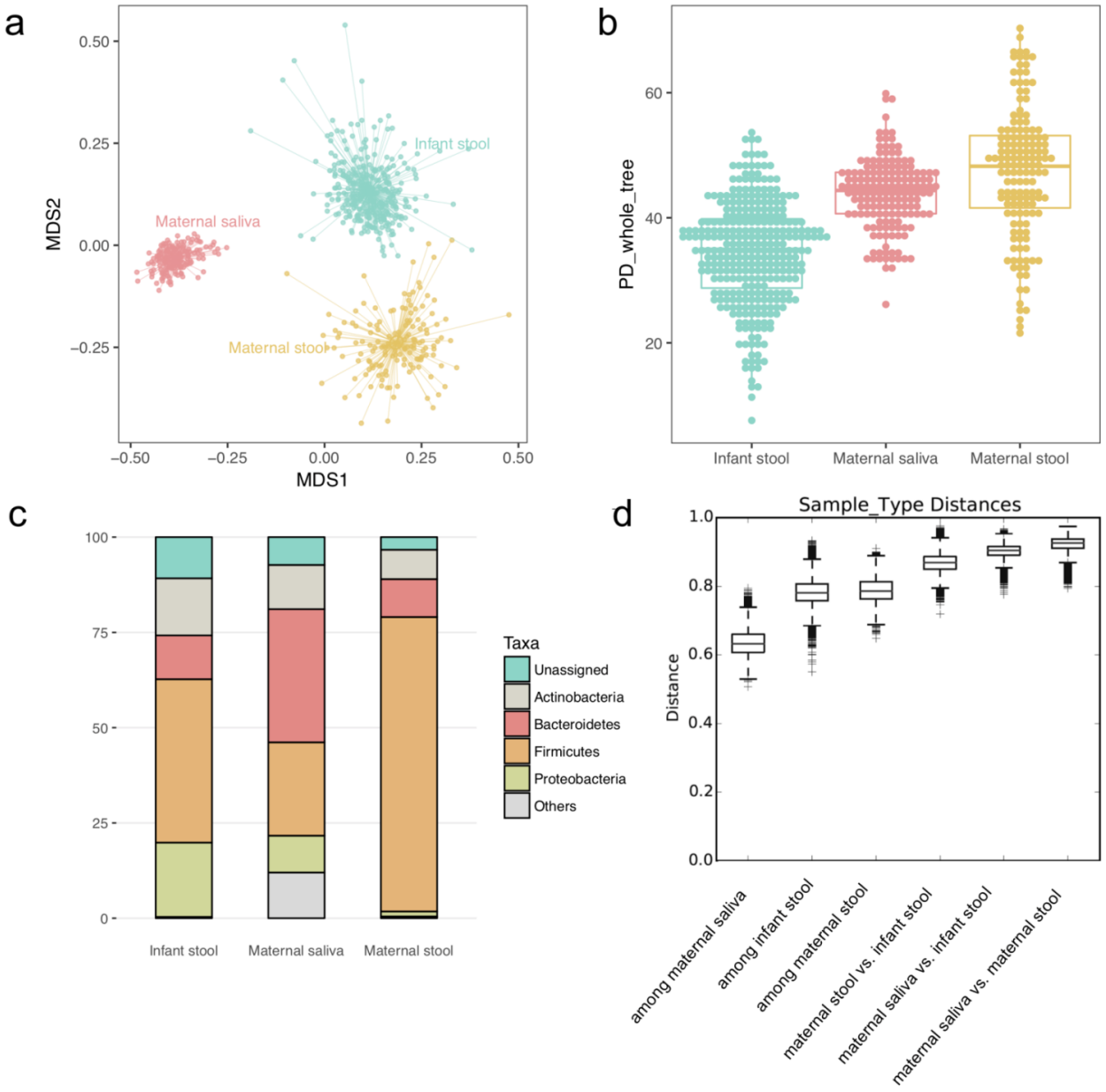
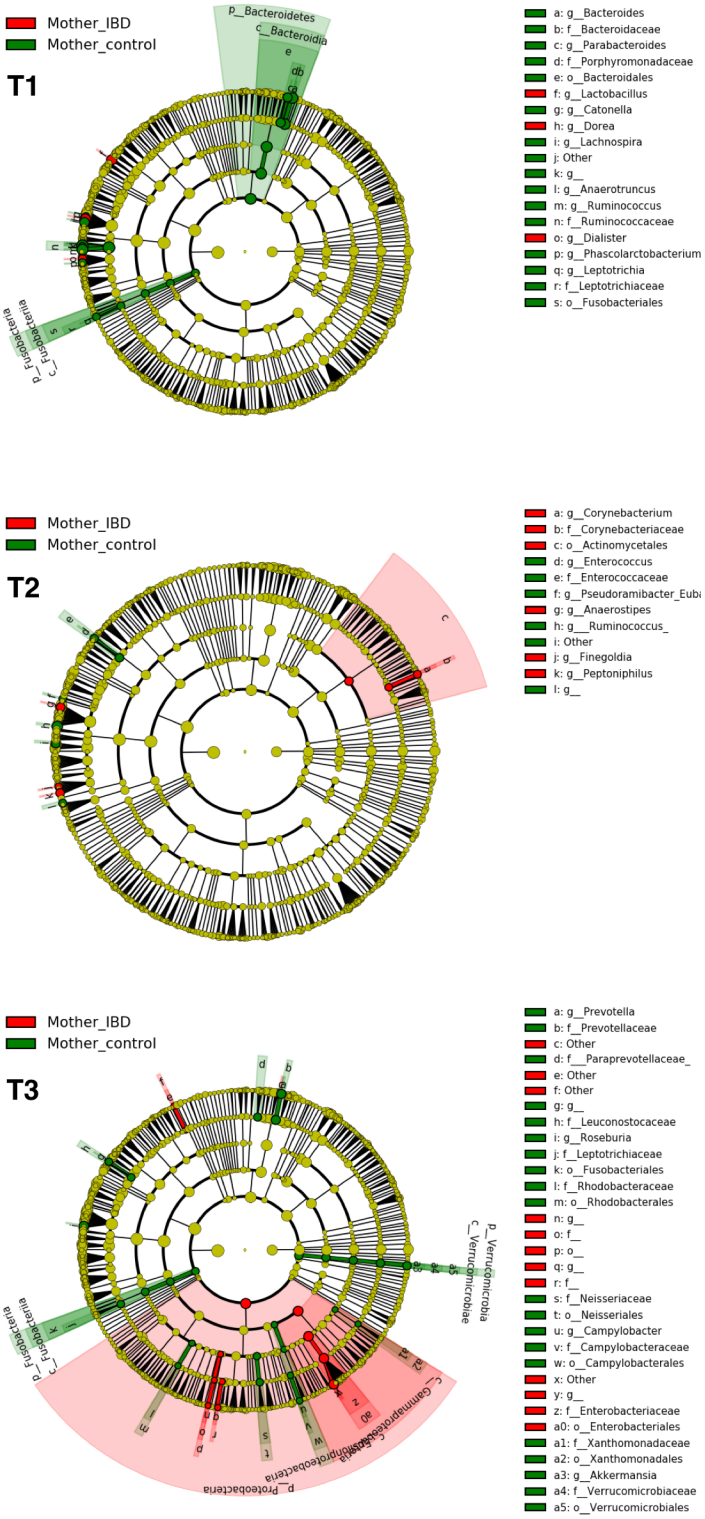
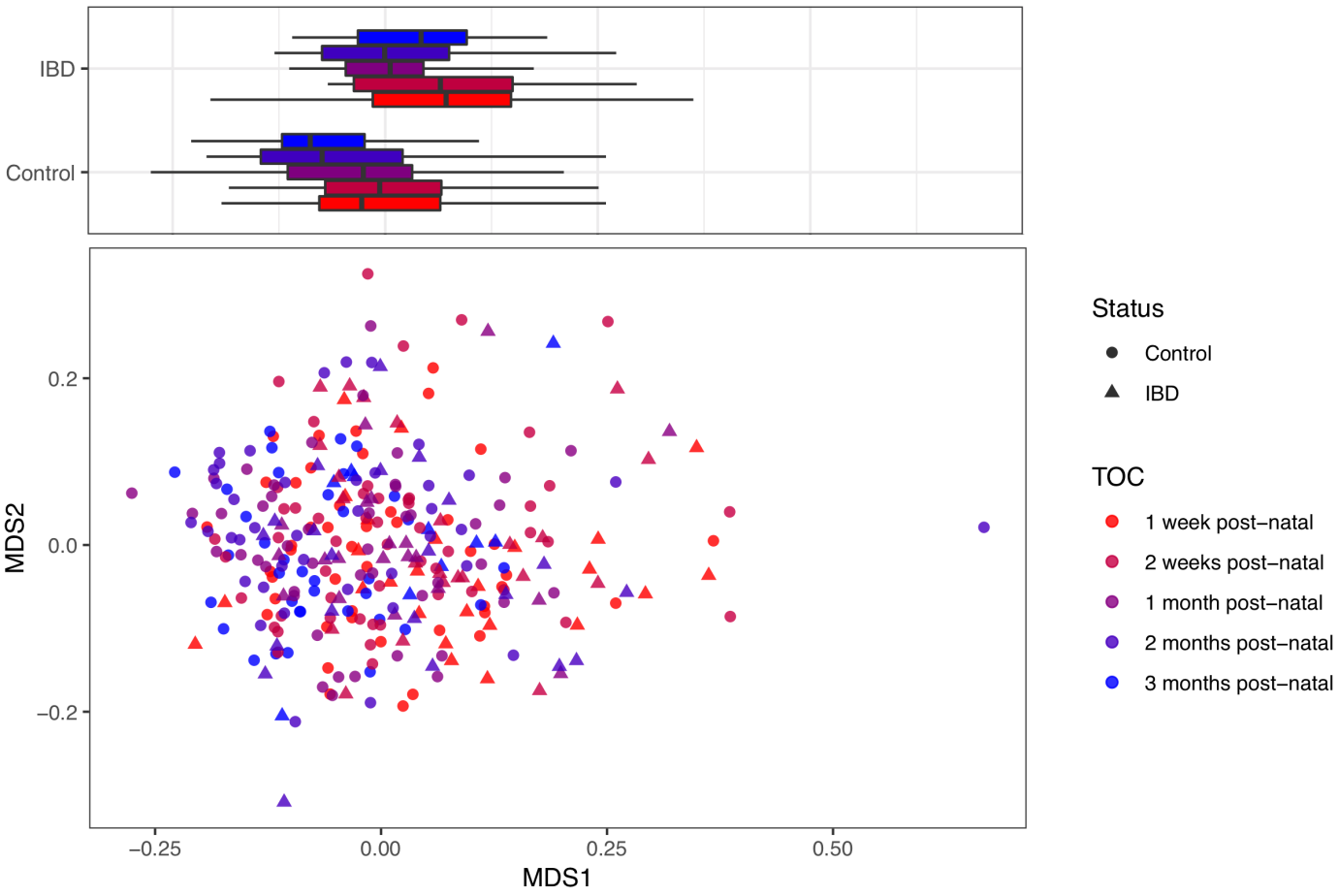
Supplementary Figures



