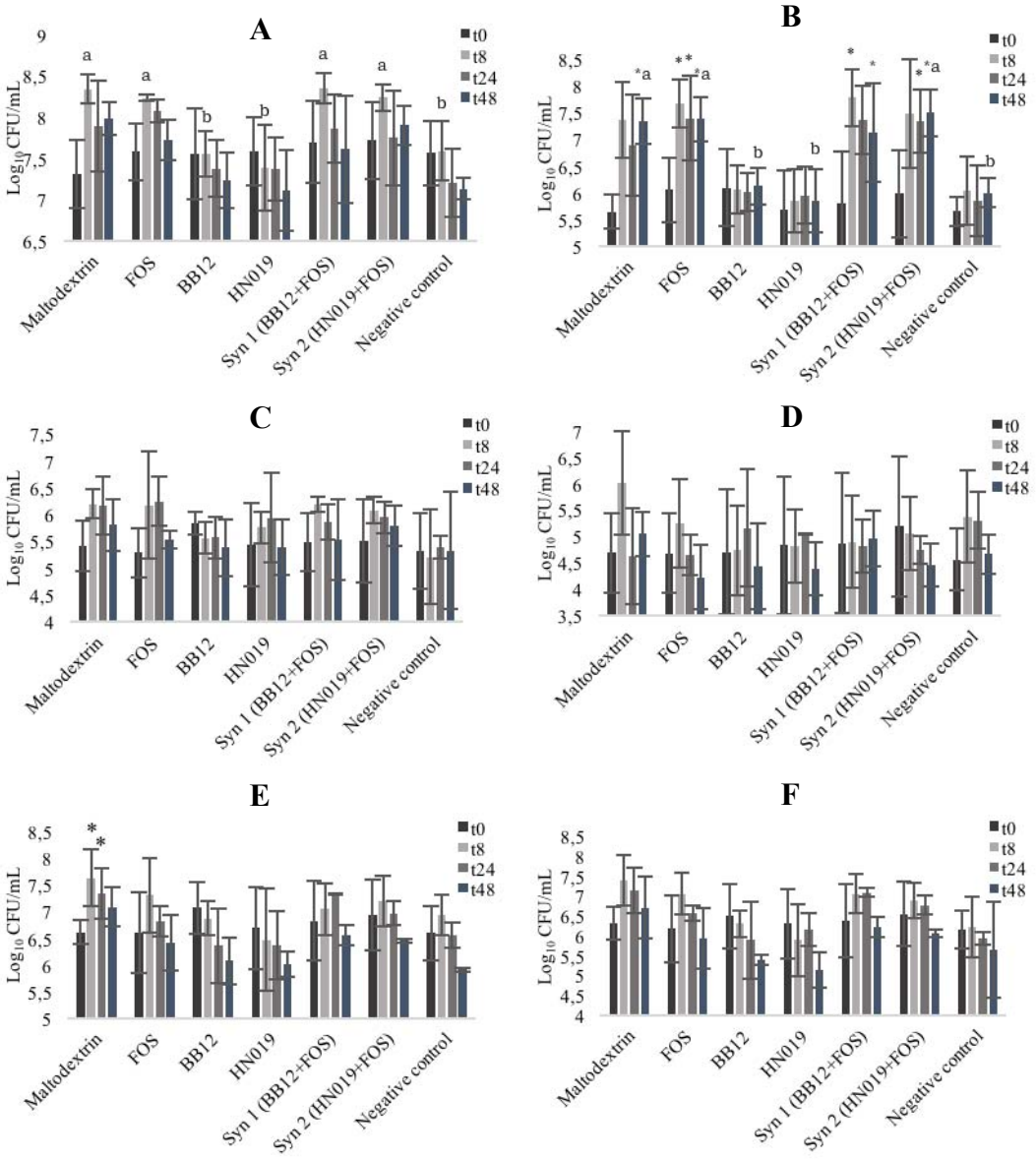

Fig. 1. Total bacterial (A), Bif164 (B), Lab158 (C), Bac303 (D), Erec482 (E) and Rrec584 (F) changes over time as $\log_{10}$ CFU/mL in anaerobic batch culture as analysed by Fluorescence in situ hybridization (FISH). Values are mean ± standard deviation at four time points from batch cultures of faeces from three healthy donors. *Mean values were significantly different from baseline ($P < 0.05$) within the same treatment. Different letters in the same time of different treatments are shown when significantly different ($P < 0.05$) by Tukey's test.

