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#Load libraries and other scripts

#Defining some variables for the analysis

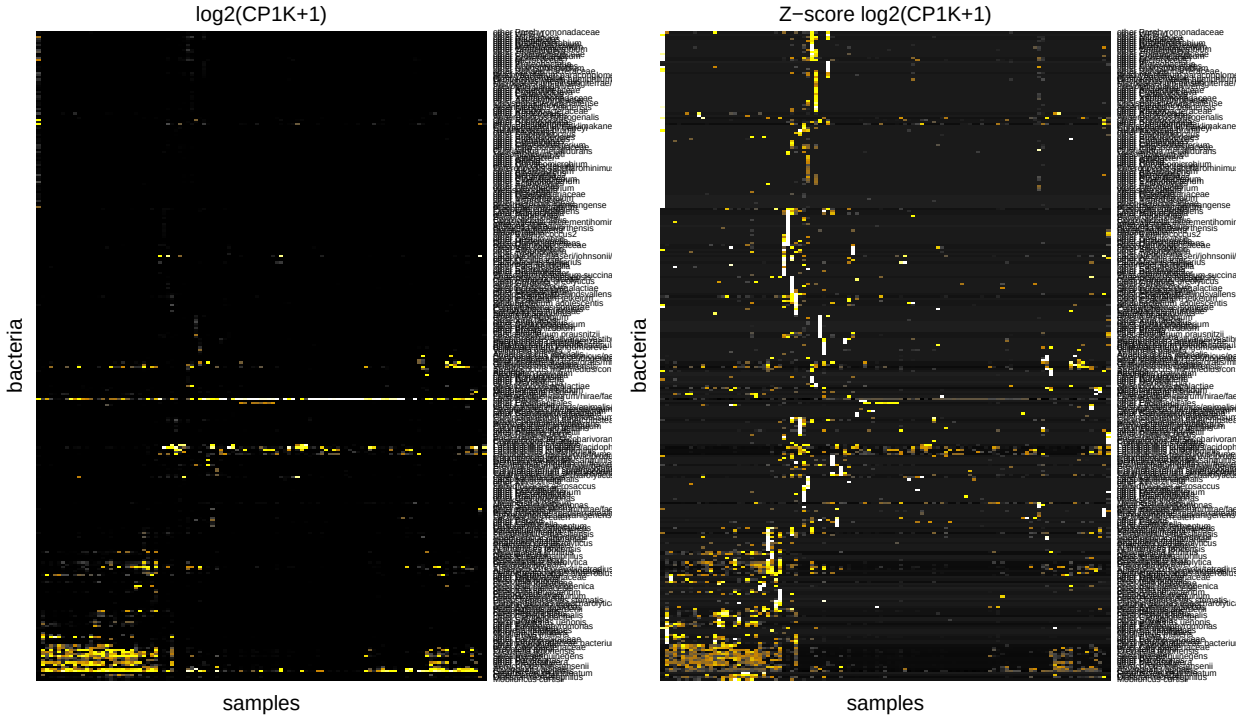
Loading data and metadata

```
## $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
##
## $ASV_CVL_V2_normalized_NOT_batch_corrected.csv
## [1] 767 111
```

