

Supplemental Figures Legends and Supplemental Tables

Supplemental Figure 1: Principal coordinates analysis (PCoA) on genus level of faecal samples collected at day one, seven and 28 and three years postpartum analysed by 16S rRNA gene sequencing. No clear difference were present between caesarean born infants whose mother received prophylactic antibiotics either before skin incision (group A: antenatally antibiotic exposed infants) or after umbilical cord clamping (group B: antenatally antibiotic unexposed infants) at day one, seven and 28. At day 28 samples from the vaginal control group (group C) clustered together, whereas both caesarean groups did not (1A). No differences were found between both caesarean groups (1B) nor between caesarean born infants and vaginally born infants (1C) at three years of age.

Supplemental Figure 2: Relative abundance of Actinobacteria, Bacteroidetes, Firmicutes and Proteobacteria in faecal samples obtained at one, seven and 28 days analysed by 16S rRNA gene sequencing. No differences were found between caesarean born infants whose mother received prophylactic antibiotics either before skin incision (group A: antenatally antibiotic exposed infants) or after umbilical cord clamping (group B: antenatally antibiotic unexposed infants). The microbiota of vaginally born infants (group C) harboured a decreased abundance of Firmicutes on day 28 ($p=0.001$). In vaginally born infants a higher abundance of Bacteroidetes was observed at day 28 compared to caesarean born infants ($p<0.001$).

Supplemental Figure 3: Relative abundance of Actinobacteria, Bacteroidetes, Firmicutes and Proteobacteria in faecal samples obtained at seven and 28 days analysed by whole metagenome shotgun sequencing. No differences were observed between caesarean born infants whose mother received prophylactic antibiotics either before skin incision (group A: antenatally antibiotic exposed infants) or after umbilical cord clamping (group B: antenatally antibiotic unexposed infants). The microbiota of vaginally born infants (group C) consisted of a higher abundance of Bacteroidetes at day seven and 28 ($p=0,008$ and $p<0.001$ respectively).

Supplemental Figure 4: Abundance of potential antimicrobial resistance genes. No significant differences were found in the potential antimicrobial resistance genes between caesarean born infants and vaginally born infants, nor between caesarean born infants whose mother received prophylactic antibiotics either before skin incision (group A: antenatally antibiotic exposed infants) or after umbilical cord clamping (group B: antenatally antibiotic unexposed infants).

Supplemental Table 1. Number of sequences obtained per sample

Sample ID	Sampling set	Group	Number of 16S sequences	Number of metagenomics sequences
AA24952	Day 1	Group A	50897	-
AA24963	Day 1	Group A	27933	-
AA24965	Day 1	Group B	19302	-
AA24969	Day 1	Group B	30707	-
AA24999	Day 1	Group C	31326	-
AA25010	Day 1	Group C	35782	-
AA25019	Day 1	Group C	25500	-
AA25027	Day 1	Group C	15810	-
AA25038	Day 1	Group C	51714	-
AA25041	Day 1	Group C	46048	-
AA25044	Day 1	Group A	41259	-
AA09818	Day 7	Group B	30475	-
AA09820	Day 7	Group B	14216	-
AA09822	Day 7	Group A	-	9113447
AA09824	Day 7	Group C	-	15860278
AA24937	Day 7	Group B	-	10638968
AA24939	Day 7	Group A	34404	3244154
AA24941	Day 7	Group B	40410	13540838
AA24943	Day 7	Group A	34547	6406240
AA24946	Day 7	Group B	-	10050001
AA24947	Day 7	Group A	34675	10605489
AA24950	Day 7	Group B	45211	11406617
AA24951	Day 7	Group A	-	10498131
AA24953	Day 7	Group A	20252	10707054
AA24955	Day 7	Group B	18958	6385863
AA24957	Day 7	Group A	18219	9886883
AA24960	Day 7	Group B	26351	1237749
AA24962	Day 7	Group A	29636	1980407
AA24964	Day 7	Group A	-	4210914
AA24966	Day 7	Group B	25645	4998217
AA24968	Day 7	Group A	19681	8813164
AA24970	Day 7	Group B	-	8296905
AA24972	Day 7	Group B	22721	12920654
AA24974	Day 7	Group B	22586	9234141
AA24978	Day 7	Group A	29155	12242575
AA24980	Day 7	Group B	21289	-
AA24982	Day 7	Group A	19950	8987614
AA24984	Day 7	Group A	29341	4698384
AA24987	Day 7	Group A	25389	9497311
AA24989	Day 7	Group A	19714	-

