

Supplementary Material

Specific signatures of the gut microbiota and increased levels of butyrate in children treated with fermented cow's milk containing heat-killed *Lactobacillus paracasei* CBA L74

Roberto Berni Canani, Francesca De Filippis, Rita Nocerino, Manolo Laiola, Lorella Paparo, Antonio Calignano, Carmen De Caro, Lorena Coretti, Lorenzo Chiariotti, Jack A. Gilbert, and Danilo Ercolini

Figure S1A

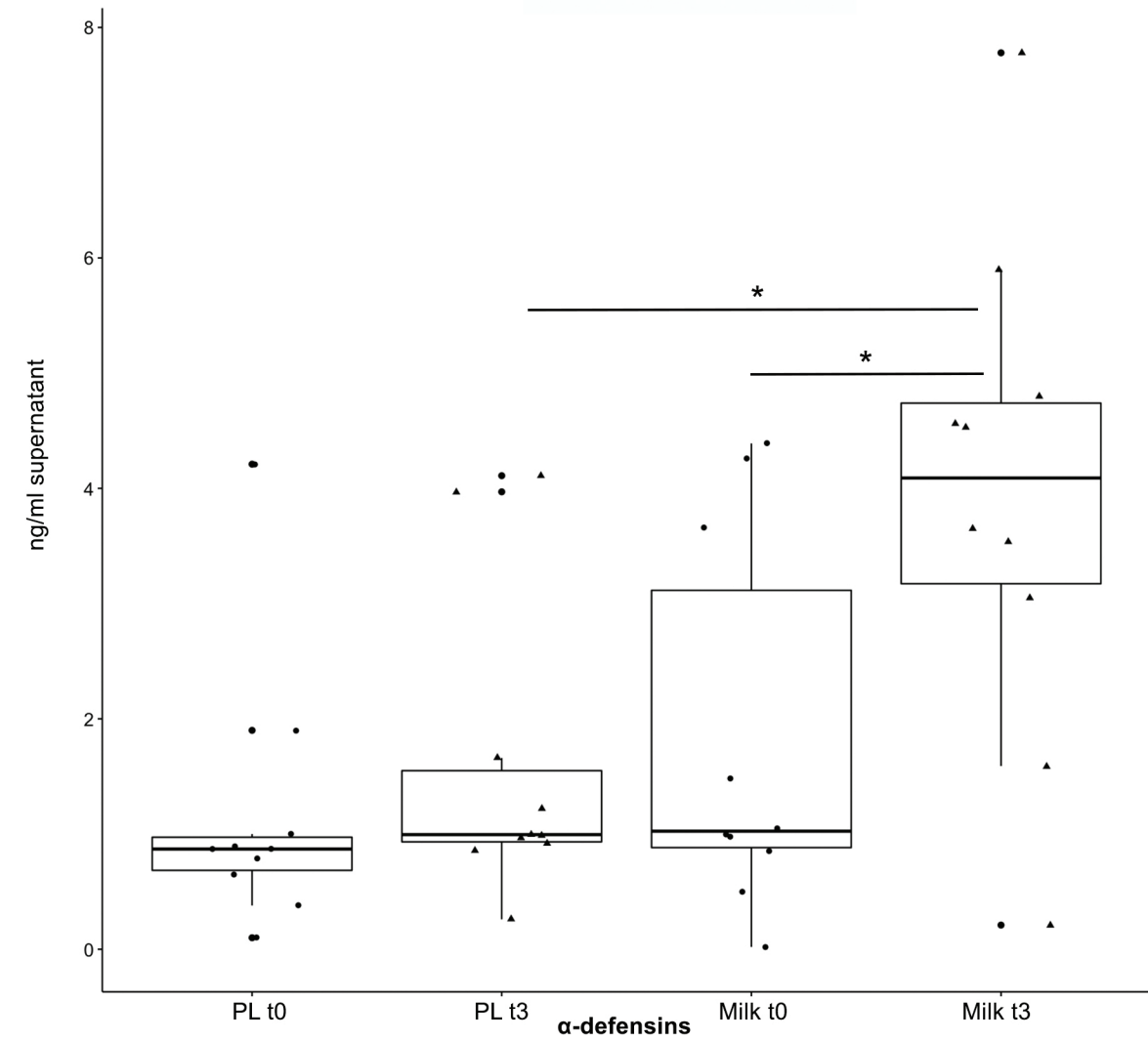


Figure S1B

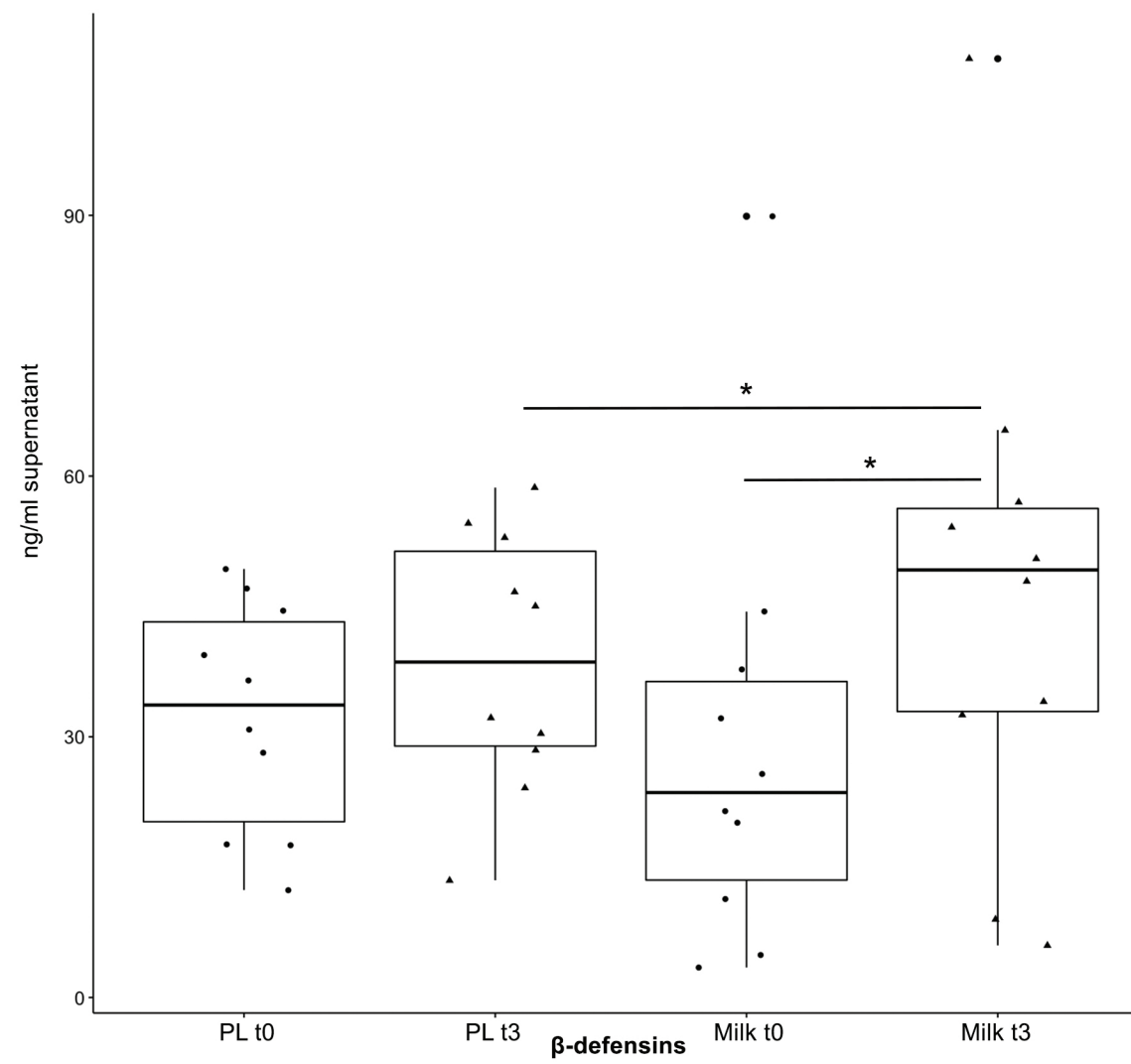


Figure S1C

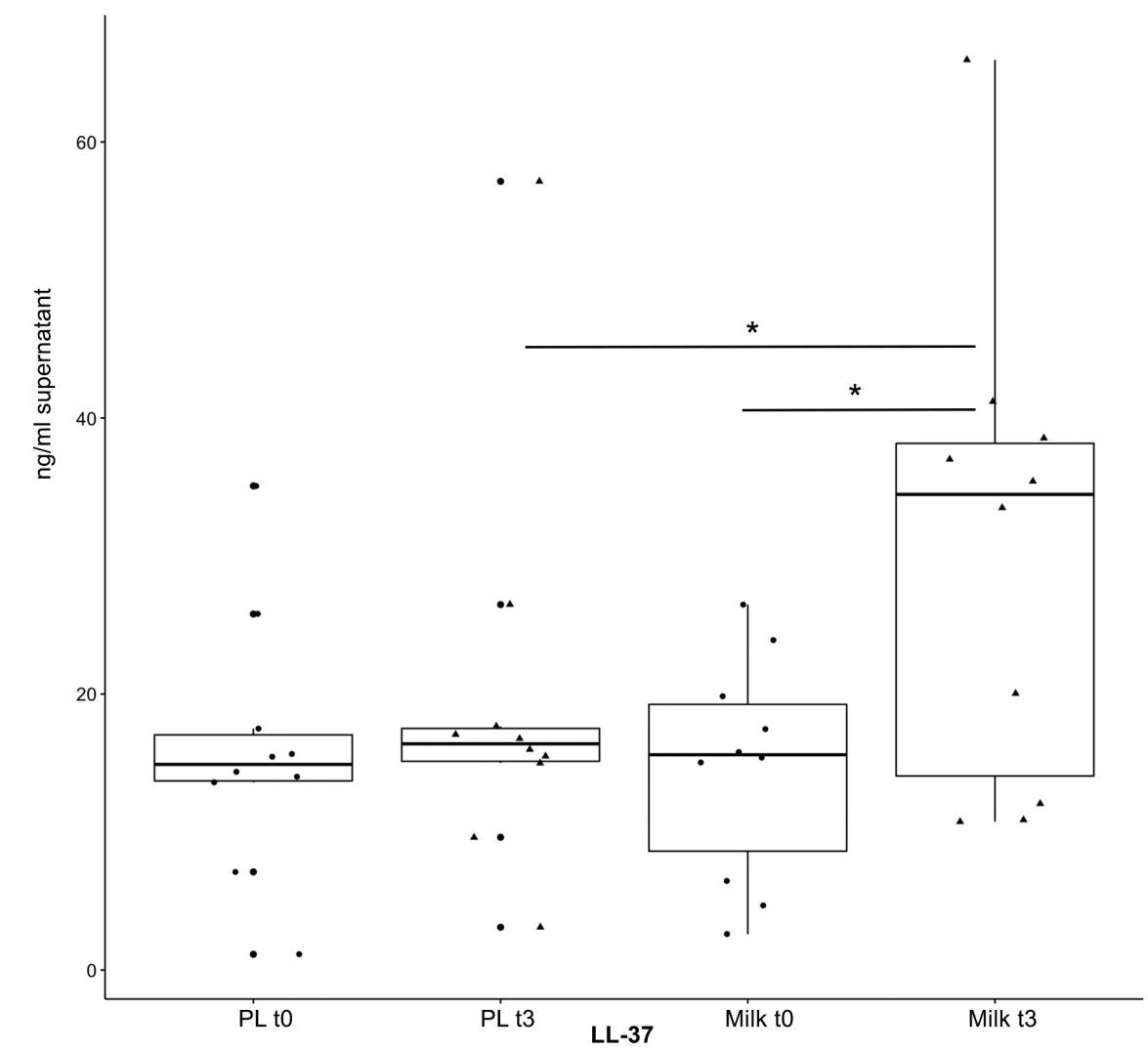