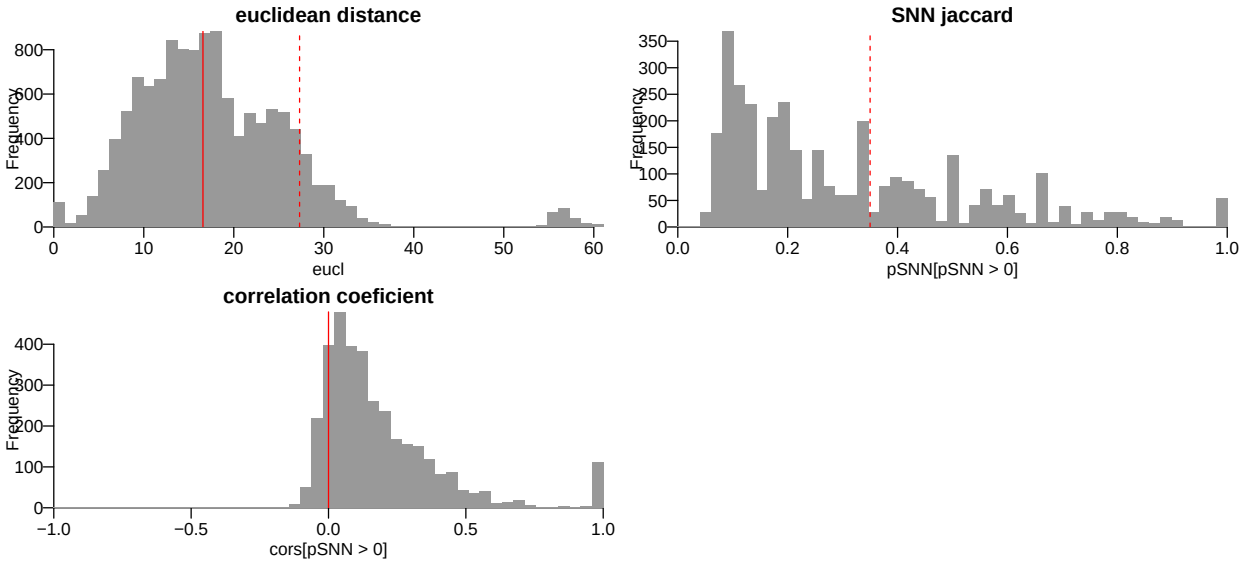
Merging microbiome datasets

Organise the datasets

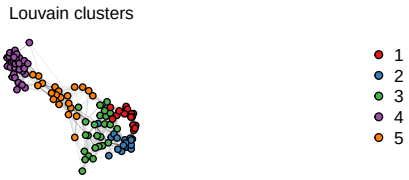
Organise the datasets