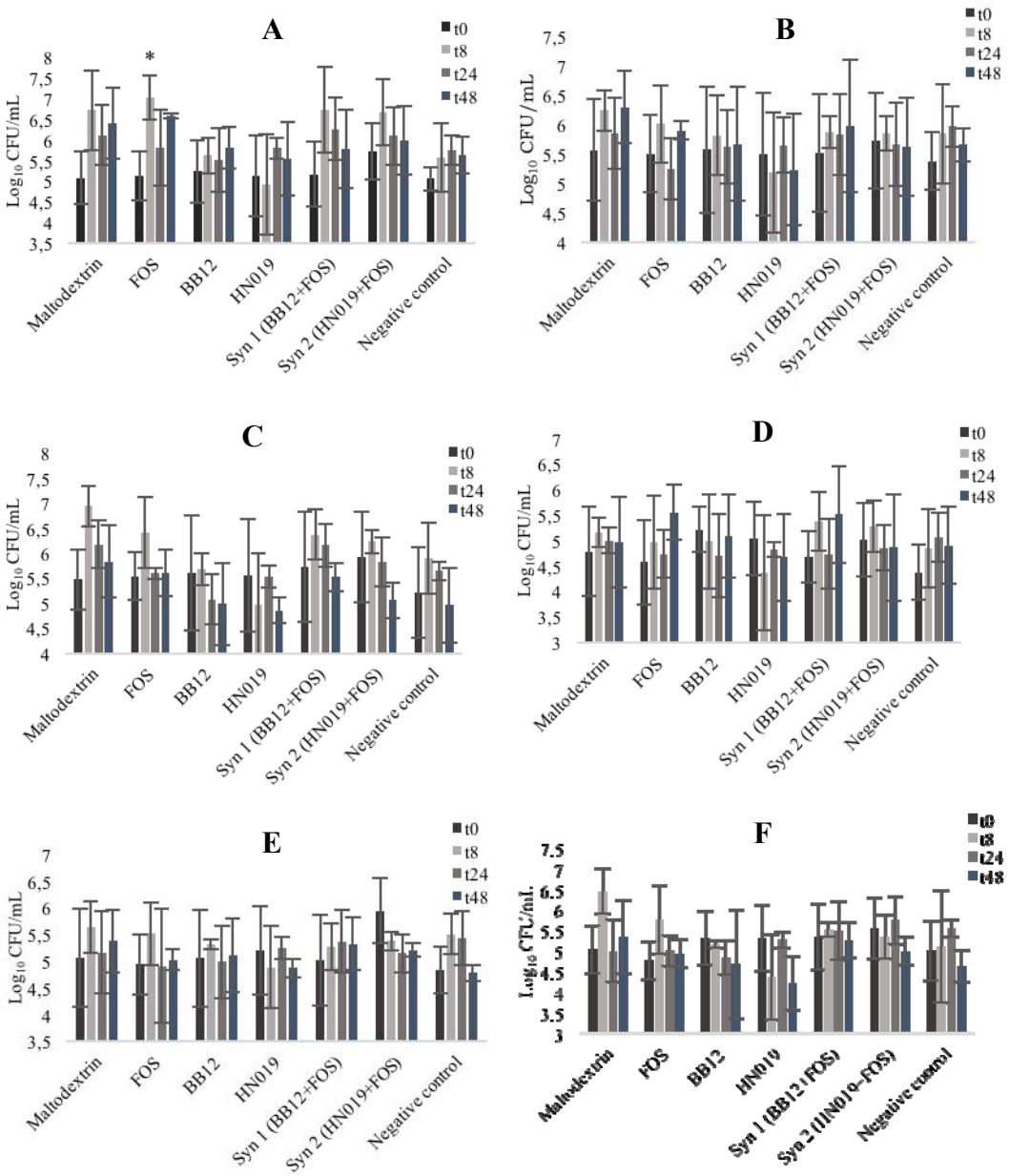

Fig. 2. Ato291 (A), Prop853 (B), Fprau655 (C), DSV687 (D), Chis150 (E) and CFB286 (F) changes over time as log10 CFU/mL in anaerobic batch culture as analysed by Fluorescence in situ hybridization (FISH). Values are mean values ± standard deviation at four time points from batch cultures of faeces from three healthy donors. *Mean values were significantly different from baseline ($P < 0.05$) within the same treatment. Different letters in the same time of different treatments are shown when significantly different ($P < 0.05$) by Tukey's test.

Table 1. Name, sequence, and target group of oligonucleotide probes used for Fluorescence in situ hybridization of bacterial enumeration. +: These probes are used together in equimolar concentration of 50 ng/µL.