AA24992	Day 7	Group A	24924	3601621
AA24993	Day 7	Group C	30450	4459255
AA24994	Day 7	Group C	28323	9513531
AA24995	Day 7	Group C	22061	3575556
AA24996	Day 7	Group C	35929	12977872
AA24997	Day 7	Group C	29510	16950146
AA24998	Day 7	Group C	23464	9521817
AA25000	Day 7	Group C	33482	16849679
AA25002	Day 7	Group C	-	13250816
AA25005	Day 7	Group C	-	19473464
AA25008	Day 7	Group C	33324	8900244
AA25011	Day 7	Group C	30450	5599317
AA25014	Day 7	Group C	25516	11622872
AA25017	Day 7	Group C	31775	7149352
AA25020	Day 7	Group C	30518	11715321
AA25023	Day 7	Group C	27752	-
AA25026	Day 7	Group B	20796	-
AA25028	Day 7	Group C	26853	-
AA25032	Day 7	Group C	31358	4918680
AA25034	Day 7	Group B	24742	13502798
AA25036	Day 7	Group C	20844	8006034
AA25039	Day 7	Group C	22460	12502858
AA25042	Day 7	Group C	27993	1076734
AA25045	Day 7	Group A	91901	8376491
AA25047	Day 7	Group B	18112	11553451
AA25049	Day 7	Group C	18313	4156109
AA10089	Day 28	Group B	40506	7817548
AA10090	Day 28	Group B	26425	1872943
AA10091	Day 28	Group A	33530	10356295
AA10092	Day 28	Group B	22357	-
AA10093	Day 28	Group B	25820	-
AA10094	Day 28	Group A	32406	6035146
AA10096	Day 28	Group C	30160	14350498
AA10097	Day 28	Group C	32196	13925968
AA10098	Day 28	Group C	-	16122653
AA10099	Day 28	Group C	36439	13202313
AA10100	Day 28	Group C	41987	13197372
AA10101	Day 28	Group C	43322	10700912
AA10102	Day 28	Group C	38445	12448035
AA10103	Day 28	Group C	-	12775669
AA10420	Day 28	Group B	54726	5766033
AA10421	Day 28	Group A	26102	2469575
AA10422	Day 28	Group A	33003	7862706
AA10423	Day 28	Group B	34069	6312048

AA10424	Day 28	Group A	30537	8916357
AA10425	Day 28	Group A	33660	12749244
AA10426	Day 28	Group B	36393	14620124
AA10427	Day 28	Group A	31677	10851422
AA10428	Day 28	Group A	38832	5850450
AA10429	Day 28	Group B	43623	10569159
AA10430	Day 28	Group B	22035	4888283
AA10431	Day 28	Group B	53208	6654034
AA10432	Day 28	Group A	33386	-
AA23596	Day 28	Group A	24972	1976908
AA23597	Day 28	Group A	36870	9620211
AA23598	Day 28	Group B	39720	8430193
AA23599	Day 28	Group A	39256	8719615
AA23600	Day 28	Group B	34432	10661405
AA23601	Day 28	Group B	30010	11865685
AA23602	Day 28	Group B	23741	7745166
AA23603	Day 28	Group B	35156	10798882
AA23604	Day 28	Group A	35293	12333076
AA23605	Day 28	Group B	38711	6609018
AA23606	Day 28	Group A	50909	8333536
AA23607	Day 28	Group A	44964	9471141
AA23608	Day 28	Group B	26313	2686349
AA23609	Day 28	Group A	35109	7264728
AA23611	Day 28	Group A	35172	13161207
AA23612	Day 28	Group B	30526	11808616
AA23613	Day 28	Group B	35306	8579318
AA23614	Day 28	Group A	32967	7273629
AA23615	Day 28	Group B	18346	3348406
AA23616	Day 28	Group A	35252	9892861
AA24990	Day 28	Group A	28297	11736286
AA25003	Day 28	Group C	23301	10034500
AA25006	Day 28	Group C	26197	2095688
AA25009	Day 28	Group C	29822	4985294
AA25012	Day 28	Group C	25635	12809482
AA25015	Day 28	Group C	25485	14600876
AA25018	Day 28	Group C	25957	15441793
AA25021	Day 28	Group C	30393	-
AA25024	Day 28	Group C	24485	-
AA25029	Day 28	Group C	27207	15129185
AA25031	Day 28	Group C	-	14717464
AA25033	Day 28	Group C	26945	5609728
AA25037	Day 28	Group C	-	5780764
AA25040	Day 28	Group C	20014	9574706
AA25043	Day 28	Group C	28300	7538248

