

Table S1. Components of selective media

Microbiota	Culture medium (g/L)
<i>Faecal coliform</i>	Tryptone 20.0, lactose 10.0, bovine bile salt 5.0, NaCl 5.0, neutral red 0.075, agar 20.0
<i>Lactobacillus</i>	Tryptone 10.0, beef powder 10.0, yeast powder 5.0, glucose 20.0, Tween-80 1.0, K ₂ HPO ₄ 2.0, sodium acetate 5.0, trisodium citrate 2.0, magnesium sulfate 0.1, manganese sulfate 0.05, L-cysteine 0.5, agar 20.0
<i>Bacteroid</i>	Tryptone 20.0, yeast powder 5.0, soluble starch 0.5, xylan 5, NaCl 5.0, K ₂ HPO ₄ 0.05, KH ₂ PO ₄ 0.05, L-cysteine hydrochloride 1.0, heme chloride 0.01, vitamin K1 0.002, kanamycin 0.1, vancomycin 0.0075, bromocresol violet 0.012, agar 20.0
<i>Bifidobacterium</i>	Tryptone 15.0, dextrose 20.0, yeast powder 2.0, soluble starch 0.5, NaCl 5.0, liver extract 5.0, Tween-80 1.0, mupirocin 0.05, agar 20.0, tryptone 5.0, casein peptone 16.0, bovine brain extract 4.0, bovine heart extract 4.0
Total anaerobic bacteria	Glucose 2.0, NaCl 5.0, Na ₂ HPO ₄ 2.5, agar 13.5
Fecal	Starch 6.0, arabinogalactan 1.0, pectin 2.0, xylan 1.0, glucose 0.4, yeast powder 3.0, L-cysteine 0.5, mucin 2.0, KCl 1.0, NaCl 4.5, K ₂ HPO ₄ 0.5, KH ₂ PO ₄ 0.5, CaCl ₂ ·6H ₂ O 0.15, MgSO ₄ ·7H ₂ O 0.01, FeSO ₄ ·7H ₂ O 0.005, heme chloride 0.025, Tween-80 1.0, bile salts 0.4, vitamin mixture 0.01, Menaquinone 1.0, D-biotin 2.0, pantothenic acid 10.0, nicotinamide 5.0, p-aminobenzoic acid 5.0
<i>Akkermansia muciniphila</i>	Tryptone 5.0, casein peptone 16.0, bovine brain extract 4.0, bovine heart extract 4.0 Glucose 2.0, NaCl 5.0, Na ₂ HPO ₄ 2.5, mucin 2.0

Note: The above medium was supplemented with low-gluten rice (LGR), common rice (CR), and rice starch (RS) all at 2 g/L.

a



Bionic Gastrointestinal Reactor

b



Bionic Colon Model (BCM)

Figure S1. Dynamic simulation equipment. **(a)** bionic gastrointestinal reactor (BGR); **(b)** bionic colon model (BCM).