

Figure S1. Bacterial growth of mono and co-cultures. Combinations of *Bi. infantis* (Bi), *Bv. vulgatus* (Bv), *L. acidophilus* (La) and *E. coli* (Ec) were grown in either FOS (A) or 2FL(B).

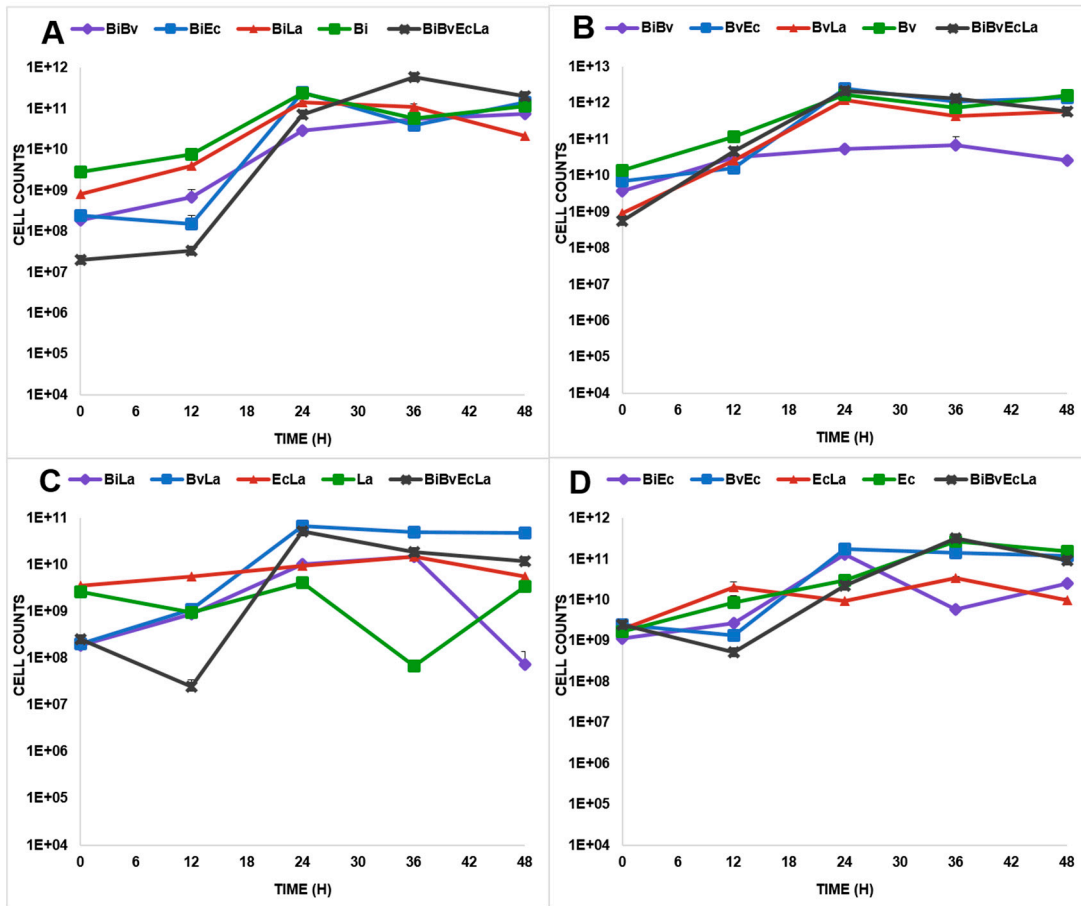


Figure S2. Bacterial abundance in co-culture during growth on 2FL. Numbers indicate cell counts for each bacterium in mono or co-culture. A: *Bi. infantis* combinations; B: *Bv. vulgatus* combinations; C: *L. acidophilus*; D: *E. coli* combinations. Error bars indicate the standard error of the media.

