

Supplementary Information:

Dietary fibre promotes chronic gut parasite infection via direct and time-dependent modulation of innate immunity

Laura J. Myhill¹, Penille Jensen¹, Pankaj Arora¹, Anne M. Jensen¹, Ling Zhu¹, Amalie Vedsted-Jakobsen¹, Eiríkur A. Thormar², Alexandra von Munchow¹, Mahesh M. Poojary³, Marianne N. Lund³, Stig M. Thamsborg¹, Morten T. Limborg², Benjamin A. H. Jensen⁴, Andrew R. Williams¹

1) Department of Veterinary and Animal Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Frederiksberg, Denmark.

2) Center for Evolutionary Hologenomics, Globe Institute, University of Copenhagen, Copenhagen, Denmark

3) Department of Food Science, University of Copenhagen, 1958 Frederiksberg C, Denmark

4) Department of Biomedical Sciences, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.

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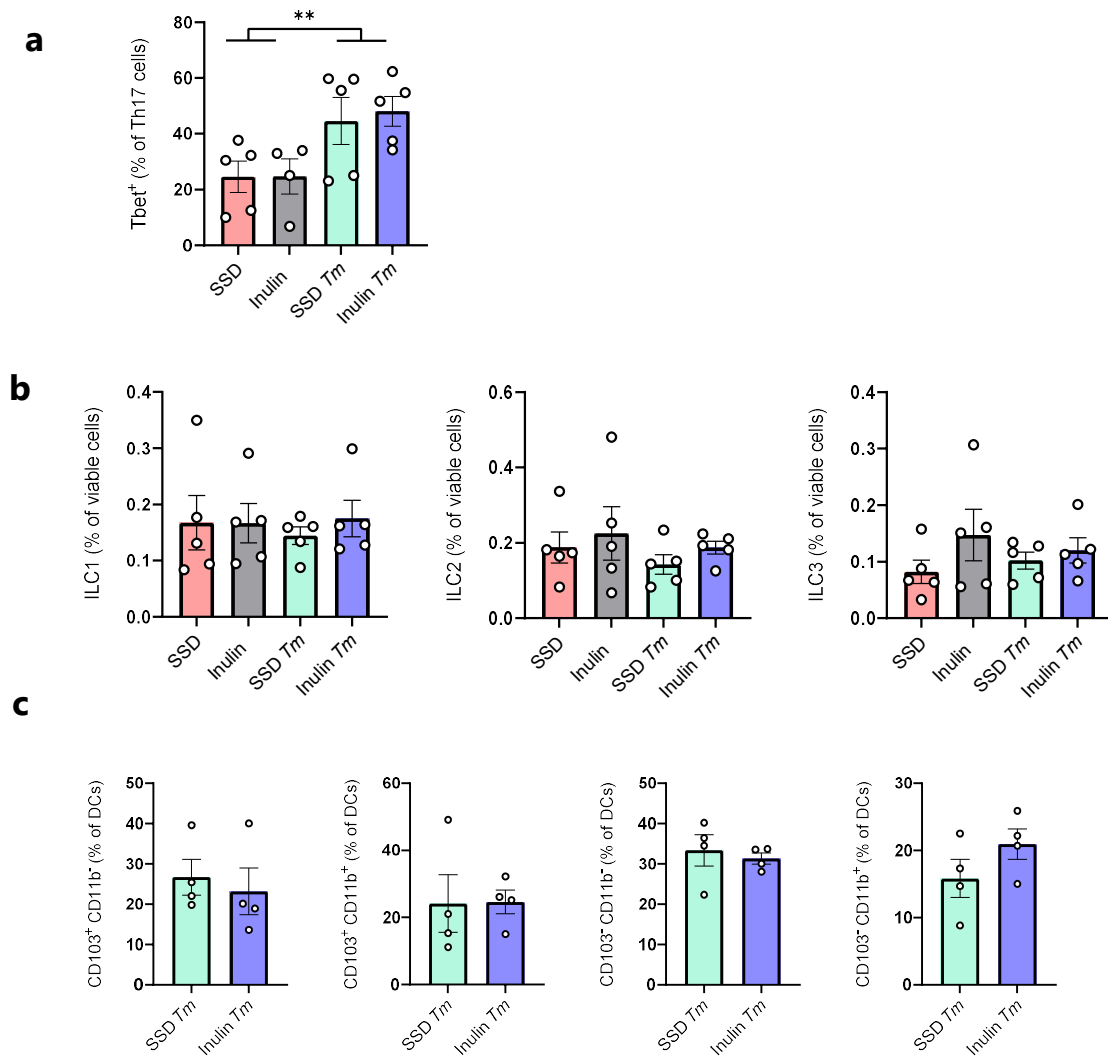
Supplementary Table S1: Diet composition of semi-synthetic diet and inulin-supplemented diet. All diets were purified and pelleted. Purified long-chain inulin contained average degree of polymerization (DP) ≥ 23 .

