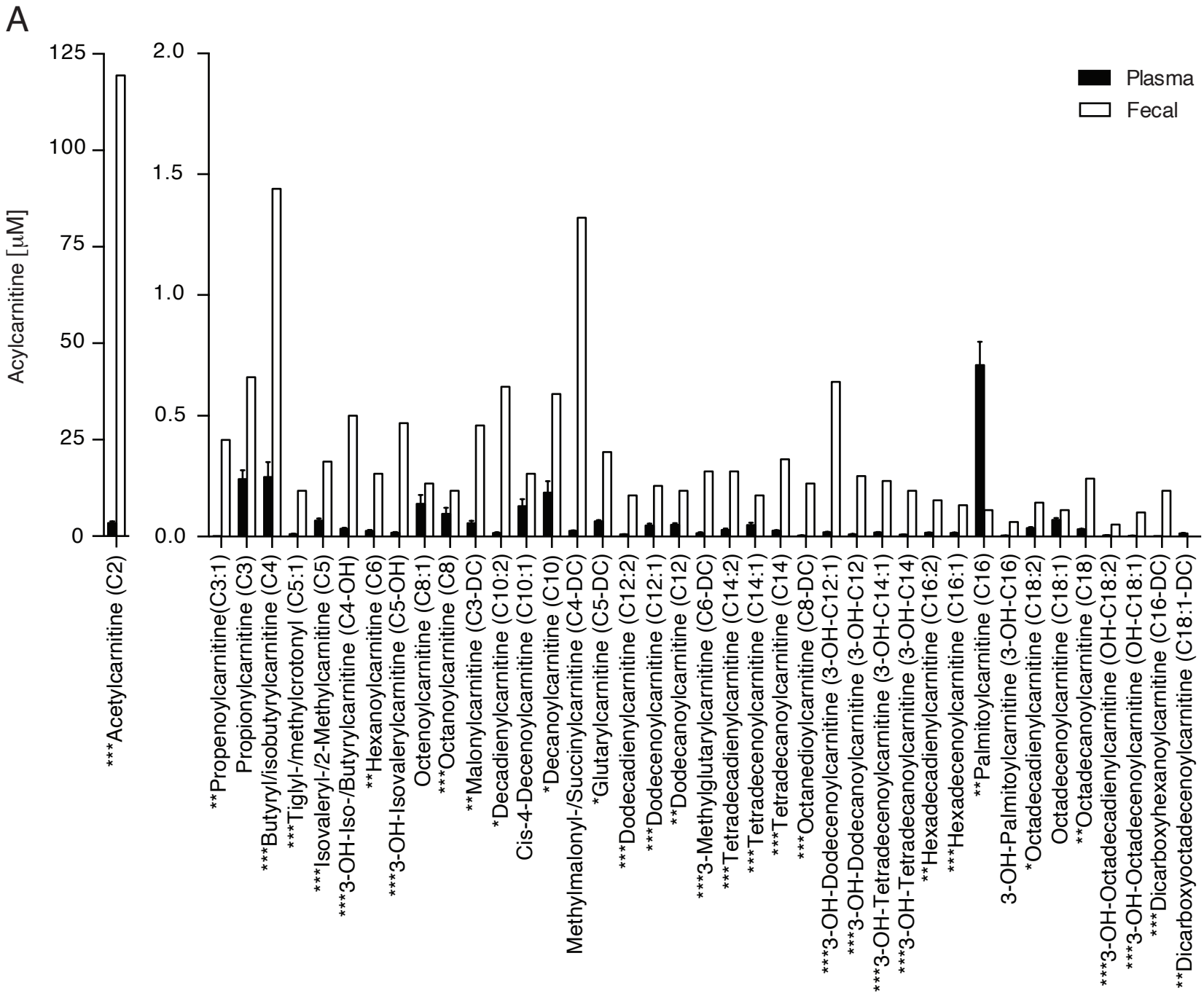
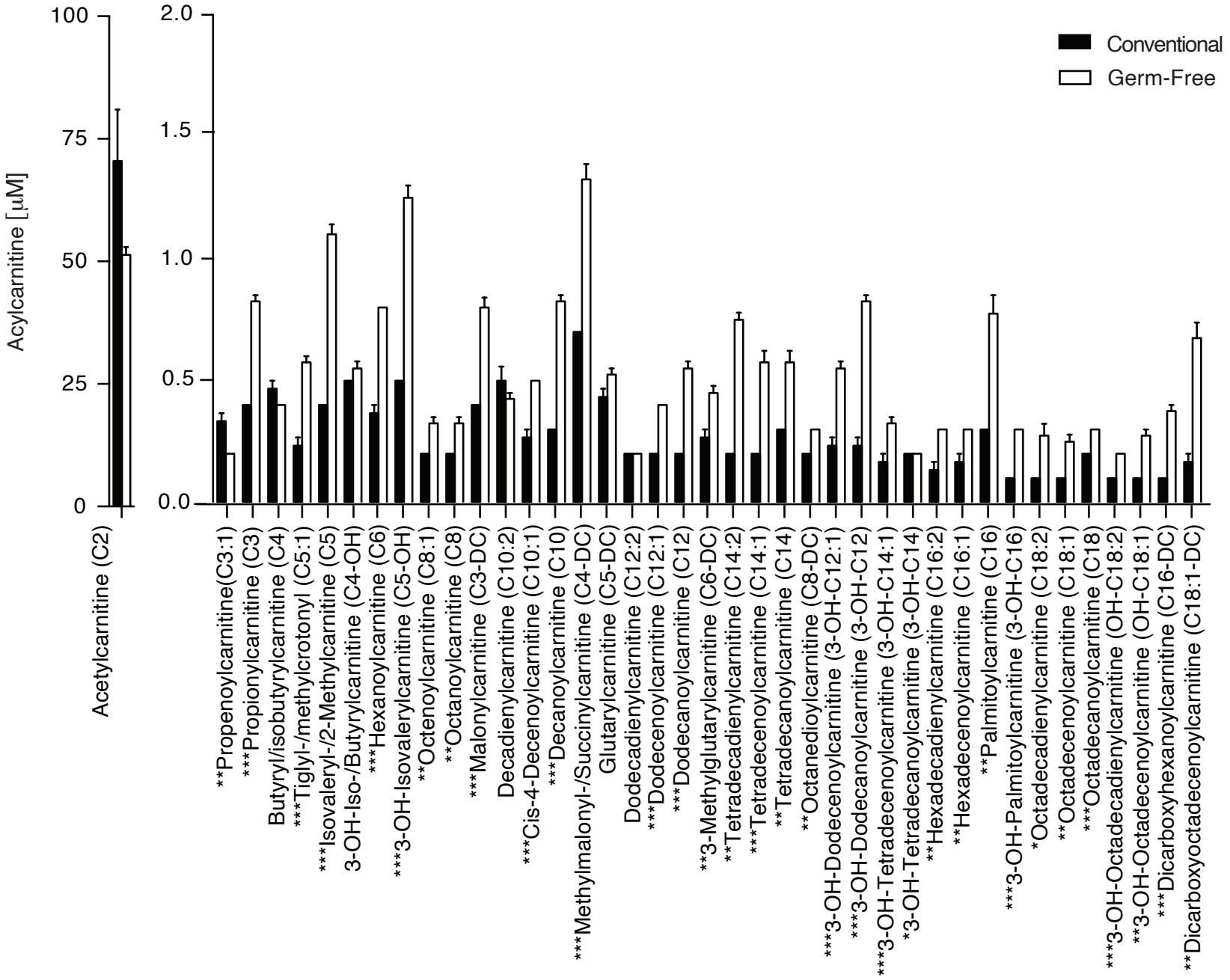
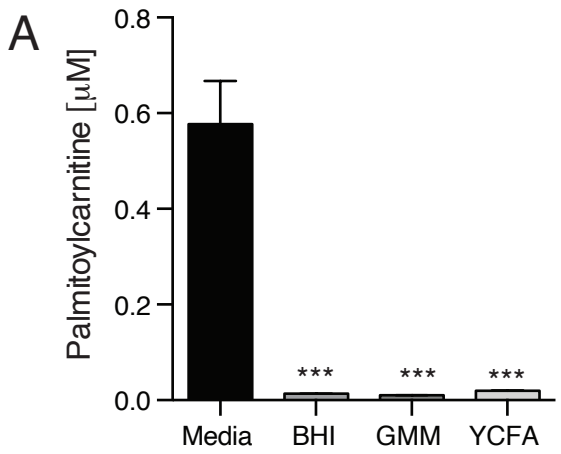
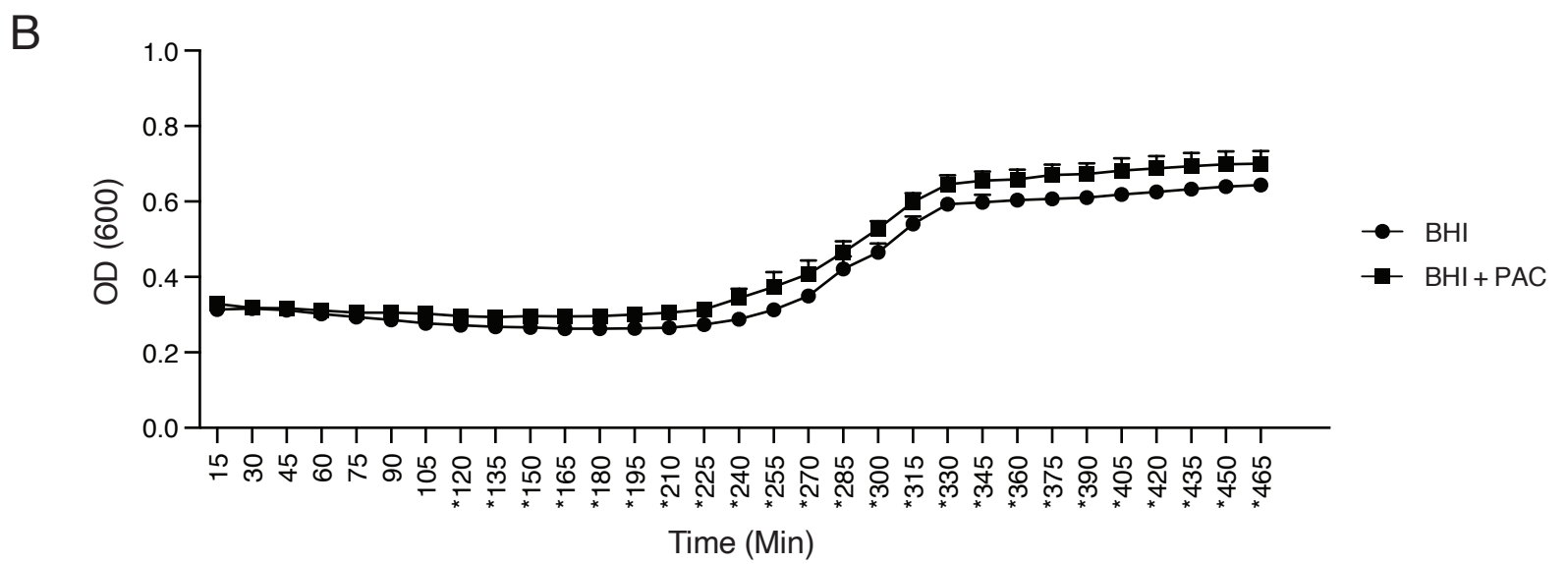
Supplemental Figure 1. Quantification of acylcarnitine levels in humans and germ-free mice. (A) Acylcarnitine levels in human plasma and fecal material, n=5. (B) Fecal acylcarnitine levels in conventionally-housed and germ-free mice n=4. Mean±SEM, *p<0.05, **p<0.01, ***p<0.001.

