

Evaluation of the microbiome and inflammatory status in type 2 diabetes patients after COVID-19

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The power of the microbiome

Immunity

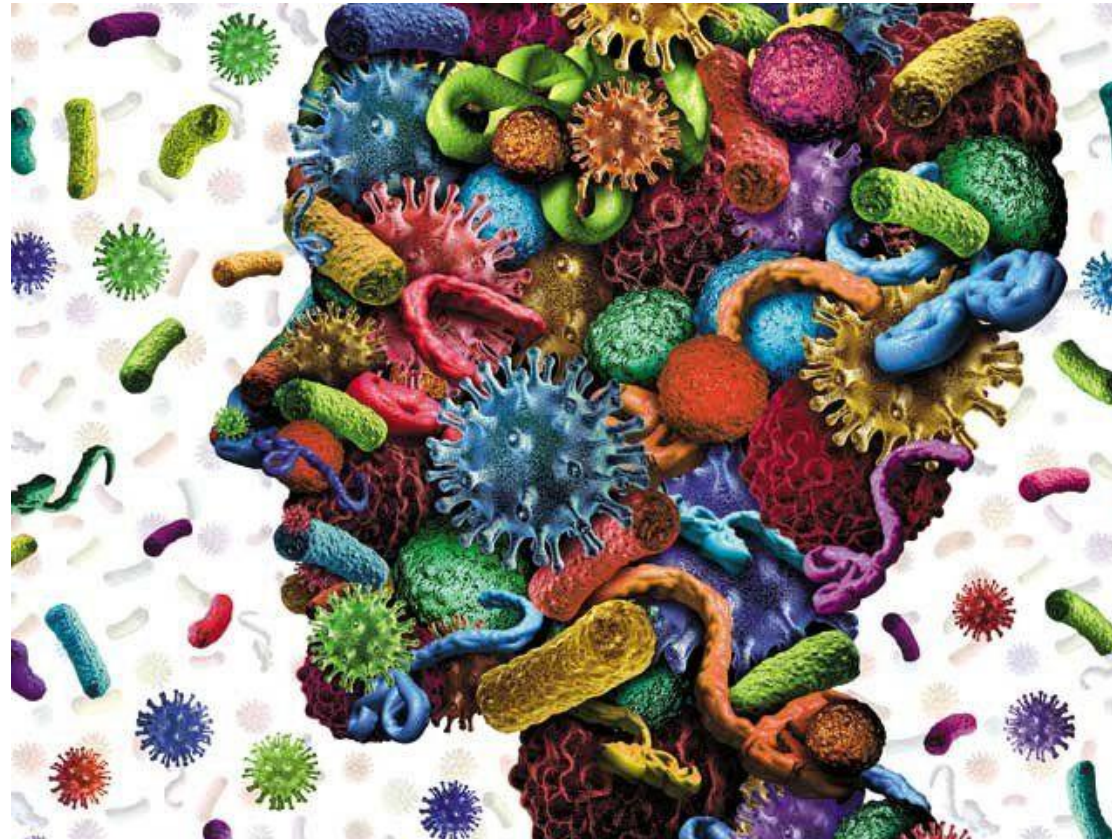
Metabolism

Digestion

Behaviour

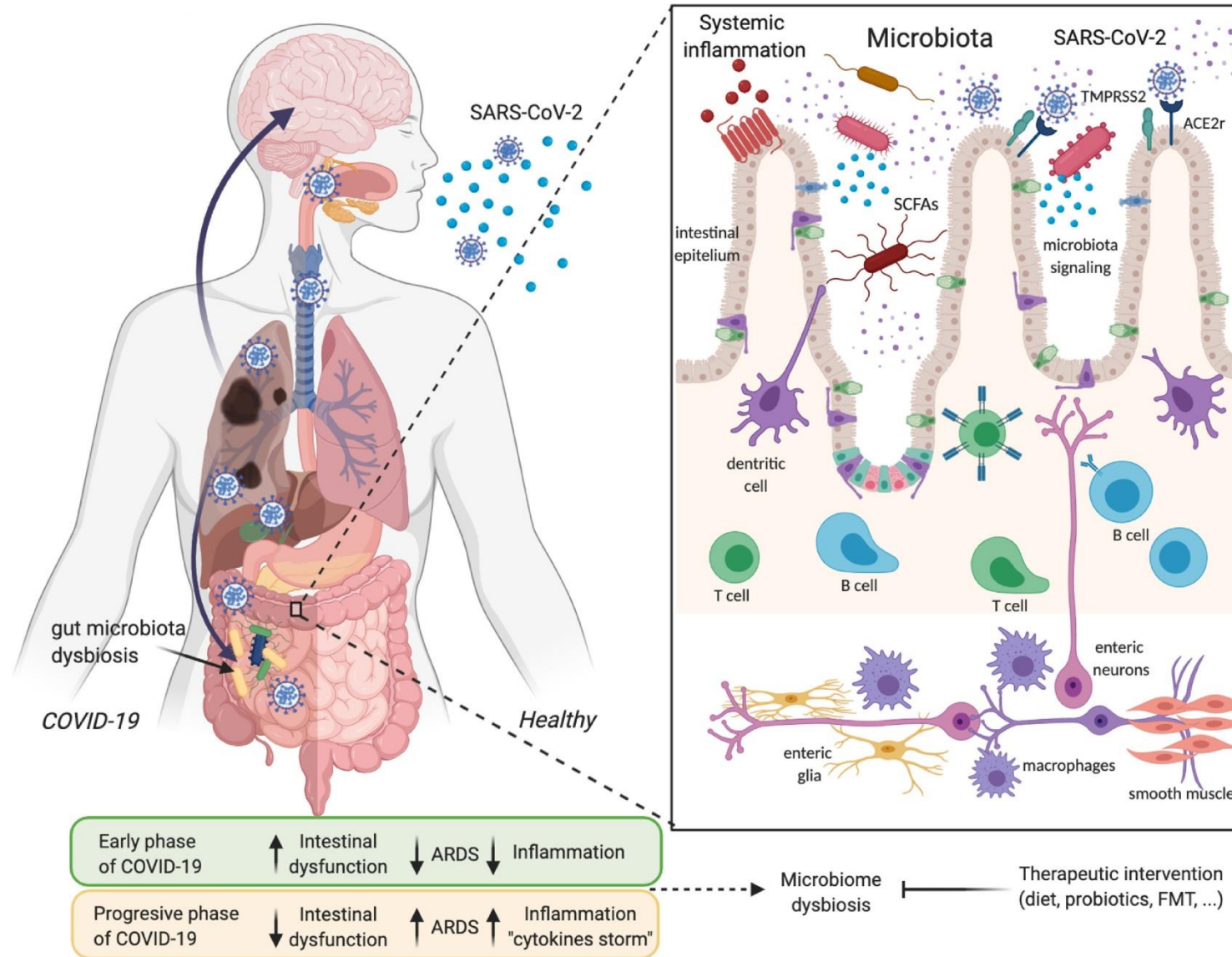
Infection

Health

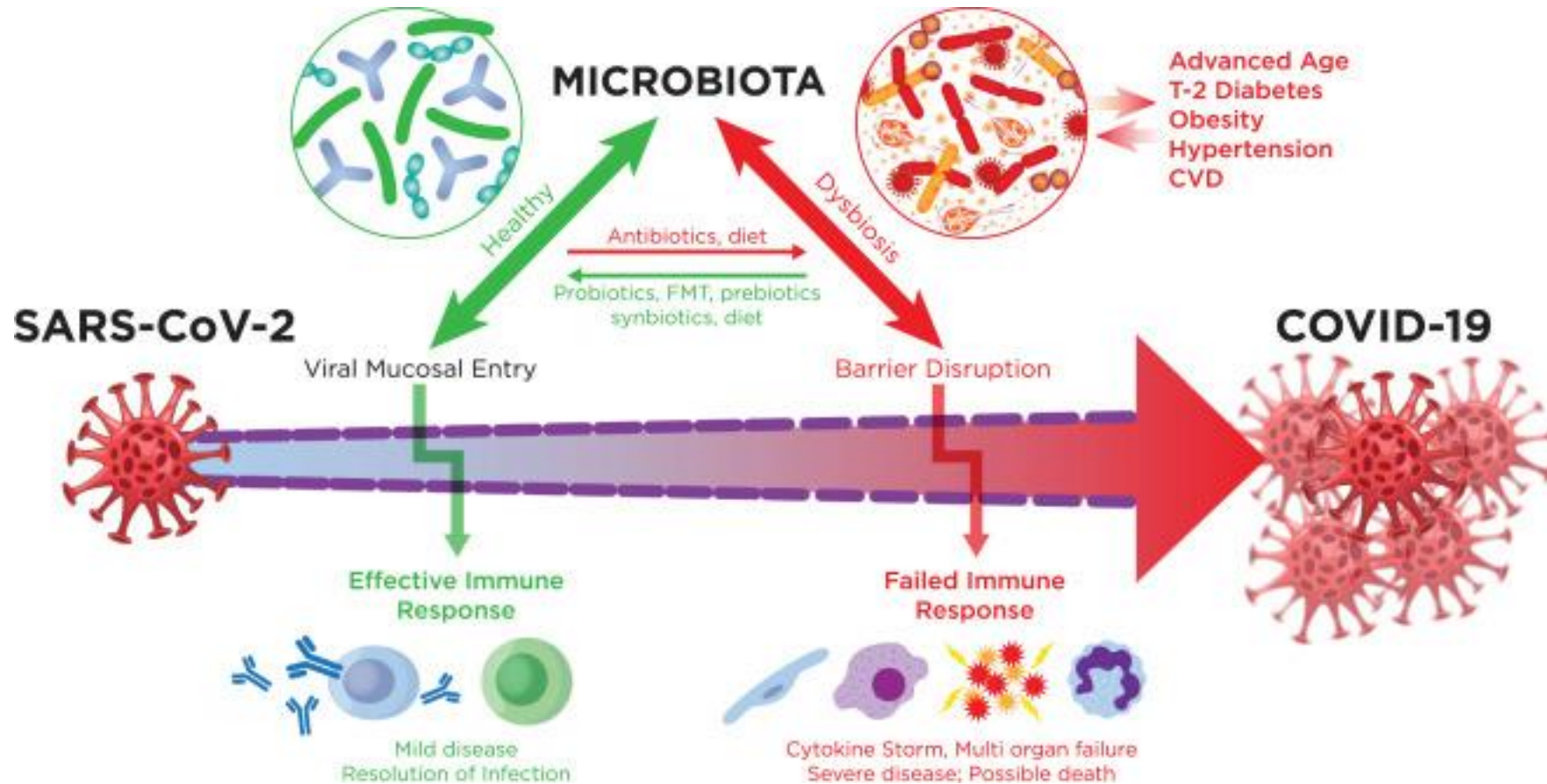


A role in COVID-19 severity?

