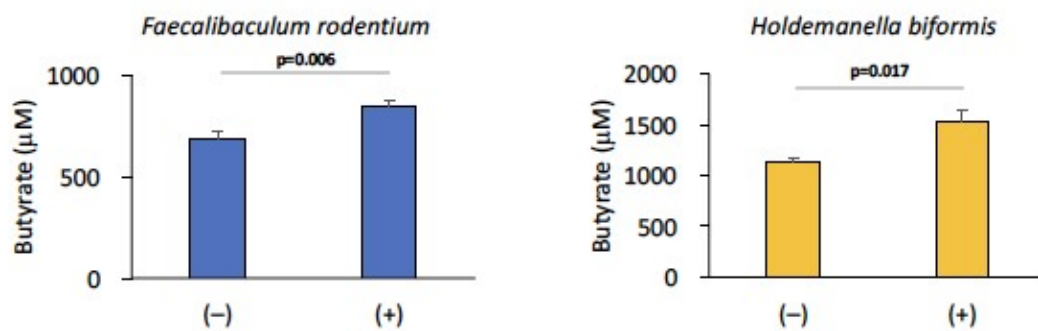
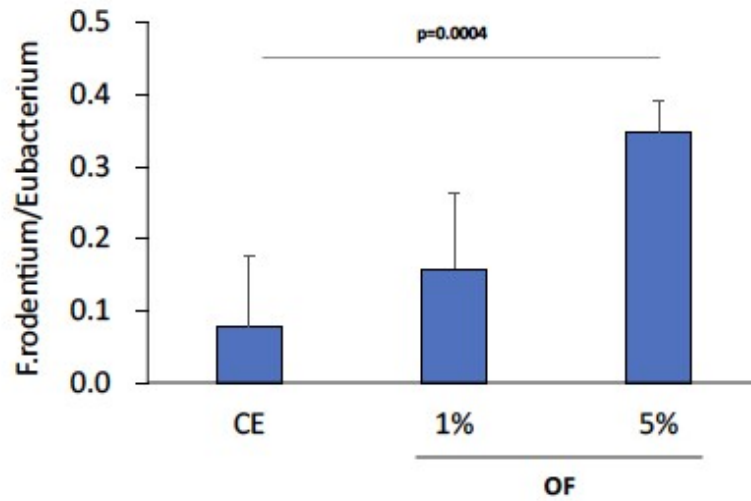


Supplementary Figure 1. Soluble OF-induced bacterial growth *in vitro*. (A, B) Density of *Faecalibaculum rodentium* or *Holdemanella bififormis* in the culture medium was measured 16 h after inoculating bacteria to a starch-free GAM medium in the presence or absence of soluble OF (1.25 or 5 %). Two independent experiments showing the average of two samples (A) and statistical significance between control (-) and soluble OF (+) (B). Values and error bars indicates mean ± SD.

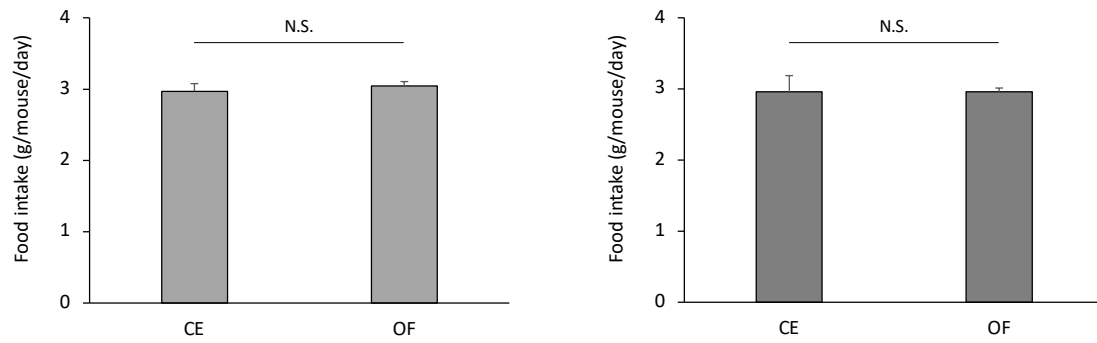


Supplementary Figure 2. Butyrate concentration in the culture medium of *F.rodentium* and *H.biformis*.