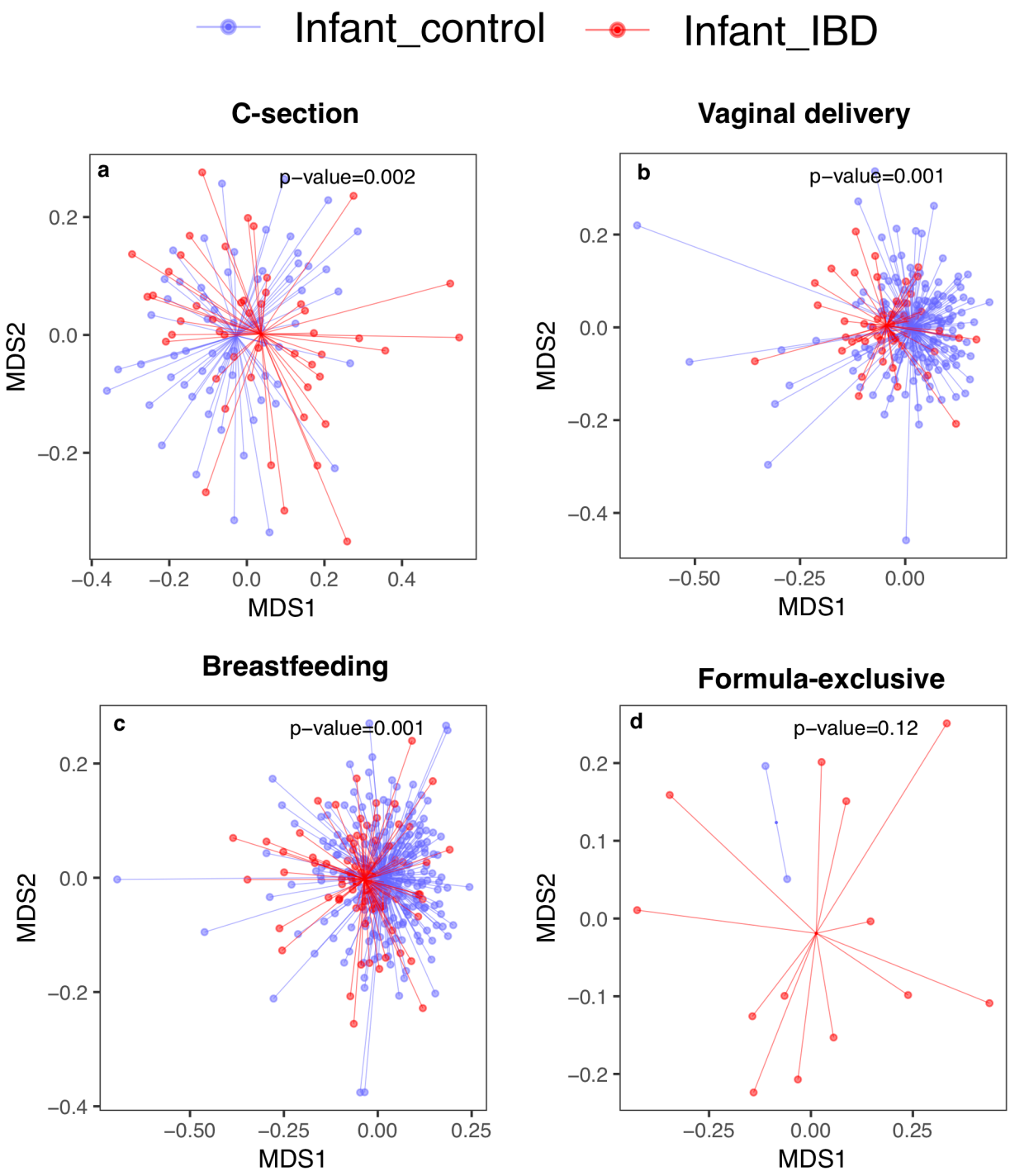
Supplementary Figure S1. (a) Dissimilarities by sample type measured using unweighted UniFrac distance matrices and visualized using a non-metric Multidimensional Scaling (NMDS) plot. The PERMANOVA test was carried out with 999 permutations performed using Adonis command in R package [vegan] to test the overall microbiota dissimilarities across sample types ($p<0.001$). **(b)** The boxplots showing the mean and variance of the richness of the microbial community in different samples types (*PD_whole tree* index was measured on rarefied tables at 1000 sequences per sample). Kruskal Wallis test was performed to compare the microbiota richness measured by *PD_whole tree* index between the infant stool, maternal saliva and maternal stool (p-value<0.0001). **(c)** Relative abundances at the phylum level, by sample type. **(d)** UniFrac distances between samples compared using QIIME command *make_distances_boxplots.py* (Bonferroni-corrected p value=0.028 for all comparisons).