Computing a SNN graph from sample correlations



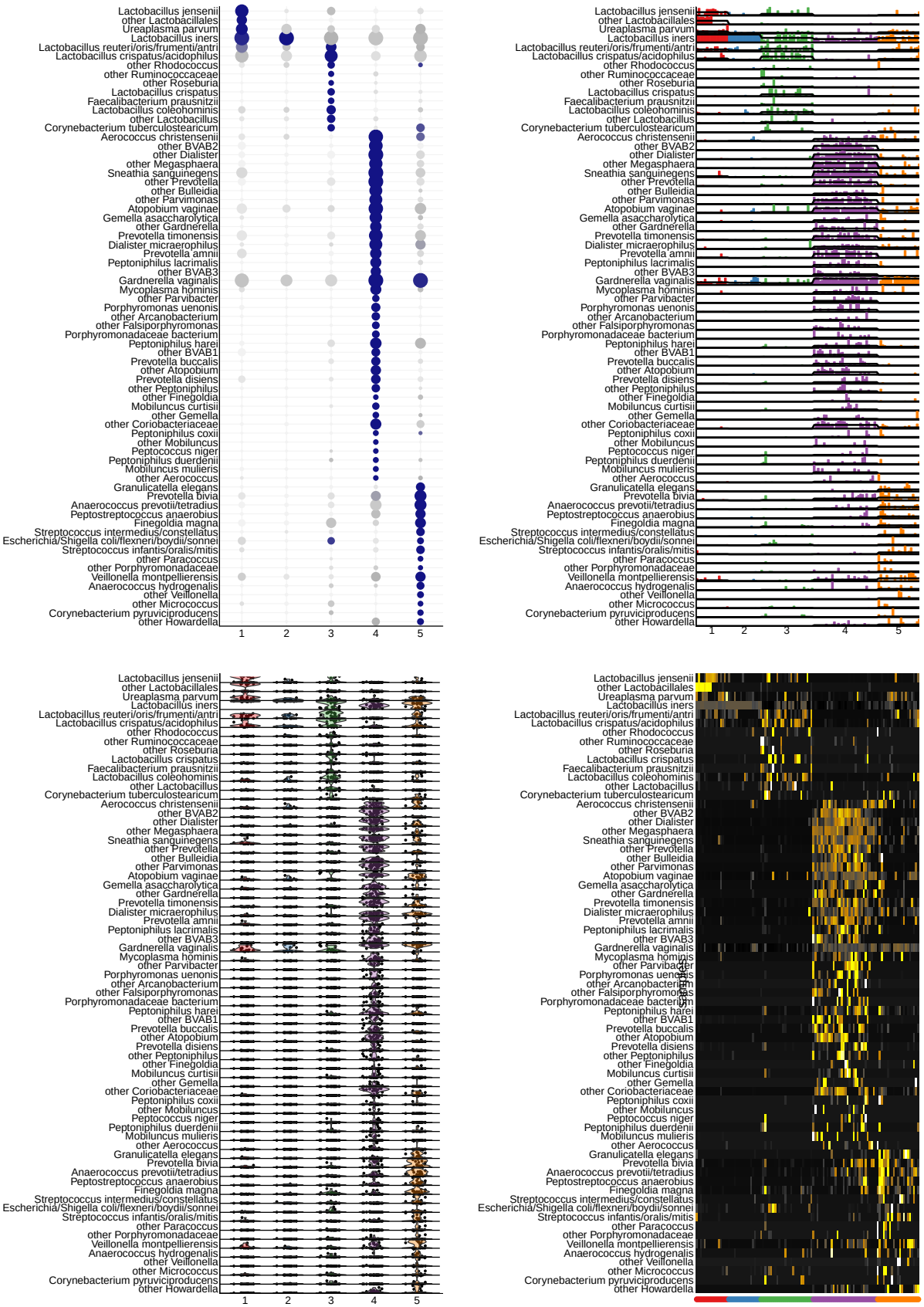
Visualise the data



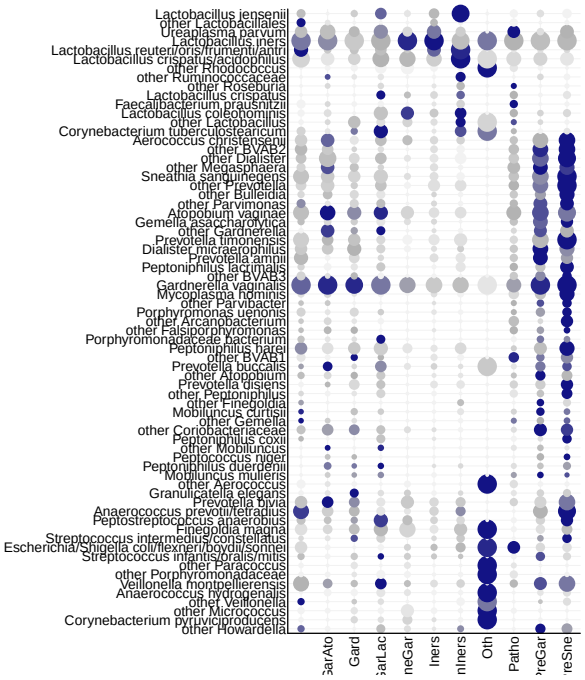
Computing differential expression across clusters

