Broliden_5325

09 October, 2020

Contents

Loading data and metadata **1**

Merging microbiome datasets **2**

Organise the datasets **2**

Organise the datasets **2**

Computing a SNN graph from sample correlations **3**

Visualise the data **4**

Computing differential expression across clusters **5**

Plotting the most significant bacteria across clusters **9**

#Load libraries and other scripts

#Defining some variables for the analysis

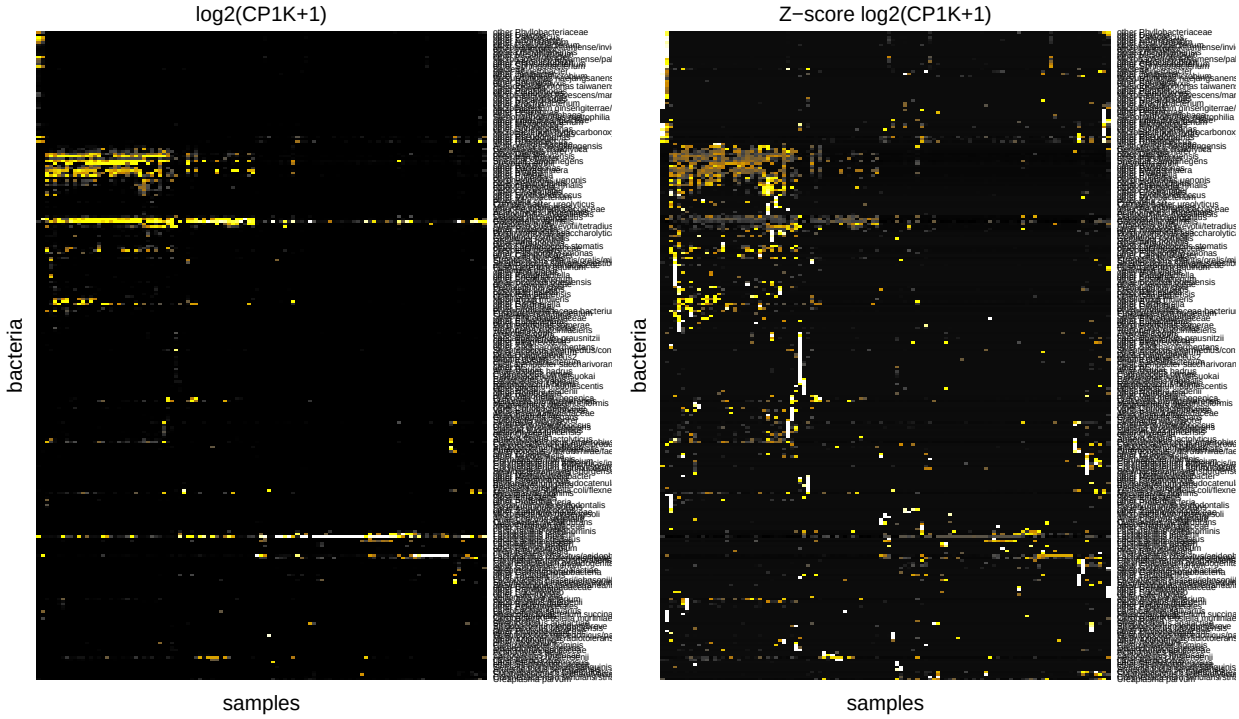
Loading data and metadata

```
## $ASV_tissue_V3_normalized_batch_corrected.csv
## [1] 767  96
##
## $ASV_CVL_V3_normalized_batch_corrected.csv
## [1] 767 111
##
## $ASV_CVL_V2_normalized_batch_corrected.csv
## [1] 767 111
```