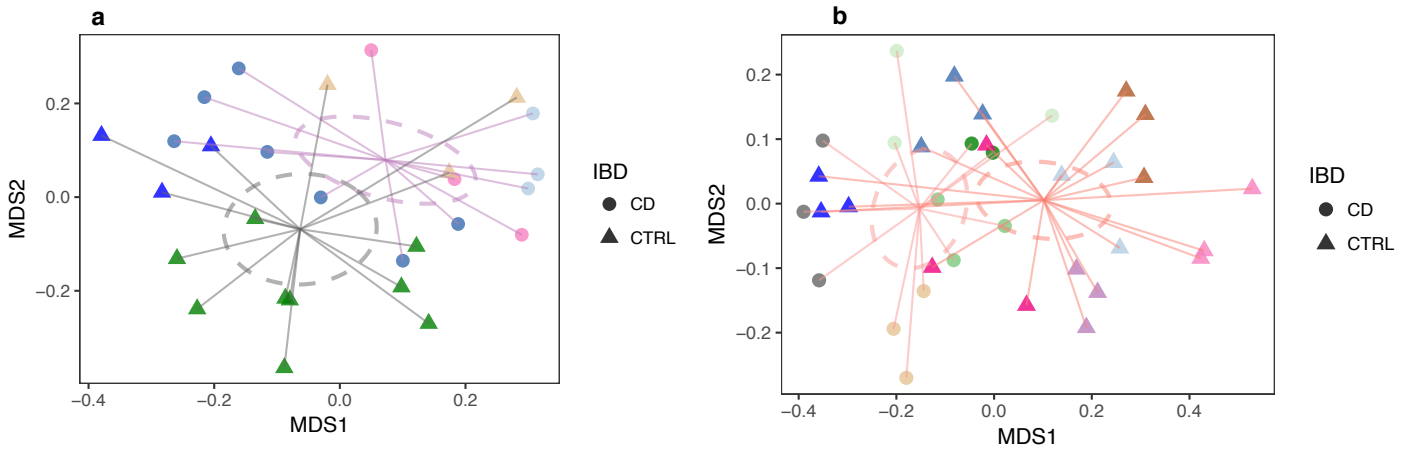
Supplementary Figure S2. Differential microbial features between pregnant women with and without IBD at each trimester of pregnancy, as determined by LEfSe analysis (LDA, linear discriminant analysis).