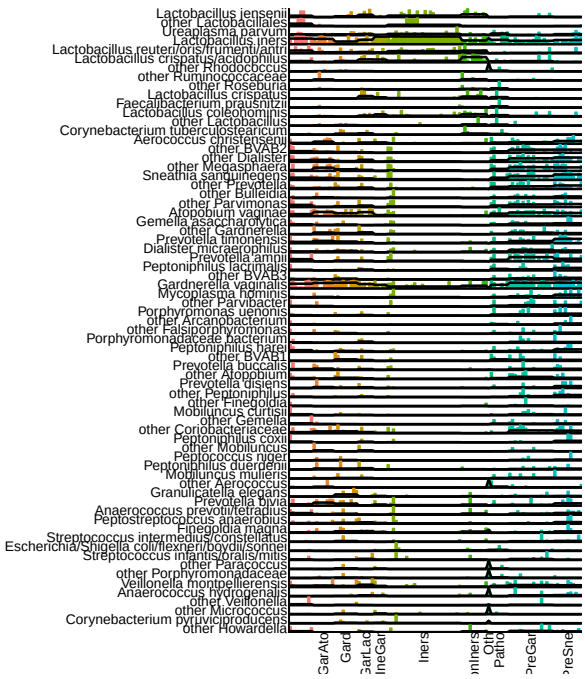
```
## [1] 120   8
```

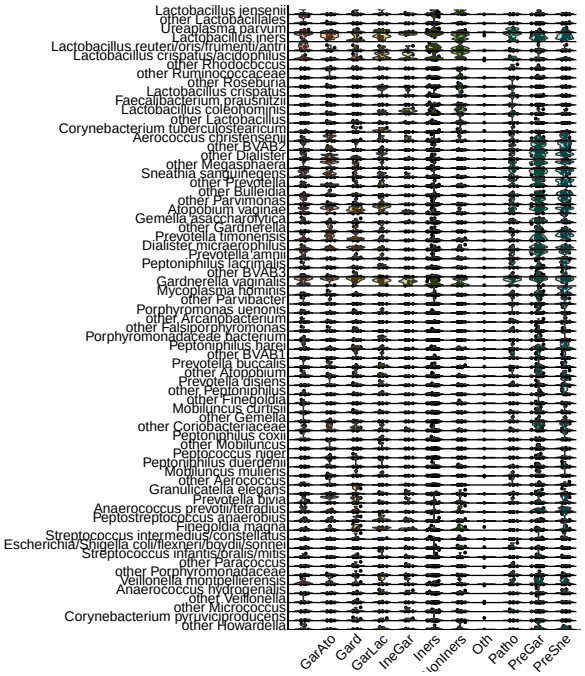
#Plotting the most significant bacteria across clusters

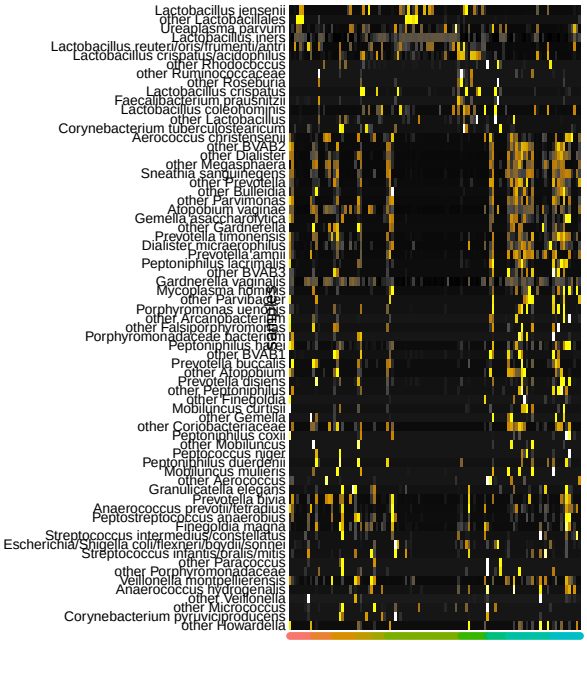

Lactobacillus jensenii
other Lactobacillales
Ureaplasma parvum
Lactobacillus iners
Lactobacillus reuteri/oris/frumenti/antri
Lactobacillus crispatus/acidophilus
other Rhodococcus
other Ruminococcaceae
other Roseburia
Lactobacillus crispatus
Faecalibacterium prausnitzii
Lactobacillus coleohominis
other Lactobacillus
Corynebacterium tuberculostearicum
Aerococcus christensenii
other BVAB2
other Dialister
other Megasphaera
Sneathia sanguinegens
other Prevotella
other Bulleidia
other Parvimonas
Atopobium vaginae
Gemella asaccharolytica
other Gardnerella
Prevotella timonensis
Dialister micraerophilus
Prevotella amnii
Peptoniphilus lacrimalis
other BVAB3
Gardnerella vaginalis
Mycoplasma hominis
other Parvibacter
Porphyromonas uenonis
other Arcanobacterium
other Falsiporphyromonas
Porphyromonadaceae bacterium
Peptoniphilus harei
other BVAB1
Prevotella buccalis
other Atopobium
Prevotella disiens
other Peptoniphilus
other Finegoldia
Mobiluncus curtisii
other Gemella
other Coriobacteriaceae
Peptoniphilus coxii
other Mobiluncus
Peptococcus niger
Peptoniphilus duerdenii
Mobiluncus mulieris
other Aerococcus
Granulicatella elegans
Prevotella bivia
Anaerococcus prevotii/tetradius
Peptostreptococcus anaerobius
Finegoldia magna
Streptococcus intermedius/constellatus
Escherichia/Shigella coli/flexneri/boydii/sonnei
Streptococcus infantis/oralis/mitis
other Paracoccus
other Porphyromonadaceae
Veillonella montpellierensis
Anaerococcus hydrogenalis
other Veillonella
other Micrococcus
Corynebacterium pyruviciproducens
other Howardella
1
2
3
4
5