Probe name	Sequence (5' TO 3')	Target group	References
Non Eub	ACTCCTACGGGAGGCAGC	Control probe complementary to EUB338	(Wallner, Amann & Beisker, 1993)
Eub338 I +	GCT GCC TCC CGT AGG AGT	Most bacteria	(Daims, Brühl, Amann, Schleifer & Wagner, 1999)
Eub338 II +	GCA GCC ACC CGT AGG TGT	Planctomycetales	(Daims, Brühl, Amann, Schleifer & Wagner, 1999)
Eub338 III +	GCT GCC ACC CGT AGG TGT	Verrucomicrobiales	(Daims, Brühl, Amann, Schleifer & Wagner, 1999)
Bif164	CAT CCG GCA TTA CCA CCC	*Bifidobacterium* spp.	(Langendijk et al., 1995)
Lab158	GGTATTAGCAYCTGTTTCCA	*Lactobacillus and Enterococcus*	(Harmsen, Elfferich, Schut & Welling, 1999)
Bac303	CCA ATG TGG GGG ACC TT	Most *Bacteroidaceae* and P*revotellaceae*, some *Porphyromonadaceae*	(Manz, Amann, Ludwig, Vancanneyt & Schleifer, 1996)
Erec482	GCT TCT TAG TCA RGT ACCG	Most of the *Clostridium coccoides-Eubacterium rectale* group (*Clostridium* clusters XIVa and XIVb)	(Franks, Harmsen, Raangs, Jansen, Schut & Welling, 1998)
Rrec584	TCA GAC TTG CCG YAC CGC	*Roseburia* genus	(Walker, Duncan, Leitch, Child & Flint, 2005)
Ato291	GGT CGG TCT CTC AAC CC	*Atopobium* cluster	(Harmsen, Duncan, Leitch, Child & Flint, 2000)
Prop853	ATT GCG TTA ACT CCG GCAC	Clostridial cluster IX	(Walker, Duncan, Leitch, Child & Flint, 2005)
Fprau655	CGCCTACCTCTGCACTAC	*Faecalibacterium prausnitzii* and related sequences	(Suau et al., 2001)
DSV687	TAC GGA TTT CAC TCC T	*Desulfovibrio* genus	(Ramsing, Fossing, Ferdelman, Andersen & Thamdrup, 1996)
Chis150	TTATGCGGTATTAATCTYCCTTT	Most of the *Clostridium histolyticum* group (*Clostridium* clusters I and II)	(Franks, Harmsen, Raangs, Jansen, Schut & Welling, 1998)
CFB286	GTAGGGGTTCTGAGAGGA	*Cytophaga-Flexibacter-Bacteroides*	(O'Sullivan, Weightman & Fry, 2002)

Table 2. Short-chain fatty acids (SCFAs) concentrations (mM) in pH-controlled batch cultures at 0, 8, 24 and 48 h (n= 3).

