatus Absconditabacteria
## 1872           Microsporidia
## 1862           Microsporidia
## 1150          Candidatus Absconditabacteria
## 1882           Microsporidia
## 233            Dictyoglomi
## 1157          Candidatus Absconditabacteria
## 1903           Microsporidia
## 255            Dictyoglomi
## 1896           Microsporidia
## 239            Dictyoglomi
## 1154          Candidatus Absconditabacteria
## 1698          Candidatus Cloacimonetes
## 1715          Candidatus Cloacimonetes
## 1901           Microsporidia
## 1277          Atribacterota
## 1386          Coprothermobacterota
## 1708          Candidatus Cloacimonetes
## 1735          Candidatus Cloacimonetes
## 1873           Microsporidia
## 1746          Candidatus Cloacimonetes
## 1281          Atribacterota
## 1874           Microsporidia
## 1869           Microsporidia
## 1404          Coprothermobacterota
## 1741          Candidatus Cloacimonetes
## 1149          Candidatus Absconditabacteria
## 1131          Candidatus Absconditabacteria
## 1146          Candidatus Absconditabacteria
## 1703          Candidatus Cloacimonetes
## 1716          Candidatus Cloacimonetes
## 1124          Candidatus Absconditabacteria
## 1857           Microsporidia
## 217            Dictyoglomi
## 1737          Candidatus Cloacimonetes
## 1117          Candidatus Absconditabacteria
## 1864           Microsporidia
```

```
## 1114 Candidatus Absconditabacteria
## 1871 Microsporidia
## 1728 Candidatus Cloacimonetes
## 1906 Microsporidia
## 1904 Microsporidia
## 1164 Candidatus Absconditabacteria
## 1292 Atribacterota
## 245 Dictyoglomi
## 1868 Microsporidia
## 1734 Candidatus Cloacimonetes
## 1152 Candidatus Absconditabacteria
## 1126 Candidatus Absconditabacteria
## 1973 Caldiserica
## 1120 Candidatus Absconditabacteria
## 1707 Candidatus Cloacimonetes
## 238 Dictyoglomi
## 1907 Microsporidia
## 1982 Caldiserica
## 259 Dictyoglomi
## 1749 Candidatus Cloacimonetes
## 1121 Candidatus Absconditabacteria
## 1722 Candidatus Cloacimonetes
## 1702 Candidatus Cloacimonetes
## 1742 Candidatus Cloacimonetes
## 1881 Microsporidia
## 1129 Candidatus Absconditabacteria
## 1963 Caldiserica
## 1137 Candidatus Absconditabacteria
## 1972 Caldiserica
## 1729 Candidatus Cloacimonetes
## 1140 Candidatus Absconditabacteria
## 1732 Candidatus Cloacimonetes
## 1125 Candidatus Absconditabacteria
## 1747 Candidatus Cloacimonetes
## 1895 Microsporidia
## 1897 Microsporidia
## 1166 Candidatus Absconditabacteria
## 1165 Candidatus Absconditabacteria
## 1147 Candidatus Absconditabacteria
## 1740 Candidatus Cloacimonetes
## 1886 Microsporidia
## 1861 Microsporidia
## 1136 Candidatus Absconditabacteria
## 1879 Microsporidia
## 1860 Microsporidia
## 250 Dictyoglomi
## 1163 Candidatus Absconditabacteria
## 1878 Microsporidia
## 1720 Candidatus Cloacimonetes
## 1876 Microsporidia
## 1134 Candidatus Absconditabacteria
## 1133 Candidatus Absconditabacteria
## 1863 Microsporidia
## 1151 Candidatus Absconditabacteria
```

```

## 1743      Candidatus Cloacimonetes
## 1162 Candidatus Absconditabacteria
## 1132 Candidatus Absconditabacteria
## 1161 Candidatus Absconditabacteria
## 1153 Candidatus Absconditabacteria
## 1700      Candidatus Cloacimonetes
## 1885          Microsporidia
## 1141 Candidatus Absconditabacteria
## 1721      Candidatus Cloacimonetes
## 1156 Candidatus Absconditabacteria
## 1898          Microsporidia
## 1877          Microsporidia
## 1142 Candidatus Absconditabacteria
## 1714      Candidatus Cloacimonetes
## 1127 Candidatus Absconditabacteria
## 1144 Candidatus Absconditabacteria
## 1118 Candidatus Absconditabacteria
## 1726      Candidatus Cloacimonetes

```

Ahora, creamos un data frame con los datos originales. Esta estructura nos ayudará a comparar la abundancia absoluta con la relativa

```

absolute_glm_phylum <- tax_glm(physeq = fresa_kraken_fil, taxrank = "Phylum")
absolute_df_phylum <- psmelt(absolute_glm_phylum)
str(absolute_df_phylum)

## 'data.frame': 2279 obs. of 7 variables:
## $ OTU      : chr "1883" "1883" "1883" "374" ...
## $ Sample   : chr "MP2058" "MP2087" "MP2068" "MP2068" ...
## $ Abundance: num 11028897 10342054 9967507 9190530 8805431 ...
## $ Treatment: chr "healthy" "healthy" "healthy" "healthy" ...
## $ Samples  : chr "MP2058" "MP2087" "MP2068" "MP2068" ...
## $ Kingdom  : chr "Bacteria" "Bacteria" "Bacteria" "Bacteria" ...
## $ Phylum   : chr "Actinobacteria" "Actinobacteria" "Actinobacteria" "Proteobacteria" ...

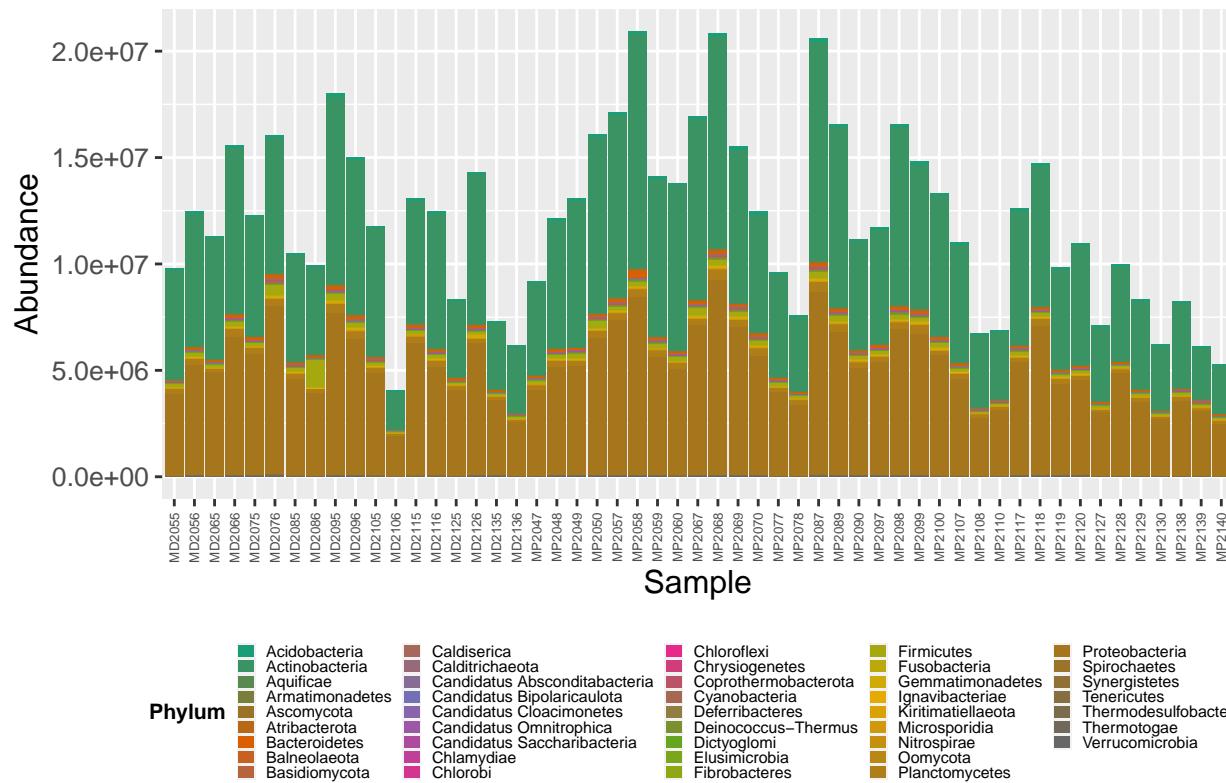
absolute_df_phylum$Phylum <- as.factor(absolute_df_phylum$Phylum)
phylum_colors_abs <- colorRampPalette(brewer.pal(8,"Dark2")) (length(levels(absolute_df_phylum$Phylum)))

absolute_plot <- ggplot(data= absolute_df_phylum, aes(x=Sample, y=Abundance, fill=Phylum))+
  geom_bar(aes(), stat="identity", position="stack")+
  scale_fill_manual(values = phylum_colors_abs) +
  labs(title = "Abundance", x='Sample', y='Abundance') +
  theme(legend.key.size = unit(0.2, "cm"),
        legend.key.width = unit(0.25,"cm"),
        legend.position = "bottom",
        legend.direction = "horizontal",
        legend.title=element_text(size=8, face = "bold"),
        legend.text=element_text(size=6),
        text = element_text(size=12),
        axis.text.x = element_text(angle=90, size=5, hjust=1, vjust=0.5))

absolute_plot

```

Abundance

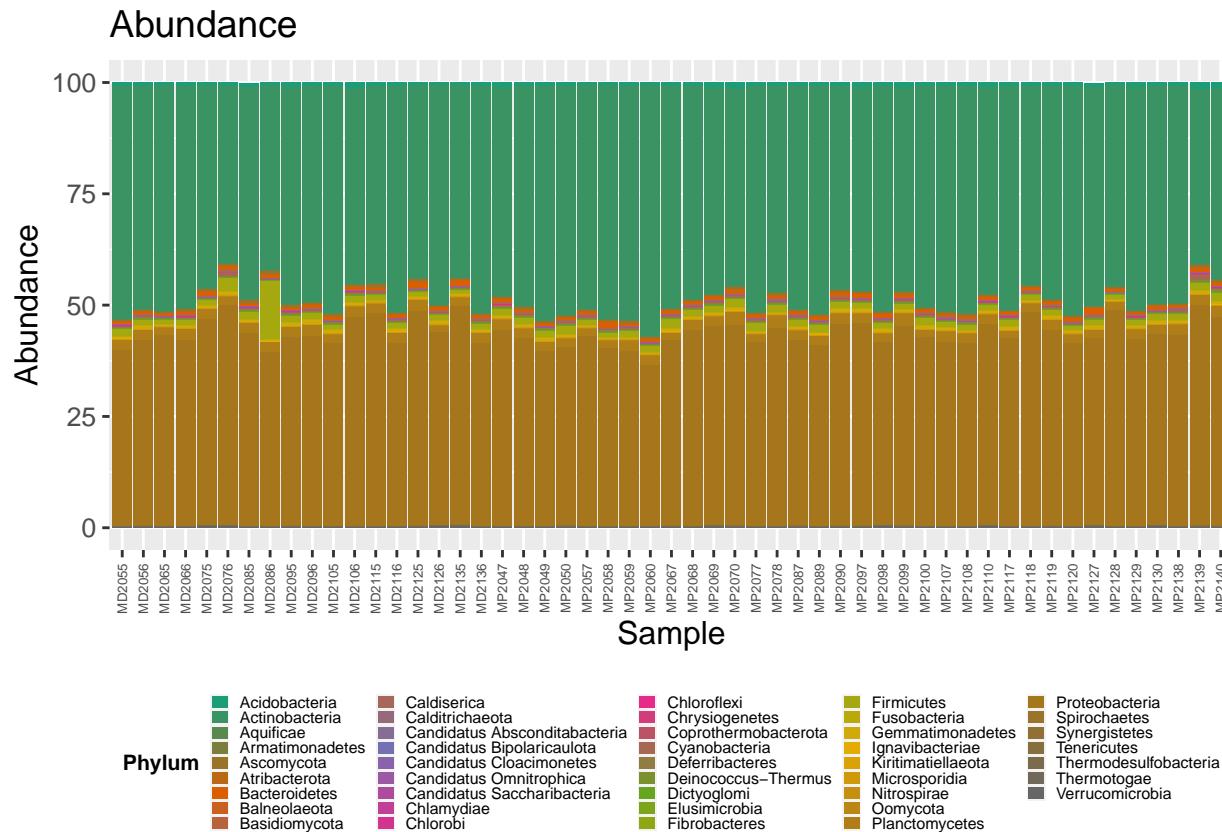


```

percentages_df_phylum$Phylum <- as.factor(percentages_df_phylum$Phylum)
phylum_colors_rel<- colorRampPalette(brewer.pal(8,"Dark2")) (length(levels(percentages_df_phylum$Phylum))
relative_plot <- ggplot(data=percentages_df_phylum, aes(x=Sample, y=Abundance, fill=Phylum))+
  geom_bar(aes(), stat="identity", position="stack")+
  scale_fill_manual(values = phylum_colors_rel) +
  labs(title = "Abundance", x='Sample', y='Abundance') +
  theme(legend.key.size = unit(0.2, "cm"),
        legend.key.width = unit(0.25,"cm"),
        legend.position = "bottom",
        legend.direction = "horizontal",
        legend.title=element_text(size=8, face = "bold"),
        legend.text=element_text(size=6),
        text = element_text(size=12),
        axis.text.x = element_text(angle=90, size=5, hjust=1, vjust=0.5))