#Plotting the most significant bacteria across PREVIOUS ANNOTATION

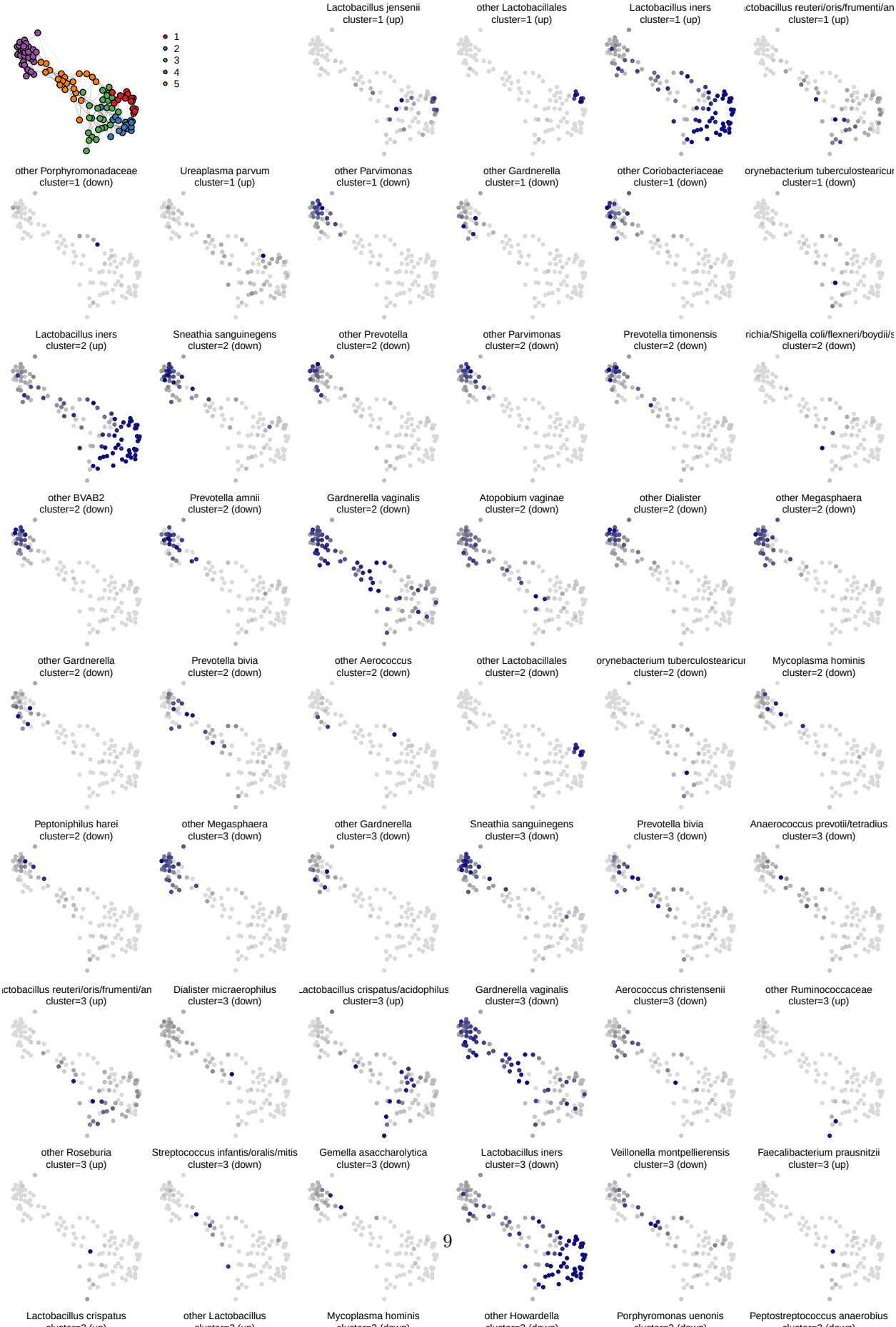


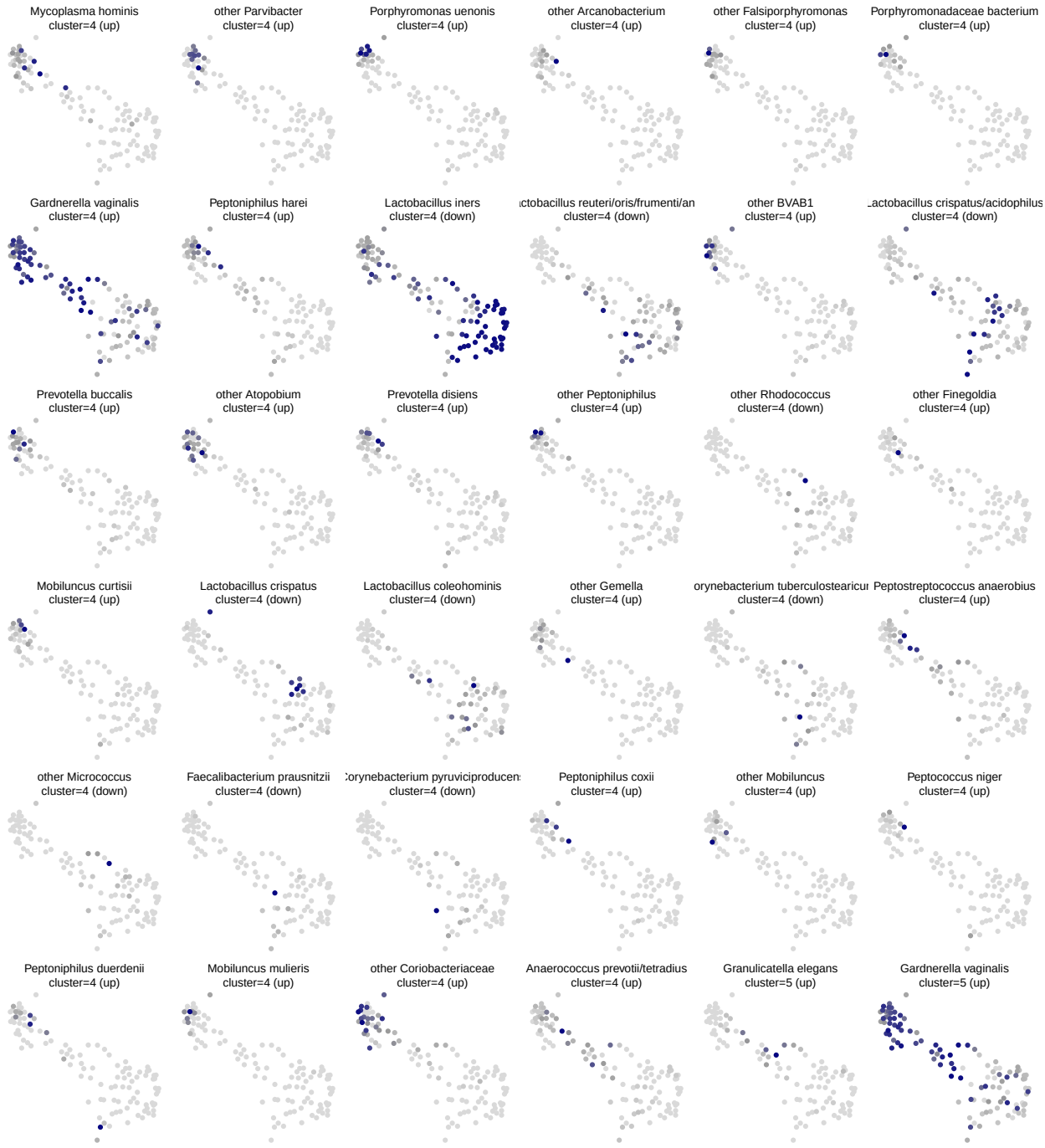


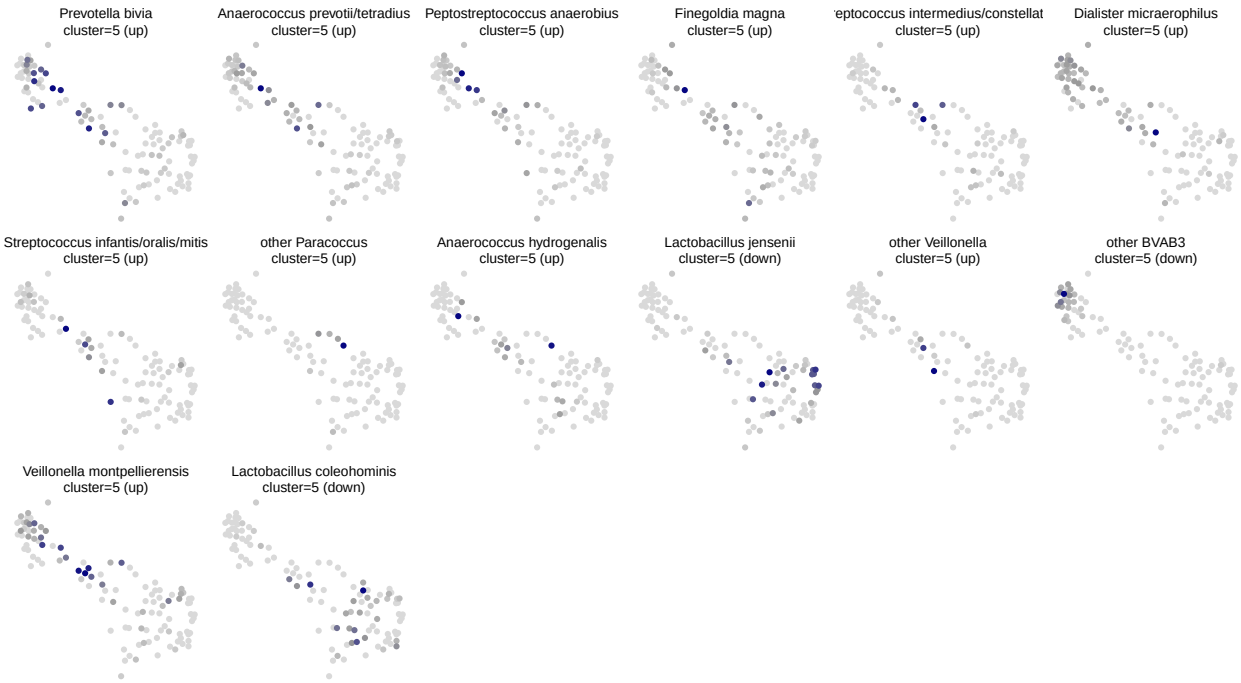




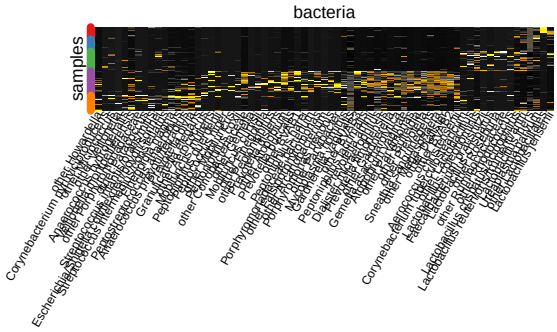
Plotting the most significant bacteria across clusters

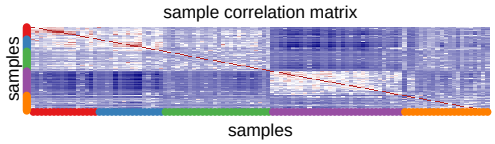



Mycoplasma hominis
cluster=4 (up)
other Parvibacter
cluster=4 (up)
Porphyromonas uenonis
cluster=4 (up)
other Arcanobacterium
cluster=4 (up)
other Falsiporphyromonas
cluster=4 (up)
Porphyromonadaceae bacterium
cluster=4 (up)
