	Healthy	**Ulcerative colitis**	**Crohn's disease**
Luminal pH			
Small Intestine	6.1-7.0[206]	6.1-8.3[207, 208]	6.0-7.4[208, 209]
Colon	5.8-7.7[206]	2.3-7.5[207, 208]	5.2-7.0[208, 209]
Transit time (hrs)			
Small Intestine	1.5-5.4[206]	5.6 ± 2.4[210],a	1.8-6.6[211] ,b
Colon	41.1-62.3[212]	9.5-39.1[212]	-
Bacterial species			
Small Intestine			
Duodenum	10^2 microorganisms/gram luminal content[213]	N.C[215]	-
Jejunum	10^2 microorganisms/gram luminal content[213]	N.C[215]	-

Ileum	10^7-10^8 microorganisms/gram luminal content[213]	N.C[215]	*Faecalibacterium prausnitzii*[214] ↓ Enterobacteriaceae[215] ↑ *E. coli*[215] ↑ *Ruminococcus gnavus*[215] ↑
Colon	10^{11}-10^{12} CFU/ml[216]	Ruminococcus spp[10] ,d ↑ Eubacterium spp[10] ,d ↑ Fusobacterium spp[10] ,d ↑ Lactobacillus spp[10] ,d ↑ Proteobacteria[10] ,d ↑ Bacteroidetes[10] ,d ↑	*E. coli*[10] ,c ↑ *Faecalibacterium prausnitziid*[10] ,c,d ↓ Bacteroidetes[10] ,c ↑ Bifidobacterium[10] ,d ↓ Firmicutes[10] ,c,d ↓ Enterobacteriaceae[10] ,c,d ↑ *Ruminococcus gnavus*[10] ,d ↑
Lipopolysaccharides (LPS) in colonic lumen	~50 µg/ml[217]	N.C[217]	Increased[217]
Intestinal alkaline phosphatase			
Colon	1.0 ± 0.1 units/mg[218]	2.8-fold decrease[219]	2.4-fold decrease[219]

Carcinoembryonic antigen-related cell adhesion molecule 6		N.C in colonic tissue[10]	Increased expression in ileal enterocytes[10]
Intestinal barrier function		Widening of barrier tight junctions leading to increased permeability[220]	2 to 3-fold increase in intestinal permeability, reduced levels of anti-microbial defensins[221-223]
Colonic mucus layer		Decreased thickness[220] Goblet cell count[33] ↓ Trefoil factor 3 (TFF3)[33] ↑ MUC2 and MUC3 glycoproteins[33] ↓	Increased thickness[224, 225] Goblet cell count[33] ↑ Trefoil factor 3 (TFF3)[33] ↑ MUC2, MUC3 and MUC4 glycoproteins[33] ↑ α-defensins HD5, HD6[224],e ↓ β-defensins HBD1, HBD2, HBD3 and HBD4[224],f ↓

Immune cells		Mast cells[225] ↑ T-cells[12, 14] ↑ Neutrophils[12, 14] ↑ Macrophages[12, 14] ↑ Eosinophils/secreted proteins[12, 14] ↑	Mast cells[15, 33, 224-226] ↑ Macrophages[226] ↑ Eosinophils/secreted proteins[226] ↑ Basophils[226] ↑
Colonic mucosal immunoglobulins (Ig)			
IgA	240 µg/ml[44],g	N.C[44],g	N.C[44],g
IgG	1.43 µg/ml[44],g	512 µg/ml[44],g	256 µg/ml[44],g
IgG1	1.8 µg/ml[45],h	13.4 µg/ml[45],h	3.6 µg/ml[45],h
IgG2	1.3 µg/ml[45],h	1.9 µg/ml[45],h	2.9 µg/ml[45],h
IgG3	0.2 µg/ml[45],h	0.8 µg/ml[45],h	0.6 µg/ml[45],h
Transferrin receptor expression		Increased expression[227]	Increased expression[227]
Neonatal Fc receptor		Increased expression[59]	Increased expression[59]

(FcRn)			
Cytokines		Proinflammatory cytokines[17, 102, 228-230]: IFN-γ ↑ TNF-α ↑ IL-5 ↑ IL-6 ↑ IL-12 ↑ IL-13 ↑ IL-18 ↑ IL-23 ↑ IL-27 ↑ Pro-regulatory cytokines [6, 63, 155, 230, 231] : IL-4 ↓ IL-10 ↓ TGF-β1 ↑	Proinflammatory cytokines[6, 63, 230, 232-234]: IFN-γ ↑ TNF-α ↑ IL-6 ↑ IL-12 ↑ IL-16 ↑ IL-17 ↑ IL-18 ↑ IL-21 ↑ IL-27 ↑ Pro-regulatory cytokines [6, 63, 155, 230, 231]: IL-4 ↓ IL-10 ↓ TGF-β1 ↓

Interferon gamma-induced protein (IP-10)/CXCL-10		5.98-fold higher expression[235],i	4.76-fold higher expression[235],i
Natural killer activating receptor 2D (NKG2D)		N.C[236],i	Upregulation of $CD4^+$ T cells expressing NKG2D[236],i
GATA-3 and STAT-4 signalling proteins		Increased expression[11],i	N.C[11],i
OX40 (CD134)	No colonic lamina propria expression[85]	Increased colonic lamina propria expression[85]	Increased colonic lamina propria expression[85]
Enzymes			
Colon tissue		Guanylate cyclase-C[91] ↓ Inducible nitric oxide synthases (iNOS)[237] ↑ Unidentified serine proteases[238] ↑ Trypsin[238] ↑ Neutrophil elastase[238] ↑	Guanylate cyclase-C[91] ↓ Inducible nitric oxide synthases (iNOS)[240] ↑ MMP-1, -2, -3 and -9[239] ↑

		MMP-1, -2, -3 and -9[239]	
Faeces		Fecal proteolytic activity[241] ↑ Alpha-1-antitrypsin[241] ↑ Neutrophil elastase[241] ↑	Fecal tryptic activity[242] ↑
Toll-like receptors (TLRs)	Low expression of TLR-2 and TLR-4; High expression of TLR-3 and TLR-5[150],j	Increased expression of TLR-2, TLR-4 and TLR-5 by intestinal dendritic cells[10, 149] No change in TLR-3 expression[150],k	Increased expression of TLR-2, TLR-4 and CD20 cells by intestinal and colonic dendritic cells[10, 149] Lower expression of TLR-3[150],k
Heat shock proteins (HSP)		HSP 27[243],i ↓ HSP70[243],i ↓	HSP 27[243],i ↓ HSP70[243],i ↓

-Indicates information not found; NC, no change compared to healthy subjects; [a]measured using mesalazine microspheres; [b]measured using pH sensitive capsule; [c]mucosal sample; [d]fecal sample; [e]ileal CD; [f]colonic CD; [g]colonic washings taken at endoscopy; [h]isolated intestinal mononuclear cells; [i]expression levels in colon tissue compared to non-IBD subjects; [j]intestinal biopsies from non-IBD subjects; [k]intestinal biopsies from UC and CD patients; IFN, interferon; TNF-α, tumor necrosis factor alpha; TGF-β1, transforming

growth factor beta 1; IL, interleukin; IP-10, interferon-γ-inducible-protein-10; MCP, monocyte chemoattractant protein; MIP, macrophage inflammatory protein; MMP, Matrix metalloproteinases; STAT-4, signal transducer and activator of transcription-4; SMAD-7, Mothers against decapentaplegic homolog 7; enhanced level compared to healthy; reduced level compared to healthy.