The lung-gut axis in COVID-19

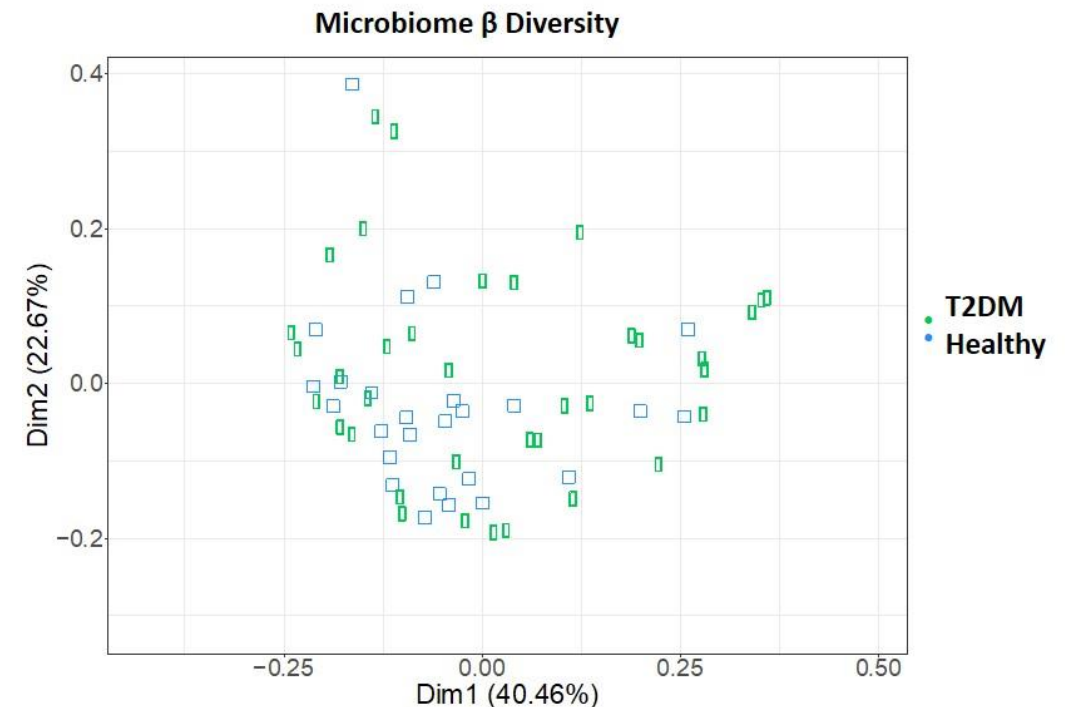


Microbiome importance in COVID-19



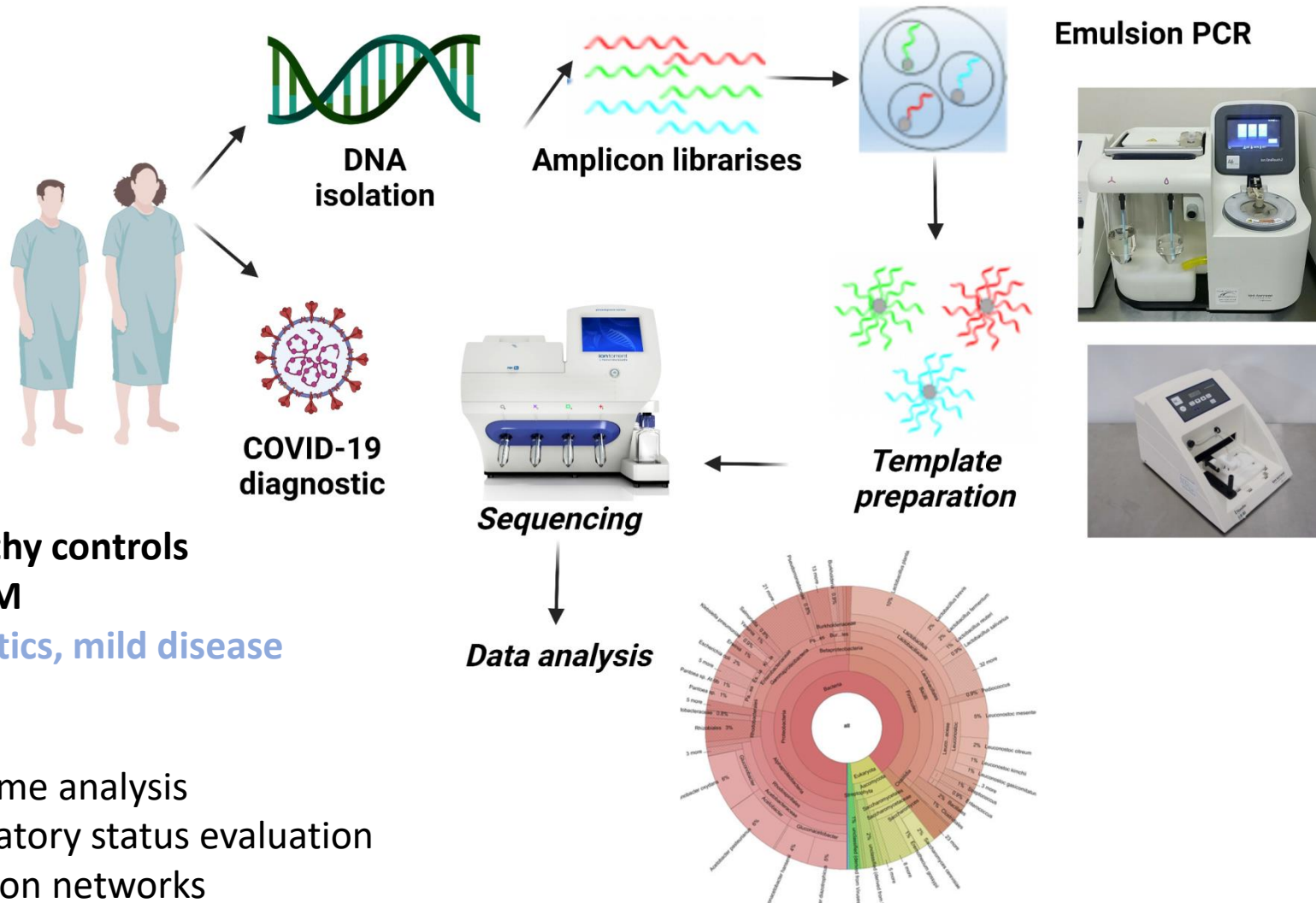
Rationale of the study

- Not only are SARS-CoV2 infection outcomes more severe in people with diabetes, but also it was suggested that COVID-19 could exacerbate the acute metabolic complications of diabetes, including hyperglycaemia and ketoacidosis.
- The need to understand how gut microbes are involved in inflammation and COVID-19, particularly in susceptible hosts