Feed component (g/100g)	SSD	Inulin
Casein	20.0	20.0
Corn starch	37.6	27.6
Inulin ¹	-	10.0
Maltodextrin	15.0	15.0
Sucrose	10.0	10.0
Cellulose powder	5.0	5.0
L-Cysteine	0.2	0.2
Vitamin premix	1.0	1.0
Mineral & trace element mix	6.0	6.0
Choline chloride	0.2	0.2
Soybean oil	5.0	5.0
Crude Nutrients (%)		
Crude protein	17.9	17.6
Crude fat	5.1	5.1
Crude fiber	5.0	14.4
Crude ash	5.4	5.4
Starch	36.2	26.6
Sugar	11.0	11.1
Energy (MJ [or kcal] ME/kg)	15.4	13.9

¹ Long-chain inulin purified from chicory root (Orafti HP, Beneo, Netherlands).

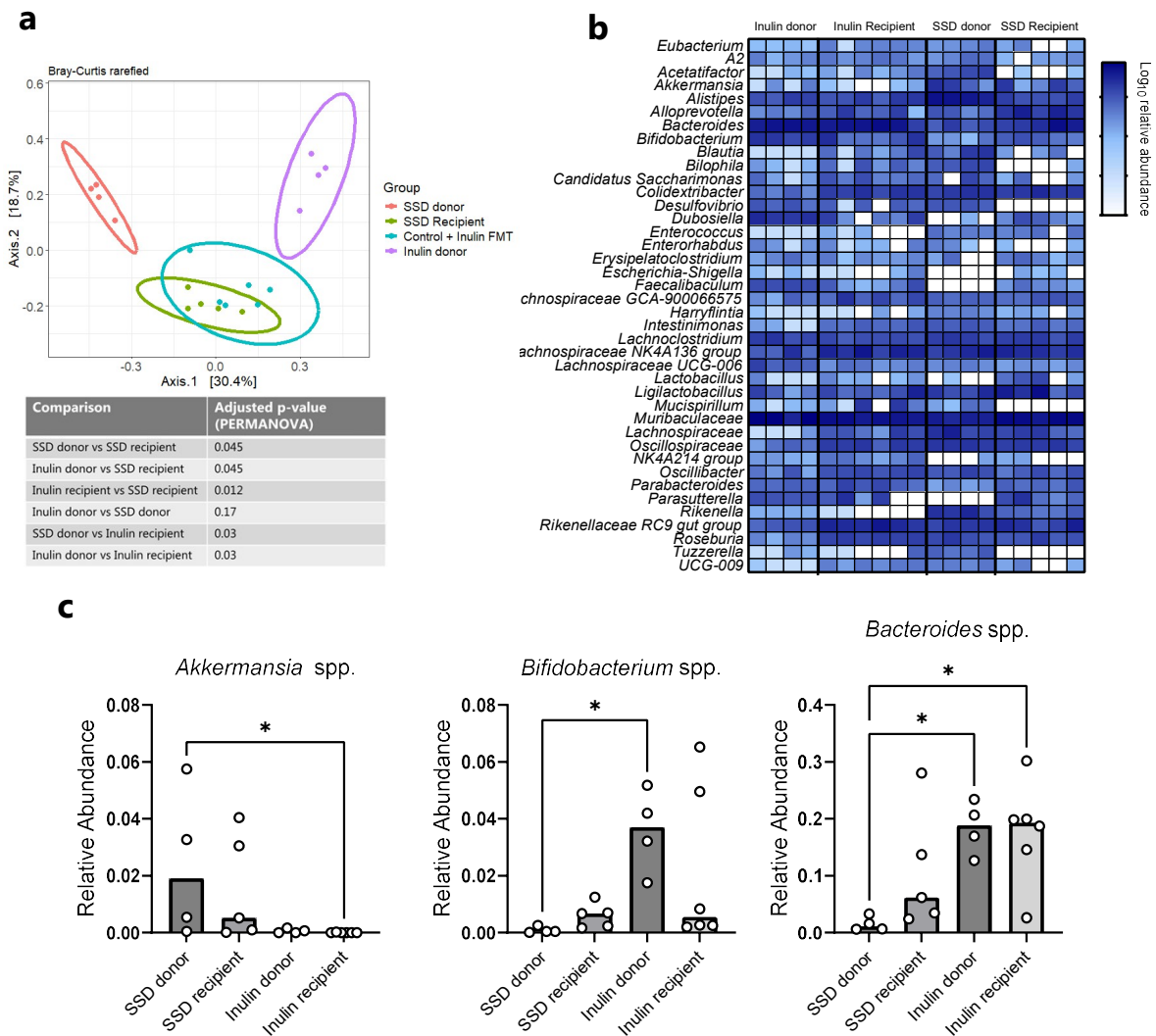
Supplementary Table S2: Primers used for qPCR