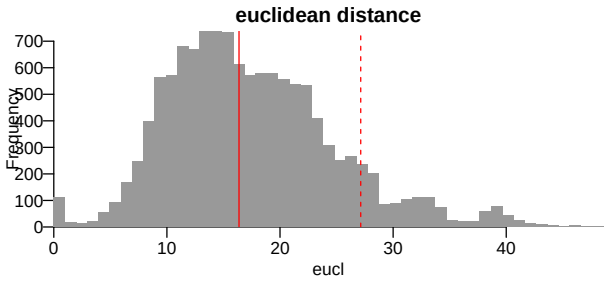
Merging microbiome datasets

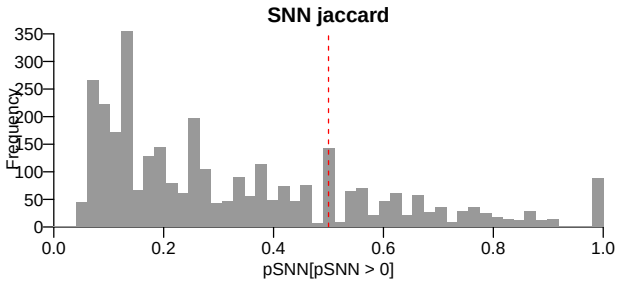
Organise the datasets

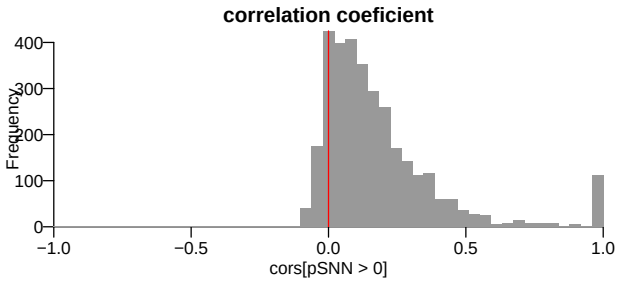
Organise the datasets



Computing a SNN graph from sample correlations





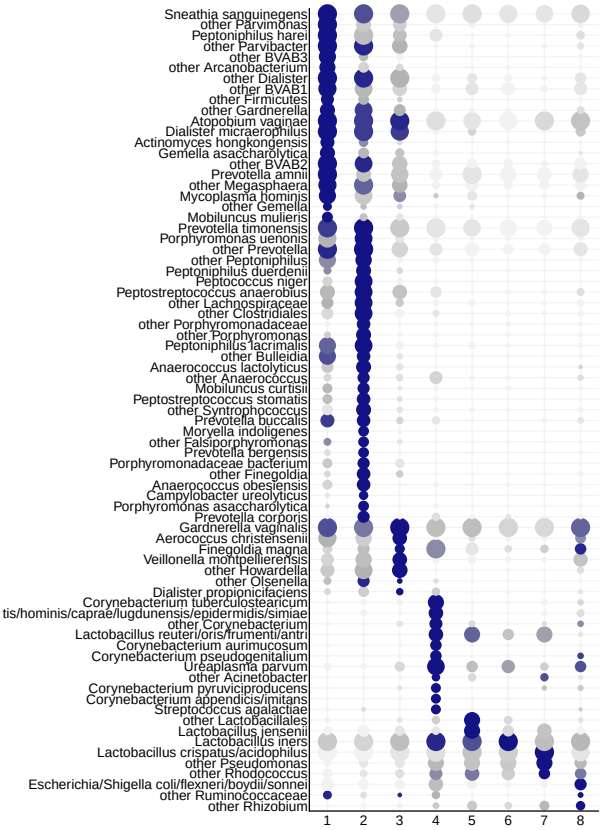


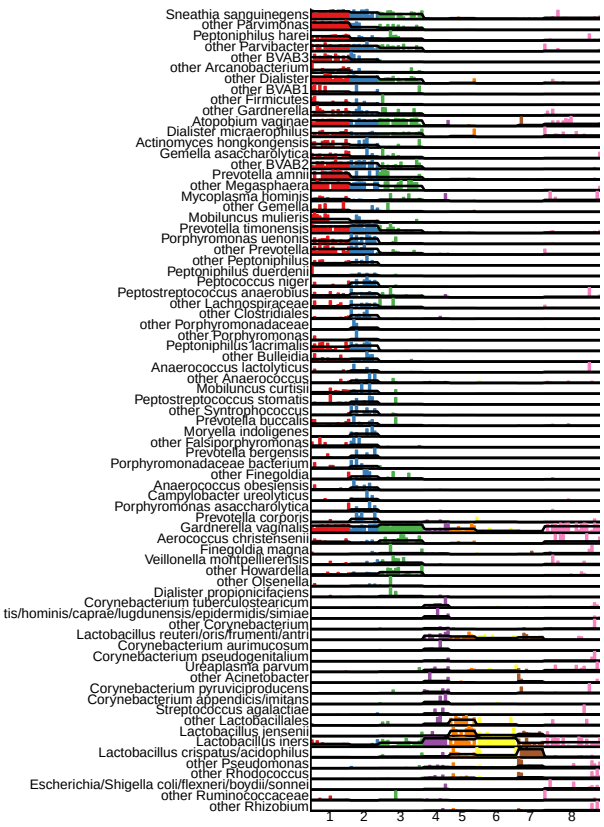
Visualise the data

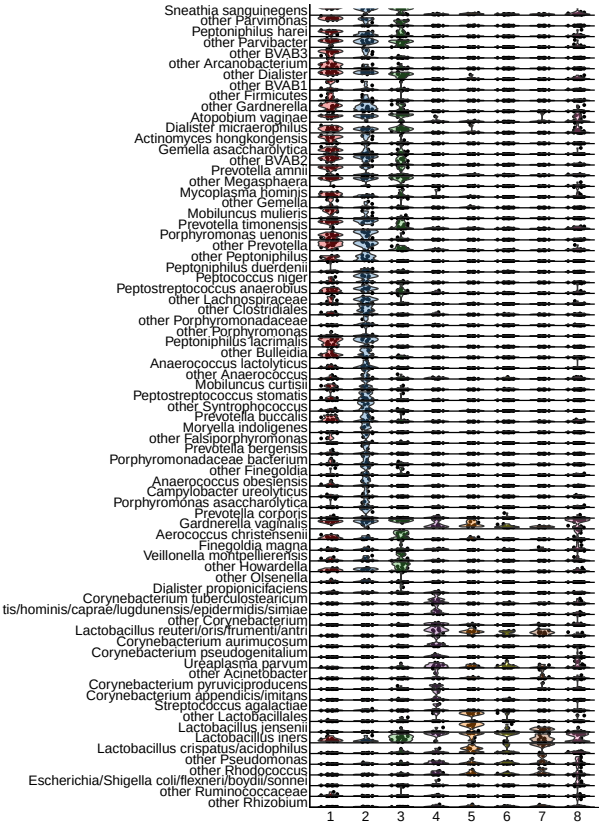
Computing differential expression across clusters