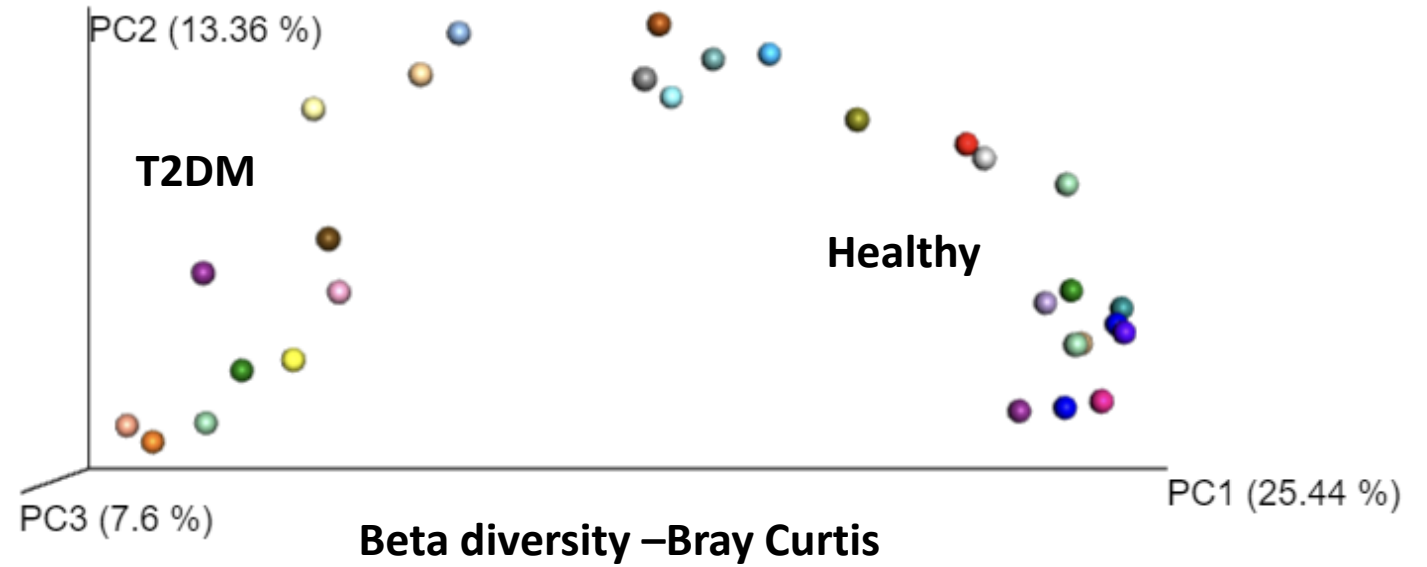
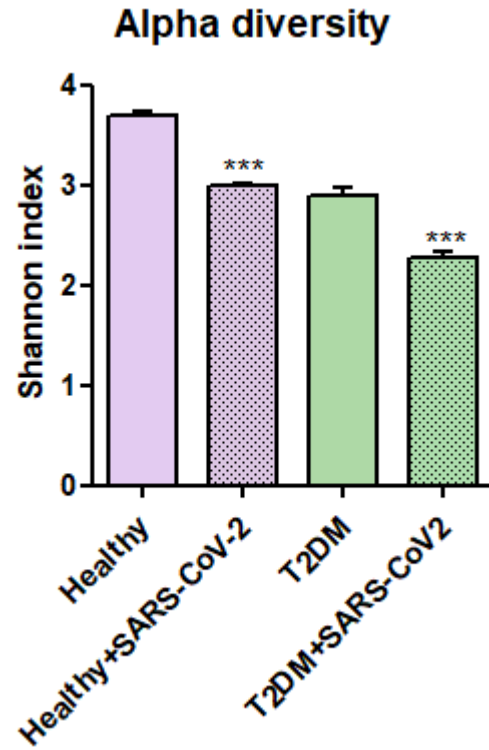
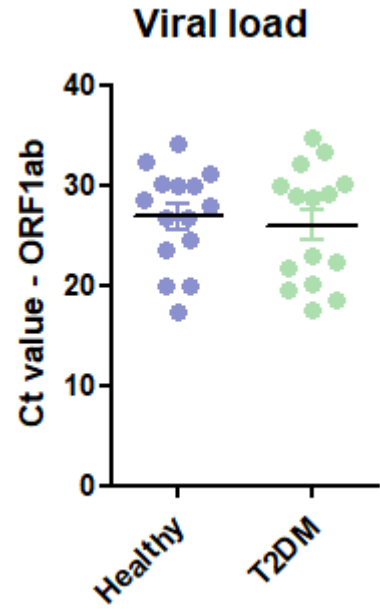