Gene	Forward Primer (‘5-‘3)	Reverse Primer (‘5-‘3)
<i>Ahr</i>	AGTTCTTGTTACAGGCGCTGA	GCCCGGTCTTCTGTATGGAT
<i>Ang4</i>	TAGACTCGTCCCCAGTTGGA	CTGAGCCAGAGTTGGAGGAAT
<i>Defa5</i>	TCAAAAAAGCTGATATGCTATTG	AGCTGCAGCAGAATACGAAAG
<i>Gapdh</i>	TATGTCGTGGAGTCTACTGGT	GAGTTGTCATATTTCTCGTGG
<i>Ifng</i>	GACTGTGATTGCGGGGTTGTA	TCACTGCAGCTCTGAATGTTTCT
<i>Il13</i>	GGCAGCATGGTATGGAGTGT	CTTGCGGTTACAGAGGCCAT
<i>Il33</i>	CGGCAGAATCATCGAGAAACCT	GCCGGGGAAATCTTGAGTTG
<i>Mcpt2</i>	GGCAAAATGCAGGCCCTACT	TCCTTCGAACCGTTCTTAGTGG
<i>Retnlb</i>	CTGATAGTCCCAGGGAACGC	GTCTGCCAGAAGACGTGACA
<i>Tslp</i>	AGGGGCTAAGTTCGAGCAAA	TTTTGTCGGGGAGTGAAGGG