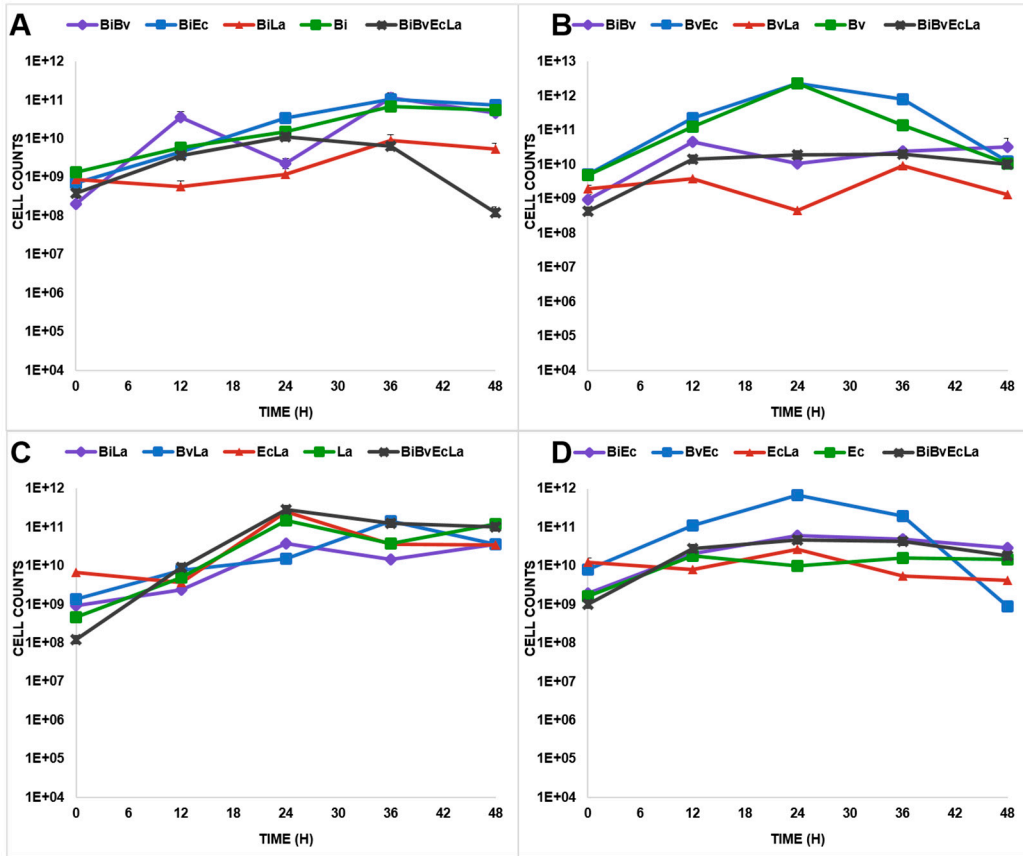


Figure S3. Bacterial abundance in co-culture during growth on FOS. Numbers indicate cell counts for each bacterium in mono or co-culture. A: *Bi. infantis* combinations; B: *Bv. vulgatus* combinations; C: *L. acidophilus*; D: *E. coli* combinations. Error bars indicate the standard error of the media.

SUPPORTING INFORMATION

Table S1: Final composition of mZMB.

Description	Group N°	Component	Final Concentration [g/L]
Vitamin	8	Myo-inositol	0.002
Phosphate Buffer	9	KH ₂ PO ₄	3.144
		K ₂ HPO ₄	6.426
Important Vitamin Group	11	Calcium pantothenate	0.0012
		Niacin	0.0009
		Pyridoxal HCL	0.0048
Important Mineral Group	12	MgSO ₄ *7H ₂ O	1
		FeSO ₄ *7H ₂ O	0.004
		ZnSO ₄ *7H ₂ O	0.005
Other Vitamin Group	13	Folic Acid	0.0005595
		p-Aminobenzoic acid	0.00005595
Fatty acid Group	14	Potassium acetate	0.901
		Thioctic acid	0.001
Nucleic Acid Base Group	15	Adenine	0.01101
		Guanine	0.005505
		Uracil	0.02202
		Xanthine	0.00367
Trace Mineral Group	17	(NH ₄) ₆ Mo ₇ O ₂ *4H ₂ O	0.00019
		MnSO ₄ *4H ₂ O	0.00038
		CaSO ₄ *4H ₂ O	0.038
		CoSO ₄ *6H ₂ O	0.000228
		CuSO ₄ *5H ₂ O	0.00019
		H ₃ BO ₃	0.00076
		K ₂ SO ₄	0.0228
		KI	0.000114
Chelator Group	18	EDTA	0.0075
		Nitrilotriacetic Acid	0.0075
Other Component Group	19	Glutathione	0.015
		(NH ₄) ₂ SO ₄	1
		NaCl	3
EAA#8	21	Biotin	0.006
EAA#9	22	Thiamine	0.0005595
EAA#10	23	Riboflavin	0.0009
Tryptone			32.4
2-Fucosyllactose/FOS			10
Bile Salts			0.05
Cysteine-HCl			1
Mucin			4
Hemin			0.01

Table S2. Genome sizes and 16S rRNA copy numbers for the four bacteria used in this study.