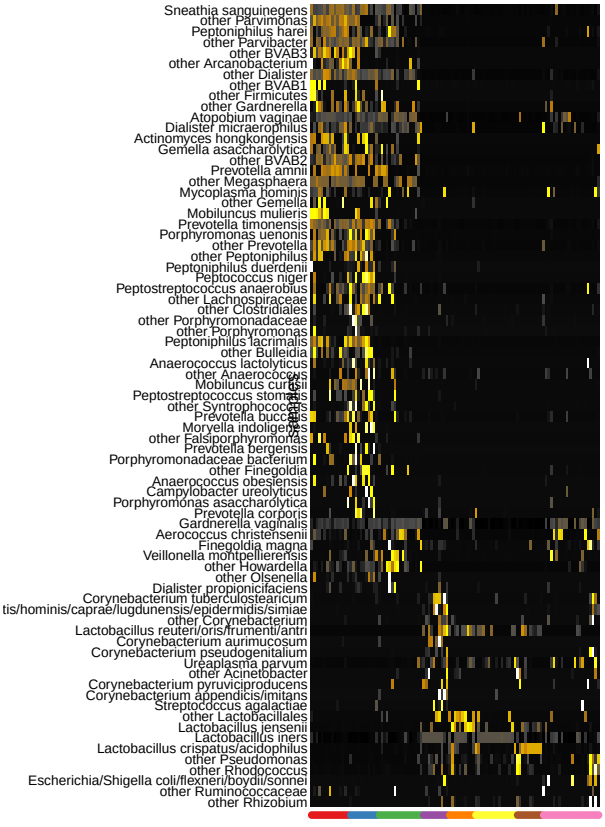
```
## [1] 130   8
```

#Plotting the most significant bacteria across clusters

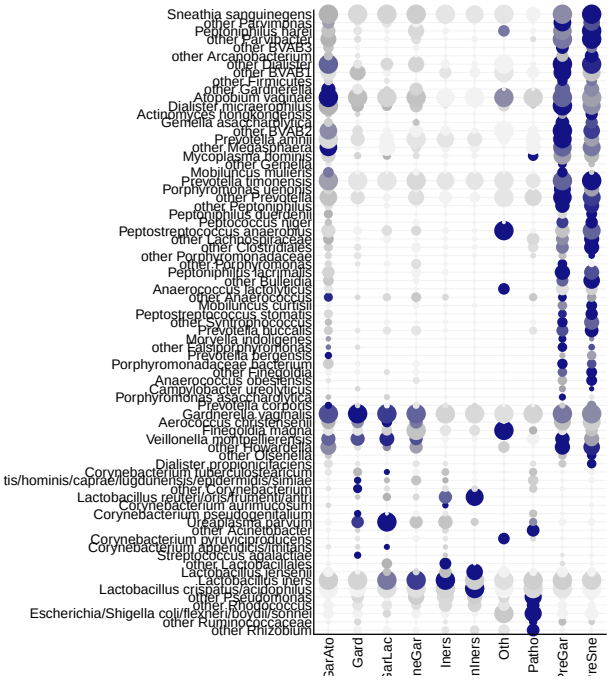

Sneathia sanguinegens
other Parvimonas
Peptoniphilus harei
other Parvibacter
other BVAB3
other Arcanobacterium
other Dialister
other BVAB1
other Firmicutes
other Gardnerella
Atopobium vaginae
Dialister micraerophilus
Actinomyces hongkongensis
Gemella asaccharolytica
other BVAB2
Prevotella amnii
other Megasphaera
Mycoplasma hominis
other Gemella
Mobiluncus mulieris
Prevotella timonensis
Porphyromonas uenonis
other Prevotella
other Peptoniphilus
Peptoniphilus duerdenii
Peptococcus niger
Peptostreptococcus anaerobius
other Lachnospiraceae
other Clostridiales
other Porphyromonadaceae
other Porphyromonas
Peptoniphilus lacrimalis
other Bulleidia
Anaerococcus lactolyticus
other Anaerococcus
Mobiluncus curtisii
Peptostreptococcus stomatis
other Syntrophococcus
Prevotella buccalis
Moryella indoligenes
other Falsiporphyromonas
Prevotella bergensis
Porphyromonadaceae bacterium
other Finegoldia
Anaerococcus obesiensis
Campylobacter ureolyticus
Porphyromonas asaccharolytica
Prevotella corporis
Gardnerella vaginalis
Aerococcus christensenii
Finegoldia magna
Veillonella montpellierensis
other Howardella
other Olsenella
Dialister propionicifaciens
Corynebacterium tuberculostearicum
tis/hominis/caprae/lugdunensis/epidermidis/simiae
other Corynebacterium
Lactobacillus reuteri/oris/frumenti/antri
Corynebacterium aurimucosum
Corynebacterium pseudogenitalium
Ureaplasma parvum
other Acinetobacter
Corynebacterium pyruviciproducens
Corynebacterium appendicis/imitans
Streptococcus agalactiae
other Lactobacillales
Lactobacillus jensenii
Lactobacillus iners
Lactobacillus crispatus/acidophilus
other Pseudomonas
other Rhodococcus
Escherichia/Shigella coli/flexneri/boydii/sonnei
other Ruminococcaceae
other Rhizobium
1 2 3 4 5 6 7 8