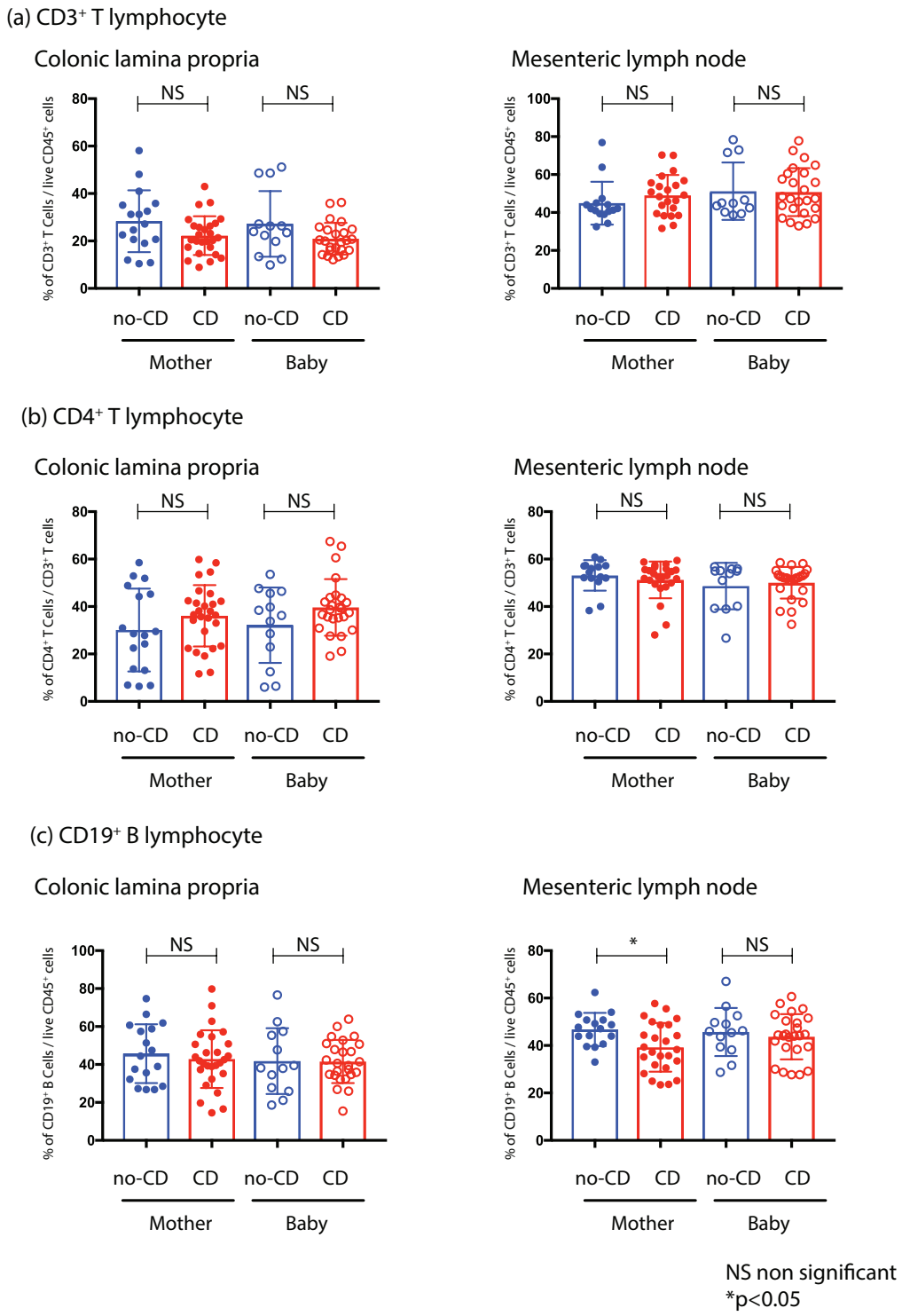
Supplementary Figure S3. The MDS plot shows the ß-diversity of baby microbiome at various sampling time points by maternal IBD diagnosis: babies born to mothers with IBD (triangle-shaped dots) and control mothers (circle-shaped dots), color-coded by time point. The boxplots show the mean and variance of the ß-diversity by IBD status and time points at MDS1.