Figure S1D

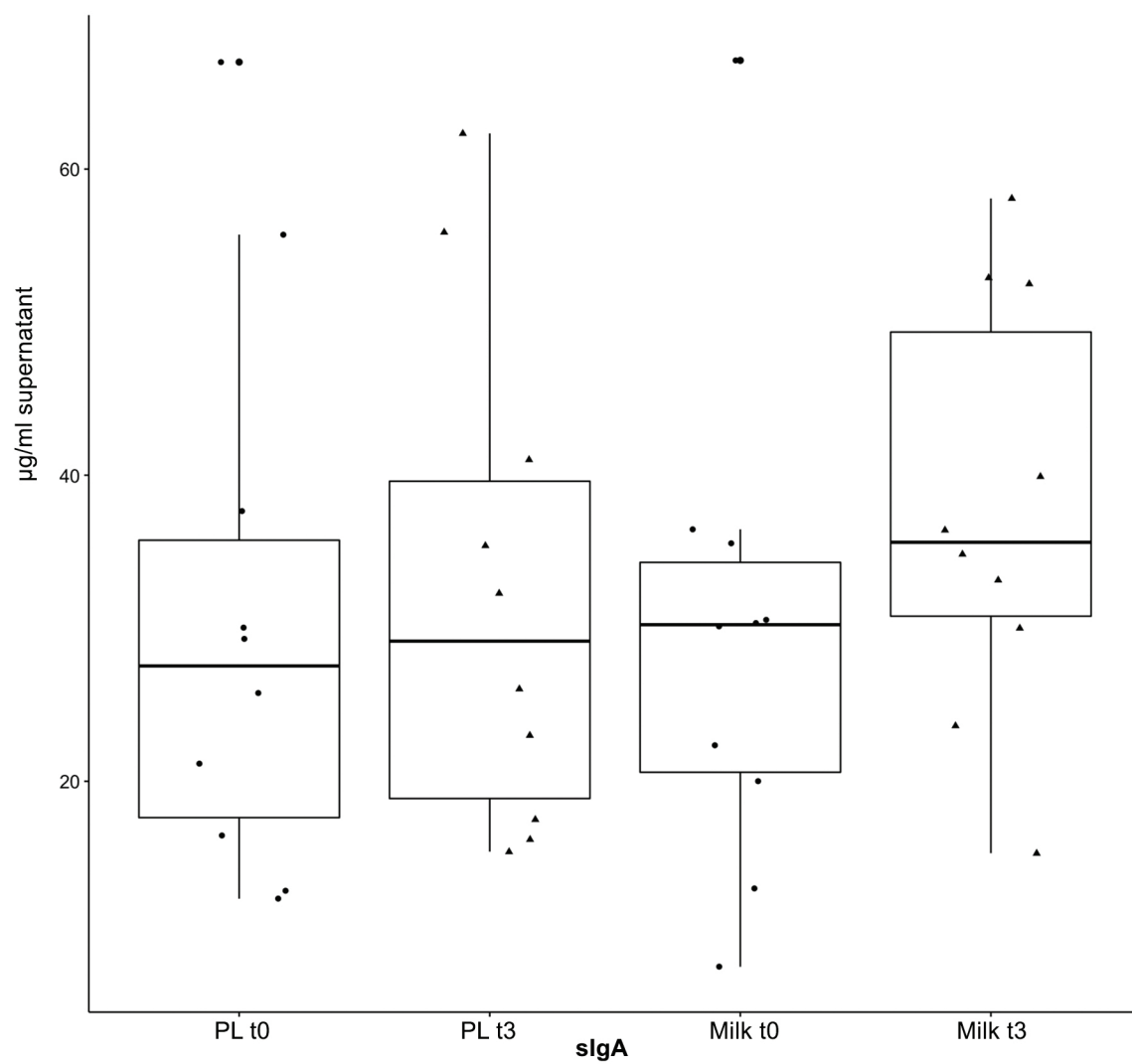


Figure S2

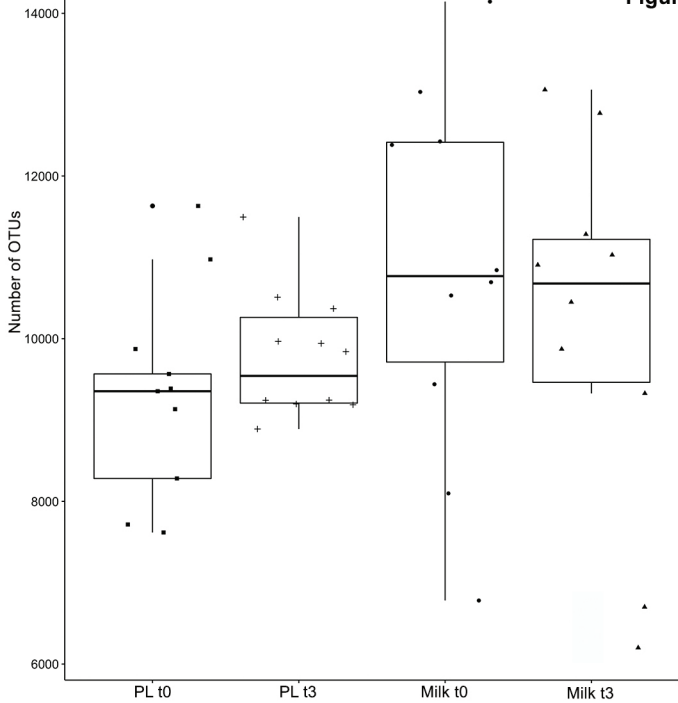
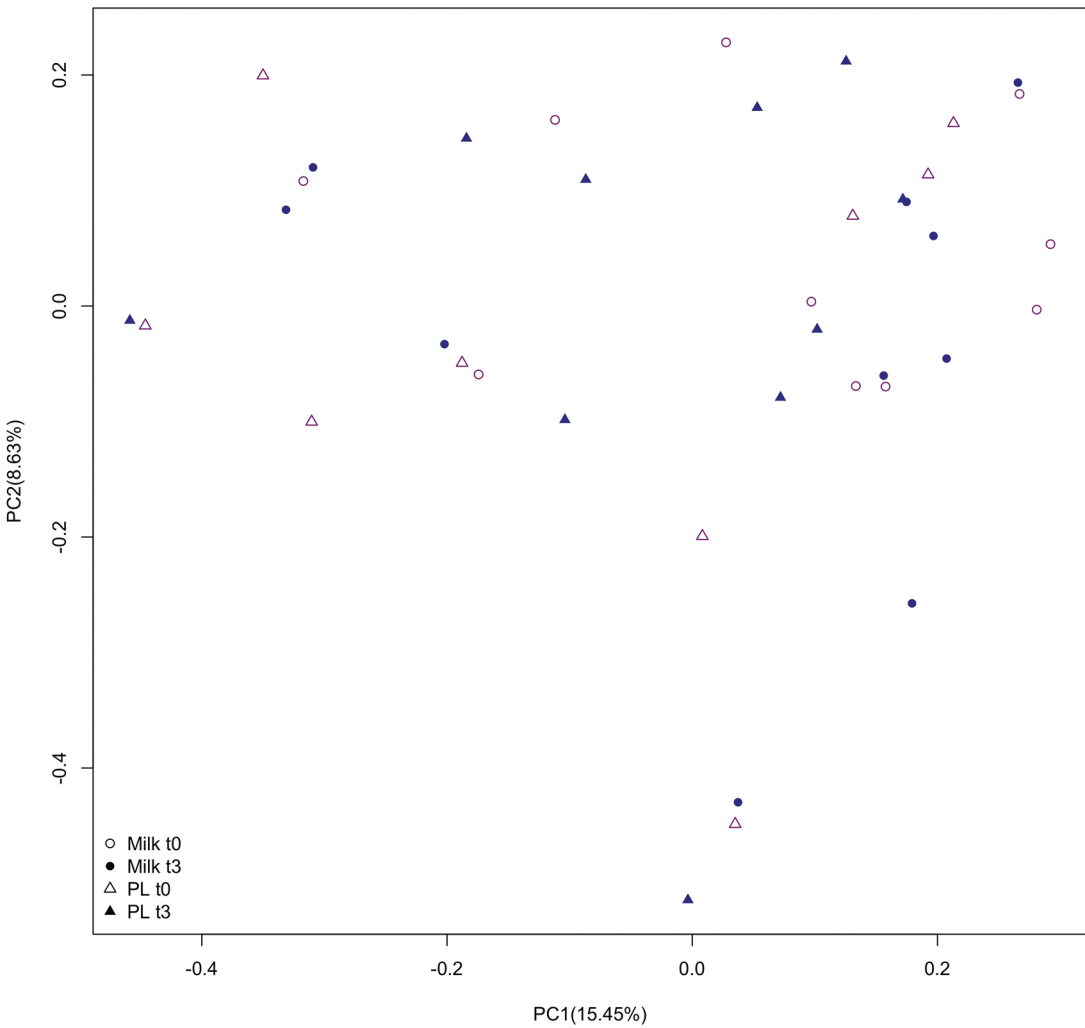
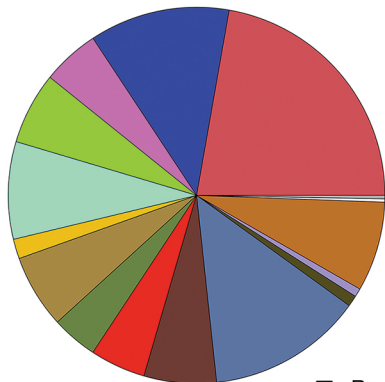