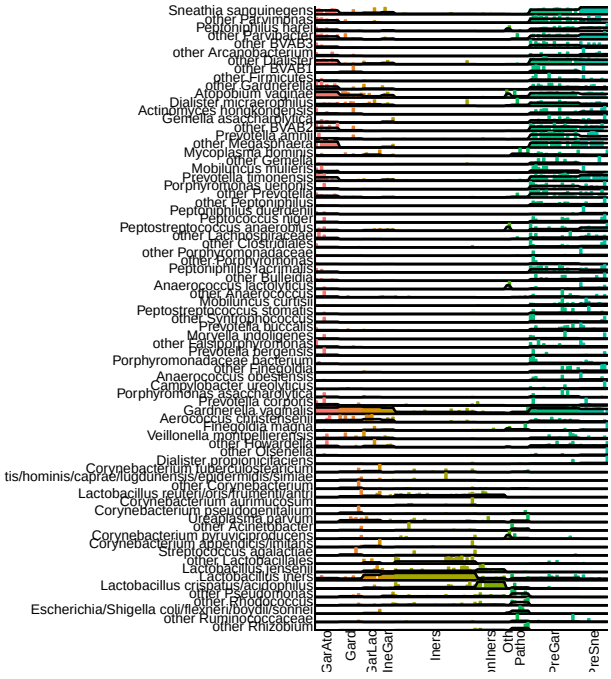

Sneathia sanguinegens
other Parvimonas
Peptoniphilus harei
other Parvibacter
other BVAB3
other Arcanobacterium
other Dialister
other BVAB1
other Firmicutes
other Gardnerella
Atopobium vaginae
Dialister micraerophilus
Actinomyces hongkongensis
Gemella asaccharolytica
other BVAB2
Prevotella amnii
other Megasphaera
Mycoplasma hominis
other Gemella
Mobiluncus mulieris
Prevotella timonensis
Porphyromonas uenonis
other Prevotella
other Peptoniphilus
Peptoniphilus duerdenii
Peptococcus niger
Peptostreptococcus anaerobius
other Lachnospiraceae
other Clostridiales
other Porphyromonadaceae
other Porphyromonas
Peptoniphilus lacrimalis
other Bulleidia
Anaerococcus lactolyticus
other Anaerococcus
Mobiluncus curtisii
Peptostreptococcus stomatis
other Syntrophococcus
Prevotella buccalis
Moryella indoligenes
other Falsiporphyromonas
Prevotella bergensis
Porphyromonadaceae bacterium
other Finegoldia
Anaerococcus obesiensis
Campylobacter ureolyticus
Porphyromonas asaccharolytica
Prevotella corporis
Gardnerella vaginalis
Aerococcus christensenii
Finegoldia magna
Veillonella montpellierensis
other Howardella
other Olsenella
Dialister propionicifaciens
Corynebacterium tuberculostearicum
tis/hominis/caprae/lugdunensis/epidermidis/simiae
other Corynebacterium
Lactobacillus reuteri/oris/frumenti/antri
Corynebacterium aurimucosum
Corynebacterium pseudogenitalium
Ureaplasma parvum
other Acinetobacter
Corynebacterium pyruviciproducens
Corynebacterium appendicis/imitans
Streptococcus agalactiae
other Lactobacillales
Lactobacillus jensenii
Lactobacillus iners
Lactobacillus crispatus/acidophilus
other Pseudomonas
other Rhodococcus
Escherichia/Shigella coli/flexneri/boydii/sonnei
other Ruminococcaceae
other Rhizobium
1 2 3 4 5 6 7 8

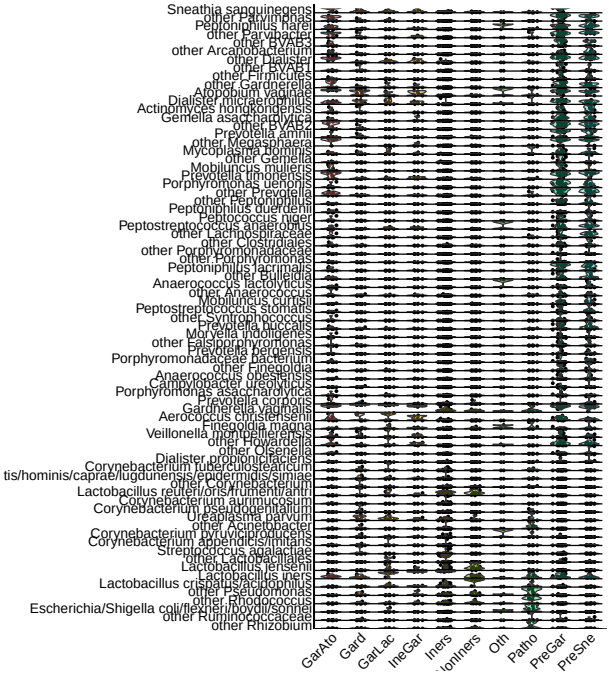

Sneathia sanguinegens
other Parvimonas
Peptoniphilus harei
other Parvibacter
other BVAB3
other Arcanobacterium
other Dialister
other BVAB1
other Firmicutes
other Gardnerella
Atopobium vaginae
Dialister micraerophilus
Actinomyces hongkongensis
Gemella asaccharolytica
other BVAB2
Prevotella amnii
other Megasphaera
Mycoplasma hominis
other Gemella
Mobiluncus mulieris
Prevotella timonensis
Porphyromonas uenonis
other Prevotella
other Peptoniphilus
Peptoniphilus duerdenii
Peptococcus niger
Peptostreptococcus anaerobius
other Lachnospiraceae
other Clostridiales
other Porphyromonadaceae
other Porphyromonas
Peptoniphilus lacrimalis
other Bulleidia
Anaerococcus lactolyticus
other Anaerococcus
Mobiluncus curtisii
Peptostreptococcus stomatis
other Syntrophococcus
Prevotella buccalis
Moryella indoligenes
other Falsiporphyromonas
Prevotella bergensis
Porphyromonadaceae bacterium
other Finegoldia
Anaerococcus obesiensis
Campylobacter ureolyticus
Porphyromonas asaccharolytica
Prevotella corporis
Gardnerella vaginalis
Aerococcus christensenii
Finegoldia magna
Veillonella montpellierensis
other Howardella
other Olsenella
Dialister propionicifaciens
Corynebacterium tuberculostearicum
tis/hominis/caprae/lugdunensis/epidermidis/simiae
other Corynebacterium
Lactobacillus reuteri/oris/frumenti/antri
Corynebacterium aurimucosum
Corynebacterium pseudogenitalium
Ureaplasma parvum
other Acinetobacter
Corynebacterium pyruviciproducens
Corynebacterium appendicis/imitans
Streptococcus agalactiae
other Lactobacillales
Lactobacillus jensenii
Lactobacillus iners
Lactobacillus crispatus/acidophilus
other Pseudomonas
other Rhodococcus
Escherichia/Shigella coli/flexneri/boydii/sonnei
other Ruminococcaceae
other Rhizobium
1 2 3 4 5 6 7 8

