Electronic Supplementary Material (ESI) for Food & Function.
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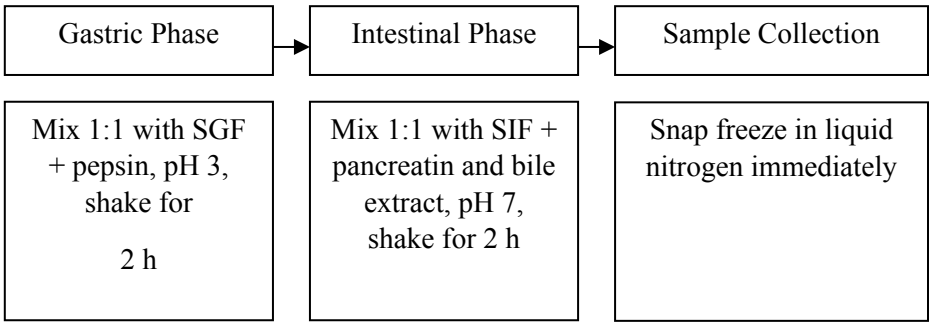
Electronic Supplementary Information



Supplemental Figure 1. Flow diagram of simulated *in vitro* digestion of yogurt. SGF = simulated gastric fluid; SIF = simulated intestinal fluid.

Supplemental Table 1. Settings used on Zeiss LSM 510 Meta Confocal Laser Scanning Microscope for plane 2D analysis of Caco-2 cell monolayers. Track 1 ChS1 = Alexa Fluor (Occludin/ZO-1); Track 2 Ch1 = Rhodamine Phalloidin (Actin); Track 2 Ch2 = DAPI (Nuclei).

Instrument Parameter	Setting
Dimensions	X:1024, Y:1024, channels: 3, 12-bit
Image Size	X: 70.78 μm, Y: 70.78 μm
Scan Mode	plane
Zoom	3.0
Objective	40x
Pixel Dwell	1.27 μs (ZO-1) 0.79 μs (occludin)
Master Gain	Track 1 ChS1: 750 Track 2 Ch1: 600 Track 3 Ch2: 500
Digital Gain	Track 1 ChS1: 1.00 Track 2 Ch1: 1.25 Track 2 Ch2: 1.24
Pinhole	40 μm
Filters	Track 1 ChS1: 499-533 Track 2 Ch1: 410-494 Track 2 Ch2: 566-685
Beam Splitters	MBS: MBS 488/561
Lasers	Track 1 ChS1: 488 nm: 1.0% Track 2 Ch1: 561 nm: 13.0% Track 2 Ch2: 405 nm: 2.6%

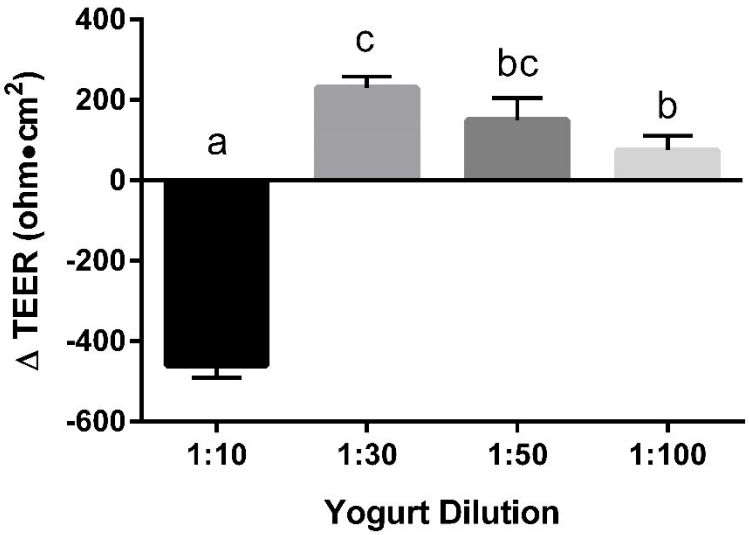
Supplemental Table 2. Settings used on Zeiss LSM 510 Meta Confocal Laser Scanning Microscope for stacked 3D analysis of Caco-2 cell monolayers. Track 1 ChS1 = Alexa Fluor (Occludin/ZO-1); Track 2 Ch1 = Rhodamine Phalloidin (Actin) ; Track 2 Ch2 = DAPI (Nuclei).

