

Supplementary Information

Table S1. Antimicrobial activity of culture supernatants of marine *Bacillus* and *Bacillus* isolated from the Bioplus 2B[®] animal probiotic product against *Lactobacillus* and *Bifidobacterium*, as determined by the well diffusion assay ^a.

Indicator strain	Test strain							
	<i>B. pumilus</i>	<i>B. pumilus</i>	<i>B. licheniformis</i>	<i>B. pumilus</i>	<i>B. pumilus</i>	<i>B. pumilus</i>	<i>B. licheniformis</i>	<i>B. subtilis</i>
	WIT 582	WIT 584	WIT 586	WIT 588	WIT 590	WIT 592	DSM 5749	DSM 5750
<i>Lactobacillus acidophilus</i> LMG 9433	-	-	-	-	-	-	-	+++
<i>Lb. rhamnosus</i> LMG 6400	-	-	-	-	-	-	-	-
<i>Weissella viridescens</i> LMG 3507	-	-	-	-	-	-	+++	++++
<i>Lb. jensenii</i> LMG 6414	-	-	-	-	-	-	+	++++
<i>Lb. gasseri</i> LMG 9203	+	+	-	+	++	++	+	++
<i>Lb. plantarum</i> LMG 6907	-	-	-	-	-	-	-	-
<i>Lb. casei</i> LMG 6904	-	-	-	-	-	-	-	+++
<i>Lb. delbrueckii subsp. lactis</i> LMG 7942	++	+	++	++	++	++	+++	++++
<i>Lb. buchneri</i> LMG 6892	-	-	-	-	-	-	-	++++
<i>Lb. amylovorus</i> LMG 9496	++	++	+++	++	+++	++	+++	++++
<i>Lb. paracasei ssp. paracasei</i> LMG 7955	-	-	-	-	-	-	-	-
<i>Lb. salivarius</i> LMG 9477	-	-	-	-	-	-	-	-
<i>Lb. agilis</i> LMG 9186	-	-	-	-	-	-	+	++++
<i>Lb. murinus</i> LMG 14189	-	-	-	-	-	-	-	++
<i>Lb. johnsonii</i> DSM 10533	++	++	+++	++	+++	++	+++	++++
<i>Lb. fermentum</i> LMG 6902	-	-	-	-	-	-	++	+++
<i>Lb. gallinarum</i> LMG 9435	-	-	-	-	-	-	-	+++
<i>Lb. rhamnosus</i> GG	-	-	-	-	-	-	-	-
<i>L. bulgaricus</i> LMG 6901	+++	+++	++++	+++	++	+++	++++	++++
<i>Bifidobacterium infantis</i> NCIMB 702256	-	-	-	-	-	-	-	-
<i>B. psychroaerophilum</i> LMG 21775	-	-	-	-	-	-	-	++++

^a Mean radii of zones of inhibition from triplicate well diffusion assays; + = 0.1–1 mm; ++ = 1.1–2 mm; +++ = 2.1–3 mm; ++++ >3 mm; - = no antimicrobial activity.

Table S2. Bacterial strains used in this study as indicators for detection of antimicrobial activity and as controls for hemolysis, enterotoxin gene, adhesion and cytotoxicity assays.

Bacterial strain	Use in this study	Growth medium	Incubation temperature (°C)	Growth conditions
<i>Bacillus cereus</i> DSM 31	Positive control for hemolysis and enterotoxin gene assays	BHI ^a	37	Aerobic, 200 rpm ^d
<i>Bacillus subtilis</i> PY79	Negative control for hemolysis assays	BHI	37	Aerobic, 200 rpm
<i>Bacillus cereus</i> DSM 4348	Positive control for enterotoxin gene assays	BHI	37	Aerobic, 200 rpm
<i>Escherichia coli</i> DSM 10720	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> 0147 K88 F18	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> 0141 F18ab	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> F1L3	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> F2S2	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> F3P3	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> F15OF3	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Escherichia coli</i> O157:H7 NCTC 12900	Positive control for cytotoxicity assay	BHI	37	Aerobic
<i>Salmonella</i> Typhimurium DPC 6046 (DT 104)	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Salmonella</i> Typhimurium DPC 6465 (PT 12)	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Salmonella</i> Typhimurium WIT 386 (DT 104)	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Salmonella</i> Typhimurium WIT 397 (DT 17)	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Salmonella</i> Derby WIT 411	Indicator for antimicrobial assays	BHI	37	Aerobic
<i>Vibrio cholerae</i> N16961	Indicator for antimicrobial assays	LB + NaCl ^b	30	Aerobic
<i>Vibrio fischeri</i> MJ11	Indicator for antimicrobial assays	LB + NaCl	30	Aerobic
Methicillin sensitive <i>Staphylococcus aureus</i> (MSSA)	Positive control for cytotoxicity assay	BHI	37	Aerobic
<i>Lactobacillus rhamnosus</i> GG (LMG 6400)	Indicator, control for adherence and cytotoxicity assays	MRS + cysteine ^c	37	Anaerobic
<i>Lactobacillus acidophilus</i> LMG 9433	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus rhamnosus</i> LMG 6400	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus jensenii</i> LMG 6414	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus gasseri</i> LMG 9203	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus plantarum</i> LMG 6907	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus casei</i> LMG 6904	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic

Table S2. Cont.