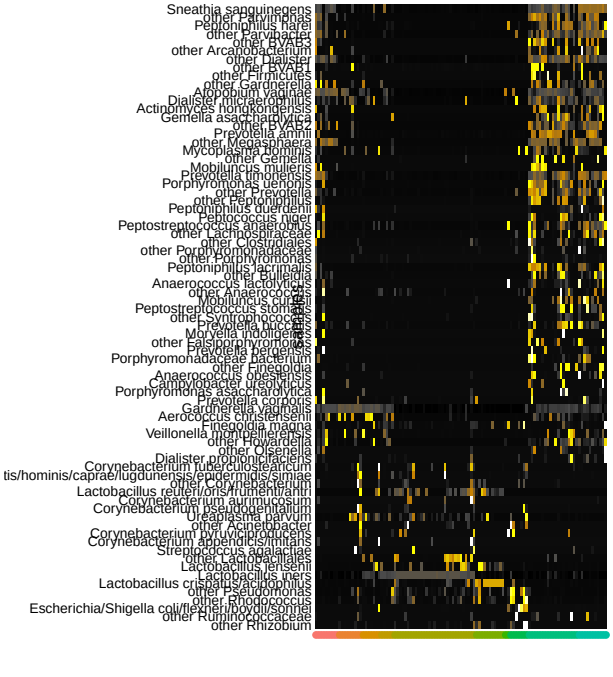

Sneathia sanguinegens
other Parvimonas
Peptoniphilus harei
other Parvibacter
other BVAB3
other Arcanobacterium
other Dialister
other BVAB1
other Firmicutes
other Gardnerella
Atopobium vaginae
Dialister micraerophilus
Actinomyces hongkongensis
Gemella asaccharolytica
other BVAB2
Prevotella amnii
other Megasphaera
Mycoplasma hominis
other Gemella
Mobiluncus mulieris
Prevotella timonensis
Porphyromonas uenonis
other Prevotella
other Peptoniphilus
Peptoniphilus duerdenii
Peptococcus niger
Peptostreptococcus anaerobius
other Lachnospiraceae
other Clostridiales
other Porphyromonadaceae
other Porphyromonas
Peptoniphilus lacrimalis
other Bulleidia
Anaerococcus lactolyticus
other Anaerococcus
Mobiluncus curtisii
Peptostreptococcus stomatis
other Syntrophococcus
Prevotella buccalis
Moryella indoligenes
other Falsiporphyromonas
Prevotella bergensis
Porphyromonadaceae bacterium
other Finegoldia
Anaerococcus obesiensis
Campylobacter ureolyticus
Porphyromonas asaccharolytica
Prevotella corporis
Gardnerella vaginalis
Aerococcus christensenii
Finegoldia magna
Veillonella montpellierensis
other Howardella
other Olsenella
Dialister propionicifaciens
Corynebacterium tuberculostearicum
tis/hominis/caprae/lugdunensis/epidermidis/simiae
other Corynebacterium
Lactobacillus reuteri/oris/frumenti/antri
Corynebacterium aurimucosum
Corynebacterium pseudogenitalium
Ureaplasma parvum
other Acinetobacter
Corynebacterium pyruviciproducens
Corynebacterium appendicis/imitans
Streptococcus agalactiae
other Lactobacillales
Lactobacillus jensenii
Lactobacillus iners
Lactobacillus crispatus/acidophilus
other Pseudomonas
other Rhodococcus
Escherichia/Shigella coli/flexneri/boydii/sonnei
other Ruminococcaceae
other Rhizobium

