

# Gut microbiome composition is associated with blood glucose control and dietary intake in people with Type 1 Diabetes

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Marie Curie programme

## 1. Introduction

- Previous studies have shown an association between gut microbiome composition and type 1 diabetes (T1D) pathogenesis.
- Little is known about the composition of the gut microbiome and its association with host blood glucose control and diet in T1D.

## 2. Aim

To explore in T1D patients the relationship between gut microbiome composition and (a) blood glucose control and (b) habitual diet.

## 3. Material and methods

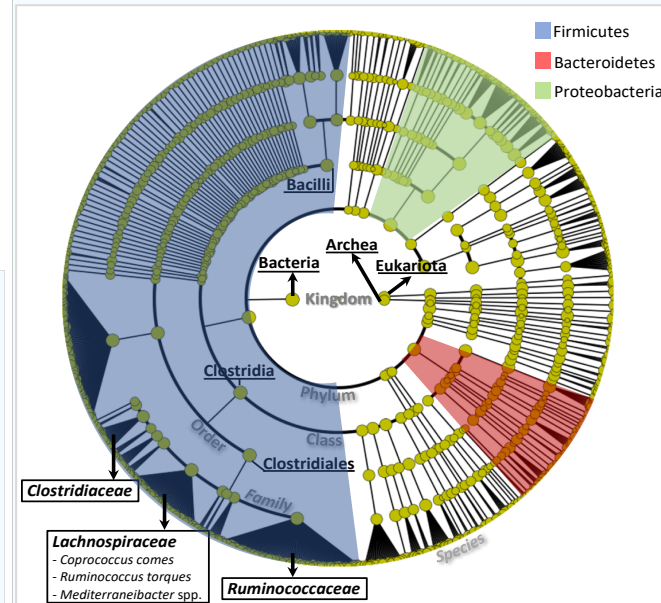
- Gut microbiome shotgun metagenomic analysis.
- European Prospective Investigation into Cancer and Nutrition (EPIC) questionnaire.
- Time in Range (TIR) by continuous glucose monitoring system (CGM).

## 4. Results

### Characteristics of the T1D participants (n=100)

Parameter	Value $\pm$ SD
Sex (male/female)	51 / 49
Age (years)	38.5 $\pm$ 14.6
Diabetes duration (years)	21.2 $\pm$ 11.3
Body mass index (kg/m <sup>2</sup> )	21.1 $\pm$ 10.9
HbA1c (%)	7.5 $\pm$ 1.02
TIR (%)	62.9 $\pm$ 15.9

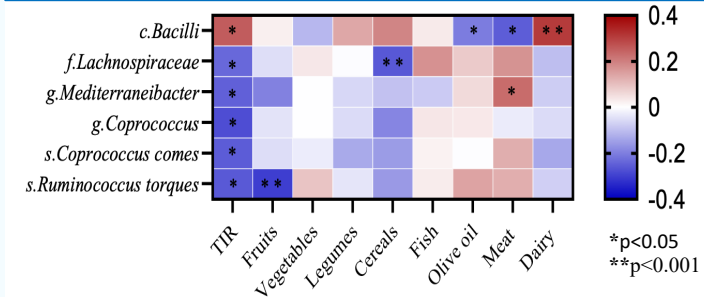
### Graphical presentation (LEfSe cladogram) of the gut microbiome profile



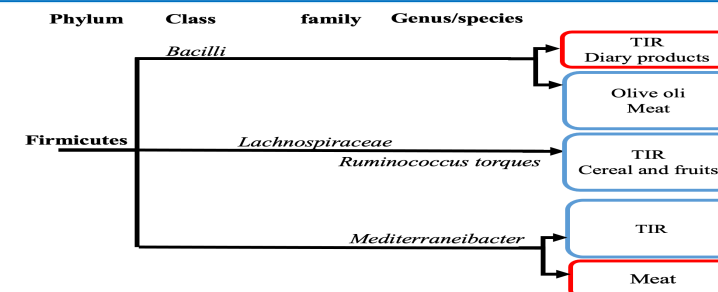
### Food groups (g/1000 kcal) by EPIC questionnaire

Food groups	Average daily intake $\pm$ SD
Fruits	112.9 $\pm$ 65.3
Vegetables	105.9 $\pm$ 42.9
Legumes	17.9 $\pm$ 10.3
Cereals	79.5 $\pm$ 29.3
Fish	27.6 $\pm$ 16.4
Olive oil	12 $\pm$ 5.1
Meat	59.8 $\pm$ 24.7
Dairy products	106 $\pm$ 100

### Heat map of spearman's coefficient between the gut microbiome, TIR and diet



### Associations (red = positive, blue = negative) between gut microbiota taxa and dietary factors and TIR



## 5. Conclusions

- Gut microbiome was related to blood glucose control in T1D.
- Dietary factors may have a role in this association.