Figure S3

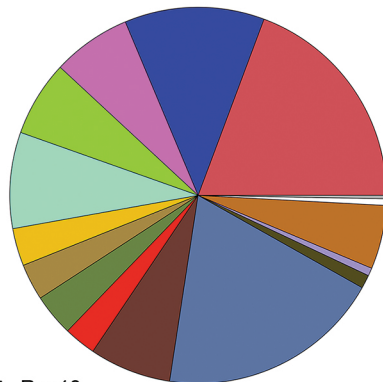


Roseburia oligotypes

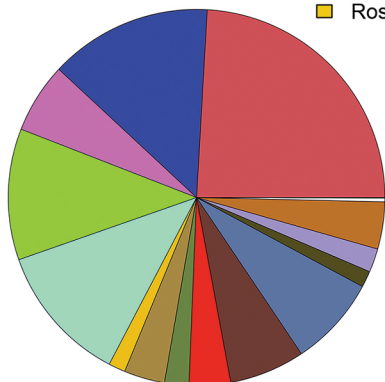
PL t0



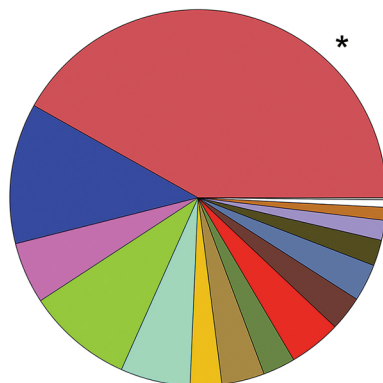
PL t3



MILK t0



MILK t3

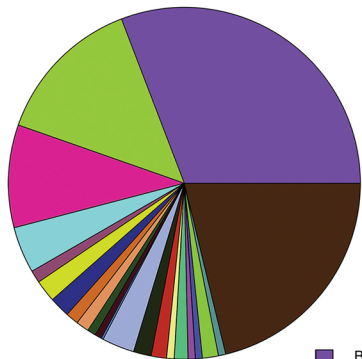


*

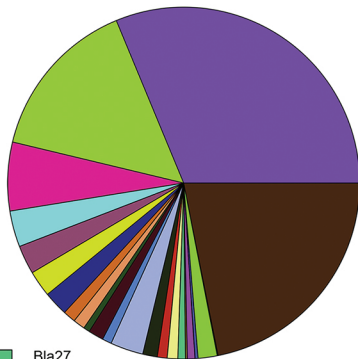
Figure S4A

Blautia oligotypes

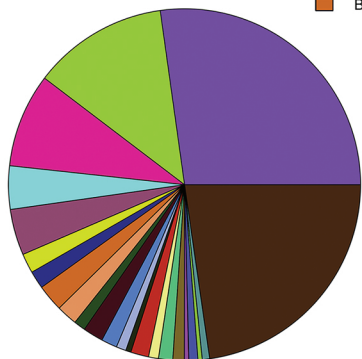
PL t0



PL t3



MILK t0



MILK t3

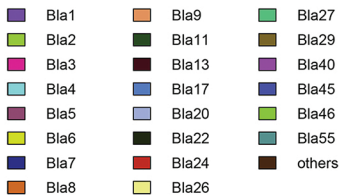
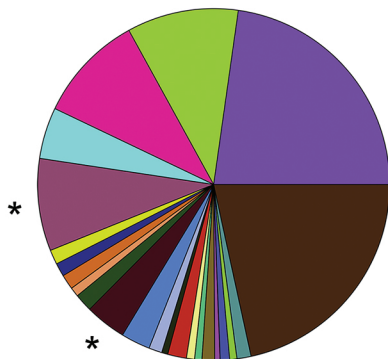
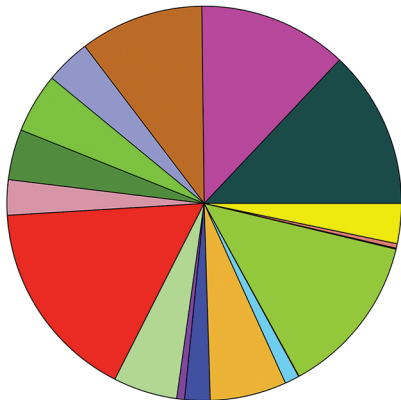


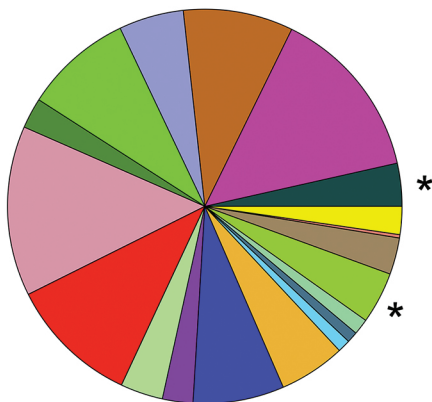
Figure S4B

Bacteroides oligotypes

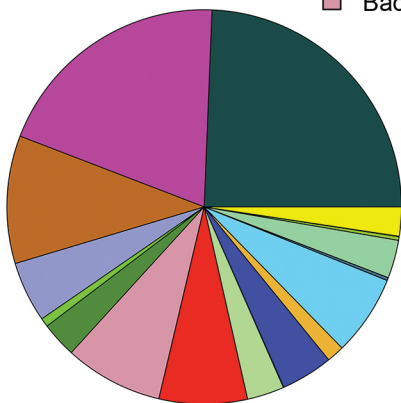
PL t0



PL t3



MILK t0



MILK t3

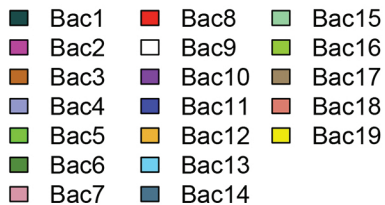
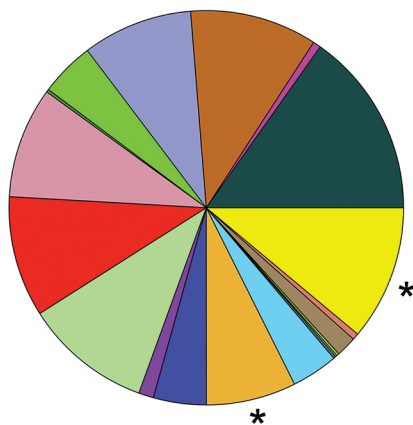


