

Supplementary Material

Table S1. Relative abundance of different intestinal microbial groups, calculated as a percentage (mean \pm standard deviation) of the total microbial counts, at time 0 and after eight days of daily administration of *B. animalis* subsp. *lactis* IPLA 20020 (fresh culture or lyophilized) or *L. gasseri* IPLA 20212 (fresh culture), and a placebo (control) to adult BALB/c mice. Total counts at each sampling time are indicated as log n° cells/g

Intestinal microbial groups	Control		<i>B. animalis</i> subsp. <i>lactis</i> fresh		<i>B. animalis</i> subsp. <i>lactis</i> lyophilized		<i>L. gasseri</i> fresh	
	0 days	8 days	0 days	8 days	0 days	8 days	0 days	8 days
<i>Bacteroides-Prevotella- Phorphyromonas</i> group	77.620 \pm 11.895	77.709 \pm 19.905	60.747 \pm 4.680	52.218 \pm 8.685	78.480 \pm 9.499	65.675 \pm 15.705	62.230 \pm 9.409	53.181 \pm 4.215
<i>Bifidobacterium</i>	0.634 \pm 0.105	0.875 \pm 0.468	0.325 \pm 0.044	0.355 \pm 0.108	0.651 \pm 0.202	0.947 \pm 0.679	0.455 \pm 0.107	0.598 \pm 0.166
<i>Lactobacillus-Weisella</i> group	0.899 \pm 0.666	0.527 \pm 0.681	0.286 \pm 0.286	0.436 \pm 0.518	0.478 \pm 0.278	1.123 \pm 0.505	0.139 \pm 0.074	0.414 \pm 0.305
Enterobacteriaceae	0.007 \pm 0.003	0.026 \pm 0.018	0.003 \pm 0.001	0.007 \pm 0.005	0.003 \pm 0.001	0.005 \pm 0.003	0.005 \pm 0.003	0.003 \pm 0.002
<i>Clostridium</i> cluster XIVa	1.145 \pm 0.633	2.404 \pm 1.106	0.702 \pm 0.484	0.382 \pm 0.331	1.053 \pm 0.357	1.182 \pm 1.534	0.502 \pm 0.188	0.414 \pm 0.073
Others	19.694 \pm 12.904	18.459 \pm 21.658	37.937 \pm 4.699	46.602 \pm 9.022	19.335 \pm 9.966	31.070 \pm 18.237	36.669 \pm 9.641	45.473 \pm 4.354
Total counts	11.216 \pm 0.244	10.975 \pm 0.381	11.463 \pm 0.156	11.534 \pm 0.094	11.438 \pm 0.121	11.250 \pm 0.238	11.505 \pm 0.069	11.433 \pm 0.087

Table S2. Molar proportions of the major SCFA (acetate, propionate, and butyrate), calculated as a percentage of the total SCFA (sum of concentrations of the three major SCFA expressed in mM) at time 0 and after eight days of daily administration of *B. animalis* subsp. *lactis* IPLA 20020 (fresh culture or lyophilized) or *L. gasseri* IPLA 20212 (fresh culture), and a placebo (control) to adult BALB/c mice. Ratios between some SCFA are also indicated.

Intestinal SCFA	Control		<i>B. animalis</i> subsp. <i>lactis</i> fresh		<i>B. animalis</i> subsp. <i>lactis</i> lyophilized		<i>L. gasseri</i> fresh	
	0 days	8 days	0 days	8 days	0 days	8 days	0 days	8 days
Acetic acid	76.35 ± 2.09	78.08 ± 2.48	75.37 ± 3.79	70.47 ± 3.83	75.55 ± 1.09	72.96 ± 3.43	73.15 ± 1.99	72.12 ± 3.31
Propionic acid	15.15 ± 2.01	14.22 ± 1.16	12.58 ± 1.75	12.84 ± 1.1	14.08 ± 0.76	13.59 ± 1.46	13.3 ± 2.51	14.81 ± 1.32
Butyric acid	8.5 ± 1.49	7.7 ± 1.63	12.05 ± 2.46	16.68 ± 4.27	10.38 ± 1.18	13.45 ± 3.77	13.56 ± 2.16	13.07 ± 2.44
Acetic/Propionic	5.11 ± 0.69	5.53 ± 0.63	5.69 ± 0.71	5.52 ± 0.49	5.38 ± 0.31	5.41 ± 0.6	5.68 ± 1.22	4.91 ± 0.63
Acetic/Butyric	9.27 ± 2.06	10.53 ± 2.23	6.52 ± 1.61	4.58 ± 1.77	7.36 ± 0.86	5.81 ± 1.77	5.54 ± 1.12	5.72 ± 1.38
Total SCFA (mM)	95.56 ± 23.53	66.99 ± 23.07	131.27 ± 36.30	109.54 ± 26.68	128.13 ± 23.53	112.40 ± 30.74	156.04 ± 26.72	137.72 ± 32.20