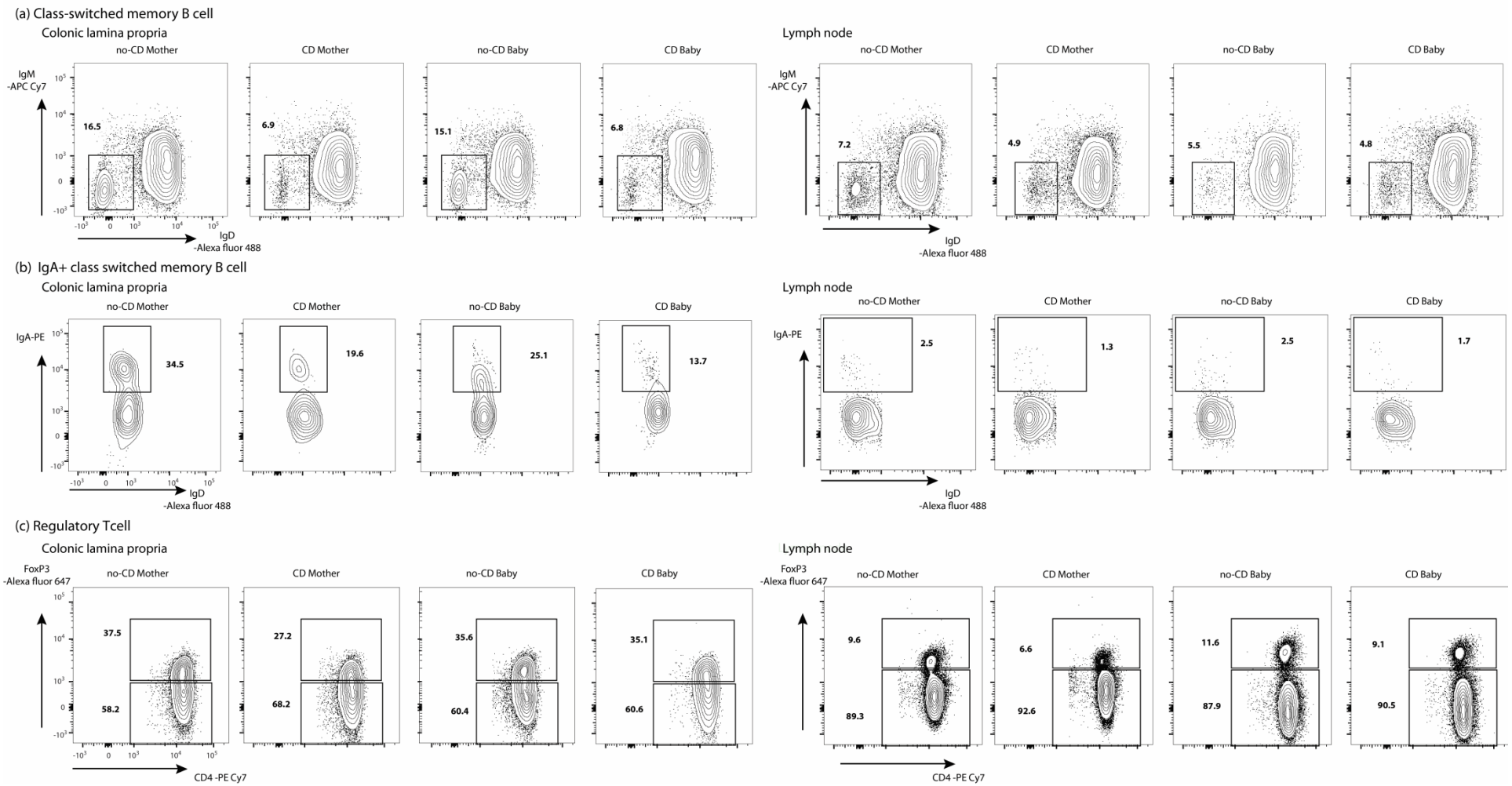
Supplementary Figure S4. **The ß-diversity of babies stratified by different exposures and color-coded by maternal IBD diagnosis. (a)** Babies born via Caesarian section only (N= 28); **(b)** Babies born via vaginal delivery only (N= 51); **(c)** Babies who received breastfeeding (exclusive or mixed) (N= 73), and **(d)** Babies who were exclusively formula-fed (N=6). P-values from PERMANOVA test.