Pre-pandemic data –Microbiome in T2DM

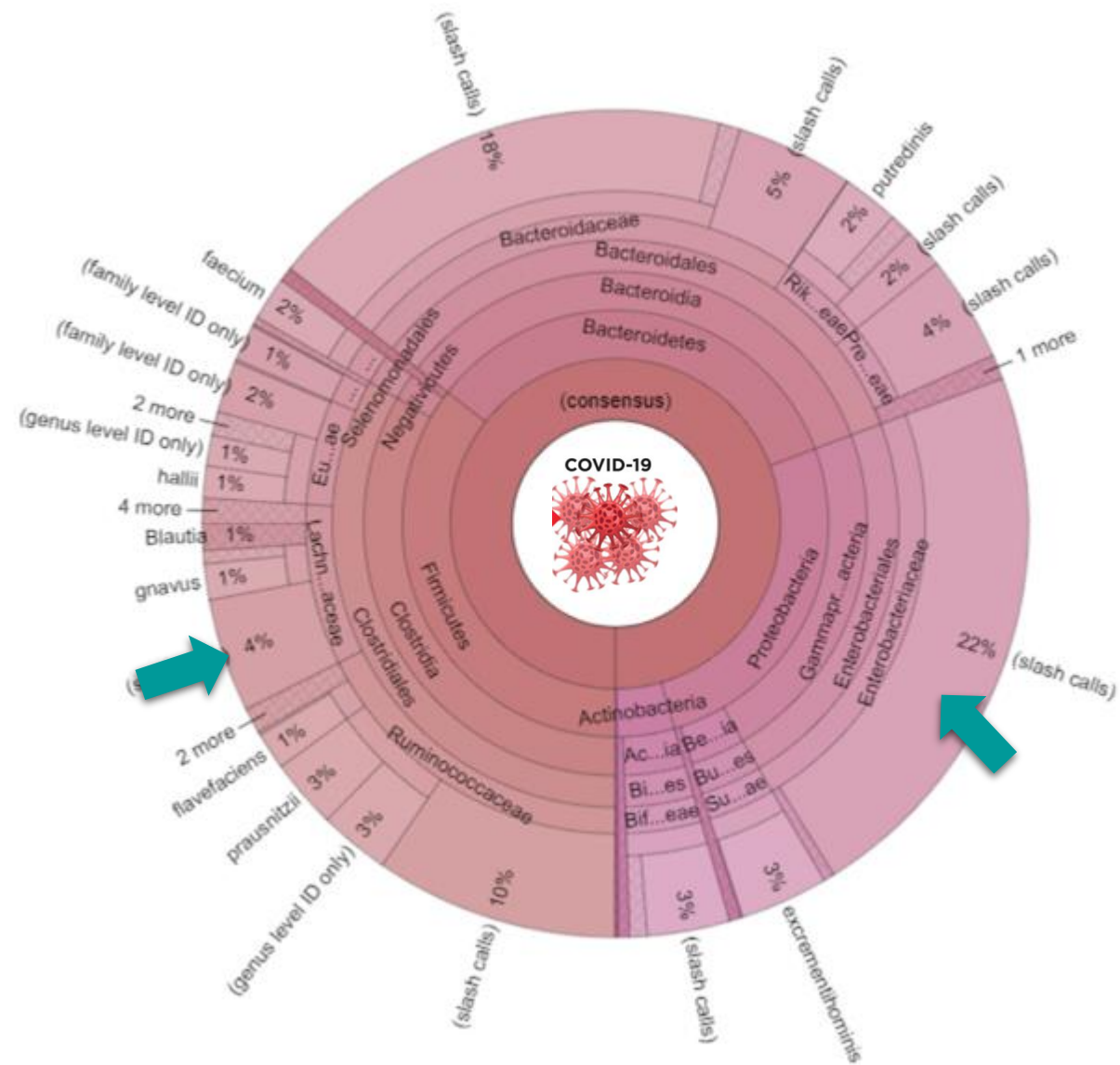
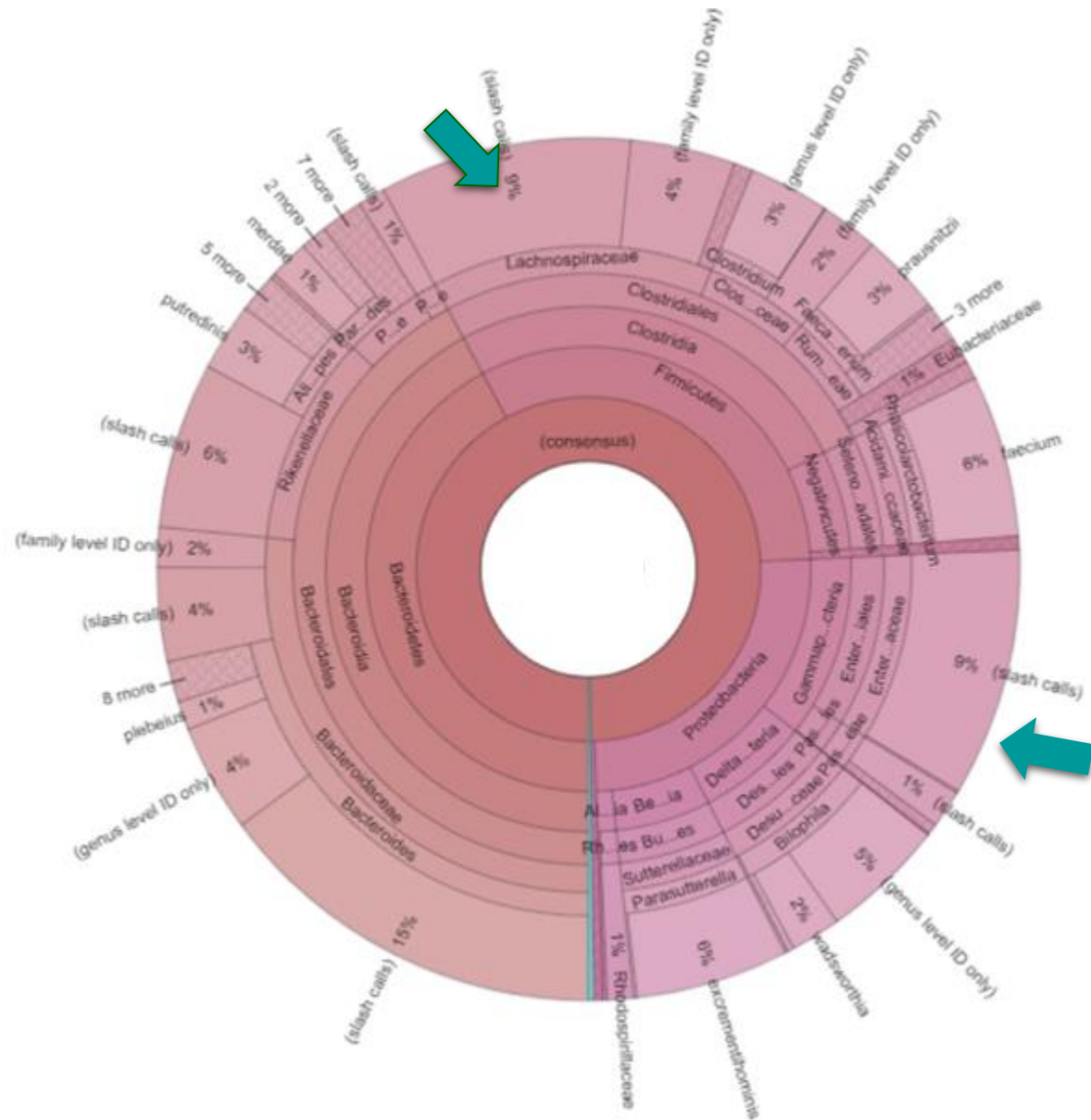
Workflow-Microbiome analysis after Covid-19