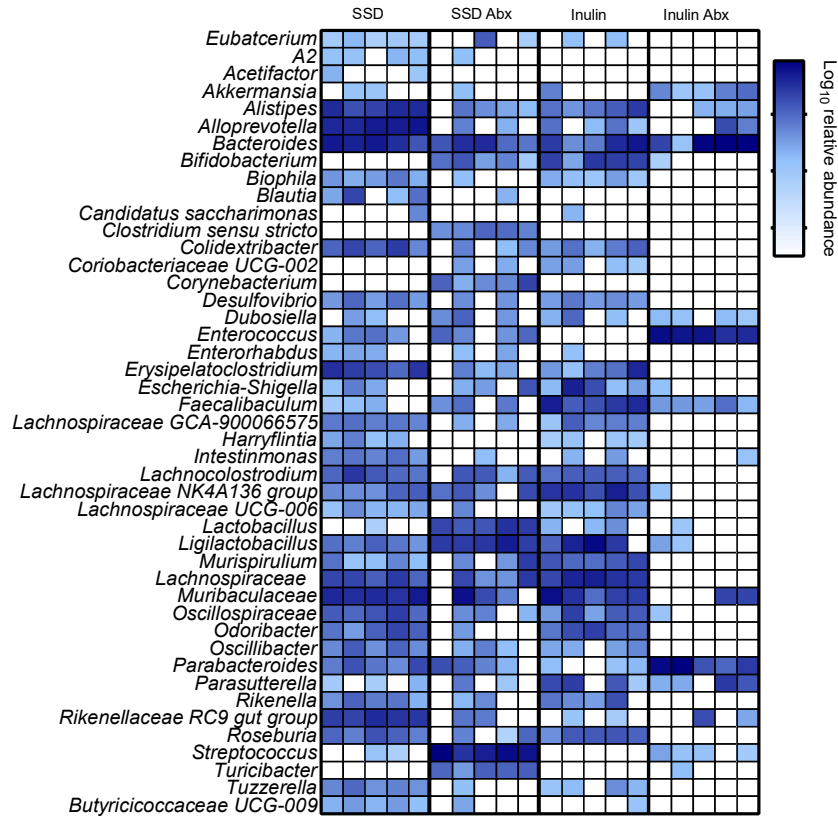
Supplementary Figure 1

a) Proportions of Tbet⁺ cells within Th17 population in large intestinal tissue, b) proportions of type-1, type-2 and type-3 innate lymphoid cells (ILC) in large intestinal tissue, and c) proportions of dendritic cell (DC) subsets in mesenteric lymph nodes, in mice fed either SSD or inulin, with or without 7 days of *Trichuris muris* (Tm) infection. DCs were defined as CD11c⁺, CD64⁺, MHCII⁺. n=5 per treatment group, shown is mean ± S.E.M.



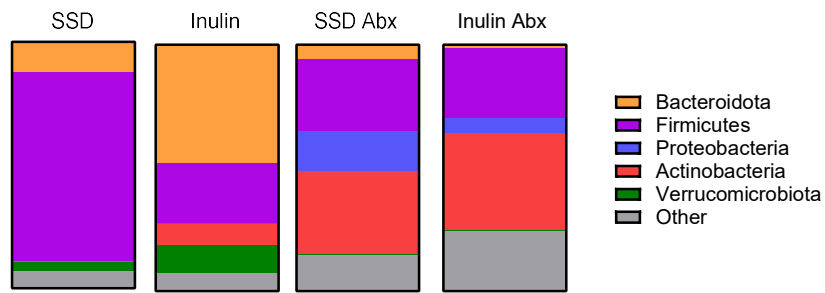
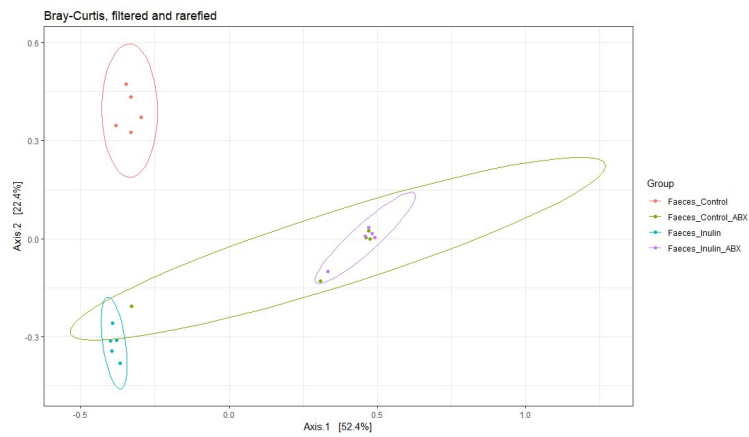
Supplementary Figure 2

- PCoA analysis (Bray-Curtis distance metrics) of faecal microbiota of SSD- or inulin-fed donor mice, and recipient mice prior to infection. n= 4-6 per treatment group. Shown also are PERMANOVA comparisons between groups.
- Relative abundances of genera (and *Muribaculaceae*, *Lachnospiraceae*, and *Oscillospiraceae* families) in donor and recipient mice.
- Relative abundances of selected genera. * $p < 0.05$ by Kruskal-Wallis test and Dunn's post-hoc testing.