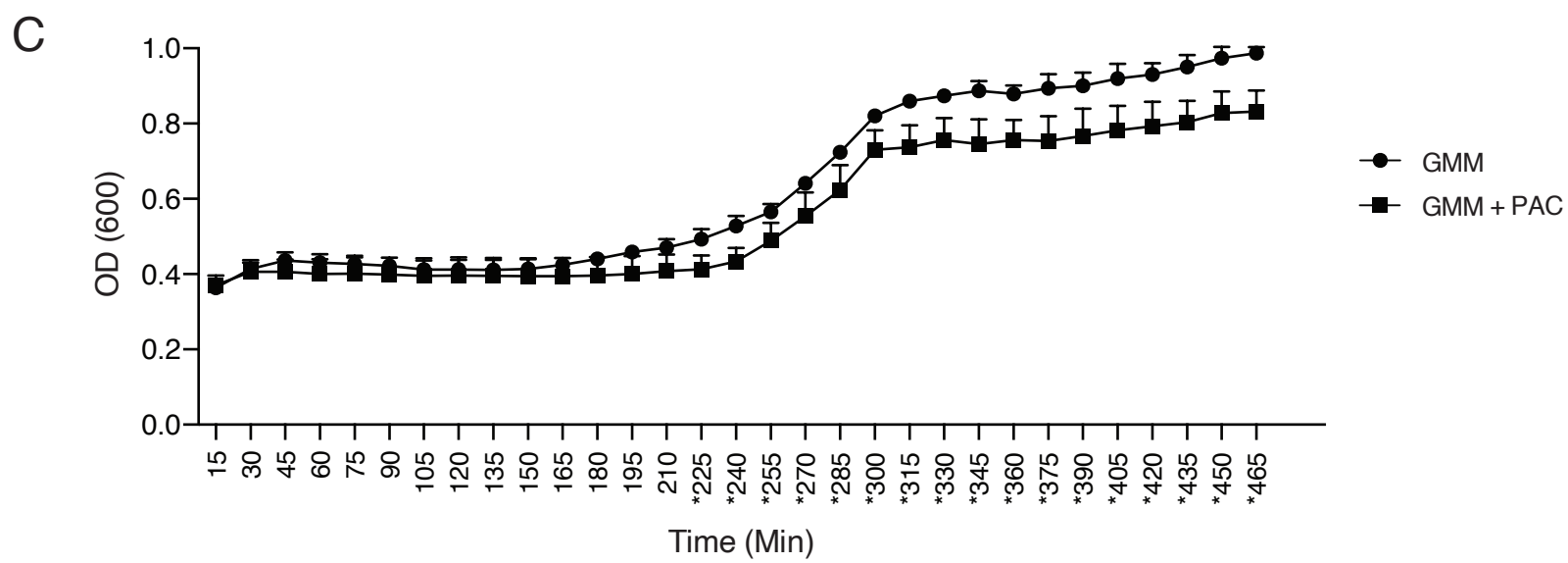


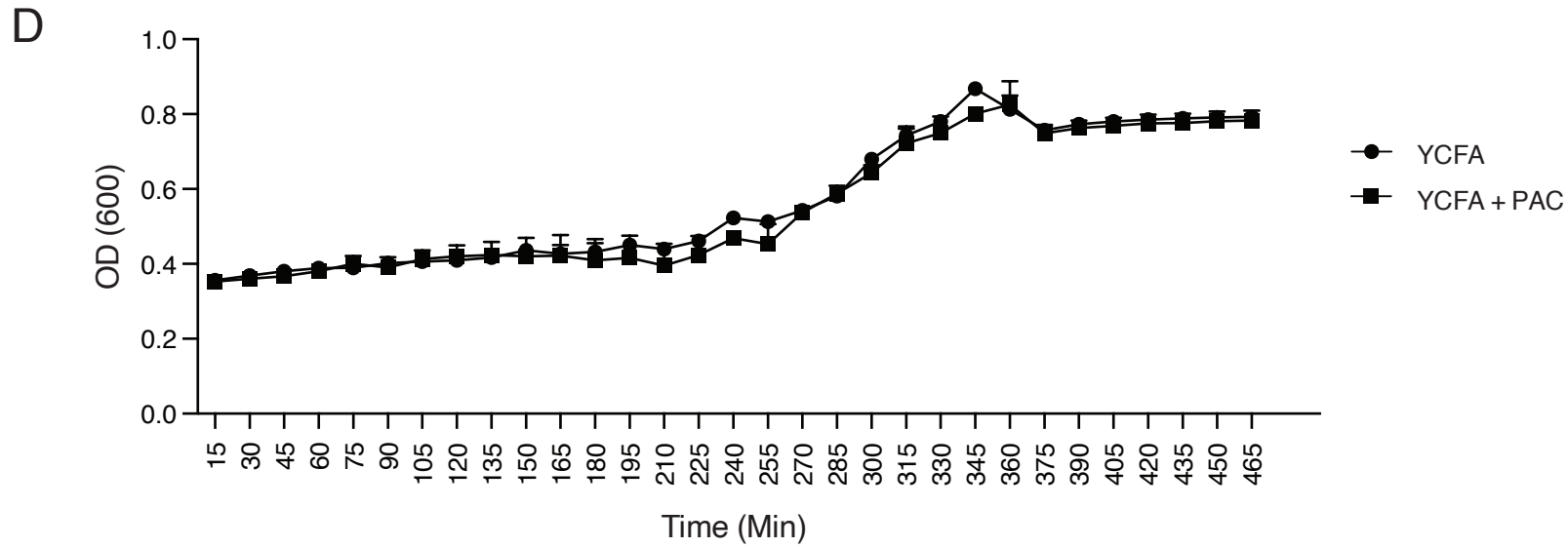


Supplemental Figure 2. Batch culture of the human gut microbiota grown in the presence of palmitoylcarnitine. A fecal sample from a healthy human subject was inoculated and grown for 24 hours at 37°C in three different culture media: BHI, GMM, or YCFA without and with palmitoylcarnitine. (A) Palmitoylcarnitine levels after 24 hour incubation in media alone or after inoculation with a human gut microbiota. ***p< 0.005 (B-D) Batch culture growth curves of healthy fecal sample grown in (B) BHI, (C) GMM or (D) YCFA culture media -/+ palmitoylcarnitine. *p<0.05