AA25050	Day 28	Group C	17026	10582712
F1	3 year	Group B	56087	-
F100	3 year	Group A	59486	-
F101	3 year	Group B	62750	-
F102	3 year	Group A	22986	-
F11	3 year	Group B	58114	-
F12	3 year	Group A	77817	-
F13	3 year	Group A	86050	-
F14	3 year	Group B	66479	-
F15	3 year	Group A	51314	-
F18	3 year	Group B	58881	-
F22	3 year	Group B	57706	-
F23	3 year	Group A	61793	-
F24	3 year	Group A	40379	-
F26	3 year	Group A	55719	-
F27	3 year	Group B	95091	-
F3	3 year	Group A	55965	-
F32	3 year	Group B	64714	-
F34	3 year	Group B	51787	-
F36	3 year	Group A	38209	-
F37	3 year	Group B	65984	-
F38.1	3 year	Group A	58977	-
F38.2	3 year	Group C	64393	-
F4	3 year	Group B	43865	-
F41	3 year	Group A	88392	-
F44	3 year	Group B	42543	-
F47	3 year	Group A	38138	-
F49	3 year	Group A	72713	-
F5	3 year	Group B	55879	-
F51	3 year	Group C	75464	-
F52	3 year	Group C	74967	-
F53	3 year	Group C	74764	-
F56	3 year	Group C	89943	-
F58	3 year	Group C	56158	-
F59	3 year	Group C	26708	-
F60	3 year	Group C	71171	-
F67	3 year	Group C	71670	-
F69	3 year	Group C	66908	-
F70	3 year	Group C	64402	-
F72	3 year	Group C	67319	-
F78	3 year	Group C	46404	-
F81	3 year	Group C	72200	-
F82	3 year	Group C	57237	-
F84	3 year	Group B	53768	-

F85	3 year	Group C	53126	-
F86	3 year	Group C	49856	-
F87	3 year	Group C	80722	-
F89	3 year	Group B	71336	-
F90	3 year	Group C	43170	-
F96	3 year	Group C	78599	-

A minus sign (-) indicates that not enough DNA could be obtained, which was true for most meconium samples, and/or not enough good quality sequences were generated. If this was true for both 16S and metagenomic sequencing, samples are not listed in this table.

Supplemental Table 2. Summary of results originating from the questionnaire on health state at the age of 3 year.

No differences were present between caesarean born infants whose mother received prophylactic antibiotics either before skin incision (group A: antenatally antibiotic exposed infants) or after cord clamp (group B: antenatally antibiotic exposed infants) and vaginally delivering women (group C).

Variables	Group A (n= 14)	Group B (n=15)	Group C (n=20)	P-value
Duration of breastfeeding, Months	7.0 (8.5)	6.0 (3.75)	6.0 (4.6)	0.236
Started with supplementary feeding, Months	5.5 (2.0)	4.0 (1.0)	4.0 (2.0)	0.186
Antibiotic use between birth and last sample collection	2 (14.3%)	2 (13.3%)	5 (25.0%)	0.608
Body mass index, kg/m²	16.5 (1.76)	15.46 (1.75)	16.45 (2.69)	0.159
Hospitalization	3 (21.4%)	4 (26.7%)	3 (15.0%)	0.694
General practitioner visited	13 (92.9%)	14 (93.3%)	18 (90.0%)	0.926
Paediatrician visits	2 (14.3%)	5 (33.3%)	4 (20.0%)	0.444
Allergy	2 (14.3%)	0 (0.0%)	2 (10.0%)	0.346
Viral wheezing	2 (14.3%)	2 (13.3%)	2 (10.0%)	0.921
Eczema	3 (21.4%)	3 (20.0%)	4 (20.0%)	0.994

Data are median (interquartile range) or n (%).