

Additional file 3. Target organisms for 16-21-mer probes and actual tested microarray specificity.

Probe name	Full name ^a	Target organism(s)	Sequence (5'-3')	Predicted probe specificity ^m	Hybridisation with pure culture ⁿ	Actual specificity
Bacteroides	S-G-Bact-0400-a-S-19	<i>Bacteroides fragilis</i>	CAAGTAGCGTGAAGGATGA	<i>Bacteroides caecae</i> , <i>B. eggerthii</i> , <i>B. fragilis</i> , <i>B. merdae</i> , <i>B. ovatus</i> , <i>B. thetaiotaomicron</i> , <i>B. uniformis</i> , <i>B. vulgatus</i> and <i>B. stercoris</i> .	+	Genus
<i>B. fragilis</i> grp ^b	S-G-Bact-0631-a-S-20	<i>Bacteroides fragilis</i>	TAAAATTGCAGTTGATACTG	<i>Bacteroides fragilis</i> group	+	Species
<i>B. longum</i> grp2 ^b	S-S-Bact-0631-a-S-21	<i>Bacteroides fragilis</i>	TAAAATTGCAGTTGATACTGT	<i>Bacteroides fragilis</i> , <i>B. thetaiotaomicron</i> , <i>B. stercoris</i> , <i>B. vulgatus</i> , <i>B. caecae</i> , <i>B. uniformis</i> , <i>B. eggerthii</i> , <i>Prevotella zoogloformans</i> and <i>P. heparinolytica</i>	FP No Bacteroides species bound, but highly specific for <i>Bifidobacterium</i> <i>longum</i> and <i>B.</i> <i>infantis</i>	Species - The <i>Bifidobacterium</i> <i>longum</i> and <i>B.</i> <i>infantis</i> group
<i>B. distasonis</i> 1 ^c	S-G-Bact-0165-a-S-18	Bifidobacteria	GGGTGGTAATGCCGGATG	Specificity to a wide range of bifidobacteria	FP	Species <i>Bacteroides</i> <i>distasonis</i>
<i>B. distasonis</i> 2	S-S-Bact-0750-a-S-18	<i>Bacteroides distasonis</i>	TGCCAAGCCATTACTGAC	<i>Bacteroides distasonis</i>	FP <i>Bacteroides fragilis</i>	Genus
BLONG185	S-S-Bact-0185-a-S-18	<i>Bifidobacterium</i> <i>longum</i> , <i>B. breve</i> and <i>B.</i> <i>longum</i> bv. <i>Infantis</i>	TTCCAGTTGATCGCATGGT	<i>Bifidobacterium longum</i> , <i>B. breve</i> and <i>B.</i> <i>longum</i> bv. <i>Infantis</i>	FP	Non-specific
<i>B. longum</i> grp & <i>B. breve</i>	S-G-Bact-0277-a-S-18	<i>Bifidobacterium</i> <i>longum</i> , <i>B. breve</i> and <i>B.</i> <i>longum</i> bv. <i>Infantis</i>	CGACGATCCCAGAGATGG	<i>Bifidobacterium longum</i> and <i>B. longum</i> bv. <i>Infantis</i>	+	Species