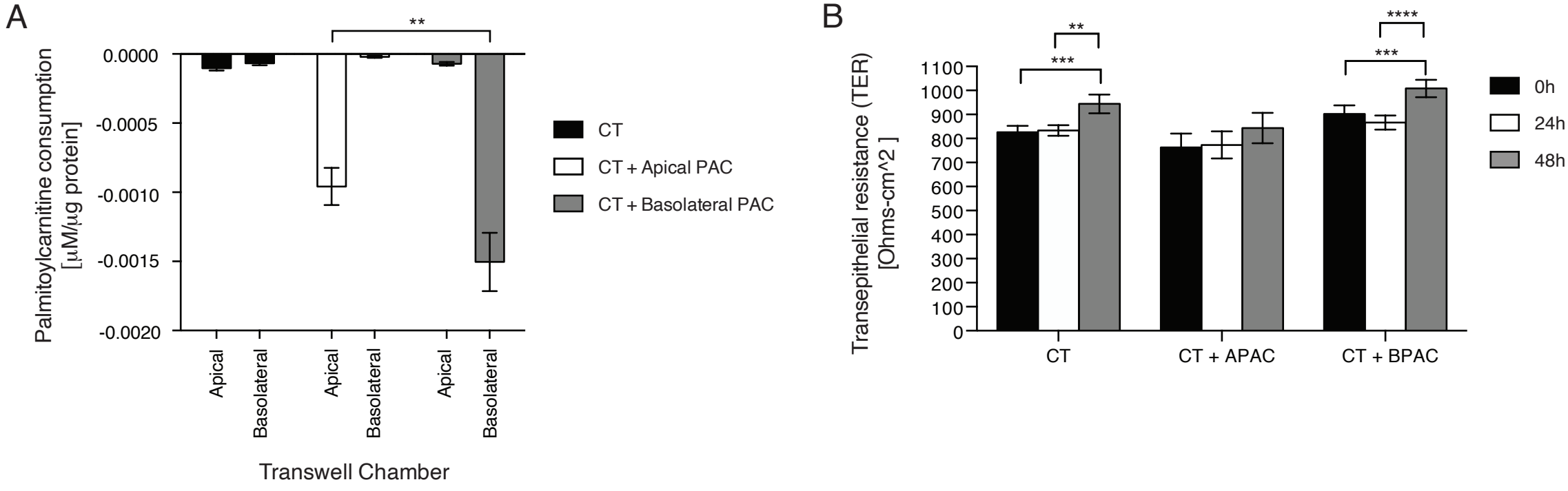




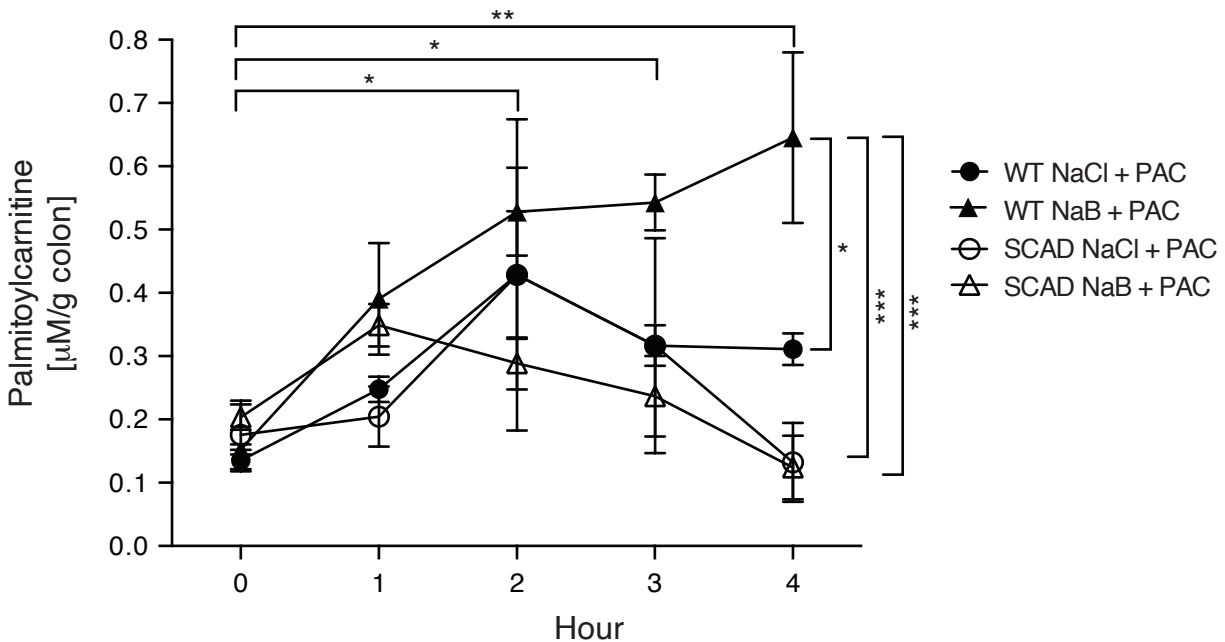




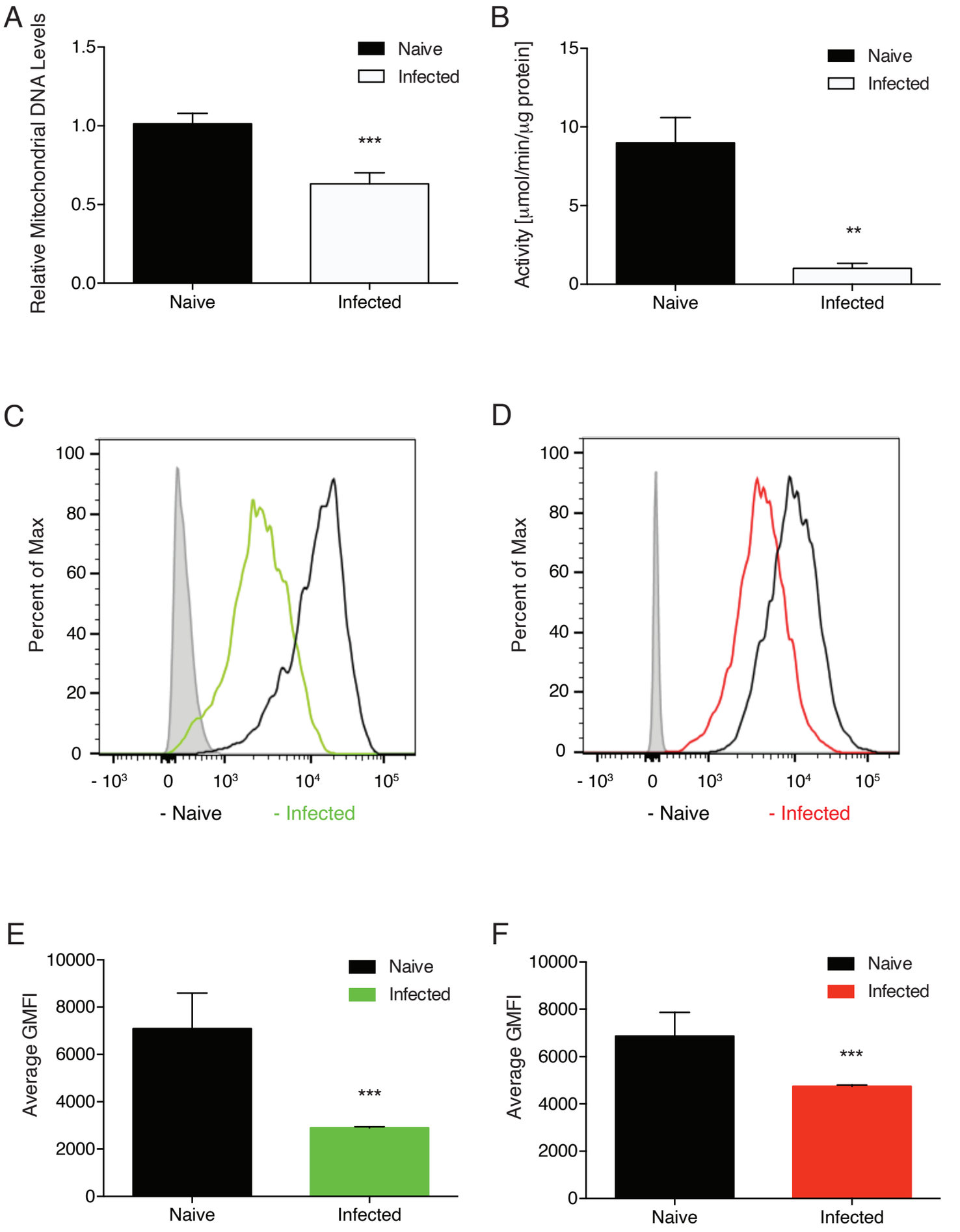
Supplemental Figure 3. Polarized consumption and secretion of acylcarnitines in 2-dimensional monolayers of a colonoid cell line generated from rectal biopsy from a healthy human subject. (A) Concentration of palmitoylcarnitine (PAC) in the apical and basolateral chambers of a transwell plate 24 hours after the addition of 1μM PAC as indicated. Mean±SEM, n=6, *p<.05, **p<.01, ***p<0.005, ****p<0.0001. (B) Transepithelial resistance measured after 24 and 48 hours without (CT=Control) and with PAC added to the apical chamber (Apical PAC=APAC) or the basolateral chamber (Basolateral PAC=BPAC). Mean±SEM, n=7. *p<0.05.



