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| **Table 1S**. Microbiota composition of oral cavity and stomach analysed by qPCR. Data are shown as prevalence, median, and interquartile range (IQR) of the logarithm of gene copies per swab for oral samples and per gram of gastric content. Statistical analysis was calculated using the Kruskal-Wallis test (P-value1 is the significance level for comparison between breast-fed formula; P-value2 is for comparison between formula feeding and polyamine supplementation; P-value3 is the significance of comparison between groups with polyamines supplementation). |
| **Bacterial Group** | **Log RNA gene copies /swab or g** |  |
| **Breastfed**  | **Formula** | **Low** | **Intermediate** | **High** | **P-value 1** | **P-value 2** | **P-value 3** |
| **Prevalence** | **Median (IQR)** | **Prevalence** | **Median (IQR)** | **Prevalence** | **Median (IQR)** | **Prevalence** | **Median (IQR)** | **Prevalence** | **Median (IQR)** |
| **Oral cavity**  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total Bacteria | 12 | 4.06 (3.04-4.383) | 12 | 4.54 (4.33-4.71) | 12 | 4.40 (4.16-4.51) | 12 | 4.17 (4.01-4.32) | 12 | 3.99 (3.84-4.18) | 0.000 | 0.000 | 0.011 |
| *Bifidobacterium* | 1 | - | - | - | 4 | 2.64 (2.53-2.88) | - | - | - | - | - | - | - |
| *Akkermansia* | 4 | 2.32 (2.09-2.54) | 2 | 2.05 (2.00-2.50) | 3 | 2.15 (2.10-2.70) | 2 | - | 2 | - | - | - | - |
| *Lactobacillus* | 9 | 4.08 (3.94-4.23) | 12 | 4.26 (4.11-4.40) | 12 | 4.17 (4.10-4.33) | 12 | 3.95 (3.88-4.09) | 10 | 3.82 (3.63-4.15) | 0.082 | 0.002 | 0.010 |
| *Streptococcus* | 9 | 2.81 (2.70-2.92) | 12 | 2.94 (2.78-3.05) | 12 | 2.83 (2.70-2.94) | 12 | 2.63 (2.52-2.75) | 10 | 2.72 (2.55-2.81) | 0.148 | 0.005 | 0.047 |
| *Enterococcus* | 10 | 2.71 (2.31-2.82) | 11 | 2.38 (2.32-2.44) | 12 | 2.90 (2.50-3.90) | 9 | 2.58 (1.50-2.95) | 10 | 2.29 (2.00-2.76) | 0.152 | 0.033 | 0.145 |
| **Stomach** |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Total Bacteria | 12 | 5.15 (5.06-5.60) | 12 | 3.63 (3.56-3.90) | 12 | 3.80 (3.66-3.92) | 12 | 4.08 (3.72-4.31) | 12 | 4.18 (3.91-4.64) | 0.000 | 0.005 | 0.024 |
| *Bifidobacterium* | 12 | 3.56 (3.02-3.87) | 11 | 3.43 (3.11-4.05) | 12 | 3.13 (2.85-3.96) | 6\* | 2.63 (2.55-3.15) | 12 | 3.23 (3.18-3.34) | 0.755 | 0.03 | 0.042 |
| *Akkermansia* | 9 | 3.48 (2.83-3.60) | 11 | 2.99 (2.70-3.30) | 10 | 2.86 (2.72-3.54) | 1\* | - | 11 | 2.82 (2.69-3.16) | 0.370 | 0.382 | 0.253 |
| *Lactobacillus* | 12 | 5.15 (4.97-5.40) | 12 | 3.67 (3.50-3.96) | 12 | 3.70 (3.53-3.81) | 12 | 4.01 (3.60-4.25) | 12 | 3.98 (3.75-4.58) | 0.000 | 0.029 | 0.040 |
| *Bacteroides\_Prevotella* | 10 | 3.24 (3.18-3.40) | 7 | 3.02 (2.84-3.33) | 8 | 3.45 (3.15-3.60) | 10 | 3.21 (3.07-3.65) | 8 | 3.90 (3.34-4.45) | 0.070 | 0.017 | 0.052 |
| *Streptococcus* | 12 | 3.84 (3.66-4.00) | 12 | 3.42 (3.34-3.64) | 12 | 3.40 (3.35-3.57) | 12 | 3.32 (3.29-3.41) | 12 | 3.53 (3.41-3.68) | 0.008 | 0.004 | 0.002 |
| *Enterococcus* | 4 | 2.16 (2.05-2.22) | 4 | 2.63 (2.13-3.00) | 3 | 2.22 (2.15-2.50) | 5 | 2.27 (2.17-3.00) | 2 | - | 0.343 | 0.636 | 0.528 |
| *Enterobacteriaceae* | - | - | 1 | - | - | - | 1 | - | 3 | 2.22 (2.13-3.74) | - | 0.766 | 0.655 |
| *Staphylococcus*  | - | - | 2 | - | 2 | - | 1 | - | 1 | - | - | - | - |

Data was obtained from positive samples and are shown as median and interquartile range (IQR). Statistical analysis was calculated using the Kruskal-Wallis test. Statistical differences were corrected for a multiple comparison test using the Bonferroni adjustment, and significant differences among groups were considered as having a P-value 2 < 0.0125 (0.05/4) and P-value 3<0.017 (0.05/3).

\* Statistical differences in the prevalence between low and intermediate polyamine diet, and intermediate and high polyamine diet. No significant differences were found between positive samples. Statistical analysis was calculated using the χ2 test. No significant differences were found between low and high.