Probe name	Full name ^a	Target organism(s)	Sequence (5'-3')	Predicted probe specificity	Hybridisation with pure culture	Actual specificity
<i>B. longum</i> grp3 ^d	S-G-Bact-0445-a-S-18	<i>Bifidobacterium longum</i> and <i>B. infantis</i>	TATCGGGGAGCAAGCGAG	<i>Bifidobacterium longum</i> , <i>B. infantis</i> , <i>B. pullorum</i> , <i>B. gallinarum</i> , <i>B. saeculare</i> and <i>B. subtile</i>	+	Species
<i>B. pseud</i> & <i>catenulatum</i> ^b	S-G-Bact-0177-a-S-16	<i>Bifidobacterium</i> <i>pseudocatenulatum</i>	CGGATGCTCCGACTCC	<i>Bifidobacterium catenulatum</i> group and <i>B. thermacidophilum</i>	+	Species
<i>B.</i> <i>adolescentis</i> ^e	S-G-Bact-0211-a-S-21	<i>Bifidobacterium</i> <i>adolescentis</i>	GGAAAGATTCTATCGGTATGG	<i>Bifidobacterium adolescentis</i> and <i>B. ruminantium</i>	+	Species
<i>B. angulatum</i> ^b	S-S-Bact-0186-a-S-18	<i>Bifidobacterium</i> <i>angulatum</i>	CAGTCCATCGCATGGTGG	<i>Bifidobacterium angulatum</i>	+	Species
<i>B. bifidum</i> ^b	S-G-Bact-0186-a-S-21	<i>Bifidobacterium</i> <i>bifidum</i>	CCACATGATCGCATGTGATTG	<i>Bifidobacterium bifidum</i> and <i>B. cuniculi</i>	+	Genus, <i>Bifidobacterium</i> <i>bifidum</i> and <i>B.</i> <i>longum</i>
<i>B. longum</i> grp1 ^b	S-S-Bact-1006-a-S-18	<i>Bifidobacterium longum</i> and <i>B. longum</i> bv. Infantis	GTTCCCGACGGTCGTAGA	<i>Bifidobacterium longum</i> , <i>B. pseudolongum</i> and <i>B. longum</i> bv. Infantis	+	Species
Enterobacteriaceae ^l	S-F-Bact-0183-a-S-18	Enterobacteriaceae	CGTCGCAAGACCAAAGAG	<i>Escherichia coli</i> and <i>Salmonella</i> Typhimurium	+	Family

Probe name	Full name ^a	Target organism(s)	Sequence (5'-3')	Predicted probe specificity	Hybridisation with pure culture	Actual specificity
Firmicutes1 ^f	S-P-Bact-0366-a-S-18	Firmicutes – probe 1	GCAGTAGGGAATCTTCCG	Too many 16S ribosomal gene target matches to define full probe specificity using BLASTn	+	Genus - <i>Lactobacillus acidophilus</i> , <i>L. gasseri</i> and <i>L. johnsonii</i>
Firmicutes2 ^f	S-P-Bact-0366-a-S-18	Firmicutes – probe 2	GCAGTAGGGAATCTTCGG	Too many 16S ribosomal gene target matches to define full probe specificity using BLASTn	+	Genus - <i>Enterococcus faecium</i>
Firmicutes3 ^f	S-P-Bact-0366-a-S-18	Firmicutes – probe 3	GCAGTAGGGAATCTTCCA	Too many 16S ribosomal gene target matches to define full probe specificity using BLASTn	+	Genus - <i>Lactobacillus acidophilus</i> , <i>L. gasseri</i> and <i>L. johnsonii</i>
<i>L. johnsonii</i> ^g	S-S-Bact-0052-a-S-23	<i>Lactobacillus johnsonii</i>	GATGATTTTAGTTCTTGCACTA A	<i>Lactobacillus johnsonii</i>	-	N/A
<i>L. casei</i> ^h	S-S-Bact-0092-a-S-20	<i>Lactobacillus casei</i>	TGCACTGAGATTCGACTTAA	<i>Lactobacillus casei</i>	-	N/A
<i>Enterococcus</i> genus	S-G-Bact-1262-a-S-16	<i>Enterococcus faecium</i>	AGTCGCGAGGCTAAGC	Specificity to a wide range of the <i>Enterococcus</i> genus	+	<i>Enterococcus faecium</i>
<i>E. faecium</i>	S-G-Bact-0097-a-S-18	<i>Enterococcus faecium</i>	CGGAAAAAGAGGAGTGGC	<i>Enterococcus faecium</i> , <i>E. canis</i> , <i>E. hirae</i> , <i>E. villorum</i> , <i>E. azikeevi</i> and <i>E. durans</i>	+	<i>Enterococcus faecium</i>
<i>R. obeum</i> ⁱ	S-S-Bact-1455-a-S-20	<i>Ruminococcus obeum</i>	ACCTAACTGCAAAGAAGGAG	<i>Ruminococcus obeum</i>	NT	No signals from other labelled DNA recorded