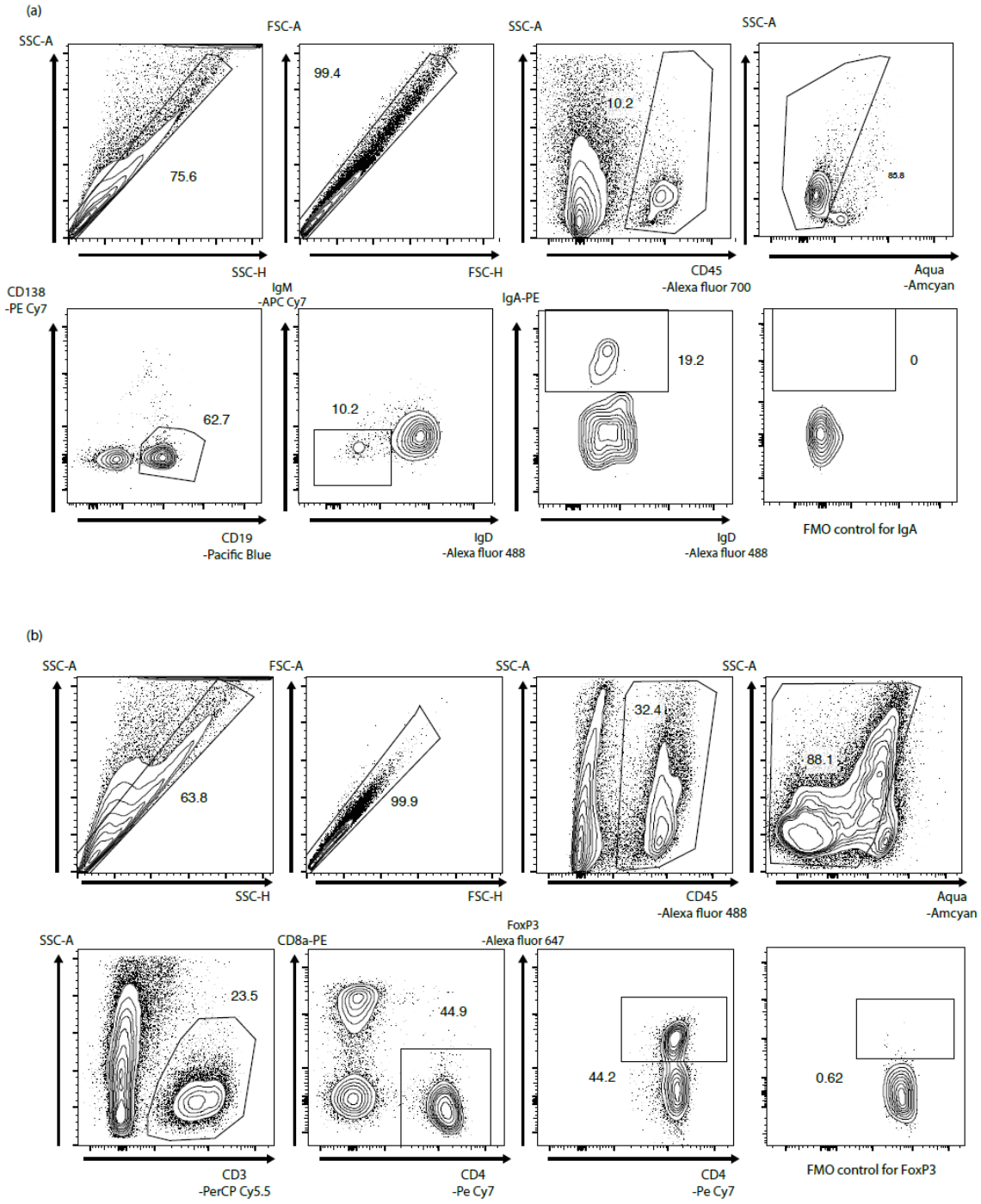
Supplementary Figure S5. **The gut microbiome of GFM mice colonized with maternal stool (a) and baby stool (b)**. Stool samples were obtained from the mouse intestine at the time of sacrifice (5 weeks after gavage). The triangles represent bacterial diversity of samples from mice inoculated with stool of control pregnant women or their babies; the circles represent samples from mice inoculated with stool of pregnant Crohn's disease (CD) patients or their babies. Same color coding reflects the same donor. All analyses were adjusted for batch and repeated sampling.