relative_plot

```

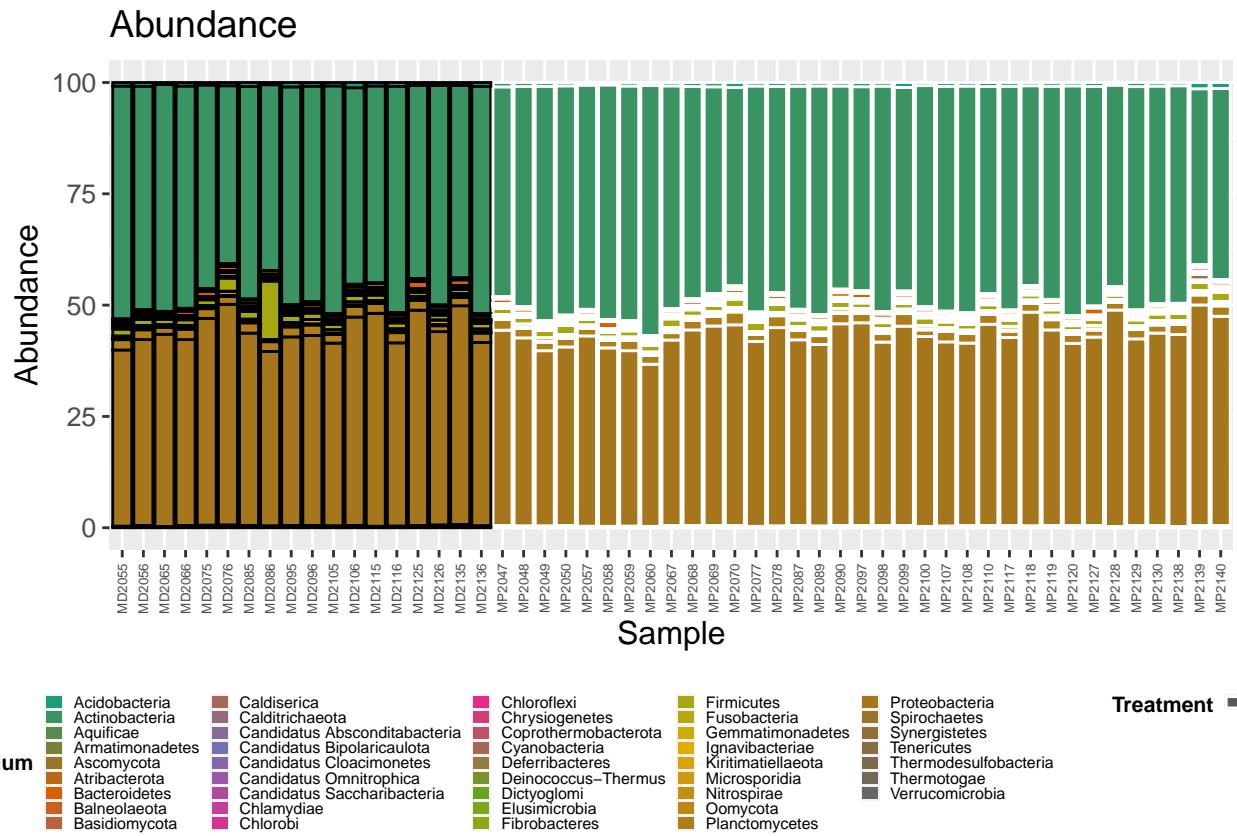


Podemos ver algunas diferencias entre los diferentes filo, sin embargo, se nota que tenemos demasiados taxones para distinguir adecuadamente el color de cada uno, a menos que se tenga una abundancia muy grande.

Como nuestro objetivo es diferenciar entre muestras sanas y enfermas, le agregaremos una diferenciación entre la variable ‘Treatment’, con color blanco las muestras sanas y negras las muestras enfermas.

```
percentages_df_phylum$Phylum <- as.factor(percentages_df_phylum$Phylum)
phylum_colors_rel <- colorRampPalette(brewer.pal(8, "Dark2")) (length(levels(percentages_df_phylum$Phylum))
relative_plot <- ggplot(data=percentages_df_phylum, aes(x=Sample, y=Abundance, fill=Phylum, color=Treatment,
  scale_colour_manual(values=c('white','black')) +
  geom_bar(aes(), stat="identity", position="stack")+
  scale_fill_manual(values = phylum_colors_rel) +
  labs(title = "Abundance", x='Sample', y='Abundance') +
  theme(legend.key.size = unit(0.2, "cm"),
        legend.key.width = unit(0.25,"cm"),
        legend.position = "bottom",
        legend.direction = "horizontal",
        legend.title=element_text(size=8, face = "bold"),
        legend.text=element_text(size=6),
        text = element_text(size=12),
        axis.text.x = element_text(angle=90, size=5, hjust=1, vjust=0.5))

relative_plot
```



Igualmente tenemos demasiados taxones para ver una distinción entre las muestras, más adelante crearemos subconjuntos mas pequeños para tener una mejor observación de nuestros datos.

Por otro lado, podemos usar un comando llamado “unique()” para explorar cuántos filos y reinos tenemos.

```
unique(fresa_kraken_fil@tax_table@Data[, "Kingdom"])
```

```
## [1] "Bacteria" "Eukaryota"
```

```
unique(fresa_kraken_fil@tax_table@Data[, "Phylum"])
```

```
## [1] "Actinobacteria" "Firmicutes"
## [3] "Deinococcus-Thermus" "Cyanobacteria"
## [5] "Chloroflexi" "Armatimonadetes"
## [7] "Tenericutes" "Proteobacteria"
## [9] "Planctomycetes" "Verrucomicrobia"
## [11] "Kiritimatiellaeota" "Chlamydiae"
## [13] "Candidatus Omnitrophica" "Bacteroidetes"
## [15] "Chlorobi" "Balneolaeota"
## [17] "Ignavibacteriae" "Gemmamimonadetes"
## [19] "Fibrobacteres" "Candidatus Cloacimonetes"
## [21] "Acidobacteria" "Nitrospirae"
## [23] "Spirochaetes" "Synergistetes"
## [25] "Candidatus Bipolaricaulota" "Candidatus Saccharibacteria"
## [27] "" "Candidatus Absconditabacteria"
```

```

## [29] "Thermotogae"           "Aequificae"
## [31] "Thermodesulfobacteria"  "Deferrribacteres"
## [33] "Fusobacteria"          "Chrysogenetes"
## [35] "Calditrichaeota"        "Elusimicrobia"
## [37] "Caldisericia"          "Coprothermobacterota"
## [39] "Atribacterota"          "Dictyoglomi"
## [41] "Ascomycota"             "Basidiomycota"
## [43] "Microsporidia"          "Oomycota"

```

Ahora, podemos ver cuantos “Eukaryota” tenemos en “Kingdom”.

```
sum(fresa_kraken_fil@tax_table@Data[, "Kingdom"] == "Eukaryota")
```

```
## [1] 181
```

y cuantos “Bacteria”

```
sum(fresa_kraken_fil@tax_table@Data[, "Kingdom"] == "Bacteria")
```

```
## [1] 8822
```

Verificando así lo que notamos anteriormente con la observación de los subconjuntos aglomerados, tenemos mayor cantidad de muestras clasificadas como bacterias, que las clasificadas como eucariota.

Diversidad Beta

Como se menciono anteriormente el objetivo de este documento es explorar las visualizaciones de: barras, alfa diversidad y beta diversidad, para subconjuntos seleccionados de nuestros datos.

Veremos aquí solo el reino Eucariota:

```
merge_Eukaryota <- subset_taxa(fresa_kraken_fil, Kingdom == "Eukaryota")
```

sacamos las abundancias relativas,

```
percentages_Eukaryota <- transform_sample_counts(merge_Eukaryota, function(x) x*100 / sum(x) )
percentages_Eukaryota_df <- psmelt(percentages_Eukaryota)
```

Beta diversidad de Eukaryota

```

meta_ord_Eukaryota <- ordinate(physeq = percentages_Eukaryota, method = "NMDS", distance = "bray")

## Wisconsin double standardization
## Run 0 stress 0.1341389
## Run 1 stress 0.1394568
## Run 2 stress 0.1364895
## Run 3 stress 0.1364889
## Run 4 stress 0.1341402

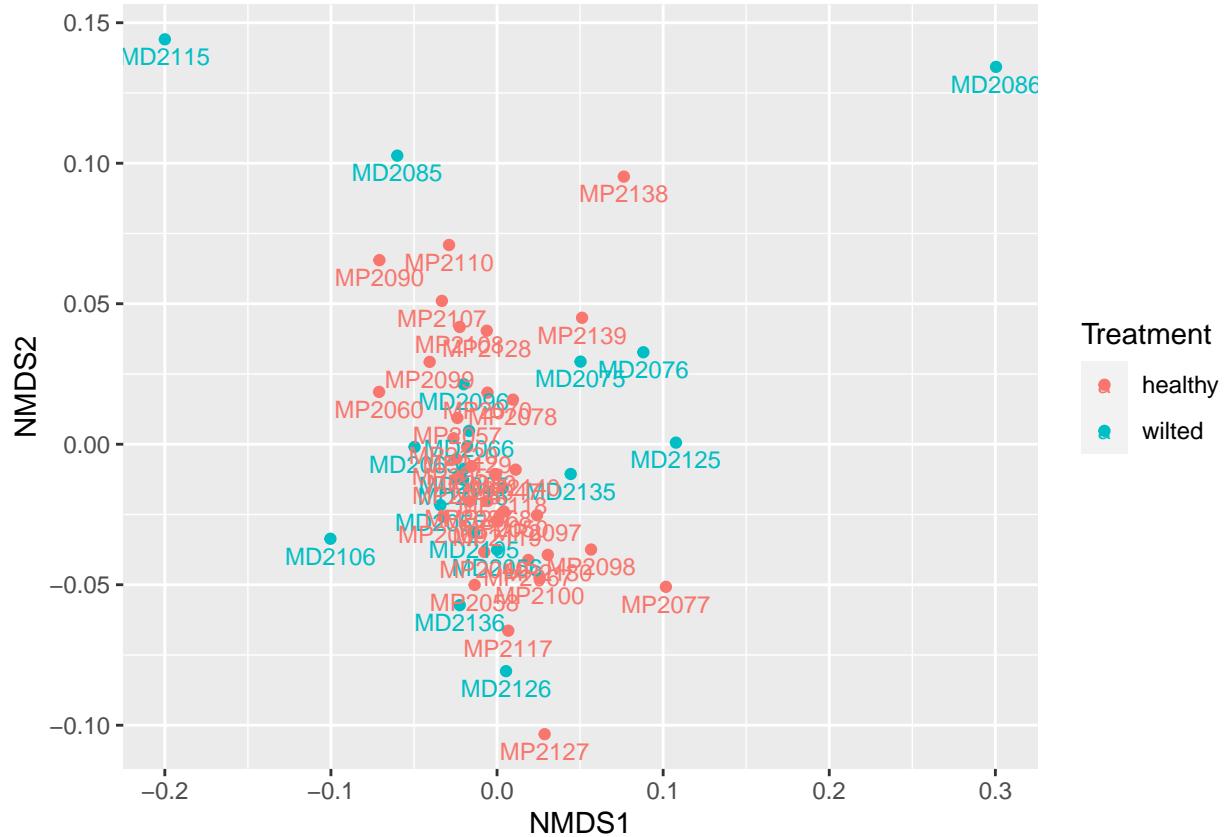
```

```

## ... Procrustes: rmse 0.001316606 max resid 0.007650664
## ... Similar to previous best
## Run 5 stress 0.1349205
## Run 6 stress 0.162645
## Run 7 stress 0.1341405
## ... Procrustes: rmse 0.001396306 max resid 0.008126748
## ... Similar to previous best
## Run 8 stress 0.1345708
## ... Procrustes: rmse 0.01465415 max resid 0.07975708
## Run 9 stress 0.1341397
## ... Procrustes: rmse 0.001162328 max resid 0.006736036
## ... Similar to previous best
## Run 10 stress 0.1360114
## Run 11 stress 0.1523059
## Run 12 stress 0.1633475
## Run 13 stress 0.1716141
## Run 14 stress 0.1392495
## Run 15 stress 0.1345708
## ... Procrustes: rmse 0.01465083 max resid 0.07973029
## Run 16 stress 0.1507784
## Run 17 stress 0.1359638
## Run 18 stress 0.1591202
## Run 19 stress 0.1348063
## Run 20 stress 0.1397229
## *** Best solution repeated 3 times