SARS-CoV-2 infection triggers microbiome changes

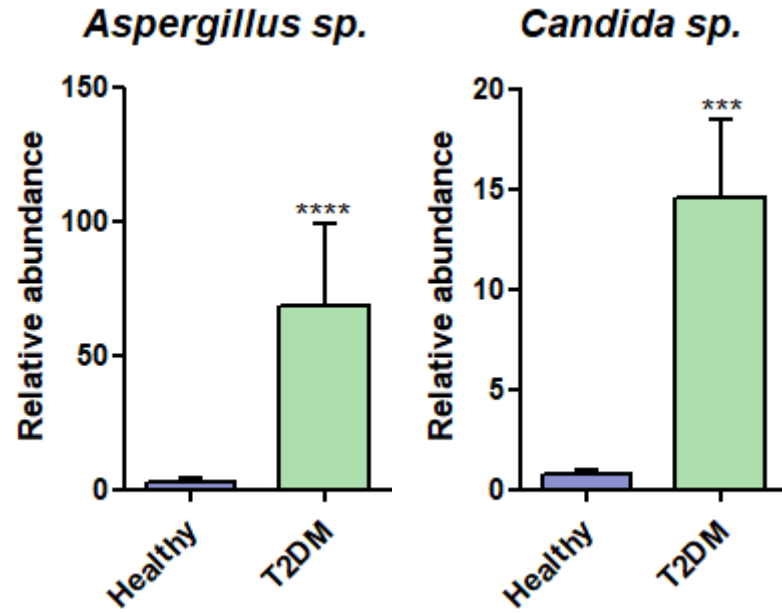


COVID-19 leads to increased abundance of Enterobacteriaceae in T2DM patients

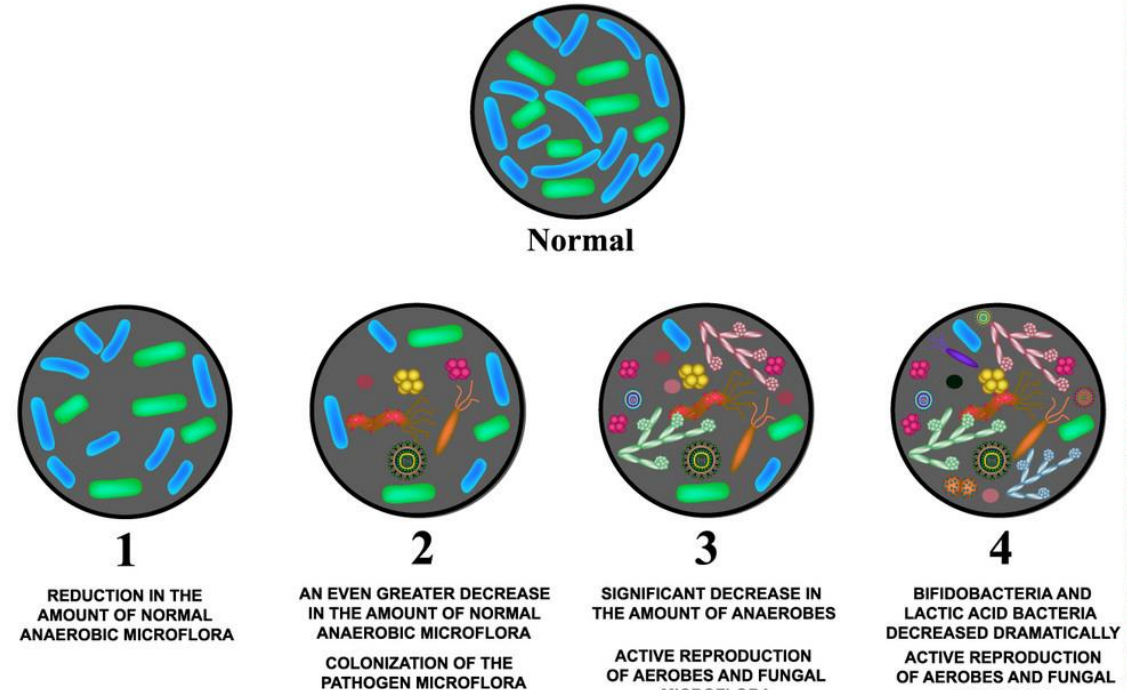
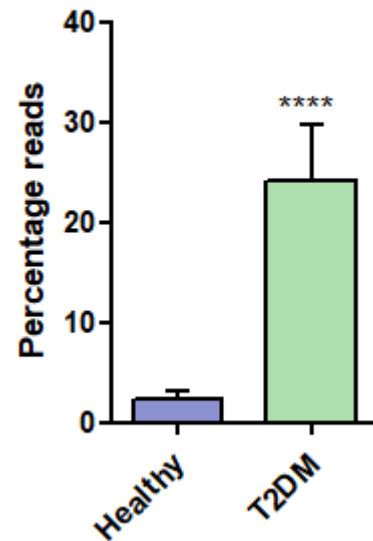