Figure S4C

Figure S5A

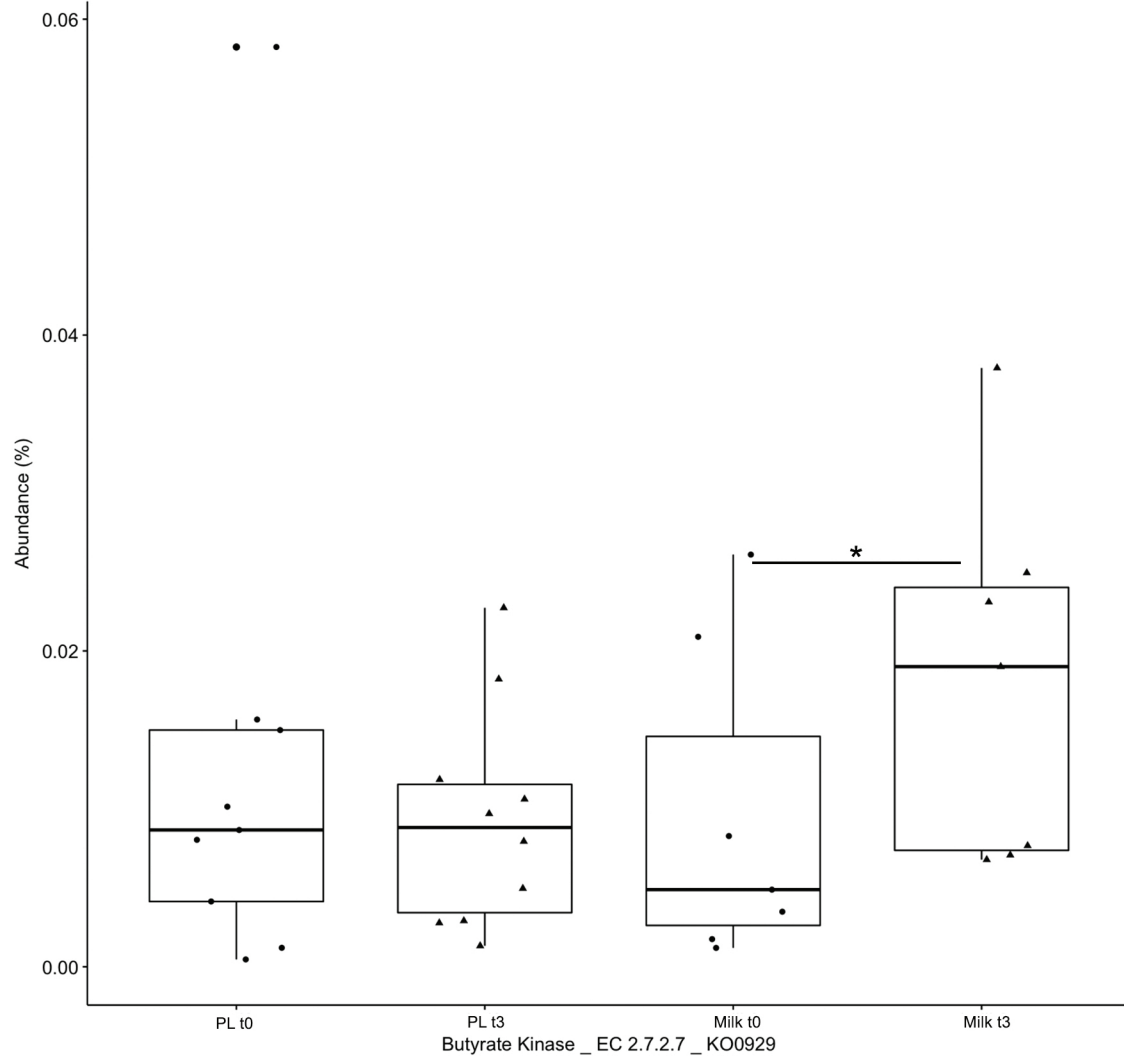