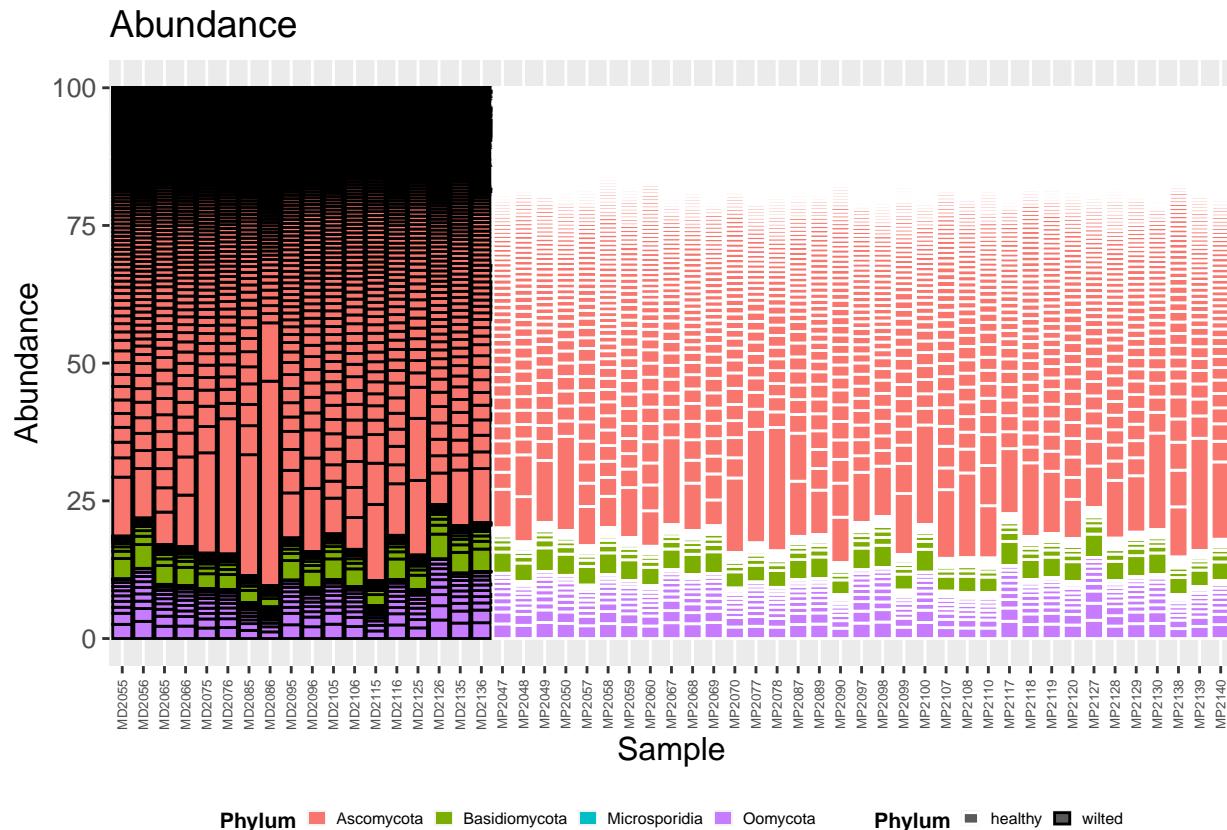
plot_ordination(physeq = percentages_Eukaryota, ordination = meta_ord_Eukaryota, color = "Treatment") +
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data)), size = 3, vjust = 1.5)

```



Eukaryota por Phylum

```
ggplot(data= percentages_Eukaryota_df, aes(x=Sample, y=Abundance, fill=Phylum, color=Treatment)) +
  scale_colour_manual(values=c('white','black')) +
  geom_bar(aes(), stat="identity", position="stack") +
  labs(title = "Abundance", x='Sample', y='Abundance', color = 'Phylum') +
  theme(legend.key.size = unit(0.2, "cm"),
        legend.key.width = unit(0.25,"cm"),
        legend.position = "bottom",
        legend.direction = "horizontal",
        legend.title=element_text(size=8, face = "bold"),
        legend.text=element_text(size=6),
        text = element_text(size=12),
        axis.text.x = element_text(angle=90, size=5, hjust=1, vjust=0.5))
```



```
merge_Eukaryota_Phylum<-tax_glom(merge_Eukaryota,taxrank="Phylum")
```

sacamos las abundancias relativas

```
percentages_Eukaryota_Phylum <- transform_sample_counts(merge_Eukaryota_Phylum, function(x) x*100 / sum(x))
percentages_Eukaryota_Phylum_df <- psmelt(percentages_Eukaryota_Phylum)
meta_ord_Eukaryota_Phylum <- ordinate(physeq = percentages_Eukaryota_Phylum, method = "NMDS", distance = "euclidean")

## Square root transformation
## Wisconsin double standardization
## Run 0 stress 0.01148681
## Run 1 stress 0.00168014
## ... New best solution
## ... Procrustes: rmse 0.0298226 max resid 0.07820562
## Run 2 stress 9.65719e-05
## ... New best solution
## ... Procrustes: rmse 0.00492719 max resid 0.01280795
## Run 3 stress 9.516346e-05
## ... New best solution
## ... Procrustes: rmse 6.21589e-05 max resid 0.0002037814
## ... Similar to previous best
## Run 4 stress 9.322559e-05
## ... New best solution
## ... Procrustes: rmse 9.772178e-05 max resid 0.0002897015
## ... Similar to previous best
```

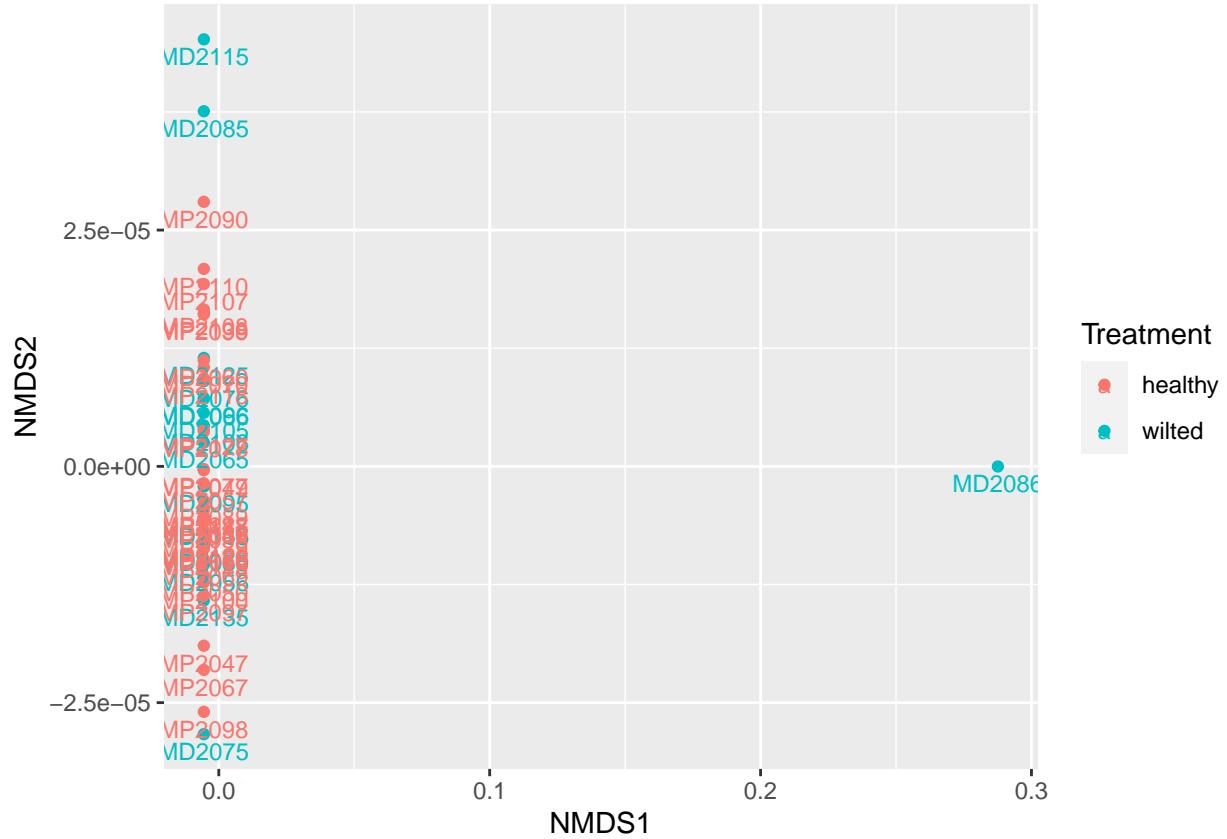
```

## Run 5 stress 0.0001046222
## ... Procrustes: rmse 0.0003033185 max resid 0.000809473
## ... Similar to previous best
## Run 6 stress 9.940973e-05
## ... Procrustes: rmse 0.000108331 max resid 0.0002970877
## ... Similar to previous best
## Run 7 stress 0.001078224
## Run 8 stress 9.473412e-05
## ... Procrustes: rmse 4.380476e-05 max resid 7.188645e-05
## ... Similar to previous best
## Run 9 stress 7.048374e-05
## ... New best solution
## ... Procrustes: rmse 7.202961e-05 max resid 0.0002010856
## ... Similar to previous best
## Run 10 stress 8.645175e-05
## ... Procrustes: rmse 7.27563e-05 max resid 0.0002235558
## ... Similar to previous best
## Run 11 stress 9.817932e-05
## ... Procrustes: rmse 6.894125e-05 max resid 0.0002429979
## ... Similar to previous best
## Run 12 stress 8.893539e-05
## ... Procrustes: rmse 7.72866e-05 max resid 0.0002418936
## ... Similar to previous best
## Run 13 stress 9.766735e-05
## ... Procrustes: rmse 0.0001061289 max resid 0.0002878058
## ... Similar to previous best
## Run 14 stress 9.399559e-05
## ... Procrustes: rmse 0.0001144787 max resid 0.0003235873
## ... Similar to previous best
## Run 15 stress 0.4042285
## Run 16 stress 9.860652e-05
## ... Procrustes: rmse 0.0001447843 max resid 0.0003562157
## ... Similar to previous best
## Run 17 stress 0.0009980712
## Run 18 stress 9.426251e-05
## ... Procrustes: rmse 6.319142e-05 max resid 0.0002419551
## ... Similar to previous best
## Run 19 stress 9.969433e-05
## ... Procrustes: rmse 0.0001073812 max resid 0.0002864117
## ... Similar to previous best
## Run 20 stress 9.657716e-05
## ... Procrustes: rmse 0.0001181813 max resid 0.0002885257
## ... Similar to previous best
## *** Best solution repeated 10 times

## Warning in metaMDS(veganifyOTU(physeq), distance, ...): stress is (nearly) zero:
## you may have insufficient data

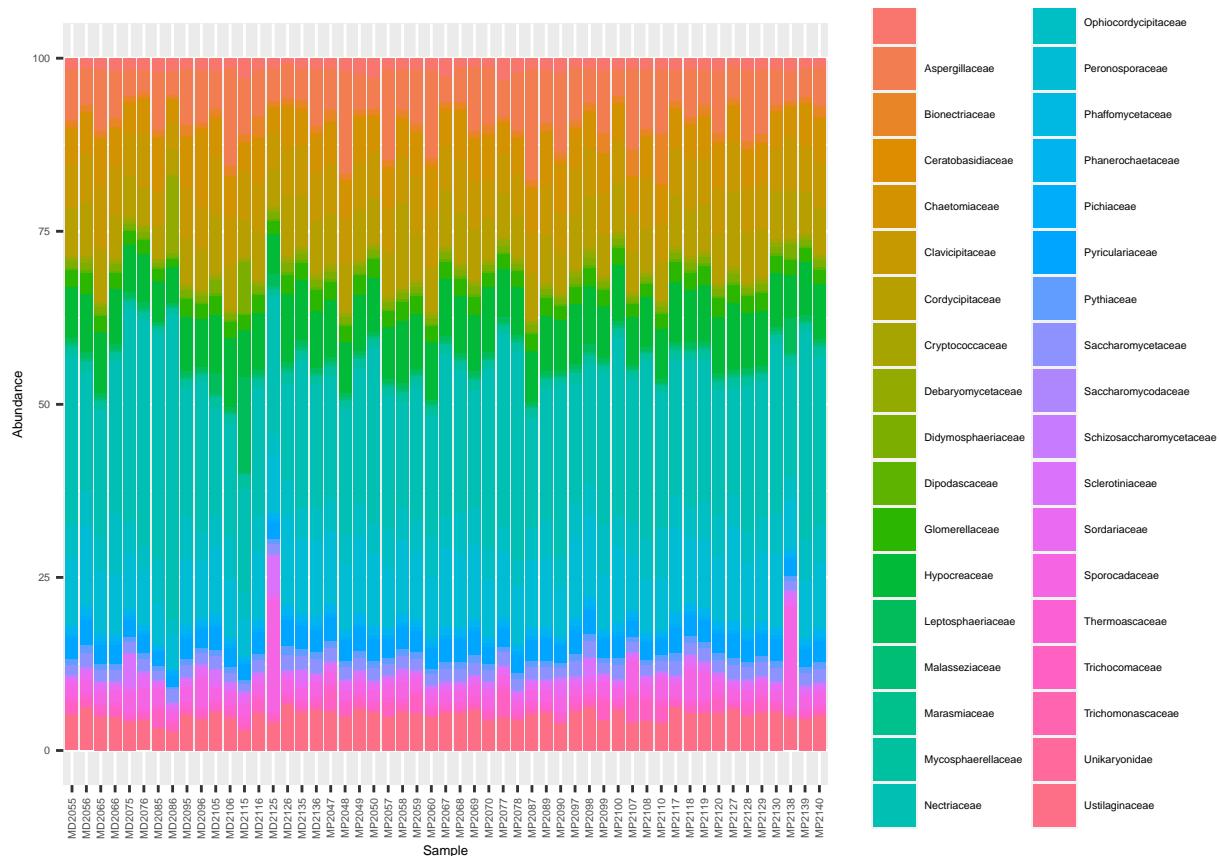
plot_ordination(physeq = percentages_Eukaryota_Phylum, ordination = meta_ord_Eukaryota_Phylum, color =
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data)), size = 3, vjust = 1.5)

```



Eukaryota por Family

