Increasing abundance of *Faecalibacterium prausnitzii* is associated with decreased intestinal inflammation in Crohn’s disease

O. Björkqvist1, D. Repsilber1, M. Seifert2, L. Engstrand2, I. Rangel1, J. Halfvarson1
1Örebro Universitet, Örebro, Sweden, 2Karolinska Institutet, Microbiology, Tumor and Cell Biology, Stockholm, Sweden

**BACKGROUND**

- Decreased abundance of *Faecalibacterium prausnitzii* has been reported in patients with Crohn’s disease (CD).
- *F. prausnitzii* is a major producer of butyrate, a short-chain fatty acid known to inhibit intestinal inflammation.
- It is currently unknown if the abundance of *F. prausnitzii* correlates with the degree of intestinal inflammation in Crohn’s disease.
- The aim of this study was to examine the relationship between *F. prausnitzii* and intestinal inflammation in Crohn’s disease.

**METHODS**

- This is a longitudinal study, where faecal samples (n=59) were collected subsequently every third months from CD patients (n=9).
- The relative abundance of *F. prausnitzii* was measured by quantification of 16SrRNA, using qPCR.
- qPCR was used to measure the number of gene copies of the Butyryl-CoA: acetate-CoA transferase gene in order to access the microbiota’s capacity to produce butyrate.
- Faecal-Calprotectin was used as proxy for inflammatory activity and was measured using the ELISA EK-CAL, Bühlmann Laboratories.

**RESULTS**

- Alterations in the abundance of *F. prausnitzii* correlated with alterations in faecal-Calprotectin (P=0.01*) and explained 14% of the variation in faecal-Calprotectin in this model (Figure 1).
- There was no association between the microbiota’s total capacity to produce butyrate and faecal-calprotectin (data not shown; \(R^2=0.05\) P=0.09)

**CONCLUSION**

- Temporal changes in the abundance of *Faecalibacterium prausnitzii* are inversely correlated to changes in faecal-Calprotectin.
- This indicates that *F. prausnitzii* may have an impact on the inflammatory activity in Crohn’s disease.

Fig. 1 Alterations in abundance of *F. prausnitzii* between consecutive measurements vs. alterations in faecal-Calprotectin.

**Corresponding author:** Olle Björkqvist, E-mail: ollbjv131@studentmail.oru.se