Species	Genome size (pb)	16S rRNA Copy N°
<i>Bacteroides vulgatus</i> ATCC8482	5.39E+06	7
<i>Bifidobacterium infantis</i> ATCC15697	2.83E+06	4
<i>Escherichia coli</i> K12	4.65E+06	7
<i>Lactobacillus acidophilus</i> UCD326	2.00E+06	1

Table S3. Ratio of growth rates for bacteria in the first column in co-culture with microorganisms in the first row, to the growth rate in monoculture. This was calculated as $\log(X_i/X_o)/12$, corresponding to the change in biomass between time 12 and 24. Growth rate in monoculture is also indicated.

2FL	Bi	Bv	Ec	La	All	umax
Bi	1.00	1.08	2.15	1.04	2.21	0.22
Bv	0.20	1.00	1.89	1.43	1.45	0.30
Ec	3.04	3.83	1.00	-0.64	2.94	0.11
La	1.66	2.82	0.36	1.00	5.25	0.12
FOS	Bi	Bv	Ec	La	All	umax
Bi	1.00	-0.03	1.04	1.11	0.35	0.24
Bv	-0.51	1.00	0.80	-0.73	0.09	0.19
Ec	0.92	1.54	1.00	0.49	0.21	0.20
La	0.80	0.20	1.24	1.00	1.01	0.28

Table S4. Protein consumption during growth on 2FL or FOS.

2FL	0	SD	12	SD	24	SD	36	SD	48	SD
BiBv	100.00	4.21	106.80	19.13	81.52	19.78	70.83	16.39	78.59	3.98
BiEc	100.00	2.30	80.76	35.36	86.72	13.04	86.06	3.47	92.94	3.58
BiLa	100.00	2.44	82.85	3.73	96.69	5.81	86.36	53.46	97.99	11.42
BvEc	100.00	14.31	122.98	5.19	94.43	0.31	78.31	0.89	71.28	22.68
BvLa	100.00	3.91	93.91	4.50	96.84	13.76	80.49	12.98	77.57	27.59
EcLa	100.00	19.65	92.70	8.06	94.66	14.25	76.46	4.31	64.56	18.41
Bi	100.00	8.03	110.26	11.91	92.11	3.31	115.24	13.12	119.63	18.69
Bv	100.00	1.20	96.34	6.62	97.45	23.42	89.23	18.75	64.01	8.05
Ec	100.00	1.82	100.00	0.16	114.85	2.90	108.31	13.11	68.31	2.48
La	100.00	1.96	111.98	10.42	106.18	5.53	125.49	47.50	78.36	13.45
BiBvEcLa	100.00	0.08	105.80	13.77	93.98	4.73	76.33	19.15	96.48	39.59
FOS	0	SD	12	SD	24	SD	36	SD	48	SD
BiBv	100.00	3.95	107.73	0.34	96.56	1.52	97.55	0.09	98.34	4.17
BiEc	100.00	3.19	86.09	7.00	126.07	2.39	100.94	7.26	110.14	2.17
BiLa	100.00	3.40	88.22	7.72	78.53	3.87	82.80	20.97	86.79	0.69
BvEc	100.00	1.71	101.59	5.30	104.06	7.16	109.90	3.49	113.09	1.33
BvLa	100.00	2.35	96.87	9.80	96.87	62.92	92.66	2.81	92.90	7.33
EcLa	100.00	1.89	95.51	0.36	102.91	5.50	88.39	0.63	86.02	8.62
Bi	100.00	4.96	89.42	9.83	94.28	0.18	91.47	7.69	93.13	9.21
Bv	100.00	6.41	99.62	2.08	106.70	6.60	103.64	4.94	102.99	3.10
Ec	100.00	0.72	105.12	2.75	117.77	7.22	100.27	0.75	104.25	0.48
La	100.00	0.45	103.84	0.79	86.80	1.36	93.26	1.44	108.38	10.26
BiBvEcLa	100.00	2.83	107.18	3.37	120.43	13.05	113.17	10.26	112.27	7.43