```
ggplot(data= percentages_Eukaryota_df, aes(x=Sample, y=Abundance, fill=Family))+  
  geom_bar(aes(), stat="identity", position="stack") +  
  theme(text = element_text(size = 5),  
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))
```



```
merge_Eukaryota_Family<-tax_glom(merge_Eukaryota, taxrank="Family")
```

sacamos las abundancias relativas

```
percentages_Eukaryota_Family <- transform_sample_counts(merge_Eukaryota_Family, function(x) x*100 / sum(x))
percentages_Eukaryota_Family_df <- psmelt(percentages_Eukaryota_Family)
meta_ord_Eukaryota_Family <- ordinate(physeq = percentages_Eukaryota_Family, method = "NMDS", distance =
```

```
## Wisconsin double standardization
## Run 0 stress 0.1089081
## Run 1 stress 0.1267005
## Run 2 stress 0.1089305
## ... Procrustes: rmse 0.008097049 max resid 0.05440851
## Run 3 stress 0.1088876
## ... New best solution
## ... Procrustes: rmse 0.001924805 max resid 0.009224763
## ... Similar to previous best
## Run 4 stress 0.1266921
## Run 5 stress 0.1088888
## ... Procrustes: rmse 0.001155703 max resid 0.006528627
## ... Similar to previous best
## Run 6 stress 0.108888
## ... Procrustes: rmse 0.0002369872 max resid 0.001369156
## ... Similar to previous best
## Run 7 stress 0.1089297
```

```

## ... Procrustes: rmse 0.008405004 max resid 0.05468867
## Run 8 stress 0.1088885
## ... Procrustes: rmse 0.00108516 max resid 0.006109574
## ... Similar to previous best
## Run 9 stress 0.1089299
## ... Procrustes: rmse 0.008407149 max resid 0.05442444
## Run 10 stress 0.1089302
## ... Procrustes: rmse 0.00841888 max resid 0.05472044
## Run 11 stress 0.1326774
## Run 12 stress 0.1090935
## ... Procrustes: rmse 0.005940258 max resid 0.02888171
## Run 13 stress 0.1090171
## ... Procrustes: rmse 0.007082685 max resid 0.04075809
## Run 14 stress 0.1089494
## ... Procrustes: rmse 0.008112308 max resid 0.05391012
## Run 15 stress 0.108908
## ... Procrustes: rmse 0.001902075 max resid 0.009232383
## ... Similar to previous best
## Run 16 stress 0.1089492
## ... Procrustes: rmse 0.008104978 max resid 0.05392077
## Run 17 stress 0.1451412
## Run 18 stress 0.1352213
## Run 19 stress 0.1266594
## Run 20 stress 0.1089291
## ... Procrustes: rmse 0.008392739 max resid 0.05464166
## *** Best solution repeated 5 times

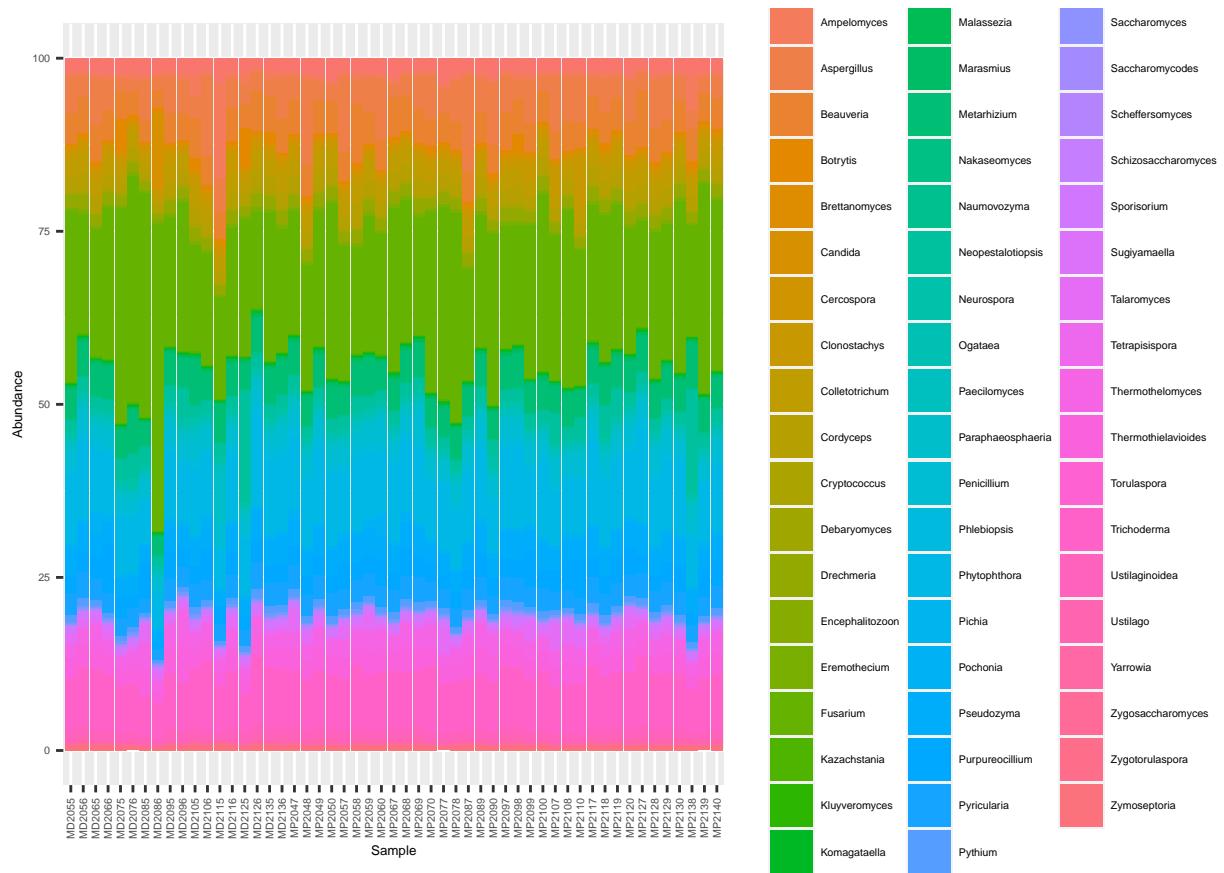
plot_ordination(physeq = percentages_Eukaryota_Family, ordination = meta_ord_Eukaryota_Family, color =
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data))), size = 3, vjust = 1.5)

```



Eukaryota por Genus

```
ggplot(data= percentages_Eukaryota_df, aes(x=Sample, y=Abundance, fill=Genus))+  
  geom_bar(aes(), stat="identity", position="stack") +  
  theme(text = element_text(size = 5),  
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))
```



```
merge_Eukaryota_Genus <- tax_glom(merge_Eukaryota, taxrank = "Genus")
```

sacamos las abundancias relativas

```
percentages_Eukaryota_Genus <- transform_sample_counts(merge_Eukaryota_Genus, function(x) x*100 / sum(x))
percentages_Eukaryota_Genus_df <- psmelt(percentages_Eukaryota_Genus)
meta_ord_Eukaryota_Genus <- ordinate(physeq = percentages_Eukaryota_Genus, method = "NMDS", distance =
```

```
## Wisconsin double standardization
## Run 0 stress 0.110709
## Run 1 stress 0.1107094
## ... Procrustes: rmse 0.0001451696 max resid 0.0008004364
## ... Similar to previous best
## Run 2 stress 0.1107126
## ... Procrustes: rmse 0.001779957 max resid 0.01015659
## Run 3 stress 0.1119949
## Run 4 stress 0.1236302
## Run 5 stress 0.1236307
## Run 6 stress 0.1107087
## ... New best solution
## ... Procrustes: rmse 0.000184201 max resid 0.001182698
## ... Similar to previous best
## Run 7 stress 0.1107094
## ... Procrustes: rmse 0.0009566417 max resid 0.005190427
## ... Similar to previous best
```

```

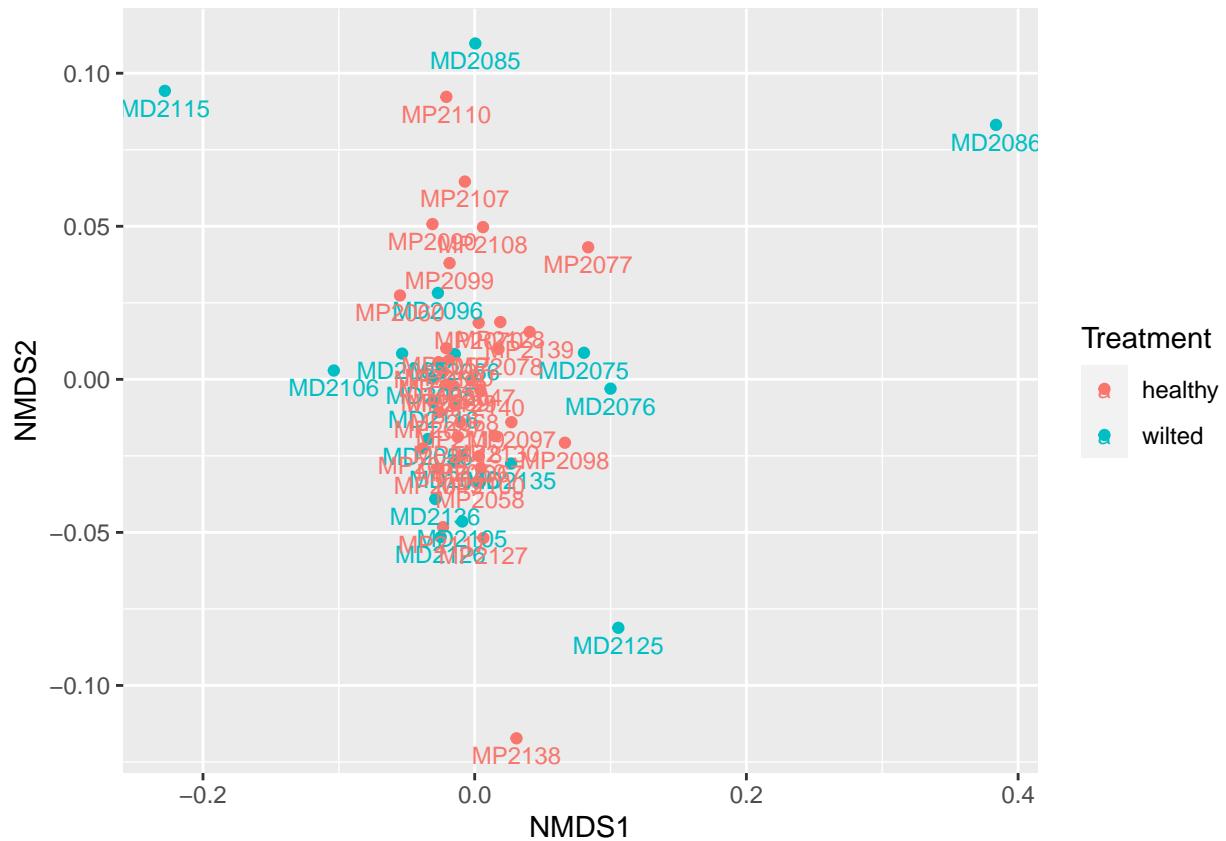
## Run 8 stress 0.1119818
## Run 9 stress 0.1235029
## Run 10 stress 0.1107683
## ... Procrustes: rmse 0.005221983 max resid 0.03018804
## Run 11 stress 0.1223847
## Run 12 stress 0.1107093
## ... Procrustes: rmse 0.000920531 max resid 0.004962855
## ... Similar to previous best
## Run 13 stress 0.1107406
## ... Procrustes: rmse 0.003874695 max resid 0.02227447
## Run 14 stress 0.1288239
## Run 15 stress 0.1119815
## Run 16 stress 0.1107097
## ... Procrustes: rmse 0.001026673 max resid 0.005819109
## ... Similar to previous best
## Run 17 stress 0.1223849
## Run 18 stress 0.1235021
## Run 19 stress 0.1107088
## ... Procrustes: rmse 0.0007339907 max resid 0.003910442
## ... Similar to previous best
## Run 20 stress 0.1235014
## *** Best solution repeated 5 times

```