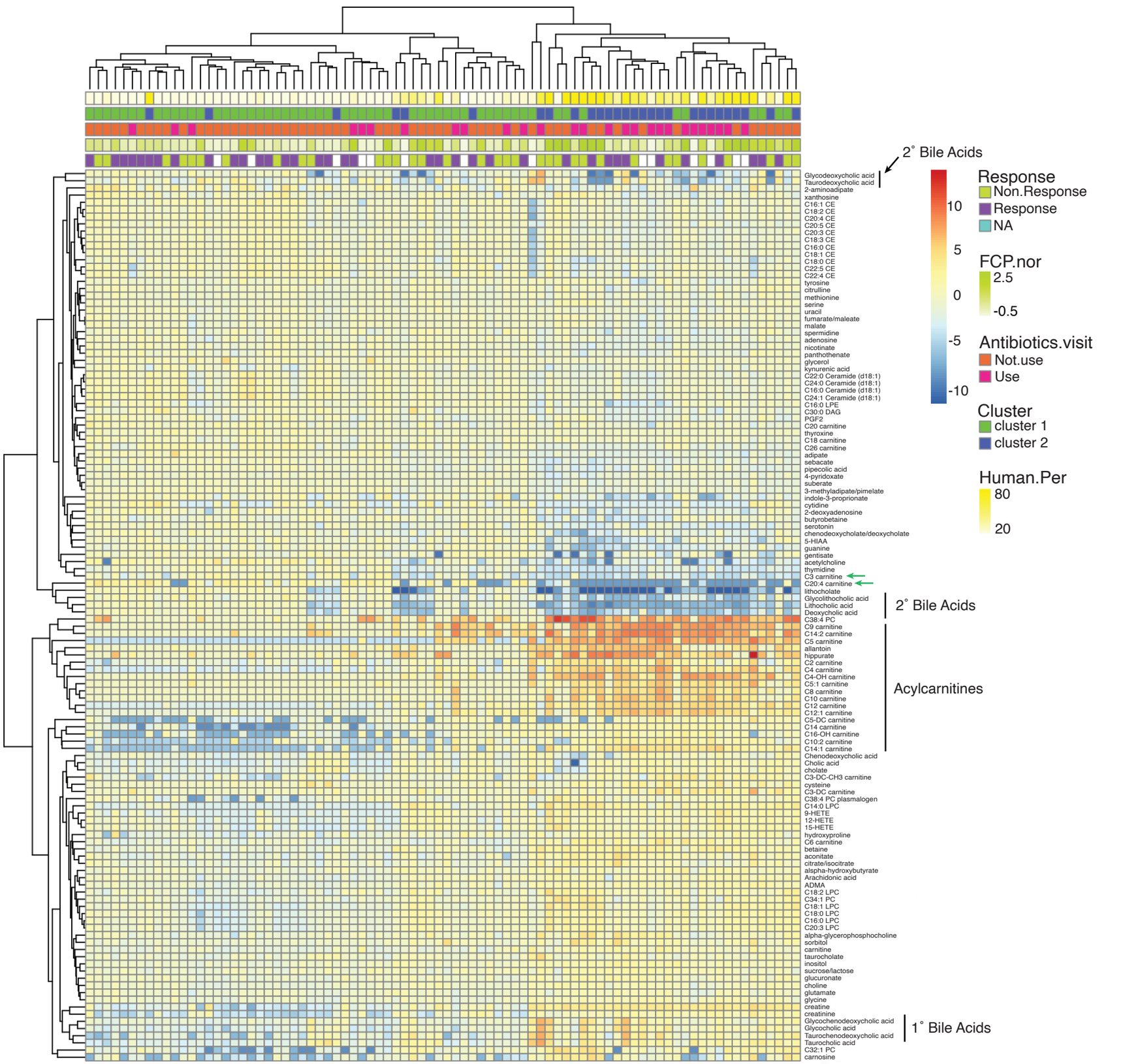
Supplemental Figure 4. Wild-Type mice preferentially consume short chain fatty acids while SCAD-deficient mice consume palmitoylcarnitine. Consumption of palmitoylcarnitine monitored over 4 hours in either a control buffer, sodium chloride buffer or a short chain fatty acid buffer, sodium butyrate. SCAD-deficient mice were able to consume palmitoylcarnitine in either condition. Wild-type mice. Mean±SEM, n=4, *p<0.05, **p<0.01, ***p<0.005.



Supplemental Figure 5. Quantification of mitochondrial number and function in the colonic epithelium of mice infected with C. *rodentium*. (A) Mitochondrial DNA quantified by qPCR in colonic epithelial cells isolated from naïve and infected mice. n=5, Mean+SEM ***p<0.0001 (B) Mitochondrial citrate synthase activity quantified from colonic epithelial mitochondria isolated from naïve and C. *rodentium*-infected mice. n=5, Mean+SEM **p<0.001. (C) MitoTrackerTM Green and (D) MitoTracker™ Deep Red staining of isolated colonic epithelial cells from naïve and C. *rodentium*-infected mice (histograms for unstained cells are shown in gray). Histogram of the average fluorescence for (E) MitoTrackerTM Green and (F) MitoTrackerTM Deep Red staining in isolated colonic epithelial cells from naïve and infected mice, n=5, Mean + SD, ***p=0.001 and ***p=0.002 for E and F, respectively. GMFI=Geometric Mean Fluorescence Intensity. Representative results of three independent experiments.



Supplemental Figure 6. Association between fecal metabolites with disease in pediatric patients with CD. Shown is a heat map demonstrating relative abundance of fecal metabolites before therapy according to the presence of disease, cluster assignment ("Cluster 1" is a microbiota composition similar to health where as "Cluster 2" is associated with a dysbiotic composition), FCP concentration, use of antibiotics, response or no response to therapy, and percentage of human DNA in the sample. Metadata are indicated by the color code at the top of the figure. 1° and 2° bile acids as well as most acylcarnitines are identified. Green arrows identify two acylcarnitines that have an association with disease opposite of the remaining acylcarnitines.



Supplemental Figure 7. Quantification of fecal acylcarnitines in naïve and C. *rodentium*-infected mice. Fecal acylcarnitines from naïve and infected mice were analyzed by tandem mass spectrometry. n=4, *p<0.05, **p<0.001, ***p<0.0001.