#Plotting the most significant bacteria across PREVIOUS ANNOTATION

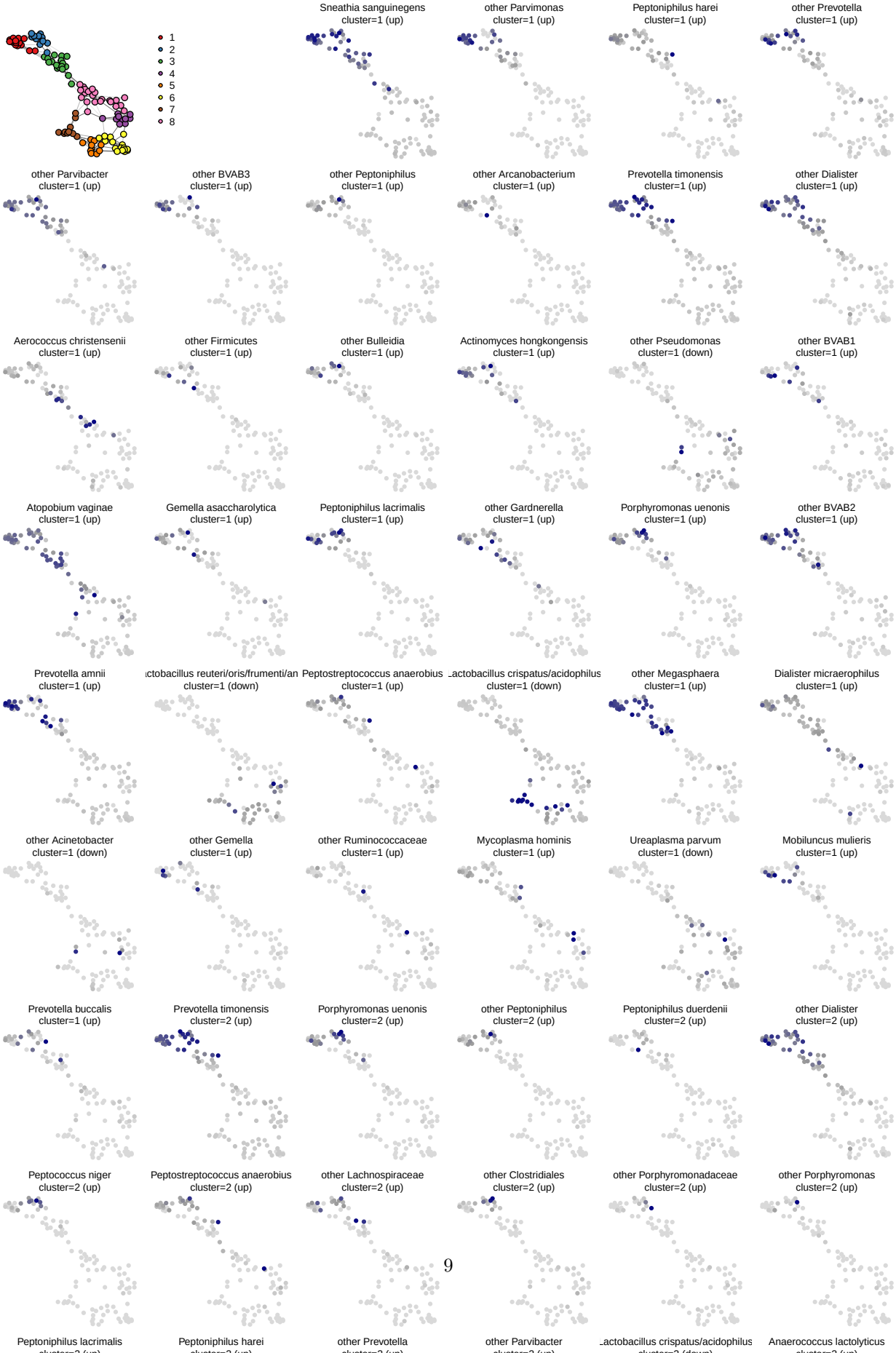


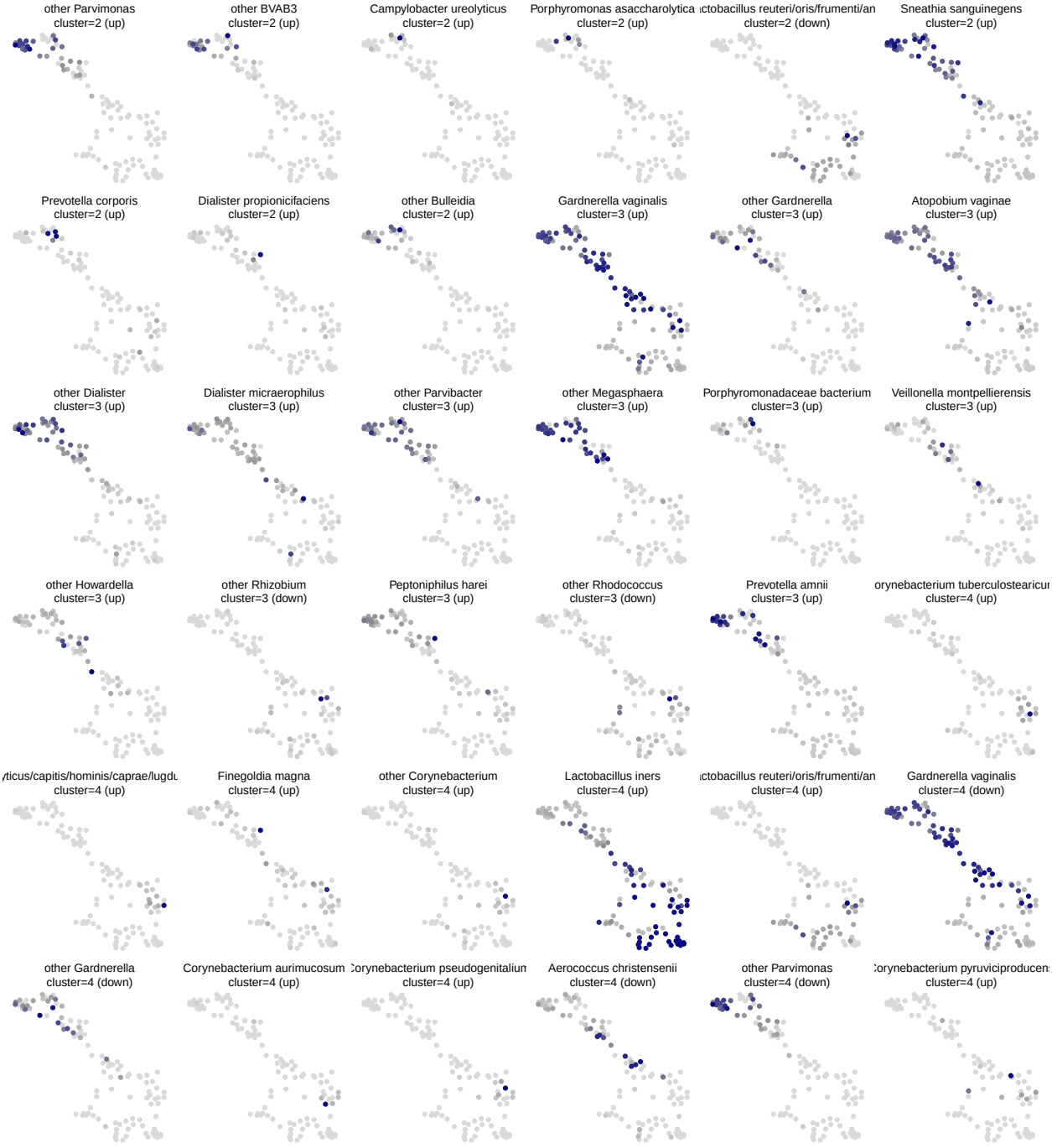