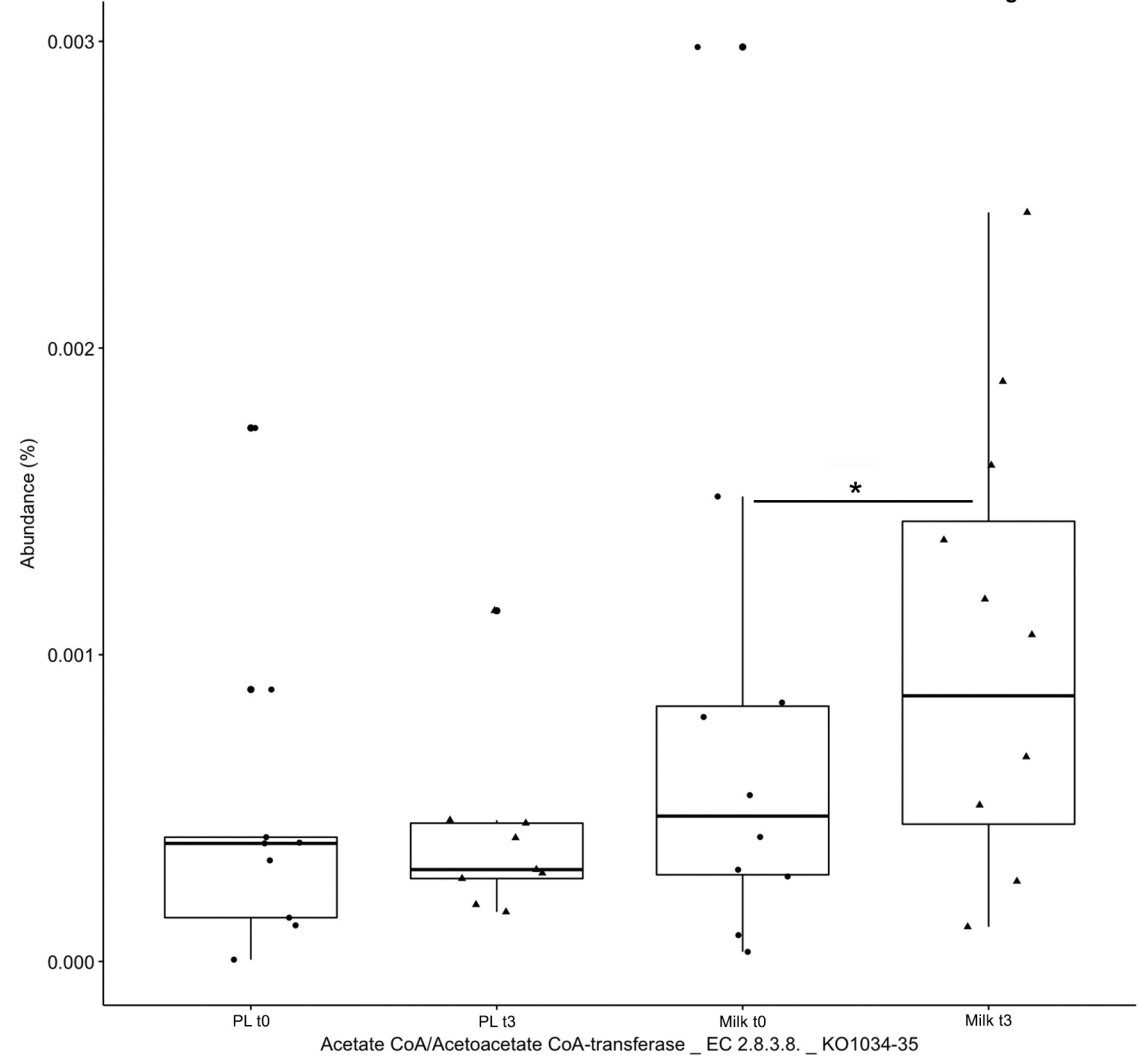