Instrument Parameter	Setting
Dimensions	X:512, Y:512, Z:41 channels: 3, 12-bit
Image Size	X: 106.07 μm, Y: 106.07 μm, Z:21.08 μm
Scan Mode	Stack
Zoom	2.0
Objective	40x
Pixel Dwell	1.27 μs
Master Gain	Track 1 ChS1: 750 Track 2 Ch1: 600 Track 3 Ch2: 500
Digital Gain	Track 1 ChS1: 1.00 Track 2 Ch1: 1.25 Track 2 Ch2: 1.24
Pinhole	40 μm
Filters	Track 1 ChS1: 499-533 Track 2 Ch1: 410-494 Track 2 Ch2: 566-685
Beam Splitters	MBS: MBS 488/561
Lasers	Track 1 ChS1: 488 nm: 1.0% Track 2 Ch1: 561 nm: 1.0% Track 2 Ch2: 405 nm: 2.0%

Supplemental Table 3. Primer sequences of normalization and target genes in Caco-2 cells.

Name	GenBank Accession Number	Forward (5'-3')	Reverse (5'-3')
RPLP0	NM_001002.3	CTC GTG GAA GTG ACA TCG TCT	GCT TGG AGC CCA CAT TGT CT
RNA18S5	NR_003286.2	CTG AGA AAC GGC TAC CAC ATC	GCC TCG AAA GAG TCC TGT ATT G
TJP1	NC_000015.10	CAA GAT AGT TTG GCA GCA AGA GAT G	ATC AGG GAC ATT CAA TAG CGT AGC
CLDN1	NC_000003.12	TGG TGG TTG GCA TCC TCC TG	AAT TCG TAC CTG GCA TTG ACT GG
OCLN	NC_000005.10	CCA ATG TCG AGG AGT GGG	CGC TGC TGT AAC GAG GCT

Abbreviations: encoding ribosomal protein large P0, *RPLP0*; 18s RNA, *RNA18S5*; ZO-1, *TJP1*; claudin-1, *CLDN1*; occludin, *OCLN*.