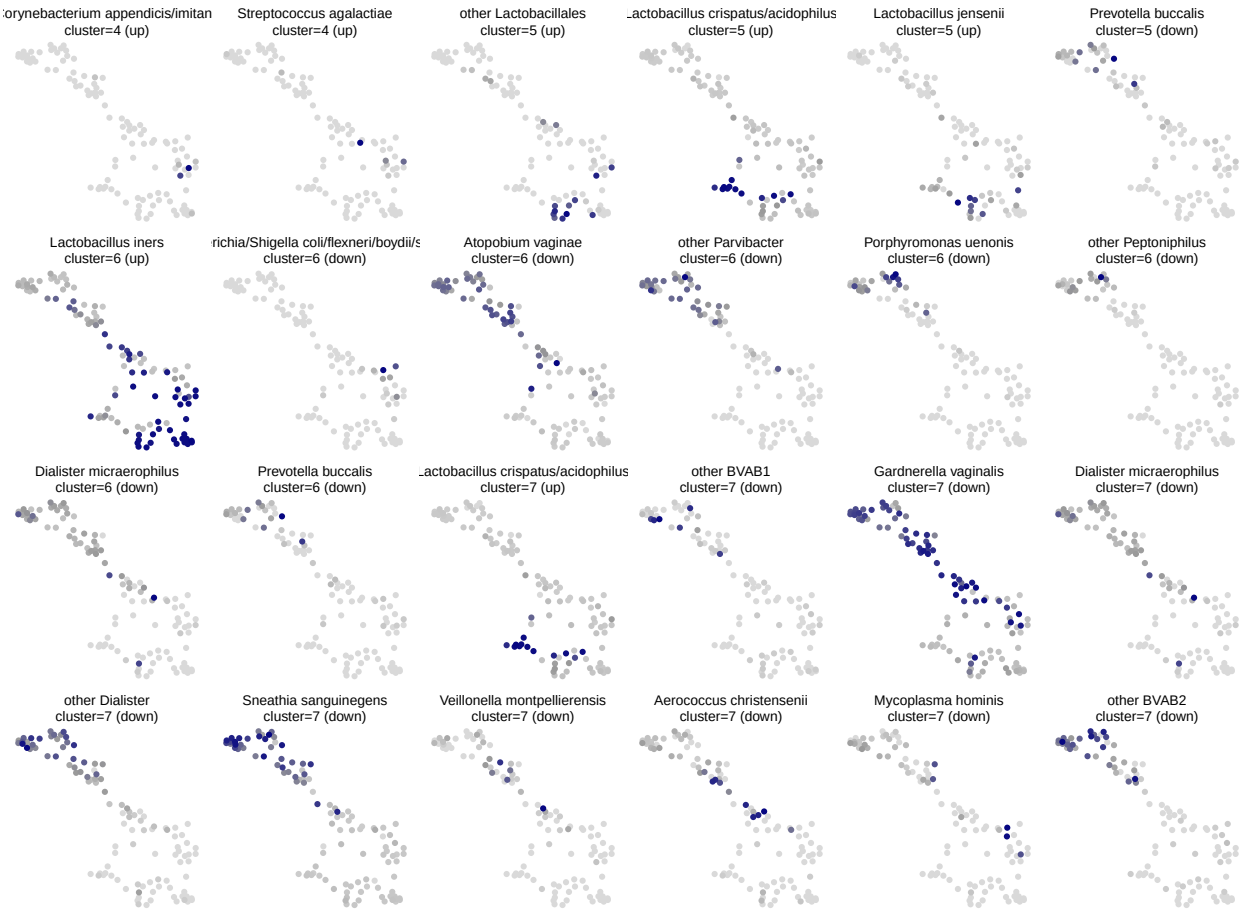




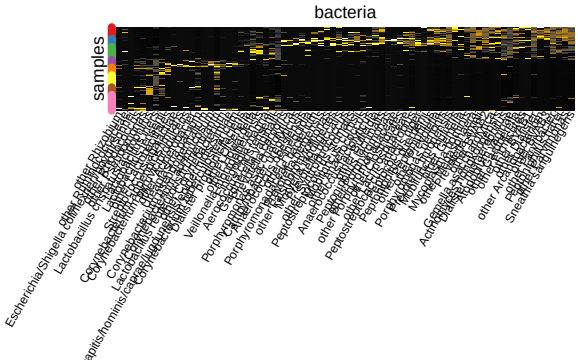
Plotting the most significant bacteria across clusters

