

## Human intestinal mucosa-associated *Lactobacillus* and *Bifidobacterium* strains with probiotic properties modulate IL-10, IL-6 and IL-12 gene expression in THP-1 cells

M. Čitar, B. Hacin, G. Tompa, M. Štampelj, I. Rogelj, J. Dolinšek, M. Narat and B. Bogovič Matijašić

**Table S1. Minimum inhibitory concentration (MIC) (µg/ml) of selected antimicrobial agents as determined by E-test assay.**

Species subspecies	or Strain	AM		VA		TP		GM		SM		EM		CM		TC		CL		EF		CI		MZ		KM	
		MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO	MH	ISO
<i>L. paracasei</i>	L248	0.25	0.19	>256	>256	>256	>256	4	2	32	32	0.125	0.38	0.016	0.016	1.5	1.5	2	4	4	4	4	6	>256	>256	n.t.	n.t.
	L271	0.125	0.125	>256	>256	>256	>256	2	1	12	12	0.125	0.047	0.016	0.016	0.25	0.25	0.5	1.5	1	1	0.5	0.5	>256	>256	n.t.	n.t.
	L567 m	0.25	0.19	>256	>256	>256	>256	3	1.5	12	8	0.047	0.032	0.016	0.016	0.5	0.5	1.5	3	3	1.5	1.5	1	>256	>256	n.t.	n.t.
	L350	0.25	0.19	>256	>265	>256	>256	3	1.5	12	8	0.094	0.064	0.064	0.016	0.5	0.5	1	1.5	3	1.5	2	0.75	>256	>256	16	8
	L150 m	0.5	0.19	>256	>256	>256	>256	1	2	64	48	<b>3</b>	<b>2</b>	0.25	0.125	<b>5</b>	4	1.5	1.5	>32	>32	>32	>32	>256	256	n.t.	n.t.
	L203 s.m	0.25	0.25	>256	>256	>256	>256	2	1.5	8	8	0.25	0.047	0.016	0.016	0.38	0.25	1	0.75	3	1.5	1	1	>256	>256	n.t.	n.t.
<b>MICbp</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>32</b>		<b>64</b>		<b>1</b>		<b>1</b>		<b>4</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>64</b>	
<i>L. fermentum</i>	L911	0.094	0.064	>256	>256	>256	>256	4	2	24	24	>256	>256	0.016	0.016	>256	>256	1.5	1.5	4	4	6	8	>256	>256	n.t.	n.t.
	L928	0.064	0.094	>256	>256	>256	>256	3	1	24	16	0.125	0.025	0.016	0.023	2	2	1	1.5	3	4	4	4	>256	>256	n.t.	n.t.
	L916 b.r	0.064	0.125	>256	>256	>256	>256	6	3	32	48	0.125	0.025	0.016	0.016	3	3	1.5	1.5	4	4	>32	>32	>256	>256	n.t.	n.t.
	B912	0.125	0.067	>256	>256	>256	>256	0.75	1	12	24	0.125	0.5	0.016	0.032	>256	>256	2	2	4	4	6	3	>256	>256	n.t.	n.t.
	L930 bb	0.094	0.125	>256	>256	>256	>256	1	0.5	12	12	0.125	0.125	0.016	0.016	1	1.5	1.5	1	4	4	4	4	>256	>256	<b>64</b>	24
	B189	0.094	0.19	>256	>256	>256	>256	3	2	16	24	0.25	0.38	0.016	0.016	>256	>256	2	2	6	6	6	12	>256	>256	n.t.	n.t.
<b>MICbp</b>		<b>2</b>		<b>n.r.</b>		<b>n.r.</b>		<b>16</b>		<b>64</b>		<b>1</b>		<b>1</b>		<b>8</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>32</b>	
<i>L. rhamnosus</i>	L344	0.38	0.38	>256	<256	>256	>256	8	8	16	16	0.75	0.38	0.5	0.125	0.5	0.5	4	2	1.5	1.5	1	1	>256	>256	64	32
	L930 a	0.5	0.5	>256	>256	>256	>256	12	8	24	24	1	1	0.75	0.25	0.38	0.25	4	1.5	1	0.75	0.75	0.75	>256	>256	n.t.	n.t.
	L203 p	0.25	0.25	>256	>256	>256	>256	12	6	16	16	0.125	0.094	0.25	0.125	0.25	0.125	3	1.5	1.5	0.75	1	1	>256	>256	n.t.	n.t.
<b>MICbp</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>16</b>		<b>32</b>		<b>1</b>		<b>1</b>		<b>8</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>64</b>	
<i>L. plantarum</i>	L567v	0.094	0.094	>256	>256	>256	>256	12	6	0.48	0.48	<b>1</b>	<b>4</b>	0.125	0.125	12	12	1	2	>32	>32	>32	>32	>256	>256	n.t.	n.t.
	L150v	1.5	1.5	>256	>256	>256	>256	1	3	64	32	<b>4</b>	<b>4</b>	0.125	0.5	>256	>256	4	3	>32	>32	>32	>32	>256	>256	n.t.	n.t.
	L371	0.125	0.064	>256	>256	>256	>256	6	4	48	48	<b>1.5</b>	<b>1.5</b>	0.25	0.094	>256	>256	4	4	>32	>32	>32	>32	>256	>256	n.t.	n.t.
<b>MICbp</b>		<b>2</b>		<b>n.r.</b>		<b>n.r.</b>		<b>16</b>		<b>n.r.</b>		<b>1</b>		<b>2</b>		<b>32</b>		<b>8</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>64</b>	
<i>L. gasseri</i>	L916	0.047	0.125	>256	>256	0.125	0.125	6	6	2	6	0.125	0.25	0.25	0.75	1.5	1.5	1	1	>32	>32	>32	>32	>256	>256	32	48
<b>MICbp</b>		<b>1</b>		<b>2</b>		<b>n.r.</b>		<b>16</b>		<b>16</b>		<b>1</b>		<b>1</b>		<b>4</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>64</b>	
<i>B. animalis</i> subsp. <i>animalis</i>	IM386	0.016	0.023	0.19	0.19	0.25	0.047	48	16	64	24	0.125	0.094	1	0.5	0.25	0.25	1	0.5	2	2	2	2	1	1	>256	>256
<b>MICbp</b>		<b>2</b>		<b>2</b>		<b>n.r.</b>		<b>64</b>		<b>128</b>		<b>1</b>		<b>1</b>		<b>8</b>		<b>4</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>		<b>n.r.</b>	