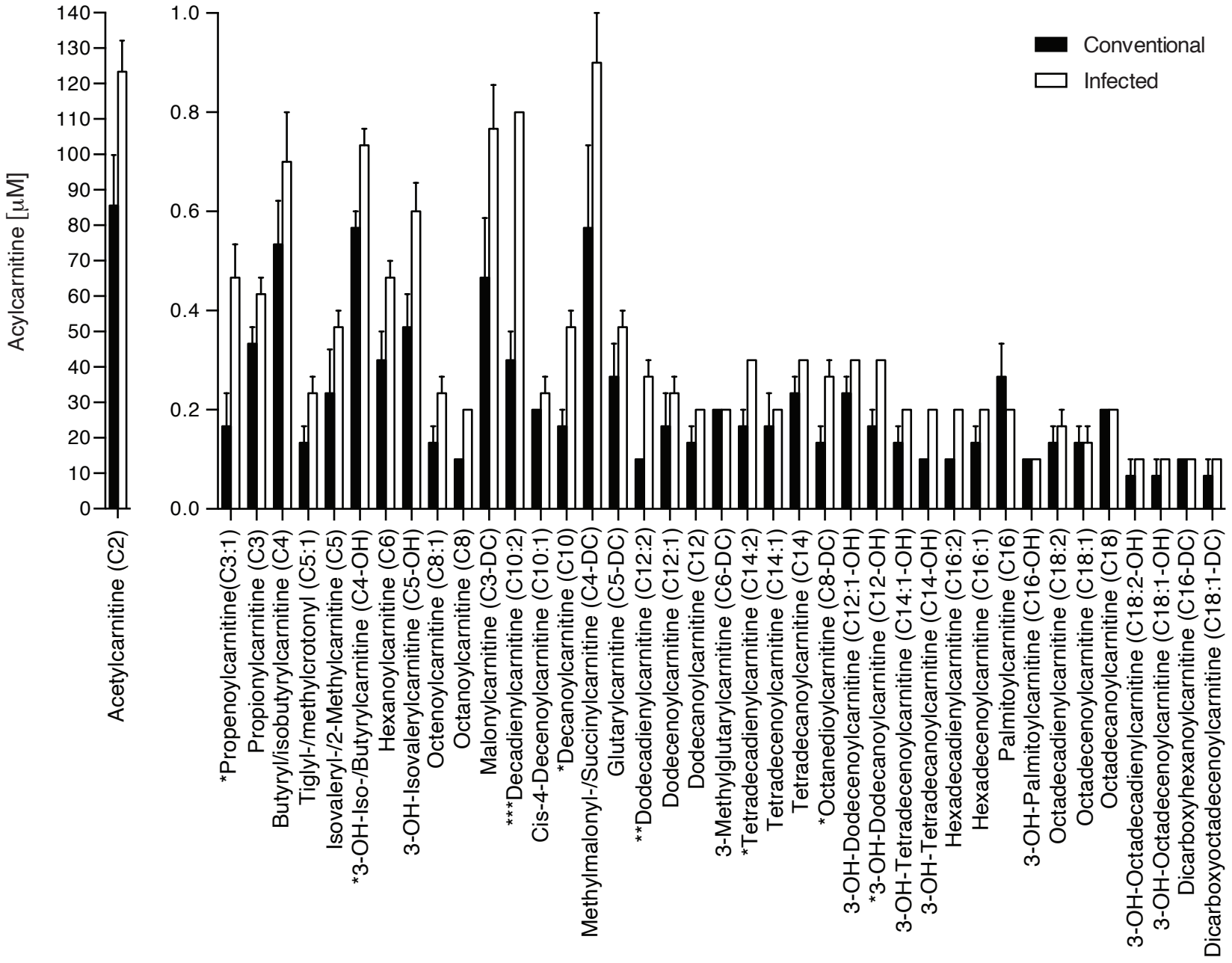


Table S1. Polarized consumption and secretion of acylcarnitines in 2-dimensional monolayers of a colonoid cell line generated from rectal biopsy from a healthy human subject. 2D colonoids (n=8) after 48 hours under control (CT), control + apical palmitoylcarnitine (CT+APAC), or control + basolateral palmitoylcarnitine (CT+BPAC) conditions. Acylcarnitines quantified are listed on the left column of the table (pM/μg) in either the apical of basolateral chamber of the transwell plate as indicated in the top row of the table. Values reported are absolute values, where red or blue indicate secretion or consumption, respectively.

Key for symbols for statistical comparisons embedded in the cells of the Table:
*=compared to apical fraction of same treatment; ◊=compared to respective CT fraction; †=compared to respective CT+APAC fraction; §=compared to respective CT+BPAC fraction.
1 symbol, $p<0.05$; 2 symbols, $p<0.01$; 3 symbols, $p<0.005$; 4 symbols, $p<0.0001$. DC=Dicarboxylic