COVID-19 leads to dysbiosis in T2DM patients

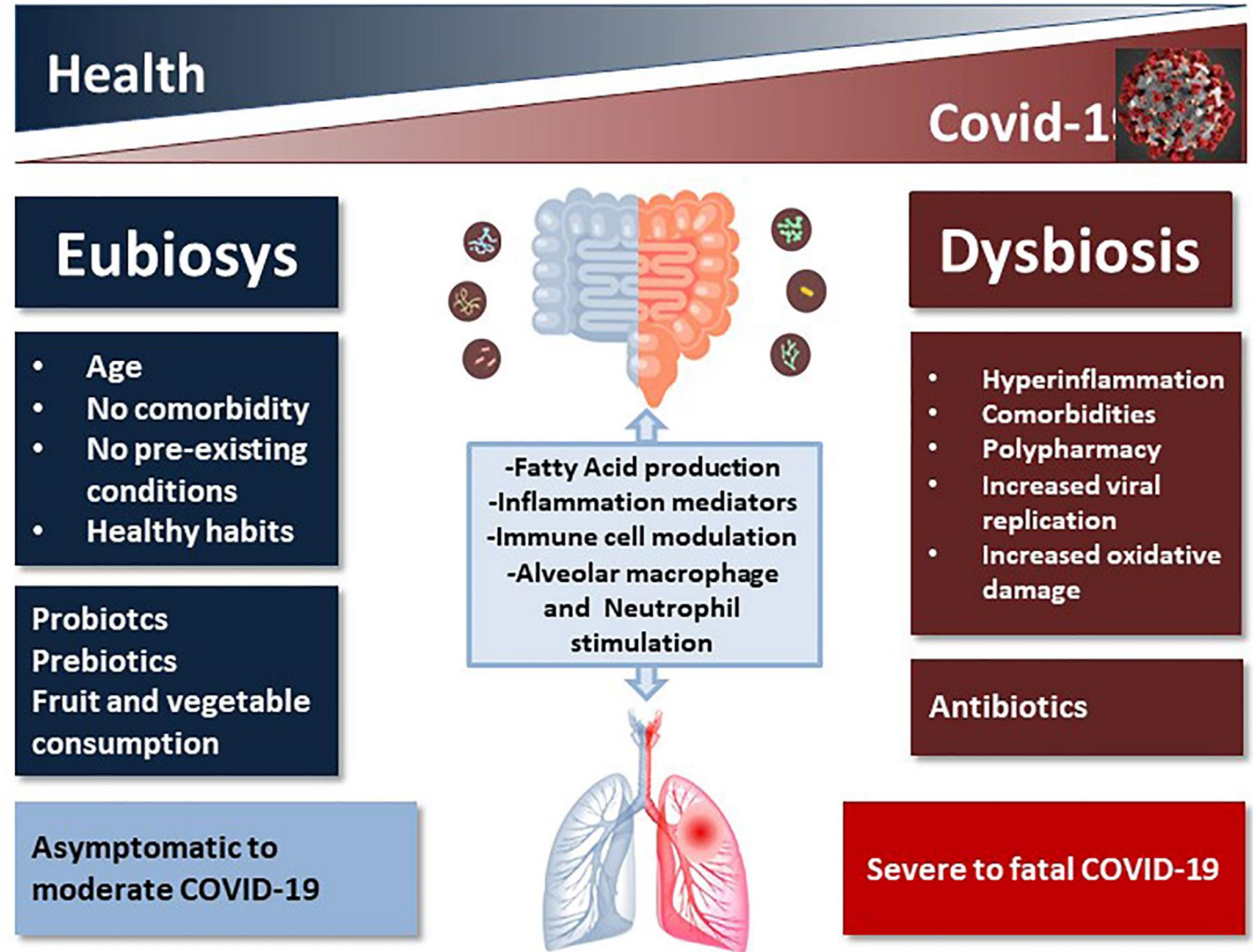
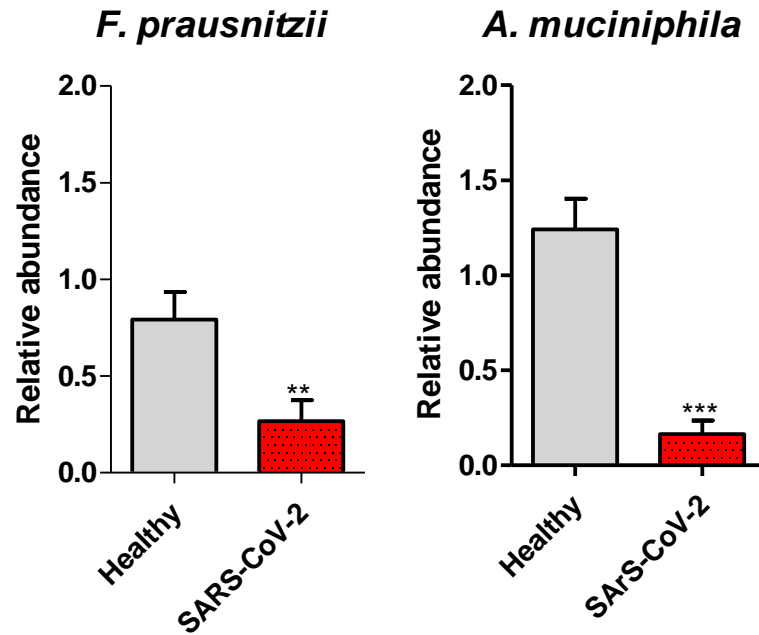
DEGREES OF DEVELOPMENT OF DYSBIOSIS