Figure S5B



Supplementary Figure Legends

Figure S1. Innate and acquired immunity biomarkers levels. Box plots showing levels of α -defensin, β -defensin 2, cathelicidin and sIgA in the study population at baseline (t0) and after 3 months of treatment (t3) with fermented milk (Milk) and placebo (PL). Boxes represent the interquartile range (IQR) between the first and third quartiles, and the line inside represents the median (2nd quartile). Whiskers denote the lowest and the highest values within 1.5 x IQR from the first and third quartiles, respectively. Asterisks indicate a significant difference as obtained by pairwise Wilcoxon test ($P < 0.05$).

Figure S2. Alpha-diversity. Box plots showing the number of observed OTUs in the study population at baseline (t0) and after 3 months of treatment (t3) with fermented milk (Milk) and placebo (PL). See Figure 1 legend for a description of the box plots.

Figure S3. Principal Coordinates Analysis. PCoA of Bray Curtis distances. Different colors indicate samples before (t0, blue) and after 3 months of treatment (t3, purple) with fermented milk (Milk) and placebo (PL).

Figure S4. *Roseburia*, *Blautia* and *Bacteroides* oligotype patterns. Pie charts showing the abundance of *Roseburia* (A), *Blautia* (B) and *Bacteroides* (C) oligotypes in the different subject categories.

Figure S5. Predicted abundance of key genes involved in butyrate production. Box plots showing the abundance of genes encoding for butyryl CoA:acetate CoA transferase and butyrate kinase in the study population at baseline (t0) and after 3 months of treatment (t3) with fermented milk (Milk) and placebo (PL). Gene abundance was predicted by PICRUSt. See Figure 1 legend for a description of the box plots.