Gardnerella vaginalis
cluster=4 (up)
Peptoniphilus harei
cluster=4 (up)
Lactobacillus iners
cluster=4 (down)
ıctobacillus reuteri/oris/frumenti/an
cluster=4 (down)
other BVAB1
cluster=4 (up)
_actobacillus crispatus/acidophilus
cluster=4 (down)
Prevotella buccalis
cluster=4 (up)
other Atopobium
cluster=4 (up)
Prevotella disiens
cluster=4 (up)
other Peptoniphilus
cluster=4 (up)
other Rhodococcus
cluster=4 (down)
other Finegoldia
cluster=4 (up)
Mobiluncus curtisii
cluster=4 (up)
Lactobacillus crispatus
cluster=4 (down)
Lactobacillus coleohominis
cluster=4 (down)
other Gemella
cluster=4 (up)
orynebacterium tuberculostearicur
cluster=4 (down)
Peptostreptococcus anaerobius
cluster=4 (up)
other Micrococcus
cluster=4 (down)
Faecalibacterium prausnitzii
cluster=4 (down)
:orynebacterium pyruviciproducens
cluster=4 (down)
Peptoniphilus coxii
cluster=4 (up)
other Mobiluncus
cluster=4 (up)
Peptococcus niger
cluster=4 (up)
Peptoniphilus duerdenii
cluster=4 (up)
Mobiluncus mulieris
cluster=4 (up)
other Coriobacteriaceae
cluster=4 (up)
Anaerococcus prevotii/tetradius
cluster=4 (up)
Granulicatella elegans
cluster=5 (up)
Gardnerella vaginalis
cluster=5 (up)