Supplementary Figure 3

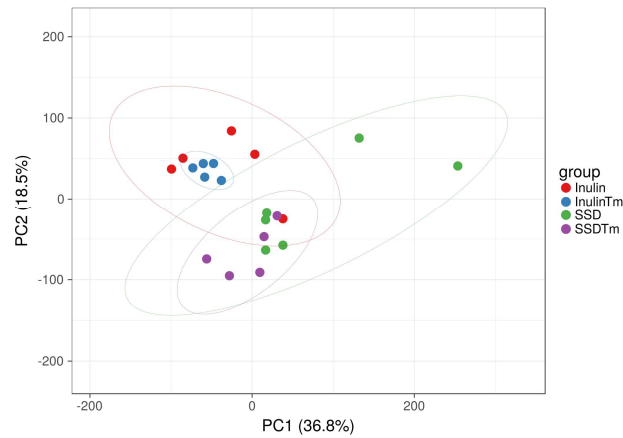
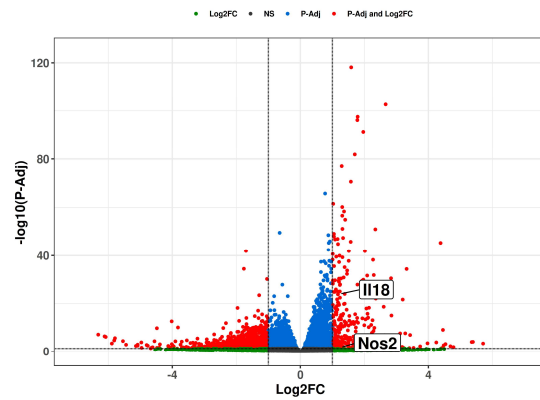
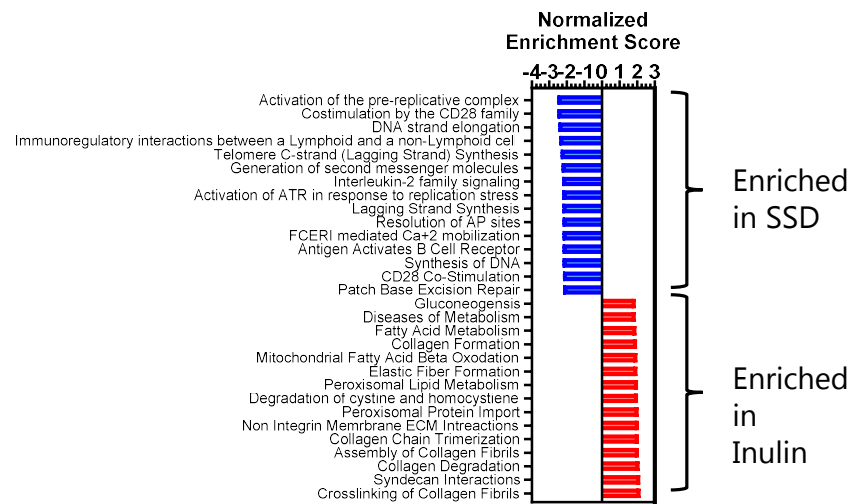
- a) Relative abundances of genera (and *Muribaculaceae*, *Lachnospiraceae*, and *Oscillospiraceae* families) in *T. muris*-infected mice treated with either a targeted antibiotic dose (day 4 p.i. to day 21 p.i.), or no antibiotic treatment, and fed either SSD or inulin.

a**b**

Comparison	Adjusted p-value (PERMANOVA)
SSD vs Inulin	0.046
SSD vs SSD+Abx	0.045
SSD vs Inulin+Abx	0.045
Inulin vs SSD+Abx	0.046
Inulin vs Inulin+Abx	0.049
SSD+Abx vs Inulin+Abx	1