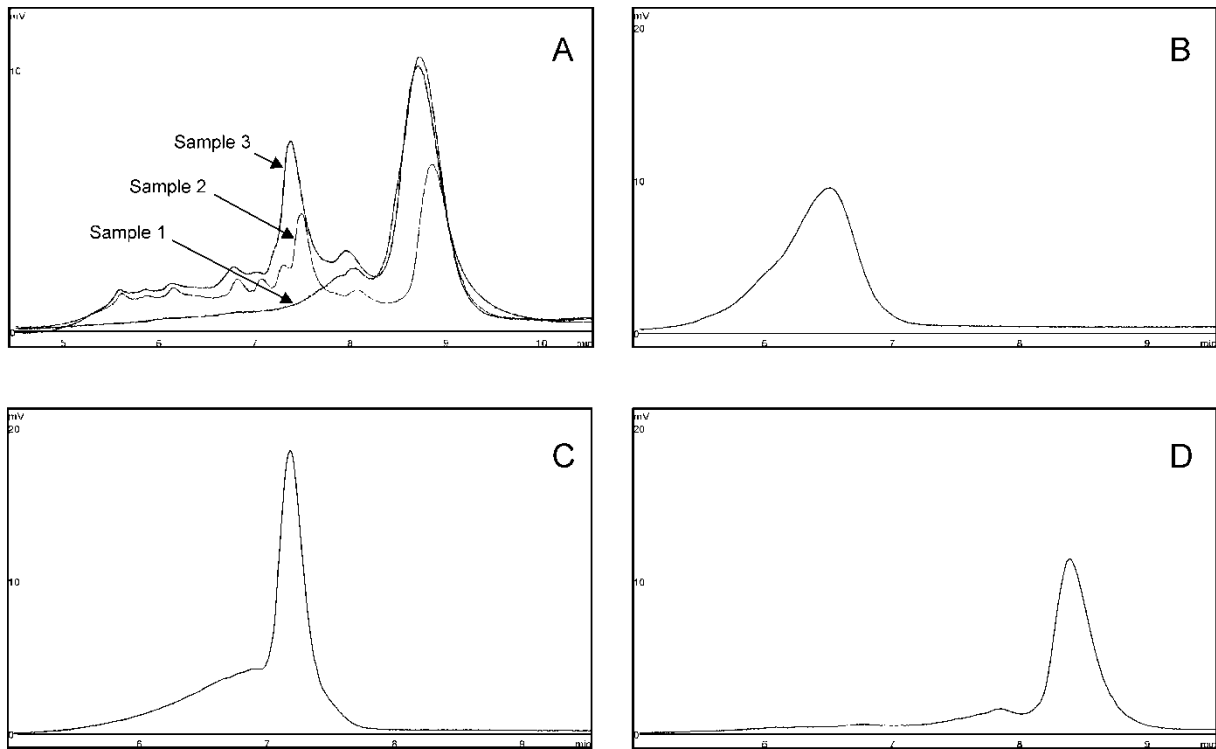
<sup>1</sup> MIC values indicating resistance to antimicrobials are marked bold (> EFSA breakpoint values); MICbp: breakpoint of MIC (EFSA's breakpoints (EFSA, 2012)); n.r.: test not required by EFSA; n.t.: not tested; MH: Mueller Hinton agar; ISO: ISO-sensitest agar; R: resistant; AM: ampicillin; VA: vancomycin; TP: teicoplanin; GM: gentamicin; SM: streptomycin; EM: erythromycin; CM: clindamycin; TC: tetracycline; CL: chloramphenicol; EF: enrofloxacin; CI: ciprofloxacin; MZ: metronidazole.

