**Supporting Information**

**Materials and Methods**

***Analysis of the intestinal microflora by real-time PCR and quantification of 16S rRNA gene sequences.*** DNA extractions from intestinal luminal contents were prepared as described previously [1]. The DNA extracts and the plasmids were quantified with Quant-iT PicoGreen reagent (Invitrogen) and were all adjusted to 1 ng DNA/µl. The abundance of specific intestinal bacterial groups was measured by quantitative real-time PCR based on a SYBR Green Assay using a LightCycler 1.5 (Roche Diagnostics) PCR with group-specific 16S rRNA gene primers (Tib Molbiol) as listed in Table 1. Each reaction mixture (20 µl) was composed of 12.2 µl water (Sigma-Aldrich, USA), 2 µl 10**×** Buffer I and 2 µl 25mM MgCl2 (Applied Biosystems), 0.4 µl PCR nucleotide mix (each dNTP 10 mM, Roche Diagnostics), 0.1 µl BSA (20 mg/ml, Fermentas), 0.1 µl of a 1:200 dilution of SYBR Green I (10.000**×** concentrate, Invitrogen), 0.4 µl of AmpliTaq DNA polymerase (2.5 U/µl, Applied Biosystems), 0.4 µl of each of the specific primers (30 µM, Tib MolBiol) and 2 µl DNA extract adjusted to 1 ng/µl. The amplification started with an initial denaturation at 95°C for 2 min followed by 40 cycles of 95°C for 10 s, annealing at 60°C for 10 s, and elongation at 72°C for 30 s. Fluorescence data were acquired at 80°C (75°C for MIB/BACT, 75°C for ECOCC) after each cycle. After amplification melting curves for checking the targeted PCR products were obtained by heating from 60°C to 95°C at a rate of 0.05°C/s, with continuous fluorescence collection. Data analysis was done with LightCycler Software 3.5.28 using the second derivative maximum method.

As reference for quantification standard curves with tenfold serial dilutions of plasmids (ranging from 2 ×108 to 2 ×102 copies) were generated for each run. The real-time PCR primers were first used to amplify cloned 16S rDNA of reference strains. Each PCR product was cloned into pCR2.1-TOPO using the TOPO-TA cloning kit (Invitrogen) following the manufacturer‘s recommendations. The number of 16S rRNA gene copies/ng DNA of each sample was determined, not the actual bacterial numbers or CFU.

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| **Target** | **Reference Strain** | **Sequence (5´ to 3´)** | **Reference** |
| **Domain Bacteria** (targets 16S V3 region) | Escherichia coli ATCC 25922 | F: CGGYCCAGACTCCTACGGGR:TTACCGCGGCTGCTGGCAC |  [2] |
| **Clostridium 16S rRNA cluster IV**[*Clostridium leptum* subgroup,includes *Faecalibacterium**(Fusobacterium) prausnutzii*] | Clostridium leptum DSMZ 753 | F: TTACTGGGTGTAAAGGGR: TAGAGTGCTCTTGCGTA |  [3] |
| **Clostridium 16S rRNA cluster XIVa and XIVb**(*Clostridium coccoides –**Eubacterium rectale* subgroup) | Clostridium coccoides DSMZ 935 | F: AAATGACGGTACCTGACTAAR: CTTTGAGTTTCATTCTTGCGAA |  [4] |
| **Bacteroides group,** including*Prevotella* and *Porphyromonas* | Bacteroides ovatus DSMZ 1896 | F: GAAGGTCCCCCACATTGR: CAATCGGAGTTCTTCGTG |  [5] |
| **gamma-Proteobacteria/Enterobacteriaceae** | Escherichia coli ATCC 25922 | F: AAACTCAAATGAATTGACGGR: CTTTTGCAACCCACTCC |  [6] |
| **Lactobacillus group** including*Leuconostoc*, *Pediococcus*,*Aerococcu*s and *Weissella* but not*Enterococcus* or *Streptococcus* | Lactobacillus acidophilus DSM 20079 | F: CACCGCTACACATGGAGR: AGCAGTAGGGAATCTTCCA |  [7] [8] |
| **Enterococcus genus** | Enterococcus faecalis DSM 20478 | F: CCTTATTGTTAGTTGCCATCATTR: ACTCGTTGTACTTCCCATTGT |  [9] |
| **Mouse Intestinal Bacteroides** | MIB plasmid 16-1 | F: CCAGCAGCCGCGGTAATAR: CGCATTCCGCATACTTCTC |  [10] |

***Generation of bone marrow chimeras.*** CD45.1+ Rag- mice were irradiated with 8.5 Gy and reconstituted with 1.8-2.4 x 107 BM cells from CD45.2+ Rag-IL-7R- or CD45.1+ Rag- donors. Mice were treated for 4 weeks with antibiotics (Dimitridazole 4g/l, Sulfadoxine 100mg/l, Trimethoprim 20mg/l) via the drinking water. The degree of chimerism was determined by flow cytometry in the peripheral blood 8.5 weeks post BM transfer. More than 95% of peripheral blood leukocytes of CD45.1+ Rag- recipients were derived from the CD45.2+ bone marrow of donor Rag-IL-7R- mice.

**References**

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