```

plot_ordination(physeq = percentages_Eukaryota_Genus, ordination = meta_ord_Eukaryota_Genus, color = "Treatment"
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data)), size = 3, vjust = 1.5)

```



tomando diferentes porcentajes de abundancia

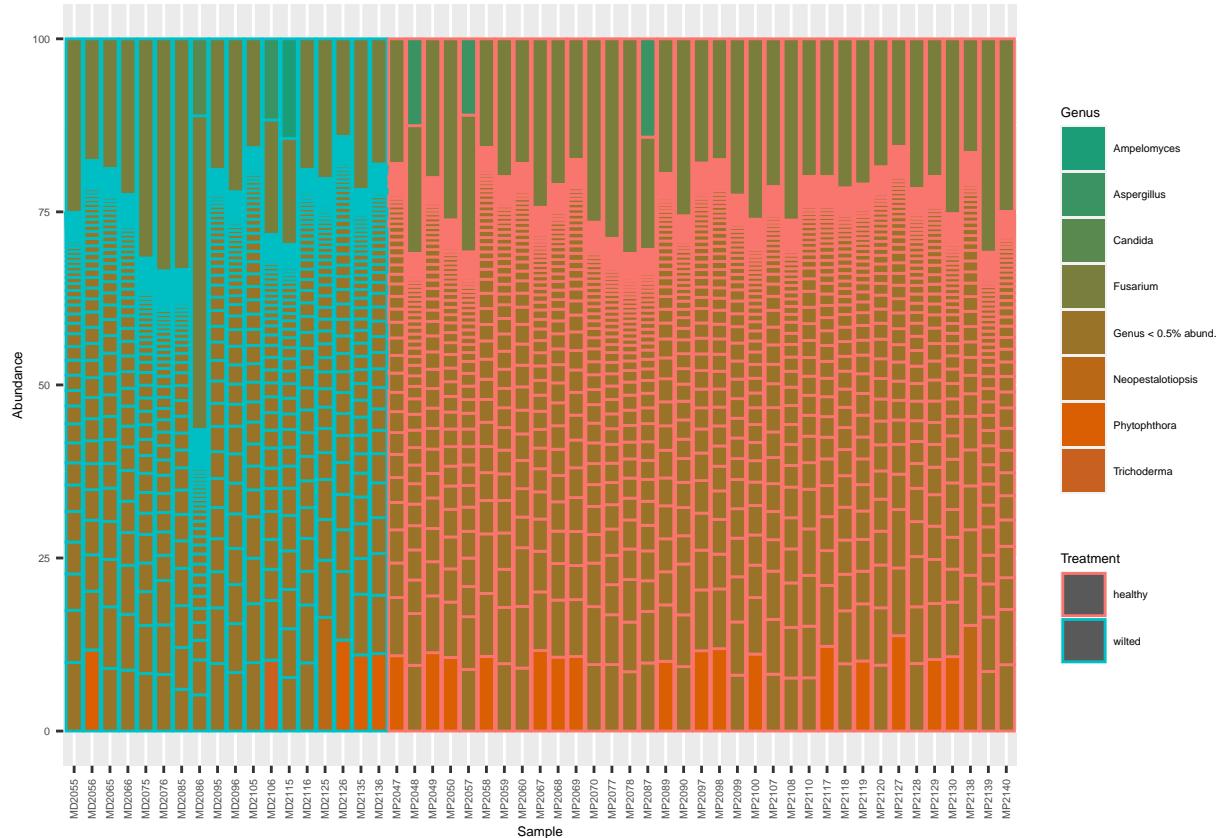
```

percentages_Eukaryota_Genus_df$Genus[percentages_Eukaryota_Genus_df$Abundance < 10.0] <- "Genus < 0.5% ab."
percentages_Eukaryota_Genus_df$Genus <- as.factor(percentages_Eukaryota_Genus_df$Genus)

genus_colors_rel <- colorRampPalette(brewer.pal(8, "Dark2")) (length(levels(percentages_Eukaryota_Genus_df$Genus))
relative_plot <- ggplot(data=percentages_Eukaryota_Genus_df, aes(x=Sample, y=Abundance, fill=Genus ,color=Genus))
  geom_bar(aes(), stat="identity", position="stack") +
  scale_fill_manual(values = phylum_colors_rel) +
  theme(text = element_text(size = 5),
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))

relative_plot

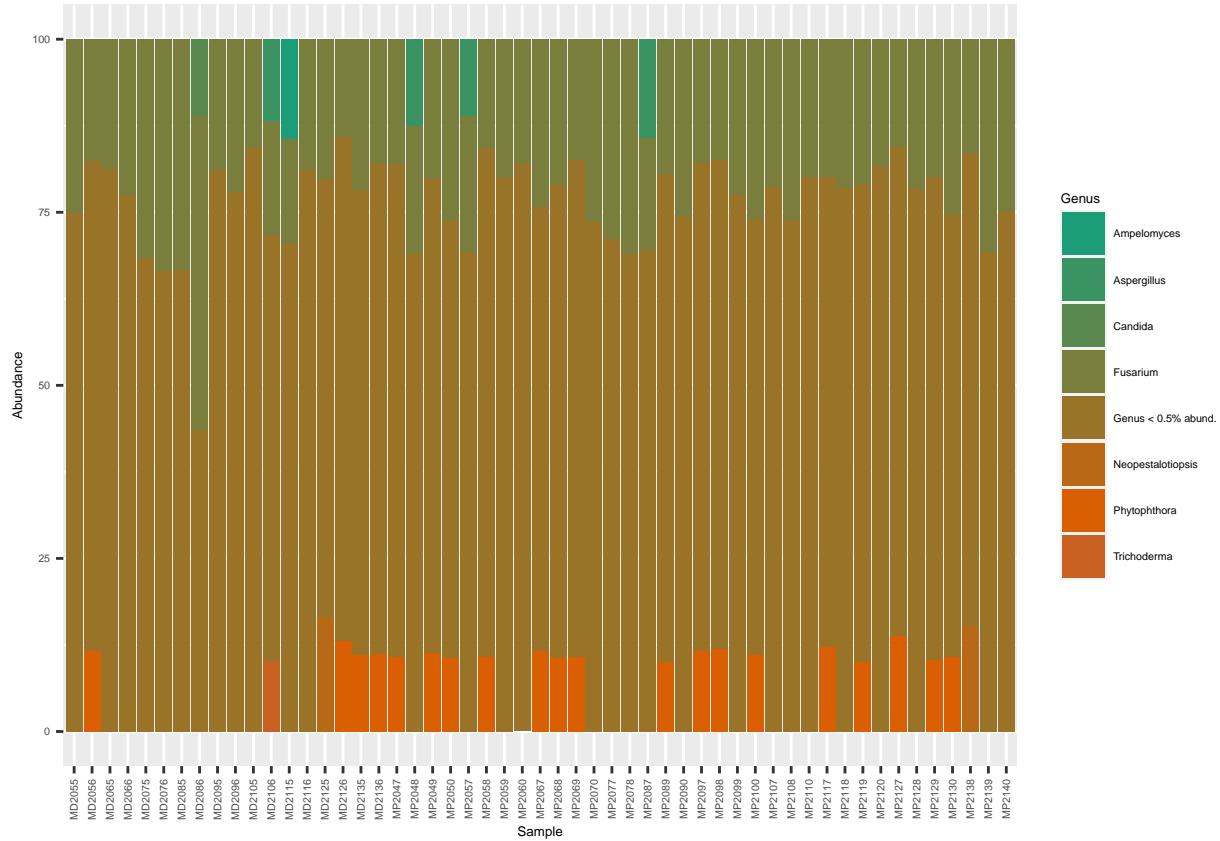
```



```

relative_plot <- ggplot(data=percentages_Eukaryota_Genus_df, aes(x=Sample, y=Abundance, fill=Genus))+
  geom_bar(aes(), stat="identity", position="stack") +
  scale_fill_manual(values = phylum_colors_rel) +
  theme(text = element_text(size = 5),
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))
relative_plot

```



sacando la beta diversidad con aglomerado de 10%

```
meta_ord_Eukaryota_Genus <- ordinate(physeq = percentages_Eukaryota_Genus, method = "NMDS", distance = 

## Wisconsin double standardization
## Run 0 stress 0.110709
## Run 1 stress 0.1223838
## Run 2 stress 0.1107091
## ... Procrustes: rmse 0.001020797 max resid 0.005847757
## ... Similar to previous best
## Run 3 stress 0.1107098
## ... Procrustes: rmse 0.0002501422 max resid 0.001408962
## ... Similar to previous best
## Run 4 stress 0.1235018
## Run 5 stress 0.1107086
## ... New best solution
## ... Procrustes: rmse 0.0002216658 max resid 0.001275507
## ... Similar to previous best
## Run 6 stress 0.1119785
## Run 7 stress 0.1223833
## Run 8 stress 0.1107104
## ... Procrustes: rmse 0.001091115 max resid 0.006247028
## ... Similar to previous best
## Run 9 stress 0.1115438
## Run 10 stress 0.1119814
## Run 11 stress 0.1119816
```

```

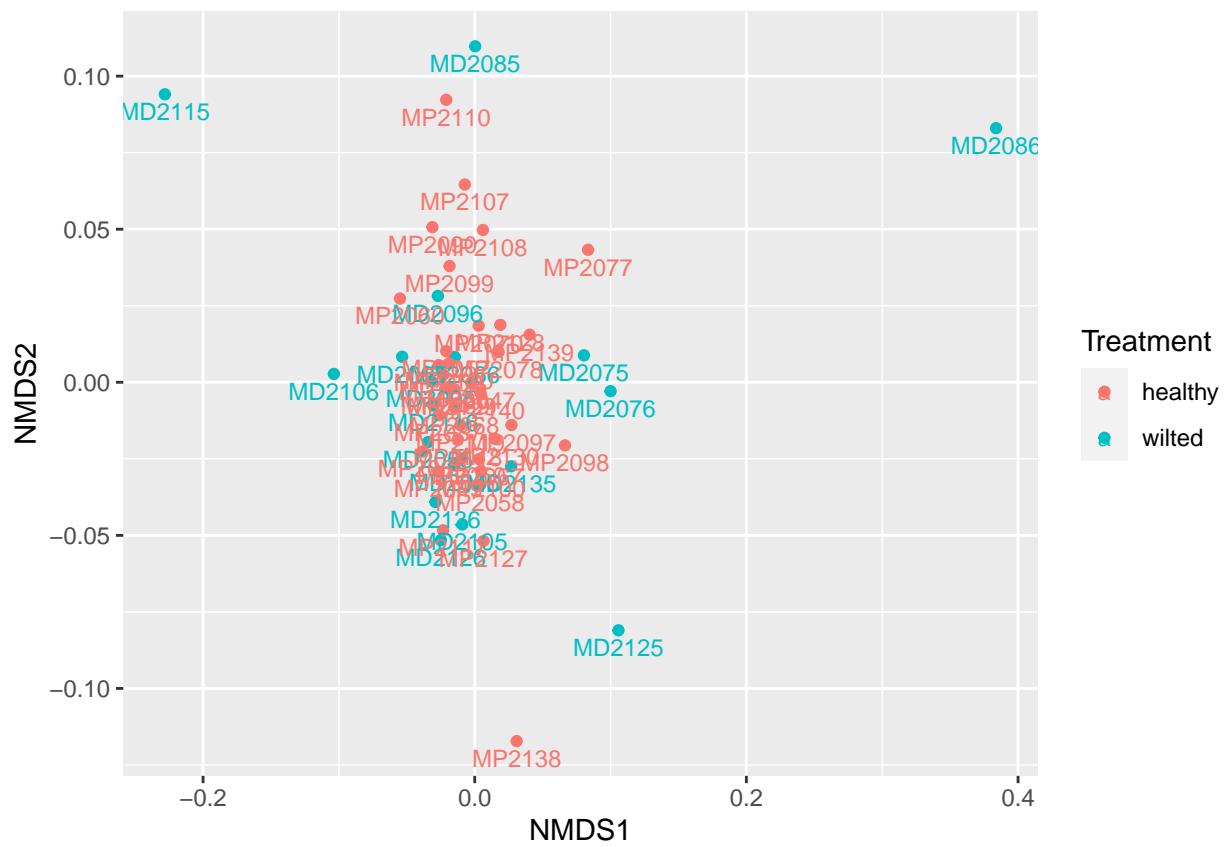
## Run 12 stress 0.1107094
## ... Procrustes: rmse 0.0008914263 max resid 0.005089916
## ... Similar to previous best
## Run 13 stress 0.1111776
## ... Procrustes: rmse 0.01413827 max resid 0.08652382
## Run 14 stress 0.1107091
## ... Procrustes: rmse 0.0002421651 max resid 0.001279941
## ... Similar to previous best
## Run 15 stress 0.1107089
## ... Procrustes: rmse 0.0006989362 max resid 0.003992549
## ... Similar to previous best
## Run 16 stress 0.1227177
## Run 17 stress 0.1119792
## Run 18 stress 0.1222476
## Run 19 stress 0.1107089
## ... Procrustes: rmse 0.0001791397 max resid 0.001019034
## ... Similar to previous best
## Run 20 stress 0.1119813
## *** Best solution repeated 6 times

```