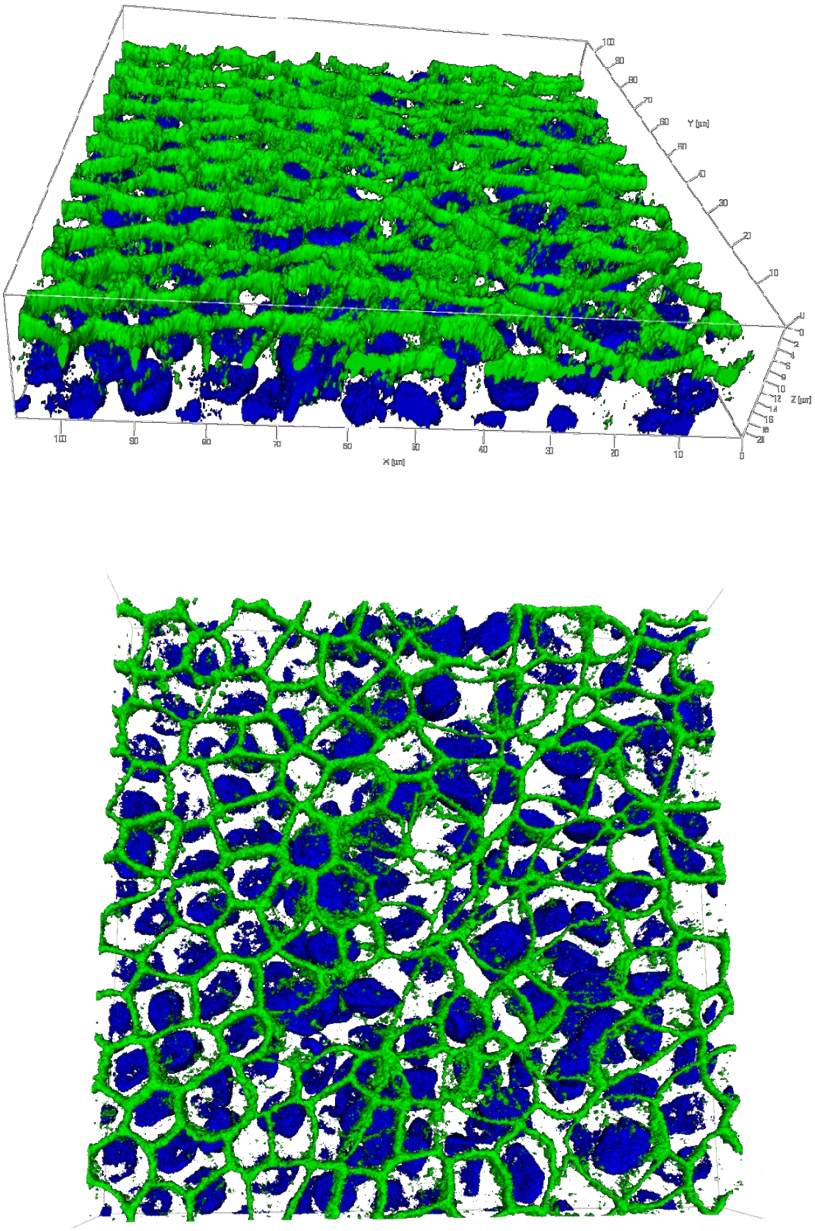


Supplemental Figure 2. Effect of yogurt on barrier function for differentiated Caco-2. Powdered yogurt was resuspended in growth media at 1:10, 1:30, 1:50, and 1:100 dilutions before application to cell monolayers. TEER was measured after 48 h, data are means ± SD of n = 3 treatments. Cell monolayers treated with 1:10 exhibited significant loss in TEER, suggesting that this treatment was not adequately diluted. Bars bearing different letters are significantly different after one-way ANOVA followed by Tukey's multiple comparison test ($P < 0.05$).

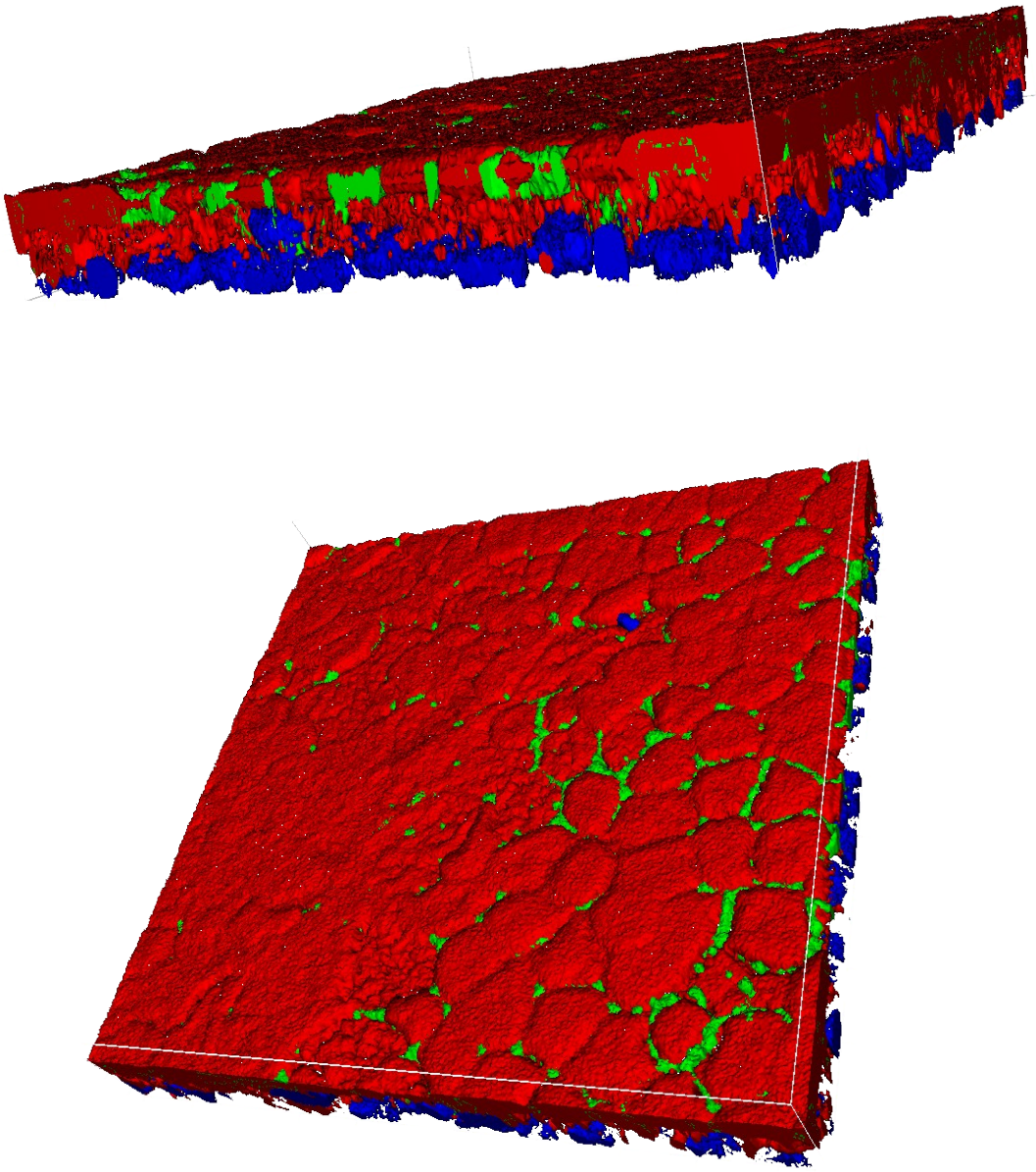
Supplemental Table 4. Apparent permeability coefficients (P_{app}) for Fluorescein Isothiocyanate-Dextran (FD) and Lucifer Yellow (LY) after treatment of Caco-2 cells for 48 h with the control (*C*), an inflammatory stimulus (*I*), or inflammatory stimulus with yogurt (1:30, w/v) (*IY*).[A]