0-48h Acylcarnitine Readout [pM/ug]	Apical Fraction			Basolateral Fraction		
	CT	CT+APAC	CT+BPAC	CT	CT+APAC	CT+BPAC
3-OH-Iso-/Butyrylcarnitine (C4-OH)	36.74	37.62	51.22 ◊◊, ††	9.77 ****	14.26 ****	16.92 ****
3-OH-Isovalerylcarnitine (C5-OH)	12.38	13.94	19.01	-7.81 ****	1.48 ***	2.70 ***
3-OH-Dodecanoylcarnitine (C12-OH)	2.36	-0.05	5.23	-8.96 ****	-9.14 ***	-6.59 ****
3-OH-Tetradecenoylcarnitine (C14:1-OH)	14.91	19.48	18.89	-10.43 ***	-4.15 ***	-2.55 ***
3-OH-Oleoyllcarnitine (C18:1-OH)	-2.15	-0.23	4.33	-5.83	-0.53	21.55
Octadecanoylcarnitine (C18)	11.66	12.58	16.03	-3.46	6.84	3.44
Oleoylcarnitine (C18:1)	22.05	22.83	31.57 ◊◊, ††	-3.86 ****	-1.75 ****	-4.71 ****
Dicarboxyhexadecanoylcarnitine (C16-DC)	3.01	3.52	21.10	2.22	3.49	90.66
Palmitoylcarnitine (C16)	-52.94 ††††	-1101.82	28.19 ††††	-43.62 §§§§	-6.88 ****, §§§§	-2760.15 ****
Hexadecenoylcarnitine (C16:1)	17.43	18.70	25.82 ◊◊, †	-1.90 ****	-0.41 ****	-0.12 ****
Hexadecadienylcarnitine (C16:2)	-2.75	-0.74	-0.80	-3.92	-2.25	-0.93
Tetradecanoylcarnitine (C14)	15.63	20.51	24.89 ◊◊◊	-0.80 ****	0.62 ****	-1.02 ****
Tetradecenoylcarnitine (C14:1)	17.28	18.57	27.11 ◊, †	-4.64 ****	-0.76 ****	-1.85 ****
Tetradecadienylcarnitine (C14:2)	-28.82	-16.21	-24.17	-36.28	-25.36	3.45
Dodecanoylcarnitine (C12)	6.24	6.31	13.05 ◊, †	-8.34 ****	-5.56 ****	-8.54 ****
Dodecenoylcarnitine (C12:1)	10.74	13.38	18.62 ◊◊◊, †	0.15 ****	0.09 ****	-1.52 ****
Dodecadienylcarnitine (C12:2)	0.54	0.67	1.49	-3.97 **	-2.83 *	-1.93 *
Decanoylcarnitine (C10)	25.97	25.15	38.60 ◊, †	10.69 ***	13.75 **	25.68 **, ◊◊, ††
Decadienylcarnitine (C10:2)	-39.57	-31.19	-37.49	-29.85	-24.63	-27.33
Octanedioylcarnitine (C8-DC)	4.48	2.81	3.66	-0.46 ***	-1.09 *	0.32 *
Octanoylcarnitine (C8)	24.16	29.79	42.68 ◊◊◊, †	21.73	22.90	40.93 ◊◊◊, †††
Octenoylcarnitine (C8:1)	13.25	12.36	4.92	5.40	2.61	8.67
3-Methylglutarylcarnitine (C6-DC)	0.56	0.51	0.50	-3.81	-6.03 *	-2.32
Hexanoylcarnitine (C6)	13.24	17.03	23.34	-14.85 ****	-7.36 ****	-2.95 ****
Glutarylcarnitine (C5-DC)	17.67	23.93	31.48	-4.43 ***	5.01 ***	10.95 ***, ◊
Isovaleryl-/2-Methylbutyrylcarnitine (C5)	47.08	61.80	77.38	-38.86 ****	-8.67 ****	-9.06 ****
Tiglyl-/Methylcrotonylcarnitine (C5:1)	12.18	12.26	18.07	-0.67 ***	1.65 ***	6.04 ***
Methylmalonyl-/Succinylcarnitine (C4-DC)	6.50	7.06	3.85	-21.14 ****	-25.06 ****	-27.03 ****
Butyryl/Isobutyryl (C4)	410.85	399.79	582.21 ◊, †	109.77 ****	192.40 ***	238.54 ****
Malonylcarnitine (C3-DC)	7.64	9.20	9.31	-4.39 *	3.10	-0.24
Propionylcarnitine (C3)	-320.15	-226.71 ◊	-191.80	-663.68 ***	-456.89 ***	-528.71 ***
Propenoylcarnitine (C3:1)	-38.35	-31.66	-50.45 ◊◊, †††	-48.48 *	-37.16	-40.18 *
Acetylcarnitine (C2)	-7848.23	-8481.39	-9031.78	-3392.93 ***	311.70 ****, ◊	295.35 ****, ◊

Table S2. Evaluation of MTCO1 staining patterns in human colonic surgical specimens.
Number of subjects (1 to 4 surgical specimens per subject): 11 Controls, 16 Chron's Disease (CD), 10 Ulcerative Colitis (UC).
Three parameters for "localization and intensity of staining" are reported for each surgical specimen:

1) Epithelial location described as: Deep gland, superficial gland, surface epithelium
2) Intensity of staining scored: Minimal, 1+, 2+, 3+
3) Pattern of epithelial cellular staining described as: Diffuse cytoplasmic, peri-nuclear, supra-nuclear, sub-nuclear (must span the distance of 5 colonic crypts).

Disease/Patient	High Powered Field	Age	Sex	Histologic Architecture	Localization, Intensity and Pattern of Staining
Control 1	A	55	M	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands 1+ perinuclear Superficial epithelium minimal staining perinuclear
Control 1	B	55	M	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands 1+ minimal perinuclear Superficial epithelium 2+ staining supranuclear and perinuclear
Control 1	C	55	M	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands 1+ Mild to moderate cytoplasm Superficial glands 2+ perinuclear and supranuclear
Control 1	D	55	M	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands 2+ perinuclear Superficial glands 2+ to 3+ perinuclear and supranuclear
Control 2	A	73	F	Hyperplastic polyp	Deep glands minimal cytoplasmic staining Hyperplastic polyp minimal to absent staining
Control 2	B	73	F	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands 1+ cytoplasmic Superficial glands 2+ supranuclear
Control 2	C	73	F	Colonic mucosal surgical specimen with irregular architecture	Deep glands negative staining Superficial epithelium 2+ to 3+ supranuclear staining
Control 2	D	73	F	Tubular adenoma	Deep glands no staining Superficial epithelium no significant staining
Control 3	A	67	M	Polypoid fragment of benign colonic mucosa showing mucosal erosion with acute inflammation and hyperplastic changes compatible with inflammatory/hyperplastic polyp	Deep glands 1+ cytoplasmic staining Superficial epithelium absent
Control 4	A	60	M	Fragments of benign colonic mucosa showing focal acute inflammation No evidence of architectural disarray, granuloma formation or dysplasia	Deep glands patchy 1+ to 2+ cytoplasmic staining Superficial epithelium 2+ cytoplasmic staining with significant submucous staining
Control 4	B	60	M	Fragments of benign colonic mucosa showing focal mild acute inflammation	Deep glands with no significant staining Superficial epithelium 3+ cytoplasmic staining with prominent subnuclear distribution

Control 4	C	60	M	Fragments of benign colonic mucosa showing focal mild acute inflammation	Deep glands with no significant staining Superficial epithelium 2+ cytoplasmic staining
Control 5	A	57	M	Tubular adenoma	Deep glands 1+ to 2+ cytoplasmic staining Superficial epithelium 2+ to 3+ cytoplasmic staining
Control 5	B	57	M	Colonic mucosal surgical specimen with focal lymphangiectasia seen	Deep glands 2+ cytoplasmic staining Superficial epithelium 1+ superficial staining
Control 5	C	57	M	Fragments of tubular adenoma The margins of the specimen cannot be assessed due to the fragmented nature of the specimen	Deep glands 1+ patchy cytoplasmic staining Superficial epithelium patchy 1+ cytoplasmic staining
Control 6	A	77	F	Fragments of tubular adenoma The margins of the specimen cannot be assessed due to the fragmented nature of the specimen	Deep glands without significant staining Superficial epithelium with 1+ cytoplasmic staining
Control 6	B	77	F	Colonic mucosa with focal acute inflammation and scarring of the lamina propria and detached fibrinopurulent exudate Ulcer or focus of ischemia cannot be excluded	Deep glands without significant staining Superficial epithelium with 2+ patchy supranuclear staining
Control 7	A	71	F	A fragment of benign colonic mucosa containing intramucosal lymphoid nodule showing focal minimal acute inflammation and minimal hyperplastic changes	Deep glands mild 1+ cytoplasmic staining Superficial epithelium 3+ cytoplasmic staining predominantly supranuclear
Control 7	B	71	F	Polypoid shaped cauterized fragment of benign colonic mucosa showing mucosal erosion with mild acute inflammation and focal hyperplastic changes compatible with inflammatory/hyperplastic polyp	Deep glands no definite specific staining Surface epithelium 2+ cytoplasmic staining
Control 8	A	58	F	Tubular adenoma	Deep glands without significant staining Superficial glands with nonspecific staining
Control 8	B	58	F	Fragments of benign colonic mucosa showing mucosal erosion with glandular atrophy, lamina propria fibrosis and mild acute inflammation, cannot rule ischemic colitis	Deep glands with 1+ cytoplasmic staining Superficial epithelium with 2+ supranuclear staining