Prevotella bivia
cluster=5 (up)
Anaerococcus prevotii/tetradius
cluster=5 (up)
Peptostreptococcus anaerobius
cluster=5 (up)
Finegoldia magna
cluster=5 (up)
eptococcus intermedius/constellat
cluster=5 (up)
Dialister micraerophilus
cluster=5 (up)
Streptococcus infantis/oralis/mitis
cluster=5 (up)
other Paracoccus
cluster=5 (up)
Anaerococcus hydrogenalis
cluster=5 (up)
Lactobacillus jensenii
cluster=5 (down)
other Veillonella
cluster=5 (up)
other BVAB3
cluster=5 (down)
Veillonella montpelliensis
cluster=5 (up)
Lactobacillus coleohominis
cluster=5 (down)

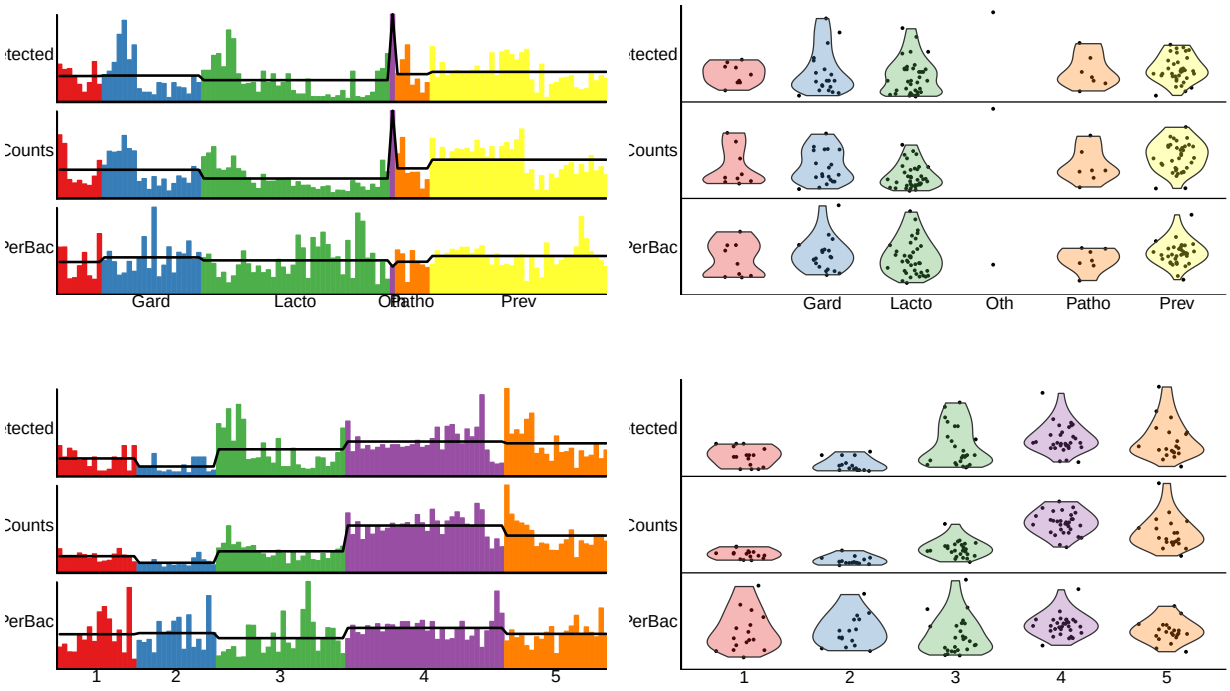
#Plotting bacteria across clusters






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

#Plotting bacteria across clusters




```
##    .2
## .1     Gard Lacto Oth Patho Prev
##    1  3    0    11   0     1    1
##    2  1    2     9   0     1    3
##    3  1    8    12   0     2    3
##    4  2    4     2   0     2   22
##    5  2    6     4   1     1    7
```

Saving clusters and differentially expressed bacteria