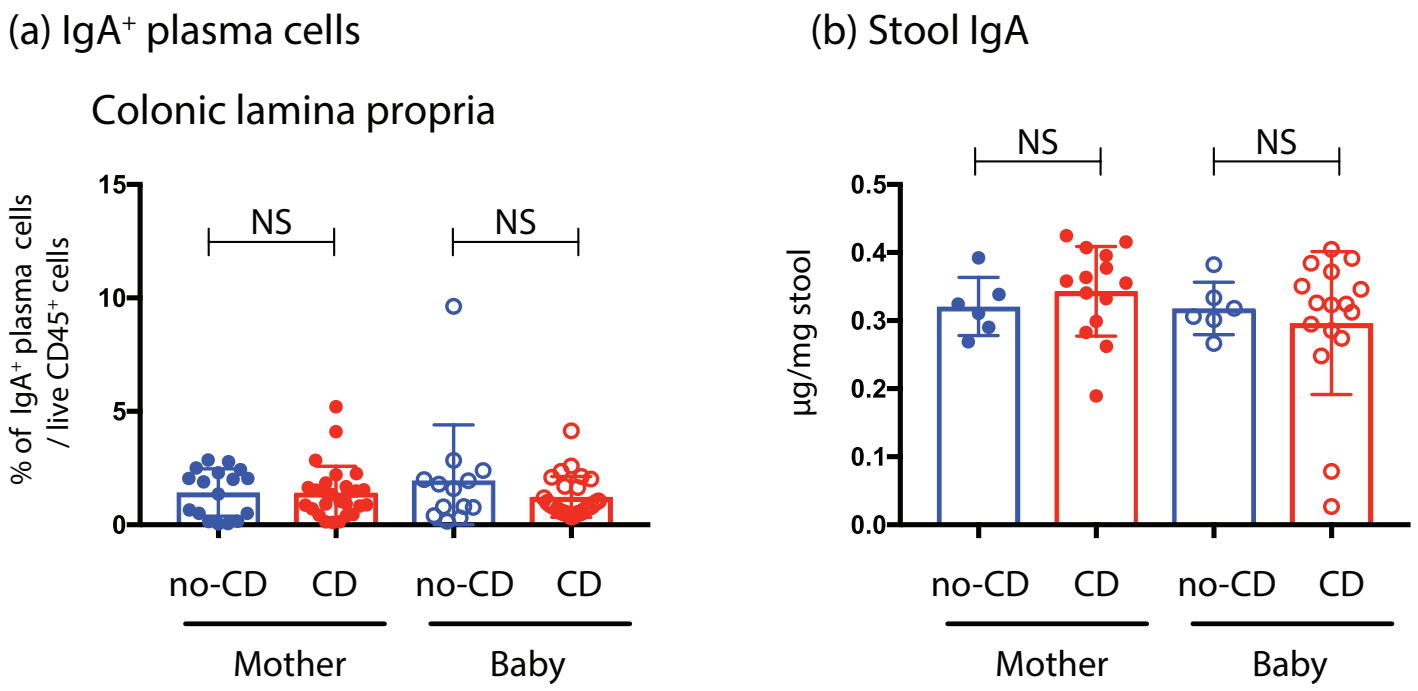
Supplementary Figure S6. Lymphocyte populations in the colonic lamina propria and mesenteric lymph nodes of GF mice inoculated with the stool of CD and non-CD mothers and their babies. The frequency of $CD3^+$ T cells (panel a), $CD4^+$ T cells (panel b) and $CD19^+$ B cells (panel c) in the colonic lamina propria (left panel) and mesenteric lymph nodes (right panel) are compared between the respective groups.



Supplementary Figure S7. **(a)** Class-switched memory B cells (aqua$^-$, CD45$^+$ CD19$^+$ CD138$^-$ IgD$^-$ IgM$^-$) isolated from the colonic *lamina propria* (upper row) and MLN (lower row) of germ-free mice, which were inoculated with the stool of control mother, CD mother or their 3-month old babies (control baby or CD-exposed baby). Representative flow plots displaying switched memory B cells in the live CD45$^+$ CD19$^+$ CD138$^-$ B cells from the indicated sample. **(b)** Representative flow plots displaying IgA+ Class-switched memory B cells (aqua$^-$, CD45$^+$ CD19$^+$ CD138$^-$ IgD$^-$ IgM$^-$ IgA$^+$) cells in the indicated groups. **(c)** Representative flow plots displaying Regulatory T cells (T_{REG}) (aqua$^-$, CD45$^+$ CD3$^+$CD8$^-$ CD4$^+$ FoxP3$^+$) in the indicated groups.



Supplementary Figure S8. **Gating strategy**. **(a)** Gating strategy to identify class-switched memory B cells. After exclusion of doublets, hematopoietic ($CD45^+$) cells were gated for $aqua^-$ live cells. $CD19^+CD138^-$ B cells were further classified as switched memory (IgD^-IgM^-) or naïve (IgD^+IgM^+) B cells. Switched memory B cells were then examined for IgA expression. **(b)** Gating strategy to identify regulatory T cells. After exclusion of doublets, live ($aqua^-$) $CD45^+$ hematopoietic cells were gated on $CD3^+$ T cells. $CD3^+CD4^+$ T cells were then examined for the expression of FoxP3 to define regulatory T cells (T_{REG}). SSC: Side Scatter; A: area, H: height; FSC: Forward Scatter; FMO: fluorescence minus one.



Supplementary Figure S9. Quantification of IgA in the colonic lamina propria and stool of GF mice inoculated with the stool of CD and non-CD mothers and their babies. a) Frequency of IgA^+ plasma cells ($aqua^-$, $CD45^+$ $CD19^+$ $CD138^+$ IgA^+) in the colonic lamina propria is compared between the respective groups; b) IgA levels per mg of stool are compared between the respective groups.

