

Food additives	Effect on microbiota	Effect on host physiology	Organism/treatment	Reference
CMC	Bacterial overgrowth	Intestinal inflammation	Mice (IL10 <sup>-/-</sup> ) 2 % CMC, 3 weeks	Swidsinski et al.(2009)[46]
CMC, P-80	Microbiota encroachment, altered species composition, increased pro-inflammatory potential	Colitis, metabolic syndrome	Mice (IL10 <sup>-/-</sup> , TLR5 <sup>-/-</sup> ) 1 % CMC / P-80, 12 weeks Mice (WT) 0,1-1 % CMC / P-80, 12 weeks	Chassaing et al.(2015)[23]
CMC, P-80	Increased pro-inflammatory potential		Human colon model 1 % CMC / P-80, duration: n/a	Chassaing et al.(2017)[27]
P-80	Microbiota encroachment, altered species composition, increased pro-inflammatory potential	Intestinal inflammation, obesity, liver dysfunction	Mice (WT) 1 % P-80 per kg. bw, 4 weeks	Singh et al.(2016)[47]
GML	Gut microbiota dysbiosis	Metabolic syndrome, systemic low-grade Inflammation	Mice (WT) 150 mg·kg <sup>-1</sup> GML, 8 weeks	Jiang et al. (2017)[48]
Titanium dioxide		Decrease in absorptive microvilli, decreased nutrient uptake	Human colon cells 2.3×10 <sup>9</sup> (high), 2.3×10 <sup>7</sup> (medium), 2.3×10 <sup>5</sup> (low) particles/ml	Guo et al.(2017)[55]
Sucralose	Increased expression of bacterial pro-inflammatory mediators	Elevated pro-inflammatory gene expression in the liver	Mice (WT) 0.1 mg/ml sucralose, 6 months	Bian et al. (2017)[54]
NAS	Compositional and functional alterations of microbiota associated with obesity	Glucose intolerance	Mice (WT) 0.1mg/ml <sup>-1</sup> saccharin, 5 weeks	Suez et al.(2014)[22]
Saccharin	Increased pro-inflammatory potential	Liver inflammation	Mice (WT) 0.3mg/ml saccharin, 6 months	Bian et al.(2017)[53]
Aspartame	Compositional alterations of microbiota	Glucose intolerance	Rats (WT) 5–7 mg/kg/d, 10 weeks	Palmnäs et al.(2014)[51]
Acesulfame K	Compositional and functional alterations of microbiota associated with obesity	Weight gain (male)	Mice (CD-1) 37.5 mg/kg/d, 4 weeks	Bian et al.(2017)[52]
Silver nanoparticles	Gut microbial alterations associated with obesity and inflammatory diseases		Mice (WT) 46, 460 or 4600 ppb Ag NP, 28 days	van den Brule et al. (2016)[56]

Polysorbate 80 (P-80), Carboxymethylcellulose (CMC), Non-caloric artificial sweeteners (NAS), Glycerol Monolaurate (GML)