Probe name	Full name ^a	Target organism(s)	Sequence (5'-3')	Predicted probe specificity	Hybridisation with pure culture	Actual specificity
Ccluster XIVab ^j	S-*-Erec-0482-a-A-19	<i>Clostridium coccooides</i> - <i>Eubacterium rectale</i> group	GCT TCT TAG TCA RGT ACC G	<i>Clostridium coccooides</i> - <i>Eubacterium rectale</i> group	NT	No signals from other labelled DNA recorded
<i>C. leptum</i> grp ^k	S-G-Clept-1240-a-A-18	<i>Clostridium leptum</i>	GTTTTTRTCAACGGCAGTC	<i>Clostridium leptum</i> subgroup	+	Target group
<i>C. leptum</i> ¹	S-S-Bact-0205-a-S-22	<i>Clostridium leptum</i>	ATAGGTTGATCAAAGGAGCAA T	<i>Clostridium leptum</i>	+	Species
<i>C. leptum</i> ²	S-S-Bact-0441-a-S-21	<i>Clostridium leptum</i>	ACCTCTGTTCTTAGTGACGAT	<i>Clostridium leptum</i>	+	Species
<i>Salmonella</i> genus (SAL455)	S-F-Bact-0455-a-S-20	<i>Salmonella</i> Typhimurium	TGTTGTGGTTAATAACCGCA	Specificity to a wide range of the <i>Salmonella</i> genus	+	Genus
Universal 1	S-D-Bact-0338-a-A-18	Superkingdom bacteria	GCTGCCTCCCGTAGGAGT	Most bacteria	+	Domain bacteria
Thermus Thermoph1	S-G-Bact-0200-a-S-20	<i>Thermus thermophilus</i>	GGTGTGTCCAAAGGGC	<i>Thermus thermophilus</i>	+	Species
Thermus Thermoph2	S-G-Bact-0158-a-S-18	<i>Thermus thermophilus</i>	GGGAAACTCGGGCTAATC	Thermus genus	+	Target species
Thermus Thermoph3	S-G-Bact-1012-a-S-16	<i>Thermus thermophilus</i>	CGGGTGAAAGCCTGGG	<i>Thermus thermophilus</i>	+	Species
BLON135a	S-G-Bact-0135-a-S-19	<i>Bifidobacterium longum</i> , <i>B. infantis</i> and <i>B. adolescentis</i>	GCCCCATACACCGGAATAG	Probe used for melting curve profile only. It was not applied to determine bacterial presence	+	N/A

Probe name	Full name ^a	Target organism(s)	Sequence (5'-3')	Predicted probe specificity	Hybridisation with pure culture	Actual specificity
BLON135b	S-G-Bact-0135-a-S-19	<i>Bifidobacterium animalis</i>	GCCCCATGCACCGGAATAG	Probe used for melting curve profile only. It was not applied to determine bacterial presence	+	N/A
BLON135c	S-G-Bact-0135-a-S-19	<i>Bifidobacterium bifidum</i>	GCCCCAGACTCCGGAATAG	Probe used for melting curve profile only. It was not applied to determine bacterial presence	+	N/A
Negative control1	N/A	None	AGTCAGTCAGTCAGTCAGTC	None	-	-
Negative control2	N/A	None	AAGGTTCCAAGGTTCCAAGG	None	-	-
Negative control3	N/A	None	GGAAACCCTTTGGGAAACCC	None	-	-
Negative control4	N/A	None	GGAAACCTGTAGCCCTTTCC	None	-	-
Negative control5	N/A	None	GGGTTTCACAAGGTAAGAATG TG	None	-	-

^a Nomenclature of the oligonucleotide probe according to Alm et al. [57]; ^b Probe designed by Matsuki et al. [58]; ^c Probe designed by Kok et al. [59]; ^d Probe designed by Roy et al. [53]; ^e Probe designed by Wang et al. [60], ^f Probe designed by Meier et al. [61], ^g Probe designed by Ventura et al., [62]; ^h Probe designed by Ward and Timmins, [63]; ⁱ Probe designed by Wang et al. [64]; ^j Probe designed by Franks et al. [1], ^k Probe designed by Sghir et al. [65]; ^l Probe designed by Wang et al. [66].

^mPredicted probe specificity indicates the proposed specificity using BLASTn [17] during February 2006.

ⁿHybridisation with pure culture results: +, positive hybridisation; -, no hybridisation; NT, not tested; FP, false positive