**Table S2. The survival rate (%) of five isolates from intestinal mucosa and two reference probiotic strains in simulated gastrointestinal conditions. Bacterial strains were exposed to simulated intestinal juice after incubation in simulated gastric juice.**

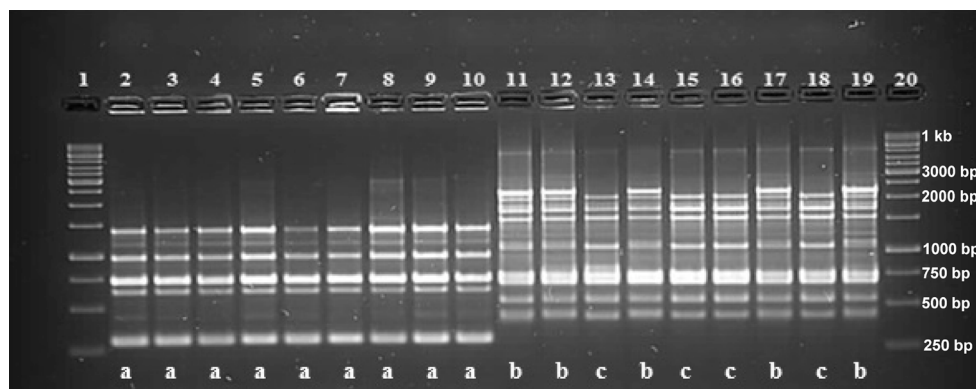
Isolate	Species	pH of simulated gastric juice	Survival ratio <sup>1</sup> (%) after 3 h in gastric juice	Survival ratio <sup>1</sup> (%) after 3 h in intestinal juice
L344	<i>L. rhamnosus</i>	7	131.51	107.98
		3	94.96	5.25
L350	<i>L. paracasei</i>	7	73.95	154.38
		3	93.69	0.50
L916	<i>L. gasseri</i>	7	95.04	22.55
		3	100.44	0.80
L930 bb	<i>L. fermentum</i>	7	66.62	52.12
		3	81.64	15.36
IM386	<i>B. animalis subsp. animalis</i>	7	81.34	52.30
		3	71.31	20.40
LGG*	<i>L. rhamnosus</i>	7	108.81	57.51
		3	84.29	1.26
BB-12*	<i>B. animalis subsp. lactis</i>	7	68.07	70.60
		3	14.57	0.44

<sup>1</sup>Survival ratio (%) = (final viability (cfu/ml) / initial viability (cfu/ml))×100.

Each number represents the mean value from two trials carried out in two parallels.



**Figure S1. Representative DHPLC profiles of pure and mixed bacterial cultures (A). Sample 1 is a pure culture, samples 2 and 3 represent mixed cultures. Additional images represent pure cultures of different *Lactobacillus* species: (B) *L. plantarum*, (C) *L. paracasei* and (D) *L. fermentum*. The peaks with different retention times (x – axis) represent different bacterial species.**



**Figure S2. An example of RAPD-PCR profile using primer 1254. Lanes 1 and 20: 1 – kbp DNA molecular weight marker; lanes 2-6: profile of isolates from ileal sample of the first donor; lanes 7-10: profile of isolates from colonic sample of the first donor; 11-14: profile of isolates from the second donor, ileum; lanes 15-19: profile of isolates from the second donor, colon. The letters on the bottom of the figure indicate different RAPD profiles (a, b, c).**