```

plot_ordination(physeq = percentages_Eukaryota_Genus, ordination = meta_ord_Eukaryota_Genus, color = "Treatment",
                geom_text(mapping = aes(label = colnames(fresa_kraken_file@otu_table@Data)), size = 3, vjust = 1.5)

```



Veremos aqui solo el reino Bacteriano

```
merge_Bacteria<-subset_taxa(fresa_kraken_fil,Kingdom=="Bacteria")
```

sacamos las abundancias relativas

```
percentages_Bacteria <- transform_sample_counts(merge_Bacteria, function(x) x*100 / sum(x) )
percentages_Bacteria_df <- psmelt(percentages_Bacteria)
```

beta diversidad de Bacteria

```
meta_ord_Bacteria <- ordinate(physeq = percentages_Bacteria, method = "NMDS", distance = "bray")
```

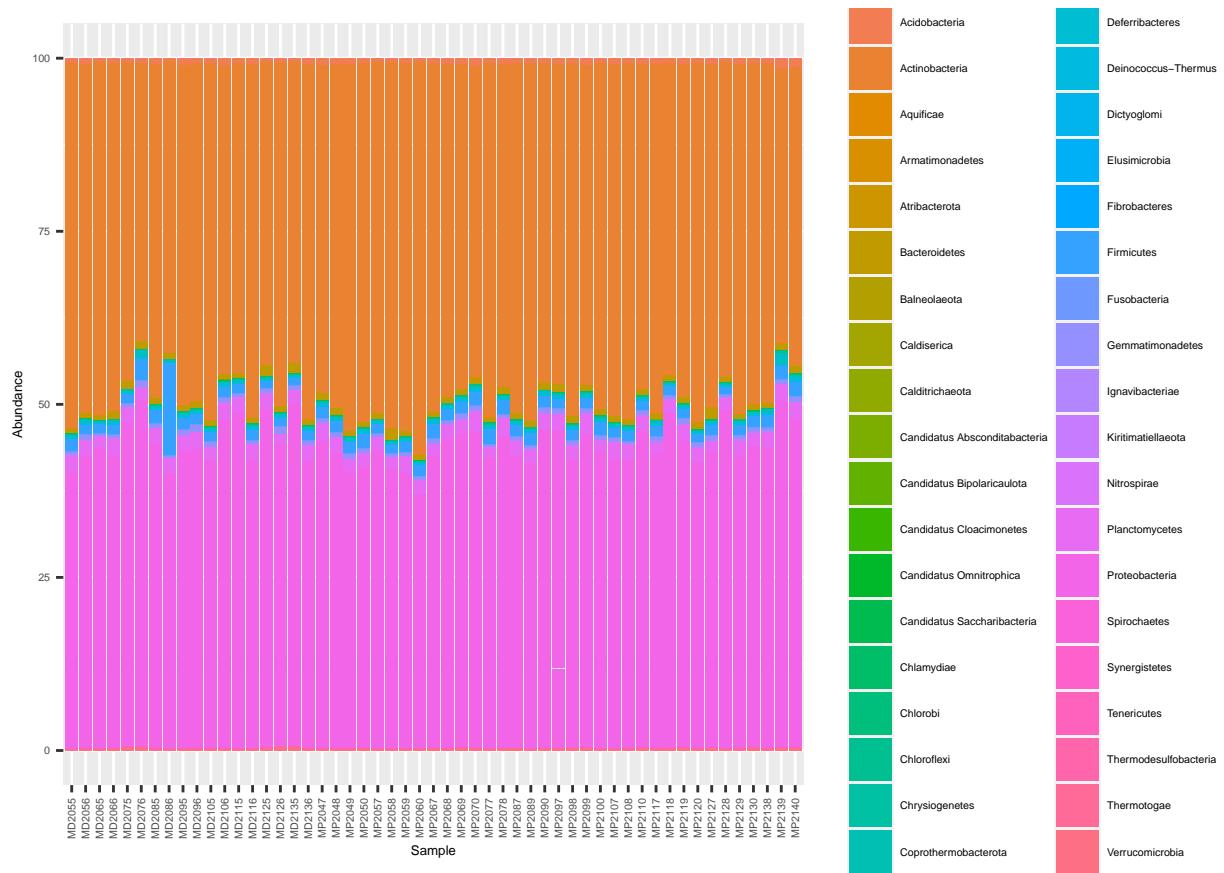
```
## Wisconsin double standardization
## Run 0 stress 0.1680232
## Run 1 stress 0.195333
## Run 2 stress 0.1719124
## Run 3 stress 0.1696362
## Run 4 stress 0.1635648
## ... New best solution
## ... Procrustes: rmse 0.07497085 max resid 0.3639311
## Run 5 stress 0.1792709
## Run 6 stress 0.1806957
## Run 7 stress 0.1698027
## Run 8 stress 0.1861767
## Run 9 stress 0.1731646
## Run 10 stress 0.191225
## Run 11 stress 0.1677502
## Run 12 stress 0.1826094
## Run 13 stress 0.1802748
## Run 14 stress 0.1719266
## Run 15 stress 0.1802699
## Run 16 stress 0.169414
## Run 17 stress 0.1639945
## ... Procrustes: rmse 0.05437686 max resid 0.2258751
## Run 18 stress 0.1728265
## Run 19 stress 0.1768412
## Run 20 stress 0.1689443
## *** Best solution was not repeated -- monoMDS stopping criteria:
##      7: no. of iterations >= maxit
##      13: stress ratio > sratmax
```

```
plot_ordination(physeq = percentages_Bacteria, ordination = meta_ord_Bacteria, color = "Treatment") +
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data)), size = 3, vjust = 1.5)
```



Bacterias por Phylum

```
ggplot(data= percentages_Bacteria_df, aes(x=Sample, y=Abundance, fill=Phylum))+  
  geom_bar(aes(), stat="identity", position="stack") +  
  theme(text = element_text(size = 5),  
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))
```



```
merge_Bacteria_Phylum<-tax_glm(merge_Bacteria, taxrank="Phylum")
```

sacamos las abundancias relativas

```
percentages_Bacteria_Phylum <- transform_sample_counts(merge_Bacteria_Phylum, function(x) x*100 / sum(x))
percentages_Bacteria_Phylum_df <- psmelt(percentages_Bacteria_Phylum)
meta_ord_Bacteria_Phylum <- ordinate(phylseq = percentages_Bacteria_Phylum, method = "NMDS", distance =
```

```
## Square root transformation
## Wisconsin double standardization
## Run 0 stress 0.1520004
## Run 1 stress 0.1748031
## Run 2 stress 0.1718061
## Run 3 stress 0.1613367
## Run 4 stress 0.1706327
## Run 5 stress 0.4042102
## Run 6 stress 0.1595665
## Run 7 stress 0.1736799
## Run 8 stress 0.1744574
## Run 9 stress 0.170718
## Run 10 stress 0.151391
## ... New best solution
## ... Procrustes: rmse 0.008723512 max resid 0.05171575
## Run 11 stress 0.1601867
## Run 12 stress 0.1601867
```

```

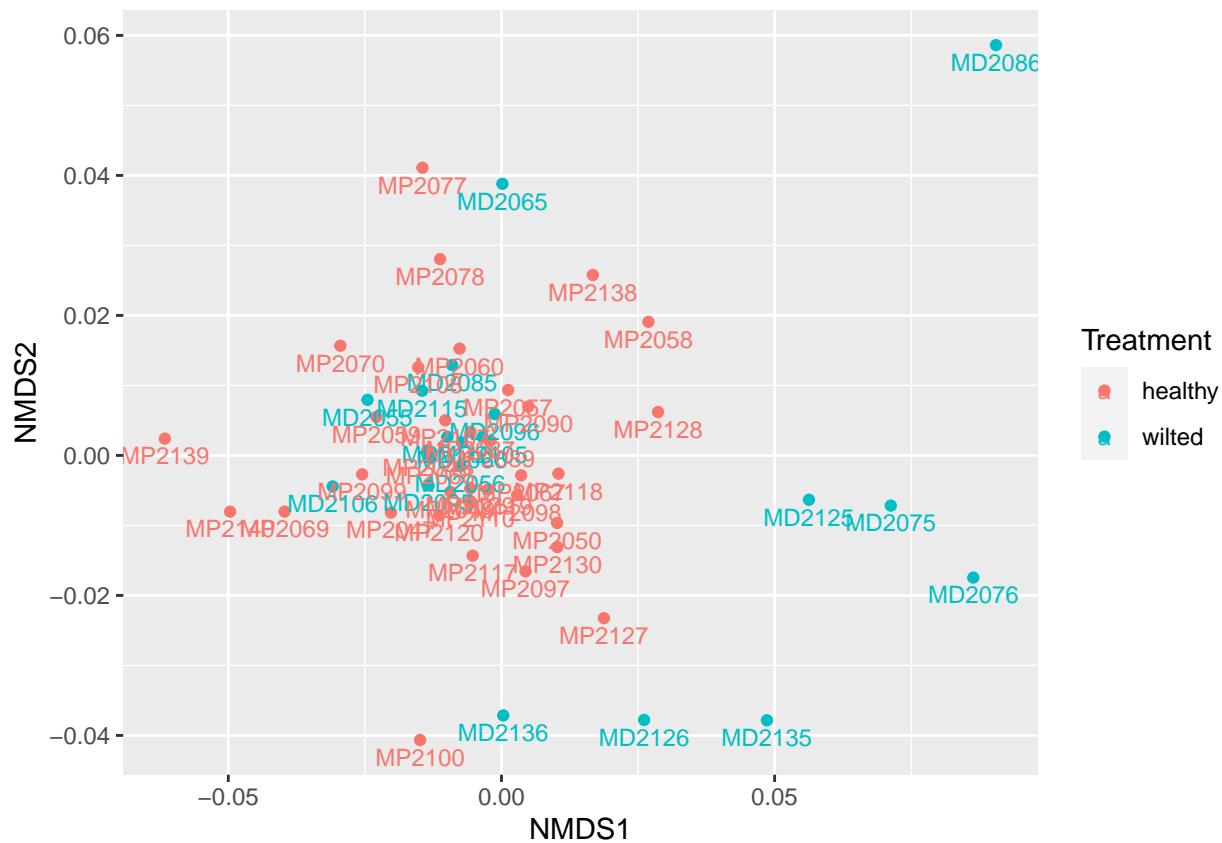
## Run 13 stress 0.1711999
## Run 14 stress 0.1649778
## Run 15 stress 0.1746823
## Run 16 stress 0.1652925
## Run 17 stress 0.1513904
## ... New best solution
## ... Procrustes: rmse 0.0002199067 max resid 0.001239428
## ... Similar to previous best
## Run 18 stress 0.1601869
## Run 19 stress 0.170839
## Run 20 stress 0.1669458
## *** Best solution repeated 1 times

```

```

plot_ordination(physeq = percentages_Bacteria_Phylum, ordination = meta_ord_Bacteria_Phylum, color = "Treatment",
geom_text(mapping = aes(label = colnames(fresa_kraken_file@otu_table@Data))), size = 3, vjust = 1.5)

```