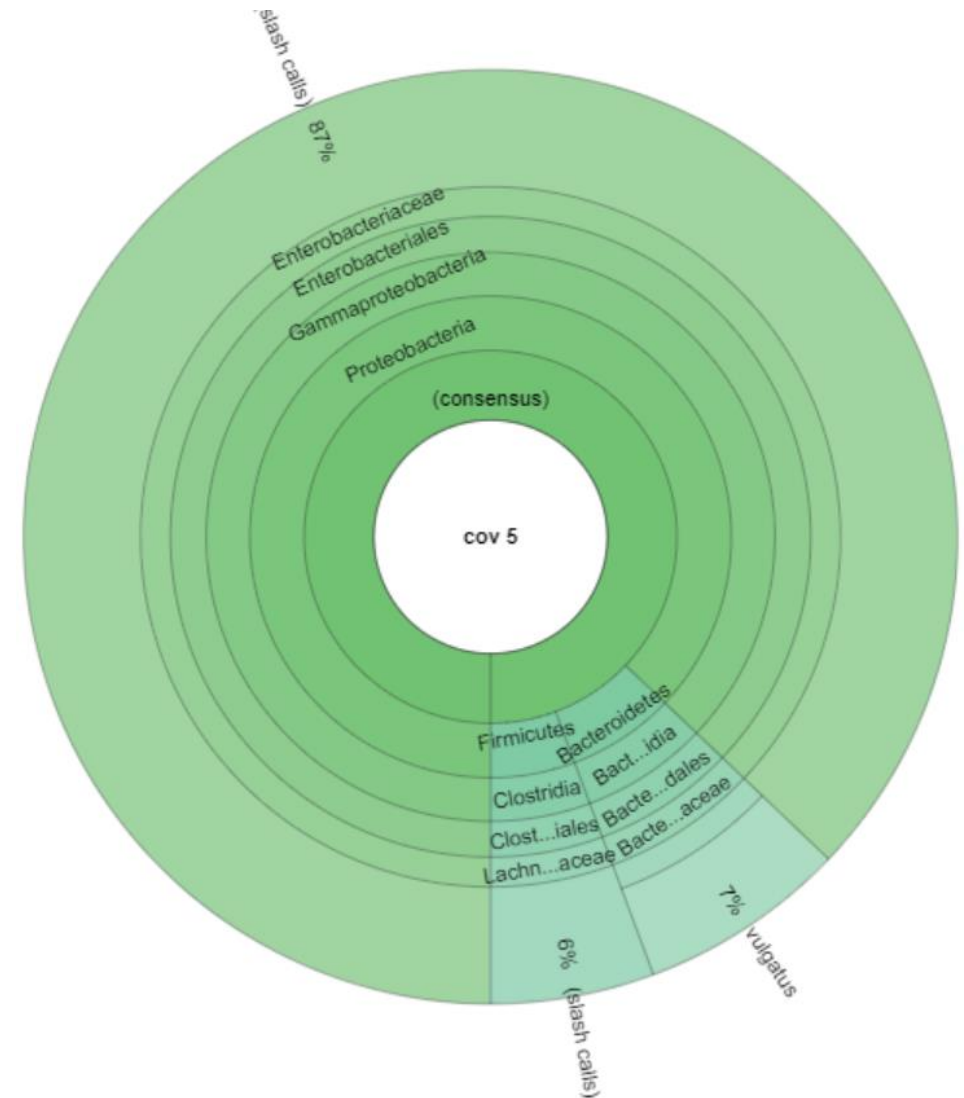
Enterobacteriaceae



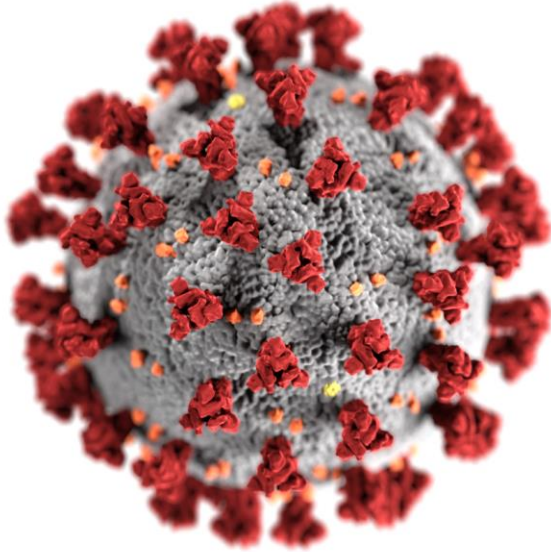
Severe or mild/moderate COVID-19 microbiome patterns



Severe COVID-19 microbiome patterns



Conclusions



Following infection, COVID-19 T2DM patients harbour

- significantly reduced richness and diversity of gut microbiota
- a significantly higher abundance of opportunistic pathogens (Enterobacteriaceae, Candida sp.)

Mild disease- low butyrate producing and beneficial taxa

Severe disease- blooming of Enterobacteriaceae, loss of diversity

Targeting the microbiota –improved patient outcome

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