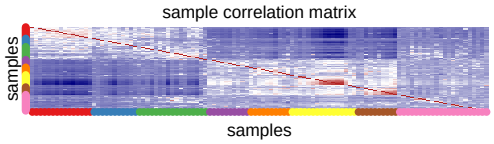



other Parvimonas
cluster=2 (up)
other BVAB3
cluster=2 (up)
Campylobacter ureolyticus
cluster=2 (up)
Porphyromonas asaccharolytica
cluster=2 (up)
ıctobacillus reuteri/oris/frumenti/an
cluster=2 (down)
Sneathia sanguinegens
cluster=2 (up)
Prevotella corporis
cluster=2 (up)
Dialister propionicifaciens
cluster=2 (up)
other Bulleidia
cluster=2 (up)
Gardnerella vaginalis
cluster=3 (up)
other Gardnerella
cluster=3 (up)
Atopobium vaginae
cluster=3 (up)
other Dialister
cluster=3 (up)
Dialister micraerophilus
cluster=3 (up)
other Parvibacter
cluster=3 (up)
other Megasphaera
cluster=3 (up)
Porphyromonadaceae bacterium
cluster=3 (up)
Veillonella montpellierensis
cluster=3 (up)
other Howardella
cluster=3 (up)
other Rhizobium
cluster=3 (down)
Peptoniphilus harei
cluster=3 (up)
other Rhodococcus
cluster=3 (down)
Prevotella amnii
cluster=3 (up)
orynebacterium tuberculostearicu
cluster=4 (up)
/ticus/capitis/hominis/caprae/lugdu
cluster=4 (up)
Finegoldia magna
cluster=4 (up)
other Corynebacterium
cluster=4 (up)
Lactobacillus iners
cluster=4 (up)
ıctobacillus reuteri/oris/frumenti/an
cluster=4 (up)
Gardnerella vaginalis
cluster=4 (down)
other Gardnerella
cluster=4 (down)
Corynebacterium aurimucosum
cluster=4 (up)
Corynebacterium pseudogenitaliu
cluster=4 (up)
Aerococcus christensenii
cluster=4 (down)
other Parvimonas
cluster=4 (down)
Corynebacterium pyruviciproducen
cluster=4 (up)


orynebacterium appendicis/imitan
cluster=4 (up)
Streptococcus agalactiae
cluster=4 (up)
other Lactobacillales
cluster=5 (up)
actobacillus crispatus/acidophilus
cluster=5 (up)
Lactobacillus jensenii
cluster=5 (up)
Prevotella buccalis
cluster=5 (down)
Lactobacillus iners
cluster=6 (up)
richia/Shigella coli/flexneri/boydii/s
cluster=6 (down)
Atopobium vaginae
cluster=6 (down)
other Parvibacter
cluster=6 (down)
Porphyromonas uenonis
cluster=6 (down)
other Peptoniphilus
cluster=6 (down)
Dialister micraerophilus
cluster=6 (down)
Prevotella buccalis
cluster=6 (down)
actobacillus crispatus/acidophilus
cluster=7 (up)
other BVAB1
cluster=7 (down)
Gardnerella vaginalis
cluster=7 (down)
Dialister micraerophilus
cluster=7 (down)
other Dialister
cluster=7 (down)
Sneathia sanguinegens
cluster=7 (down)
Veillonella montpellierensis
cluster=7 (down)
Aerococcus christensenii
cluster=7 (down)
Mycoplasma hominis
cluster=7 (down)
other BVAB2
cluster=7 (down)

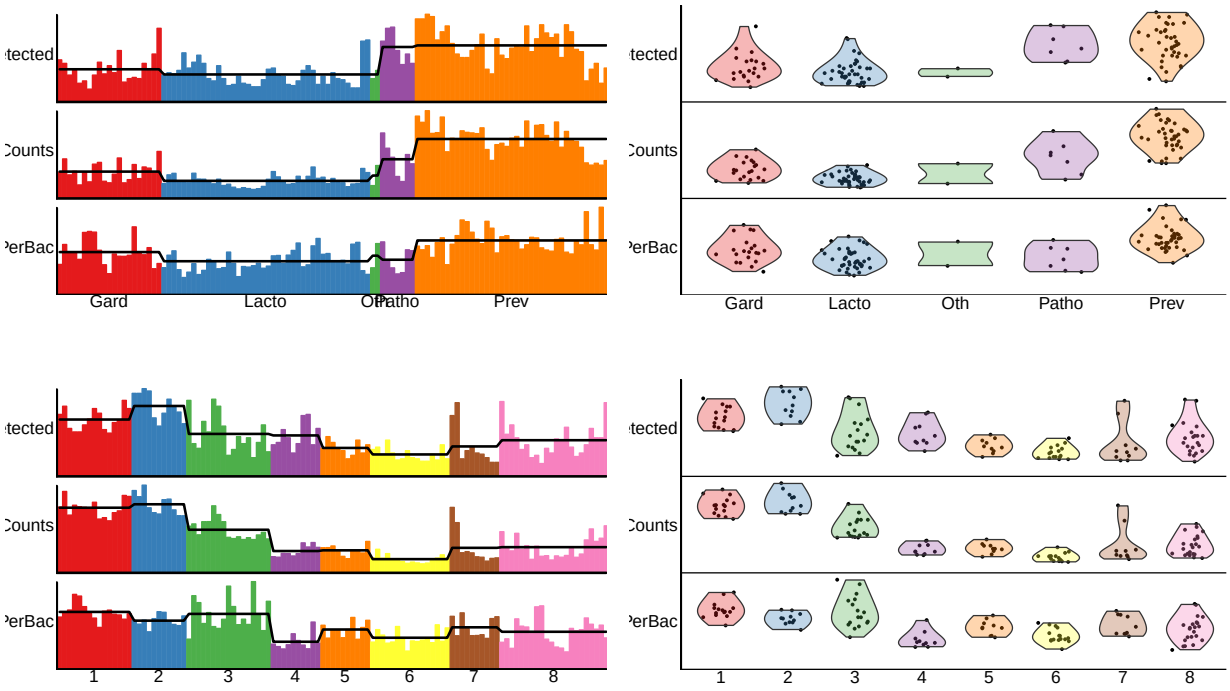
#Plotting bacteria across clusters






```
## [1] -0.01463636
```

#Plotting bacteria across clusters




```
##    .2
## .1     Gard Lacto Oth Patho Prev
##   1  0    0     0   0     0   15
##   2  0    0     0   0     0   11
##   3  0    4     0   0     0   13
##   4  0    2     8   0     0    0
##   5  0    1     9   0     0    0
##   6  0    0    16   0     0    0
##   7  0    0     8   0     2    0
##   8  0   14     1   2     5    0
```

#Plotting bacteria across clusters

#Dataset integration