	Time point	Mean SCFA concentration (mM) in treatment (±SD):						
		Maltodextrin	**FOS**	**Bb12**	**HN019**	**Bb12+FOS**	**HN109+FOS**	**Negative control**
Acetate	0 h	4.22 ± 1.50^{a}	4.12 ± 1.57^{a}	4.30 ± 1.63^{a}	4.37 ± 1.62^{a}	4.21 ± 1.41^{a}	4.24 ± 1.36^{a}	4.22 ± 1.68^{a}
	8 h	61.15 ± 10.34^{*a}	61.03 ± 9.55^{*a}	10.94 ± 0.76^{*b}	8.94 ± 4.28^{*b}	58.59 ± 14.48^{*a}	65.84 ± 9.47^{*a}	12.57 ± 0.74^{*b}
	24 h	68.38 ± 7.11^{*a}	66.75 ± 14.33^{*a}	15.30 ± 0.07^{*b}	14.90 ± 2.89^{*b}	70.75 ± 4.42^{*a}	71.39 ± 2.58^{*a}	16.30 ± 0.84^{*b}
	48 h	69.60 ± 10.01^{*a}	77.34 ± 9.14^{*a}	15.64 ± 0.75^{*b}	15.38 ± 0.76^{*b}	72.16 ± 3.52^{*a}	70.38 ± 2.05^{*a}	16.81 ± 1.54^{*b}
Propionate	0 h	0.23 ± 0.12^{a}	0.17 ± 0.07^{a}	0.23 ± 0.08^{a}	0.20 ± 0.06^{a}	0.24 ± 0.12^{a}	0.23 ± 0.07^{a}	0.22 ± 0.05^{a}
	8 h	8.29 ± 3.88^{a}	6.52 ± 4.85^{a}	2.21 ± 0.26^{*a}	1.61 ± 1.06^{a}	5.95 ± 1.84^{*a}	5.52 ± 2.08^{*a}	2.45 ± 0.07^{*a}
	24 h	17.40 ± 8.29^{*a}	15.07 ± 8.81^{a}	3.44 ± 0.63^{*a}	3.15 ± 0.17^{*a}	17.96 ± 7.31^{*a}	15.07 ± 7.55^{a}	4.03 ± 0.28^{*a}
	48 h	17.58 ± 8.35^{*a}	18.55 ± 9.54^{*a}	3.54 ± 0.41^{*a}	3.27 ± 0.37^{*a}	16.15 ± 6.44^{*a}	17.41 ± 9.11^{a}	4.20 ± 0.64^{*a}
Butyrate	0 h	0.02 ± 0^{a}	0.02 ± 0^{a}	0.02 ± 0^{a}	0.02 ± 0^{a}	0.02 ± 0^{a}	0.02 ± 0^{a}	0.02 ± 0^{a}
	8 h	1.58 ± 0.60^{*a}	0.68 ± 0.61^{b}	0.27 ± 0.10^{*b}	0.24 ± 0.21^{b}	0.77 ± 0.19^{*b}	0.66 ± 0.21^{*b}	0.36 ± 0.07^{*b}
	24 h	2.56 ± 0.16^{*a}	1.93 ± 0.13^{*a}	0.54 ± 0.07^{*b}	0.46 ± 0.16^{*b}	2.49 ± 0.55^{*a}	2.56 ± 1.03^{a}	0.56 ± 0.09^{*b}
	48 h	2.68 ± 0.05^{*a}	2.47 ± 0.28^{*a}	0.59 ± 0.12^{*b}	0.52 ± 0.14^{*b}	2.55 ± 0.50^{*a}	2.79 ± 0.73^{*a}	0.60 ± 0.09^{*b}
Lactate	0 h	0.01 ± 0^{a}	0.01 ± 0^{a}	0.01 ± 0^{a}	0.01 ± 0^{a}	0.01 ± 0a	0.01 ± 0^{a}	0 ± 0^{a}
	8 h	0.45 ± 0.40^{a}	1.05 ± 0.57^{a}	0 ± 0^{a}	0 ± 0.01^{a}	0.72 ± 0.46^{a}	1.02 ± 0.41^{a}	0 ± 0^{a}
	24 h	0 ± 0^{a}	0.15 ± 0.24^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}
	48 h	0 ± 0^{a}	0 ± 0^{a}	0.01 ± 0.01^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}
Isobutyrate	0 h	0 ± 0^{a}	0.01 ± 0.02^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0.02 ± 0.04^{a}
	8 h	0.12 ± 0.06^{a}	0.07 ± 0.08^{a}	0.07 ± 0.02^{*a}	0.08 ± 0.01^{*a}	0.07 ± 0.03^{*a}	0.07 ± 0.03^{a}	0.10 ± 0.01^{a}
	24 h	0.55 ± 0.13^{*a}	0.39 ± 0.30^{a}	0.45 ± 0.34^{a}	0.59 ± 0.36^{a}	0.59 ± 0.21^{*a}	0.55 ± 0.24^{a}	0.74 ± 0.27^{*a}
	48 h	0.68 ± 0.08^{*a}	0.65 ± 0.25^{*a}	0.51 ± 0.31^{a}	0.79 ± 0.25^{*a}	0.71 ± 0.20^{*a}	0.67 ± 0.25^{*a}	0.82 ± 0.25^{*a}
Isovalerate	0 h	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}
	8 h	0.01 ± 0^{*a}	0 ± 0^{a}	0.01 ± 0^{*a}	0.01 ± 0^{*a}	0.01 ± 0^{*a}	0.01 ± 0^{*a}	0.02 ± 0^{*a}
	24 h	0.04 ± 0.01^{*b}	0.02 ± 0.01^{b}	0.10 ± 0.05^{a}	0.08 ± 0.03^{*a}	0.04 ± 0.01^{*b}	0.04 ± 0^{*b}	0.16 ± 0.04^{*a}
	48 h	0.07 ± 0.01^{*b}	0.05 ± 0.02^{*b}	0.12 ± 0.05^{*a}	0.11 ± 0.05^{*a}	0.06 ± 0.01^{*b}	0.05 ± 0.01^{*b}	0.17 ± 0.03^{*a}
Valerate	0 h	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}	0 ± 0^{a}
	8 h	0.09 ± 0.09^{*a}	0.07 ± 0.11^{*a}	0.09 ± 0.12^{*a}	0.02 ± 0.03^{*a}	0.08 ± 0.10^{*a}	0.07 ± 0.08^{*a}	0.13 ± 0.11^{*a}
	24 h	0.26 ± 0.11^{a}	0.18 ± 0.14^{a}	0.23 ± 0.18^{a}	0.20 ± 0.18^{a}	0.29 ± 0.11^{*a}	0.27 ± 0.12^{a}	0.34 ± 0.04^{*a}
	48 h	0.34 ± 0.04^{*a}	0.29 ± 0.15^{a}	0.27 ± 0.19^{a}	0.23 ± 0.19^{a}	0.35 ± 0.07^{*a}	0.33 ± 0.09^{*a}	0.36 ± 0^{*a}

*Mean values were significantly different from baseline ($p < 0.05$) within the same treatment. Different letters in the same line (same time) are significantly different ($P < 0.05$) by Tukey's test.