Supplementary Tables

Supplementary Table S1: Main features of donors for GFM experiments

Donor	Family Type	Type of IBD	Medications	Type of delivery	Feeding type throughout study period	Antibiotic exposure after birth (baby)
Mother_1	Control	NA	NA	Vaginal	NA	NA
Baby_1	Control	NA	NA	Vaginal	Mixed	No
Mother_2	Control	NA	NA	Vaginal	NA	NA
Baby_2	Control	NA	NA	Vaginal	Mixed	No
Mother_3	Control	NA	NA	Vaginal	NA	NA
Baby_3	Control	NA	NA	Vaginal	Exclusively Breastfed	No
Mother_4	IBD	CD	Adalimumab	Vaginal	NA	NA
Baby_4	IBD	CD	NA	Vaginal	Exclusively Breastfed	No
Mother_5	IBD	CD	Infliximab	Vaginal	NA	NA
Baby_5	IBD	CD	NA	Vaginal	Mixed	Yes
Mother_6	IBD	CD	None	Vaginal	NA	NA
Baby_6	IBD	CD	NA	Vaginal	Exclusively Breastfed	No
Mother_7	IBD	CD	Infliximab	C-section	NA	NA
Baby_7	IBD	CD	NA	C-section	Mixed	No
Mother_8	IBD	CD	Infliximab, 5-ASA	C-section	NA	NA
Baby_8	IBD	CD	NA	C-section	Mixed	No
Mother_9	IBD	CD	None	C-section	NA	NA
Baby_9	IBD	CD	NA	C-section	Exclusively Breastfed	No
Mother_10	IBD	CD	Infliximab, 5-ASA	Vaginal	NA	NA
Baby_10	IBD	CD	NA	Vaginal	Exclusively Breastfed	No
Mother_11	IBD	CD	Ustekinumab, 5-ASA	Vaginal	NA	NA
Baby_11	IBD	CD	NA	Vaginal	Exclusively Breastfed	No

NA: not applicable

Supplementary Table S2: List of Antibodies

Antibodies for ILC1						
antibody	**fluorescence**	**clone**	**dilution**	**manufacture**	**catalog number**	**lot number**
aqua	Amcyan	L34957	1:500	Thermo Fischer	L34957	1913927
CD45	A700	30-F11	1:200	Biolegend	103127	B241345
CD3	PB	17A2	1:200	Biolegend	100214	B227246
CD19	PB	6D5	1:200	Biolegend	115523	B203467
Gr-1	PB	RB6-8C5	1:200	Biolegend	127611	B200366
CD90.2	APC cy7	30-H12	1:200	Biolegend	105328	B241601
Sca1	A647	D7	1:200	Biolegend	108118	B236557
CD127	PE	A7R34	1:200	Biolegend	135011	B265436
NK1.1	PerCP	PK136	1:200	Biolegend	108725	B121189
IFN-g	PE-cy7	XMG1.2	1:200	eBioscience	25-7311-82	E07672-1630
CD11b	A488	M1/70	1:200	Biolegend	101217	B214936

Antibodies for ILC2 and 3						
antibody	**fluorescence**	**clone**	**dilution**	**manufacture**	**catalog number**	**lot number**
aqua	amcyan	L34957	1:500	Thermo Fischer	L34957	1913927
CD45	A700	30-F11	1:200	Biolegend	103127	B241345
CD3	PB	17A2	1:200	Biolegend	100214	B227246
CD19	PB	6D5	1:200	Biolegend	115523	B203467
CD11b	PB	M1/70	1:200	Biolegend	101223	B225174
Gr-1 (Ly6G)	PB	RB6-8C5	1:200	Biolegend	127611	B200366
IL-22	PerCP	Poly5164	1:200	Biolegend	516411	B223419
CD90.2	APC cy7	30-H12	1:200	Biolegend	105328	B241601
IL-5	PE	TRFK5	1:200	Biolegend	504303	B196326
CD127	APC	A7R34	1:200	Biolegend	135011	B265436
IL-17	A488	ebio17B7	1:200	eBioscience	53-7177-81	E08894-1630

Antibodies for DC						
antibody	**fluorescence**	**clone**	**dilution**	**manufacture**	**catalog number**	**lot number**
aqua	amcyan	L34957	1:500	Thermo Fischer	L34957	1913927
CD45	PerCP	30-F11	1:200	Biolegend	103127	B241345
MHC2/I-A/I-E	a700	M5/114.15.2	1:200	Biolegend	107622	B264454
CD11c	PEcy7	N418	1:200	Biolegend	117318	B222652
CD103	PE	M290	1:200	BD	557495	4024700
CD11b	A488	M1/70	1:200	Biolegend	101217	B214936
F4/80	PB	BM8	1:200	Biolegend	123123	B217177

Supplementary Table S3. The main clinical features of participants with Crohn´s disease and ulcerative colitis compared using t-test (for continuous traits) and χ^2 test (for categorical variables).

Clinical features	Pregnant women with Crohn´s disease	Pregnant women with Ulcerative Colitis	p-value
N	19	21	-
Mean age at recruitment (y)	33±3.6	34.3±3.9	0.3
Jewish ethnicity (%)	37%	33%	0.62
Nulliparous (%)	63%	62%	0.94
Disease Location (Montreal classification) (%)	L1: 26% L2: 37% L3: 37%	E1: 25% E2: 40% E3: 35%	-
Non-complicated behaviour (non-stricturing, non-penetrating) (%)	74%	-	-
Perianal disease (%)	36%	-	-
Peripartum antibiotics (%)	77%	56%	0.43
Exposure to antibiotics during pregnancy (%)	21%	20%	1
Treatment with aminosalicylates (%)	22%	61%	0.017
Treatment with biologic drugs* (%)	74%	31%	0.003
Treatment with thiopurines (%)	9%	44%	0.017
Use of assisted reproductive technology (%)	10%	18%	0.64
Gestational diabetes/Type1 DM (%)	12%	0%	0.23
Prior intestinal surgery (%)	32%	0%	0.02
Disease remission during pregnancy (%)	79%	62%	0.24

*In 60% of women treated with biologics, the last infusion before delivery was scheduled to occur during the 25th-33rd week of pregnancy. L1: ileal disease location; L2: colonic disease location; L3: ileo-colonic disease location; E1: proctitis; E2: left-sided colitis; E3: extensive colitis