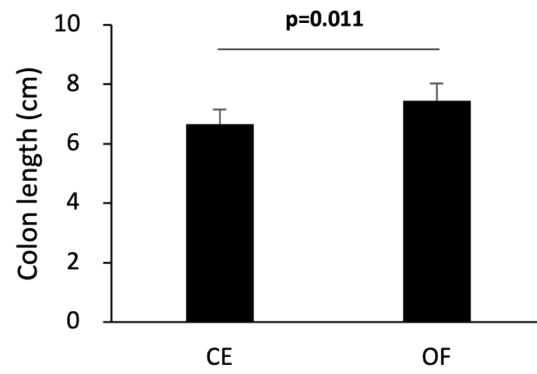
Gas chromatography analysis of butyrate produced by *F. rodentium* or *H. biformis* in the culture supernatant. Culture medium was collected 16 h after the inoculation of bacteria to starch-free GAM medium in the presence (+) or absence (-) of soluble OF (n = 3). Values and error bars indicates mean \pm SD.



Supplementary Figure 3. Relative abundance of *F. rodentium* in OF-fed mice for one week. RT-PCR analysis of eubacterium and *F.rodentium* in fecal DNA isolated from mice fed CE or OF (1 or 5%) for 1 week (n = 6). Values and error bars indicates mean \pm SD.



Supplementary Figure 4. Amount of food intake of mice fed chow containing CE or OF (5%) . The six cages (three mice/cage) were divided into two groups. One group was fed modified AIN-76A containing 5% CE, and the other was fed AIN-76A containing 5% OF. The amount of food intake was measured weekly. The left and right panels show the amounts of food intake measured during the first week and second week, respectively. Values and error bars indicates mean \pm SD. N.S.: not significant.



Supplementary Figure 5. Colon length 3 days after TNBS administration in CE- or OF-fed mice. Values and error bars indicates mean \pm SD.

Diet	Modified AIN-76A		CE		OF (1%)		OF (2%)		OF (5%)	
	g%	kcal%	g%	kcal%	g%	kcal%	g%	kcal%	g%	kcal%
Protein	21	21	20	21	20	21	20	21	20	21
Carbohydrate	69	68	66	68	66	68	66	68	66	68
Fat	5	12	5	12	5	12	5	12	5	12
Total		100		100		100		100		100
kcal/g		4.11		3.9		3.9		3.9		3.9
Ingredient	g	kcal	g	kcal	g	kcal	g	kcal	g	kcal
Casein	200	800	200	800	200	800	200	800	200	800
DL-Methionine	3	12	3	12	3	12	3	12	3	12
Corn Starch	0	0	0	0	0	0	0	0	0	0
Sucrose	0	0	0	0	0	0	0	0	0	0
Dextrose	650	2600	650	2600	650	2600	650	2600	650	2600
Cellulose (BW200)	0	0	50	0	40	0	30	0	0	0
Oat Fiber	0	0	0	0	10	0	20	0	50	0
Corn Oil	50	450	50	450	50	450	50	450	50	450
Mineral Mix (S10001)	35	0	35	0	35	0	35	0	35	0
Vitamin Mix (V10001)	10	40	10	40	10	40	10	40	10	40
Choline Bitartrate	2	0	2	0	2	0	2	0	2	0
Total	950	3902	1000	3902	1000	3902	1000	3902	1000	3902

Supplementary Table 1. Composition of the diet used in this study

Target bacteria	Direction	Sequence (5' to 3')
Eubacterium	Forward	ACTCCTACGGGAGGCAGCAGT
	Reverse	ATTACCGCGGCTGCTGGC
<i>Faecalibaculum rodentium</i>	Forward	CGGGAATACGCTCTGGAAA
	Reverse	GCCAACCAACTAATGCACCG

Supplementary Table 2. Primer sequences for qPCR

Group 1	Group 2	pseudo-F	p-value	q-value
BG0	BG1	1.378	0.243	0.292
BG0	BG2	1.974	0.124	0.218
BG0	BG5	6.246	0.001	<u>0.006</u>
BG1	BG2	1.006	0.385	0.385
BG1	BG5	2.964	0.02	0.060
BG2	BG5	1.981	0.145	0.218

Supplementary Table 3. Statistical significance of β -diversity

Group 1	Group 2	H	p-value	q-value
BG0	BG1	0.231	0.631	0.631
BG0	BG2	2.837	0.092	0.138
BG0	BG5	8.308	0.004	<u>0.012</u>
BG1	BG2	0.641	0.423	0.508
BG1	BG5	8.308	0.004	<u>0.012</u>
BG2	BG5	6.564	0.010	<u>0.021</u>

Supplementary Table 4. Statistical significance of α -diversity (Observed features)