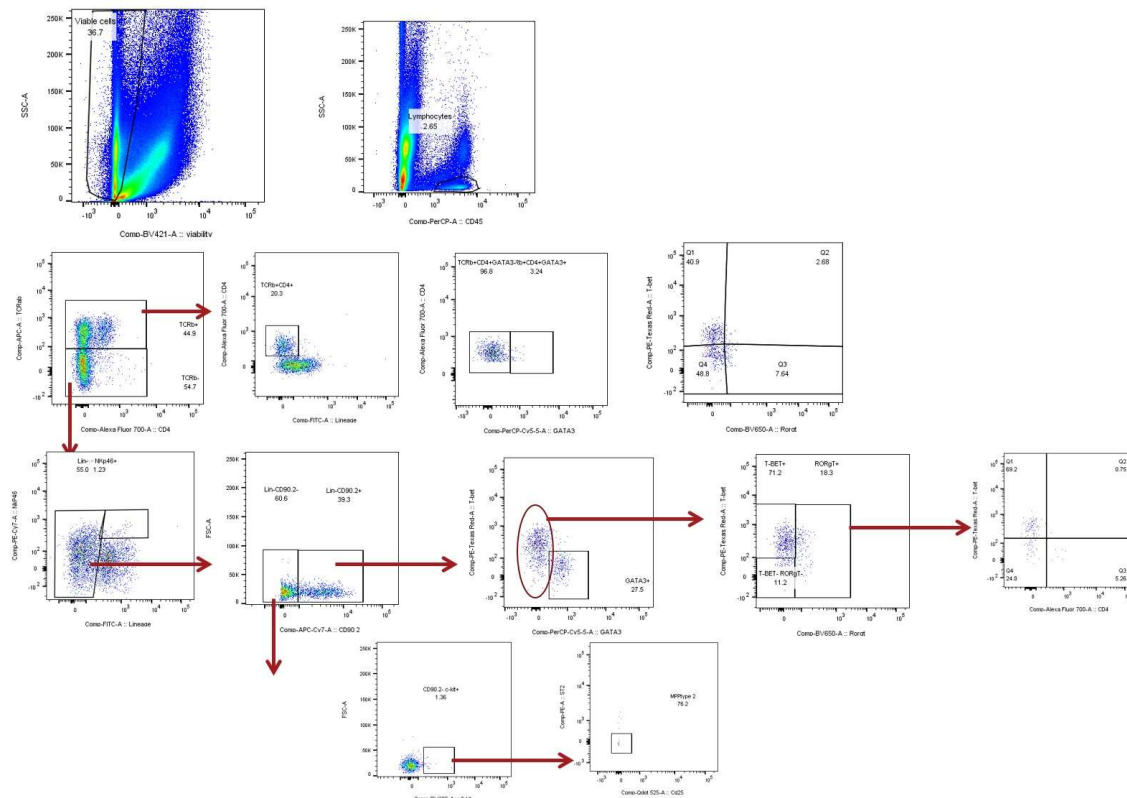
Supplementary Figure 4

- Relative abundances distributed by phylum in mice infected with *Trichuris muris* for 21 days and fed either control semi-synthetic diet (SSD), inulin, with or without antibiotic (Abx) treatment for the full experimental period.
- PCoA analysis (Bray-Curtis distance metrics) of faecal microbiota of control (SSD)- or inulin-fed mice, with or without antibiotic (Abx) treatment for the full experimental period. n= 5 per treatment group. Shown also are PERMANOVA comparisons between groups.

a**b****c**

Supplementary Figure 5

- Principal component analysis of the caecal transcriptome in mice fed either SSD or inulin, with or without 7 days *Trichuris muris* (*Tm*) infection. N= 5-6 per group
- Significantly regulated (fold change >2; adjusted p value <0.05) in *Tm*-infected mice (day 7 p.i.), fed with inulin, relative to infected mice fed SSD.
- Significantly regulated gene pathways (q <0.05) identified by gene set enrichment analysis in *Tm*-infected mice (day 7 p.i.), fed either SSD or inulin



Supplementary Figure 6

Gating Strategy for identification of T-cells and innate lymphoid cells in intestinal tissue.