```

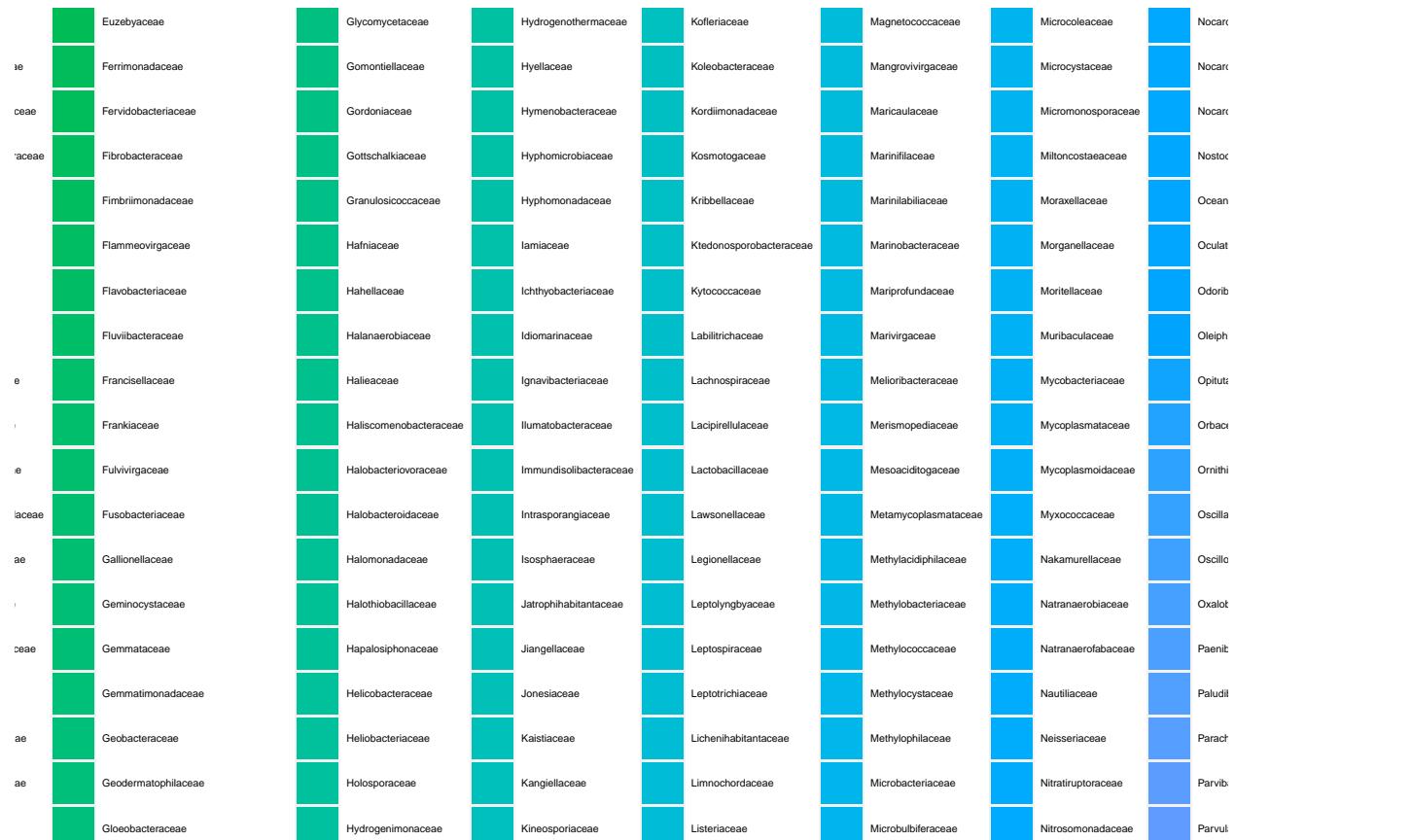
## Bacterias por Family

```

```

ggplot(data= percentages_Bacteria_df, aes(x=Sample, y=Abundance, fill=Family))+ 
  geom_bar(aes(), stat="identity", position="stack") + 
  theme(text = element_text(size = 5),
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))

```



```
merge_Bacteria_Family <- tax_glom(merge_Bacteria, taxrank = "Family")
```

sacamos las abundancias relativas

```
percentages_Bacteria_Family <- transform_sample_counts(merge_Bacteria_Family, function(x) x*100 / sum(x))
percentages_Bacteria_Family_df <- psmelt(percentages_Bacteria_Family)
meta_ord_Bacteria_Family <- ordinate(physeq = percentages_Bacteria_Family, method = "NMDS", distance = "euclidean")
```

```
## Wisconsin double standardization
## Run 0 stress 0.1412073
## Run 1 stress 0.1390461
## ... New best solution
## ... Procrustes: rmse 0.02173359 max resid 0.1357733
## Run 2 stress 0.1369867
## ... New best solution
## ... Procrustes: rmse 0.06214285 max resid 0.372283
## Run 3 stress 0.1393471
## Run 4 stress 0.1373774
## ... Procrustes: rmse 0.01537987 max resid 0.05914057
## Run 5 stress 0.144176
## Run 6 stress 0.1390465
## Run 7 stress 0.1391855
## Run 8 stress 0.1393073
```

```

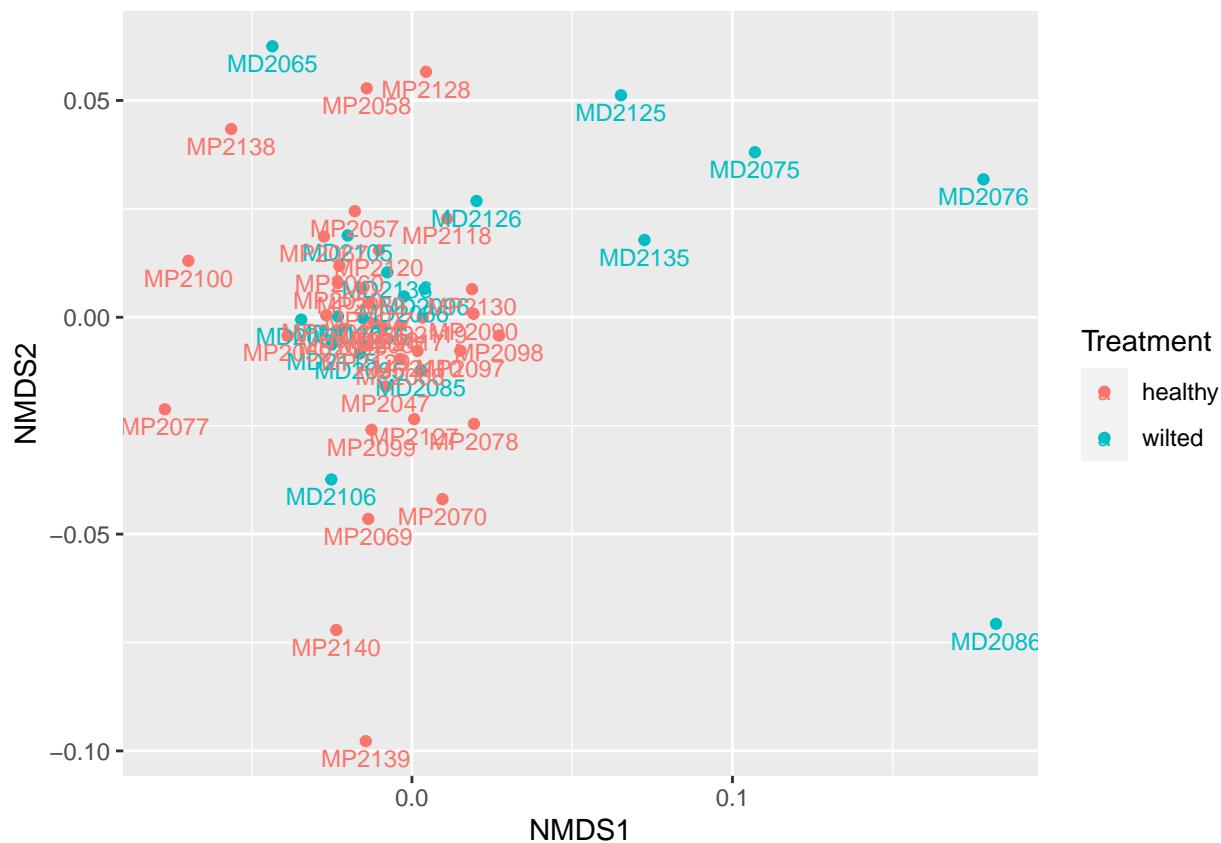
## Run 9 stress 0.1395931
## Run 10 stress 0.1390466
## Run 11 stress 0.1412072
## Run 12 stress 0.1390472
## Run 13 stress 0.1370377
## ... Procrustes: rmse 0.00233855 max resid 0.0125063
## Run 14 stress 0.169838
## Run 15 stress 0.1369867
## ... Procrustes: rmse 2.952911e-05 max resid 0.0001259189
## ... Similar to previous best
## Run 16 stress 0.1412064
## Run 17 stress 0.1521312
## Run 18 stress 0.137481
## ... Procrustes: rmse 0.009049462 max resid 0.04730351
## Run 19 stress 0.1412066
## Run 20 stress 0.1625795
## *** Best solution repeated 1 times

```

```

plot_ordination(physeq = percentages_Bacteria_Family, ordination = meta_ord_Bacteria_Family, color = "Treatment",
geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data)), size = 3, vjust = 1.5)

```



```

## Bacterias por Genero

```

```

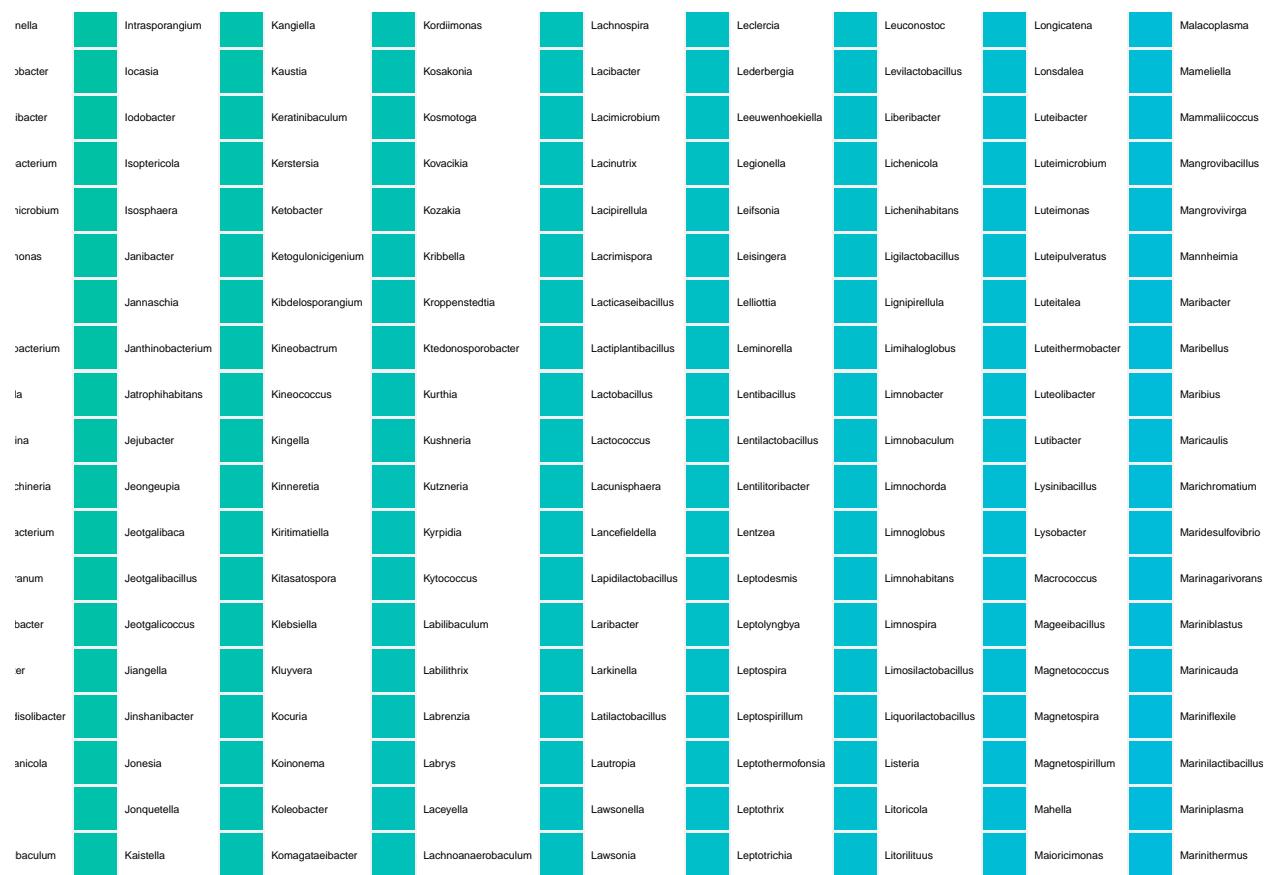
ggplot(data= percentages_Bacteria_df, aes(x=Sample, y=Abundance, fill=Genus))+  

  geom_bar(aes(), stat="identity", position="stack") +  

  theme(text = element_text(size = 5),  

        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))

```



```
merge_Bacteria_Genus <- tax_glom(merge_Bacteria, taxrank = "Genus")
```

sacamos las abundancias relativas

```
percentages_Bacteria_Genus <- transform_sample_counts(merge_Bacteria_Genus, function(x) x*100 / sum(x))
percentages_Bacteria_Genus_df <- psmelt(percentages_Bacteria_Genus)
meta_ord_Bacteria_Genus <- ordinate(physeq = percentages_Bacteria_Genus, method = "NMDS", distance = "bray")
```

```
## Wisconsin double standardization
## Run 0 stress 0.1467945
## Run 1 stress 0.155246
## Run 2 stress 0.14931
## Run 3 stress 0.1479105
## Run 4 stress 0.1496769
## Run 5 stress 0.1438285
## ... New best solution
## ... Procrustes: rmse 0.06921173 max resid 0.2971327
## Run 6 stress 0.1439055
## ... Procrustes: rmse 0.002402581 max resid 0.009671506
## ... Similar to previous best
## Run 7 stress 0.1467425
## Run 8 stress 0.1495483
## Run 9 stress 0.1437852
```

