

Table S1. Analysis of the gut microbiota at the phylum level in functional constipation model mice during administration.

category	C	M	R	A1	A2	A3	A4
Bacteroidota	3.38E-01	5.42E-01	2.07E-01	4.46E-01	2.78E-01	3.26E-01	5.22E-01
Firmicutes	1.35E-01	1.96E-01	8.37E-02	2.78E-01	9.09E-02	1.92E-01	1.72E-01
Cyanobacteria	1.84E-02	5.45E-02	8.20E-02	7.10E-03	1.89E-01	2.14E-02	1.20E-01
Crenarchaeota	5.64E-02	4.90E-03	8.65E-02	1.40E-03	6.27E-02	5.00E-03	6.40E-03
Proteobacteria	1.65E-01	6.41E-02	2.26E-01	6.80E-02	1.83E-01	1.48E-01	7.47E-02
Acidobacteriota	6.71E-02	3.10E-03	9.00E-02	6.60E-03	3.51E-02	8.36E-02	3.60E-03
Actinobacteriota	7.78E-02	7.02E-02	7.87E-02	1.26E-01	4.81E-02	1.21E-01	3.55E-02
Verrucomicrobiota	6.04E-02	3.36E-02	1.96E-02	3.29E-02	2.63E-02	3.54E-02	3.93E-02
Planctomycetota	2.30E-02	2.00E-04	4.56E-02	2.00E-04	3.32E-02	1.00E-02	1.00E-03
Chloroflexi	2.07E-02	1.00E-03	2.64E-02	1.10E-03	1.66E-02	2.00E-02	1.00E-03
Others	3.76E-02	2.94E-02	5.31E-02	3.29E-02	3.75E-02	3.73E-02	2.56E-02

Table S2. Analysis of the gut microbiota at the genus level in functional constipation model mice during administration.

category	C	M	R	A1	A2	A3	A4
Lactococcus	6.37E-02	1.95E-02	5.30E-03	1.11E-01	2.98E-02	8.28E-02	8.80E-03
Cyanobium_PCC-6307	0.00E+00	0.00E+00	5.11E-02	0.00E+00	8.62E-02	0.00E+00	5.30E-02
unidentified_Chloroplast	1.82E-02	5.30E-02	2.25E-02	5.70E-03	8.80E-02	2.11E-02	5.80E-02
Akkermansia	4.61E-02	3.31E-02	2.90E-03	3.21E-02	1.99E-02	2.23E-02	3.88E-02
Alloprevotella	2.49E-02	2.99E-02	1.22E-02	6.87E-02	5.22E-02	3.61E-02	8.10E-02
Bacteroides	2.58E-02	5.61E-02	1.83E-02	4.53E-02	2.33E-02	5.07E-02	9.52E-02
Lactiplantibacillus	1.40E-03	2.70E-03	2.43E-02	8.10E-03	8.80E-03	1.00E-03	1.26E-02
Pseudomonas	2.80E-02	1.70E-03	4.88E-02	3.10E-03	4.06E-02	1.85E-02	4.30E-03
Candidatus_Nitrosopumilus	1.38E-02	2.50E-03	2.11E-02	4.00E-04	1.65E-02	1.00E-04	3.10E-03
Bifidobacterium	1.00E-04	1.91E-02	2.00E-04	1.77E-02	1.00E-04	1.95E-02	3.00E-04
unidentified_Mitochondria	4.60E-03	1.81E-02	4.30E-03	6.00E-04	1.21E-02	4.30E-03	1.68E-02
Lactobacillus	5.00E-03	4.70E-03	1.50E-03	1.08E-02	3.80E-03	5.80E-03	1.82E-02
Synechococcus_CC9902	0.00E+00	0.00E+00	7.90E-03	0.00E+00	1.37E-02	0.00E+00	7.80E-03
Prevotella_7	2.00E-04	1.15E-02	9.00E-04	1.02E-02	1.50E-03	1.21E-02	1.00E-03
Curtobacterium	7.40E-03	5.60E-03	6.00E-04	1.92E-02	8.00E-04	1.07E-02	4.00E-03
Faecalibaculum	9.00E-04	5.00E-03	8.00E-04	1.10E-03	2.00E-03	4.00E-04	1.19E-02
Candidatus_Koribacter	6.70E-03	1.00E-04	7.50E-03	5.00E-04	5.00E-04	9.80E-03	3.00E-04
Vibrio	1.00E-04	7.70E-03	1.00E-04	4.00E-04	6.80E-03	1.00E-04	8.80E-03
HSB_OF53-F07	5.50E-03	1.00E-04	4.90E-03	2.00E-04	3.00E-04	8.50E-03	2.00E-04
Allobaculum	5.00E-04	8.80E-03	1.90E-03	4.30E-03	1.00E-04	0.00E+00	2.40E-03
Flavobacterium	7.00E-03	2.00E-04	1.14E-02	3.00E-04	1.11E-02	4.30E-03	1.00E-04
Odoribacter	5.30E-03	5.80E-03	2.90E-03	9.70E-03	2.00E-03	1.70E-03	4.00E-03
Pseudohongiell	1.00E-04	3.70E-03	6.00E-04	6.80E-03	1.10E-03	1.00E-04	4.30E-03
Gluconobacter	3.50E-03	4.20E-03	2.00E-04	1.38E-02	5.00E-04	5.30E-03	3.80E-03
Muribaculum	7.80E-03	1.92E-02	6.60E-03	1.00E-02	5.10E-03	5.80E-03	9.80E-03
Escherichia-Shigella	6.80E-03	7.00E-04	4.10E-03	1.00E-03	2.70E-03	5.00E-04	1.10E-03
Acidothermus	5.70E-03	4.00E-04	6.10E-03	7.00E-04	7.00E-04	7.10E-03	4.00E-04
Parabacteroides	9.10E-03	1.64E-02	3.00E-03	1.04E-02	7.60E-03	1.02E-02	1.32E-02

Blautia	2.00E-04	6.60E-03	4.00E-04	6.40E-03	3.00E-04	6.10E-03	2.60E-03
Candidatus_Nitrosopela							
gicus	3.90E-03	5.00E-04	5.70E-03	1.00E-04	3.70E-03	1.00E-04	3.00E-04