Substrate	**Treatment**		
	C	*I*	*IY*
FD P_{app} ($\times 10^{-7}$ cm/s)	3.12 ± 2.72^{a}	6.47 ± 4.47^{ab}	3.57 ± 2.95^{a}
LY P_{app} ($\times 10^{-7}$ cm/s)	6.19 ± 3.19^{a}	10.58 ± 6.03^{b}	6.71 ± 4.62^{a}

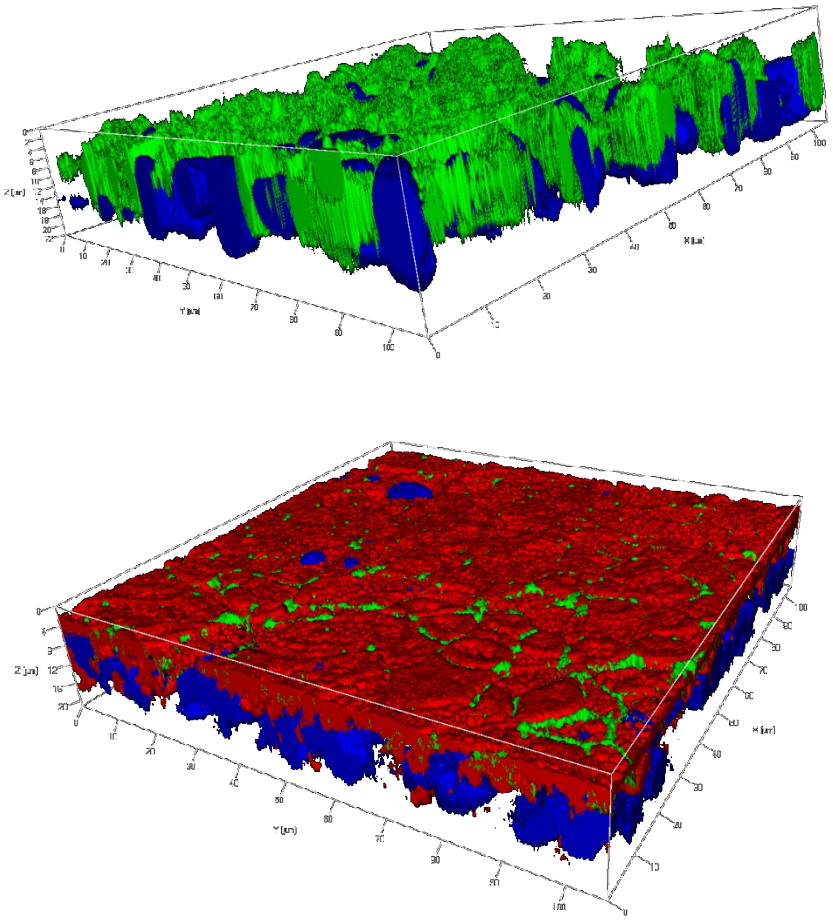
[A]Values are presented as means ± SEM, with n = 6 for each treatment. Means bearing different letters were not significantly different as determined by one-way ANOVA ($P < 0.05$).



Supplemental Figure 3. Cross-sectional 3D stack renderings of Caco-2 cell monolayers treated with growth media control. The gray box outlines the edges of the monolayer. Nuclei are stained blue and occludin is stained green. Images were processed using ZEN 2010 software (Carl Zeiss AG, Oberkochen, Germany).



Supplemental Figure 4. Cross-sectional 3D stack renderings of Caco-2 cell monolayers treated with growth media control. The gray box outlines the edges of the monolayer. Nuclei are stained blue, occludin is stained green, and actin is stained red. Images were processed using ZEN 2010 software (Carl Zeiss AG, Oberkochen, Germany).



Supplemental Figure 5. Cross-sectional 3D stack renderings of Caco-2 cell monolayers treated with growth media control. The gray box outlines the edges of the monolayer. Nuclei are stained blue, ZO-1 is stained green, and actin is stained red. Images were processed using ZEN 2010 software (Carl Zeiss AG, Oberkochen, Germany).