```

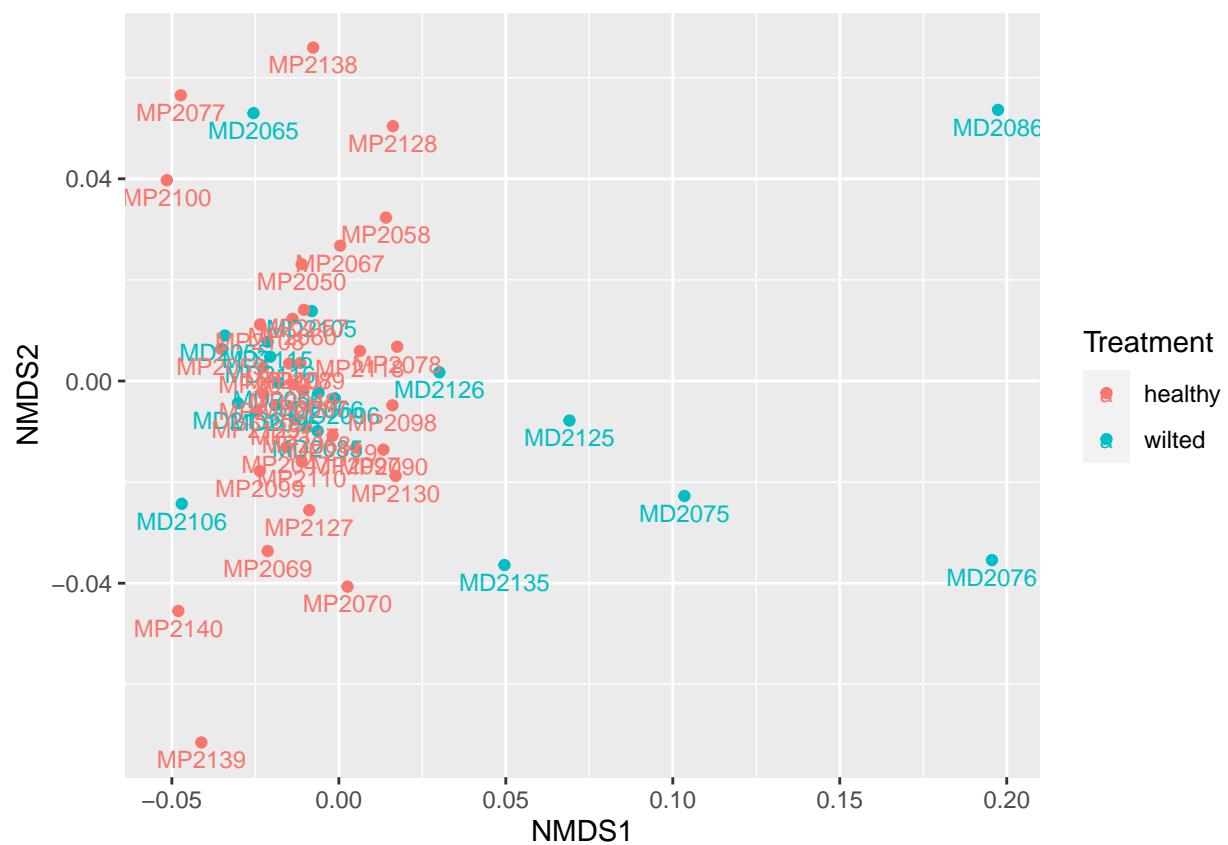
## ... New best solution
## ... Procrustes: rmse 0.05383721  max resid 0.3040951
## Run 10 stress 0.1490337
## Run 11 stress 0.1439574
## ... Procrustes: rmse 0.006915341  max resid 0.04015424
## Run 12 stress 0.1500527
## Run 13 stress 0.1484509
## Run 14 stress 0.1473009
## Run 15 stress 0.1476747
## Run 16 stress 0.1511971
## Run 17 stress 0.1477566
## Run 18 stress 0.1458778
## Run 19 stress 0.1477312
## Run 20 stress 0.1476749
## *** Best solution was not repeated -- monoMDS stopping criteria:
##      4: no. of iterations >= maxit
##      16: stress ratio > sratmax

```

```

plot_ordination(physeq = percentages_Bacteria_Genus, ordination = meta_ord_Bacteria_Genus, color = "Treatment"
  geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@.Data)), size = 3, vjust = 1.5)

```



tomando diferentes porcentajes de abundancia

```

percentages_Bacteria_Genus$Genus[percentages_Bacteria_Genus$Abundance < 10.0] <- "Genus < 0.5% abundance"
percentages_Bacteria_Genus$Genus <- as.factor(percentages_Bacteria_Genus$Genus)

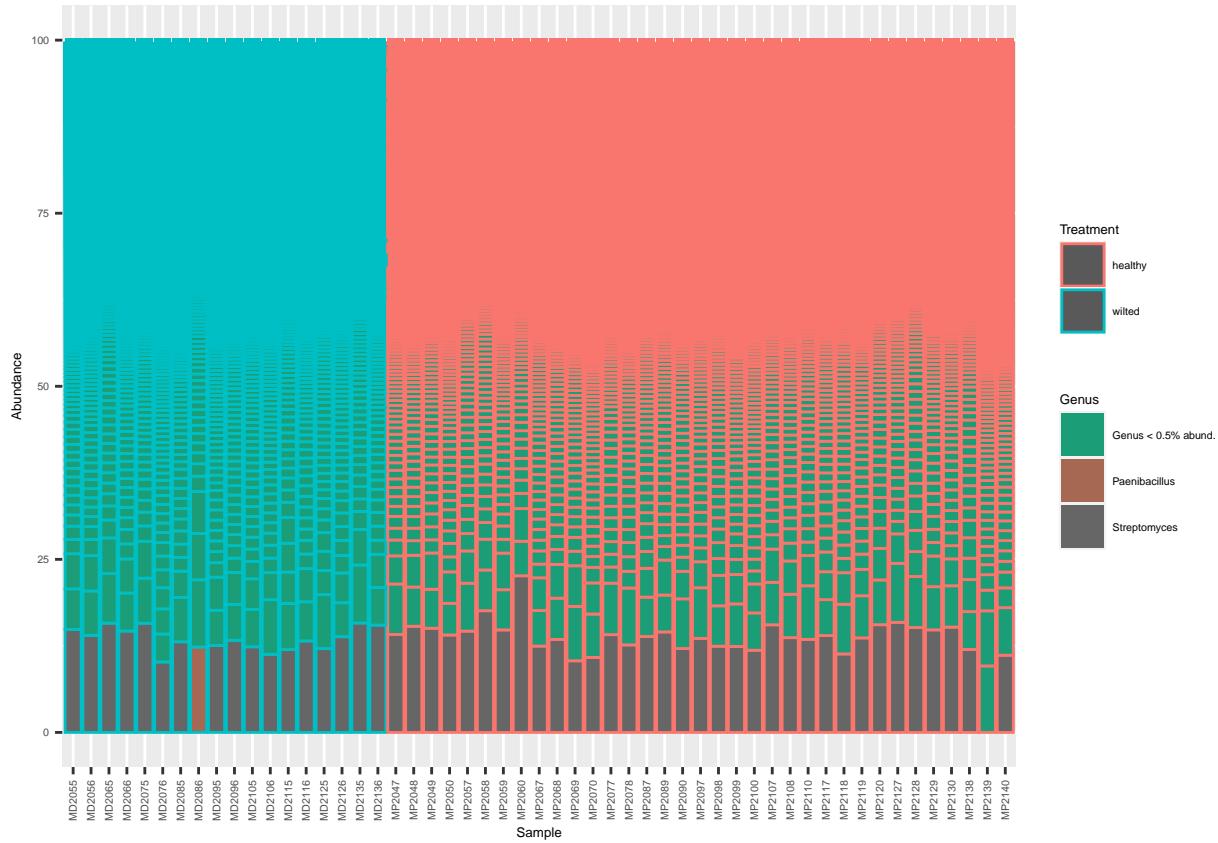
```

```

genus_colors_rel <- colorRampPalette(brewer.pal(8, "Dark2")) (length(levels(percentages_Bacteria_Genus_d
relative_plot <- ggplot(data=percentages_Bacteria_Genus_df, aes(x=Sample, y=Abundance, fill=Genus ,colo
  geom_bar(aes(), stat="identity", position="stack") +
  scale_fill_manual(values = genus_colors_rel) +
  theme(text = element_text(size = 5),
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))

relative_plot

```

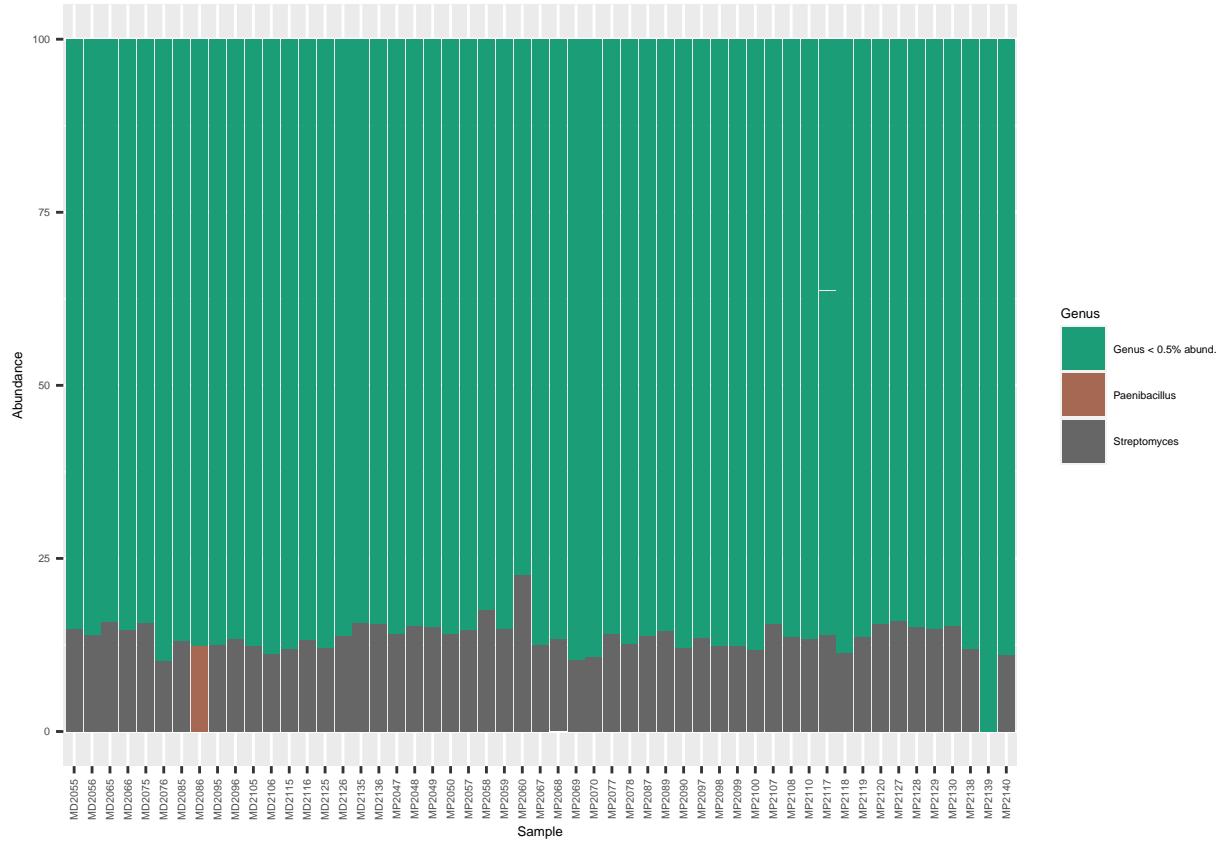


```

relative_plot <- ggplot(data=percentages_Bacteria_Genus_df, aes(x=Sample, y=Abundance, fill=Genus)) +
  geom_bar(aes(), stat="identity", position="stack") +
  scale_fill_manual(values = genus_colors_rel) +
  theme(text = element_text(size = 5),
        axis.text.x = element_text(angle = 90, hjust = 1, vjust = 0.5))

relative_plot

```



sacando la beta diversidad con aglomerado de 10%

```
meta_ord_Bacteria_Genus <- ordinate(physeq = percentages_Bacteria_Genus, method = "NMDS", distance = "b
```

```
## Wisconsin double standardization
## Run 0 stress 0.1467945
## Run 1 stress 0.1490545
## Run 2 stress 0.164654
## Run 3 stress 0.1486375
## Run 4 stress 0.1438226
## ... New best solution
## ... Procrustes: rmse 0.06905018 max resid 0.2972481
## Run 5 stress 0.1514464
## Run 6 stress 0.1432835
## ... New best solution
## ... Procrustes: rmse 0.04960722 max resid 0.2951794
## Run 7 stress 0.1512151
## Run 8 stress 0.1482727
## Run 9 stress 0.1475447
## Run 10 stress 0.1547471
## Run 11 stress 0.1455189
## Run 12 stress 0.1512563
## Run 13 stress 0.1486204
## Run 14 stress 0.17334
## Run 15 stress 0.1438753
## Run 16 stress 0.1490739
```

```

## Run 17 stress 0.143813
## Run 18 stress 0.1439567
## Run 19 stress 0.1438503
## Run 20 stress 0.1631814
## *** Best solution was not repeated -- monoMDS stopping criteria:
##      3: no. of iterations >= maxit
##      17: stress ratio > sratmax

plot_ordination(physeq = percentages_Bacteria_Genus, ordination = meta_ord_Bacteria_Genus, color = "Treatment",
geom_text(mapping = aes(label = colnames(fresa_kraken_fil@otu_table@Data))), size = 3, vjust = 1.5)

```