Bacterial strain	Use in this study	Growth medium	Incubation temperature (°C)	Growth conditions
<i>Lactobacillus delbrueckii</i> subsp. <i>lactis</i> LMG 7942	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus buchneri</i> LMG 6892	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus amylovorus</i> LMG 9496	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus paracasei</i> ssp. <i>paracasei</i> LMG 7955	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus salivarius</i> LMG 9477	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus agilis</i> LMG 9186	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus murinus</i> LMG 14189	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus johnsonii</i> DSM 10533	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus fermentum</i> LMG 6902	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus gallinarum</i> LMG 9435	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Lactobacillus bulgaricus</i> LMG 6901	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Bifidobacterium infantis</i> NCIMB 702256	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Bifidobacterium psychroaerophilum</i> LMG 21775	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic
<i>Weissella viridescens</i> LMG 3507	Indicator for antimicrobial assays	MRS + cysteine	37	Anaerobic

^a Brain heart infusion (BHI; Oxoid, Basingstoke, Hampshire, UK); ^b Luria Bertani Miller (LB; Merck, Darmstadt, Germany) supplemented with 3% (w/v) NaCl; ^c de Man, Rogosa and Sharpe (MRS) ((Becton, Dickinson and Company (BD), Franklin Lakes, NJ, USA) supplemented with 0.05% (w/v) L-cysteine; ^d Broths were incubated with shaking at 200 rpm.

Figure S1. Influence of cell density on impedance (cell index) measurements taken using the xCELLigence real-time cell analysis system. HT-29 cells at densities of (A) 40,000; (B) 20,000; (C) 10,000; (D) 5000; (E) 2500; (F) 1250 and (G) 625 cells/mL in E-Plates were observed for 48h. Values are the mean of data from triplicate assays conducted on the same day, with SE indicated by error bars.

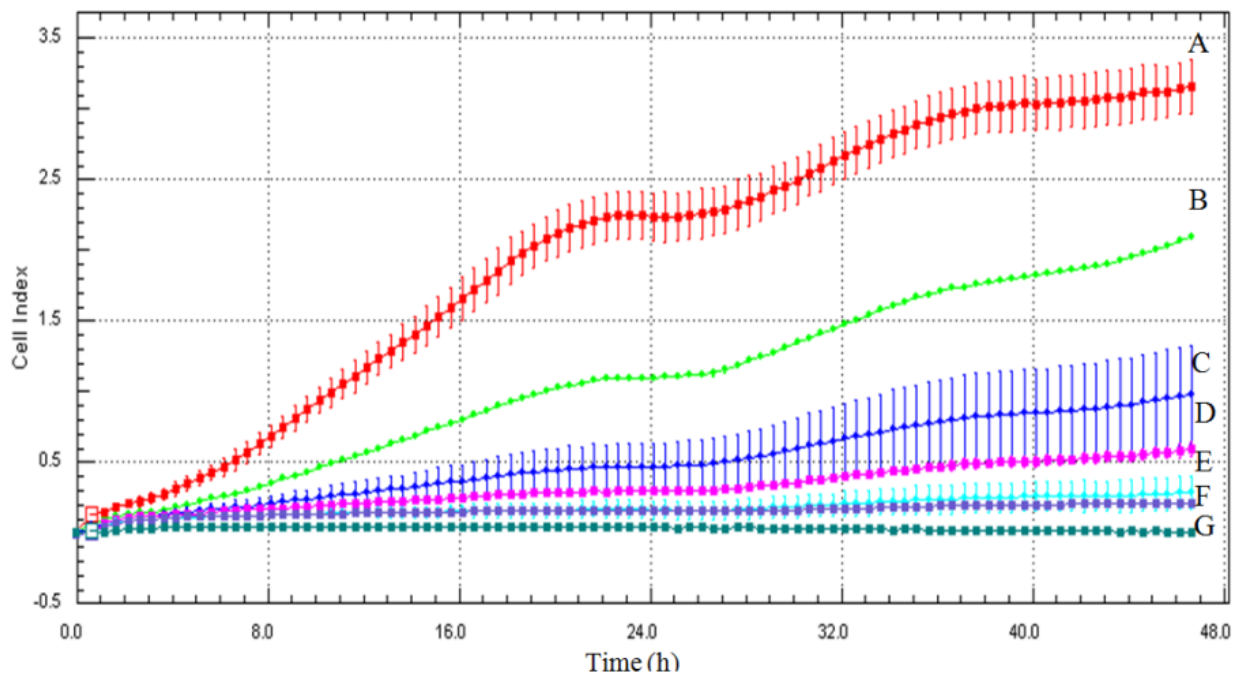


Figure S2. Dynamic monitoring of the influence of bacterial addition on impedance (cell index) measurements taken using the xCELLigence real-time cell analysis system. HT-29 cells at a density of 20,000 cells/mL were seeded into E-plates alone (control) or together with the bacterial strains indicated.

