March 18

Aim 2 - around 10 m

* Effect of PD overshadows the effect of nutrients which is why we don’t see any significant nutrients with the alpha diversity metrics. In healthy patients, nutrients such as beta-carotene and non alcoholic beverages are significant with alpha diversity metrics
* Present the 4 significant plots

Aim 3 -

* Code to make abundance plot for specific bacteria (agathobacter)
* Core microbiome for fructose is significant and is composed of two species bacteroidota
  + Fructose has an unique effect on changing the core microbiome in PD individuals compared to healthy participants

Aim 5

* Coffee impacts both PD and control similarly
  + Prevotella is downregulated in people who drink coffee in PD
  + Bacteroides downregulated in control who drink coffee
* Non-starch polysaccharides
  + More bacteria downregulated in control
* Fructose
  + More upregulated bacteria in PD compared to control
    - ALso see prevotella, clostridia, alistepes, anaeroplasma upregulation
      * Prevotella showed both up/down regulation
    - Downregulation of bacteroides, akkermansia, ruminococcus
  + PD has inverse relationship with fructose and prevotella
    - Prevotella might be key bacteria that is associated with PD and fructose intake
  + Ruminococcus and akkermansia are associated with fructose in PD but not associated with fructose in control
* Do DEseq2 for beta carotene

Aim 4

* Genus hungatella found in PD but not in control
* Genus megasphaera found only in PD low fructose
* Genus solobacterium found only in PD high fructose
* Genus catenibacterium found only in PD low coffee
* Genus fusobacterium found only in control  low coffee
* Genus butylvibrio not found in only PD high coffee

2024-Mar-25

**Figures**:

* Aim 1
  + Beta diversity p value bar graphs
* Aim 2
  + Alpha diversity 4 plots
* Aim 3
  + 6 venn diagrams
* Aim 4
  + Table 1: Indicator Taxa
* Aim 5
  + Table 2: DESeq Up and Down
* Aim 6
  + Picrust
  + Maybe show only top hit ones if there is a lot

**Supplemental**

* 12 DESeqs bars
* Supplemental Table 1: DESeq Top Genera/Species