				Clinical correlation is recommended	
Control 9	A	70	F	One of two polypoid fragments of benign colonic mucosa showing acute inflammation and mild hyperplastic changes No evidence of adenomatous changes	Deep glands without significant staining Superficial glands with diffuse 1+ cytoplasmic staining
Control 10	A	68	M	One of two fragments of colonic mucosa showing focus suggestive of early adenomatous changes	Deep glands without significant staining Superficial glands with 1+ diffuse cytoplasmic staining
Control 11	A	68	M	A fragment of benign colonic mucosa showing mild acute inflammation No evidence of architectural disarray, granuloma formation, dysplasia or adenomatous	Deep glands with one plus cytoplasmic staining Superficial glands with patchy 1+ cytoplasmic staining
CD 1	A	42	F	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands minimal cytoplasmic staining Superficial glands 2+ perinuclear and supranuclear staining
CD 1	B	42	F	Colonic mucosal surgical specimen with acute inflammation and architecture disarray with reactive changes	Deep glands no staining Superficial epithelium 2+ to 3+ supranuclear staining and cytoplasmic staining
CD 2	A	57	M	Fragments of benign colonic mucosa showing acute inflammation and architectural disarray Expansion of lamina propria by acute and chronic inflammatory cells noted No evidence of granuloma formation or dysplasia	Deep glands no significant staining Superficial epithelium 2+ cytoplasmic staining
CD 2	B	57	M	Fragments of benign colonic mucosa showing acute inflammation and architectural disarray Expansion of lamina propria by acute and chronic inflammatory cells noted No evidence of granuloma formation or dysplasia	Deep glands no significant staining Superficial glands patchy 2+ cytoplasmic staining, focally significant subnuclear
CD 2	C	57	M	Fragments of benign colonic mucosa showing architectural disarray and mild expansion of lamina propria by acute and chronic inflammatory cells noted No evidence of acute inflammation, granuloma formation or dysplasia	Superficial glands patchy 2+ subnuclear staining
CD 2	D	57	M	Fragments of benign colonic mucosa showing architectural disarray	Deep glands no significant staining

				No evidence of acute inflammation, granuloma formation or dysplasia	Superficial glands patchy 2+ subnuclear staining
CD 3	A	22	M	Fragments of benign colonic mucosa containing intramucosal lymphoid nodules showing no significant histopathologic changes	Deep glands no significant staining Superficial epithelium with 3+ cytoplasmic staining with focal subnuclear concentration
CD 3	B	22	M	Fragments of benign colonic mucosa containing intramucosal lymphoid nodules showing no significant histopathologic changes	Deep glands without significant staining Superficial epithelium patchy 2+ predominantly subnuclear staining
CD 3	C	22	M	Fragments of benign colonic mucosa containing intramucosal lymphoid nodules showing no significant histopathologic changes	Deep glands without significant staining Superficial epithelium 1+ to 2+ subnuclear staining
CD 4	A	55	M	Colonic mucosal surgical specimen with acute inflammation and architectural disarray Fibrinopurulent exudate	Deep glands with minimal cytoplasmic staining Superficial glands with minimal cytoplasmic staining
CD 4	B	55	M	Colonic mucosal surgical specimen with mild architectural disarray, mild acute inflammation	Deep glands without significant staining Superficial epithelium with 2+ cytoplasmic staining
CD 4	C	55	M	Colonic mucosal surgical specimen with acute inflammation and architectural disarray	Deep glands without significant staining Superficial epithelium with minimal cytoplasmic staining
CD 5	A	49	M	Colonic mucosal surgical specimen with focal acute inflammation, as well as expansion of lamina propria by predominantly chronic inflammatory cells and eosinophils with few rare acute inflammatory cells Focal crypt architectural disarray No dysplasia or granuloma seen	Superficial glands with patchy cytoplasmic and focally subnuclear staining 1+
CD 5	B	49	M	Colonic mucosal surgical specimen with acute colitis and crypt architectural disarray No dysplasia or granuloma seen	Deep glands and mild 1+ cytoplasmic staining Superficial glands with patchy predominantly subnuclear 2+ staining
CD 5	C	49	M	Colonic mucosal surgical specimen with acute colitis and crypt architectural disarray No dysplasia or granuloma seen	Deep glands no definite staining With patchy 1+ predominantly subnuclear staining
CD 6	A	27	F	Colonic mucosal surgical specimen with predominantly mild	Deep glands without significant staining

				expansion of the lamina propria by chronic inflammatory cells Few rare acute inflammatory cells noted Focal crypt architectural disarray is present Granuloma present Negative for dysplasia	Superficial epithelium with 1+ cytoplasmic staining patchy
CD 6	B	27	F	Colonic mucosal surgical specimen with focal acute inflammation and expansion of the lamina propria by predominantly chronic inflammatory cells Focal crypt architectural disarray is present Granulomas present Negative for dysplasia	Deep glands without significant staining Superficial epithelium 2+ cytoplasmic staining
CD 6	C	27	F	Colonic mucosal surgical specimen with focal acute inflammation, expansion of lamina propria by chronic inflammatory cells No definite crypt architectural disarray No dysplasia or granuloma seen	Deep glands without significant staining Superficial glands with minimal cytoplasmic staining
CD 7	A	41	F	Colonic mucosal surgical specimen with minimal expansion of the lamina propria by predominantly chronic inflammatory cells. Focal rare crypt architectural disarray is noted. No dysplasia or granuloma seen	Deep glands without significant staining Superficial glands with 1+ subnuclear staining
CD 7	B	41	F	Colonic mucosal surgical specimen with minimal expansion of the lamina propria by predominantly chronic inflammatory cells and few eosinophils with some eosinophils focally dotting the superficial epithelium Rare focal crypt architectural disarray is present No dysplasia or granuloma seen	Deep glands minimal cytoplasmic staining Superficial glands with 2+ diffuse cytoplasmic staining
CD 7	C	41	F	Colonic mucosal surgical specimen with mild expansion of the lamina propria by chronic inflammatory cells and few eosinophils with a few rare eosinophils also seen in the	Deep glands with minimal cytoplasmic staining Superficial glands with 1+ diffuse cytoplasmic staining

				superficial epithelium focally Reactive atypia is noted Focal crypt architectural disarray is present No dysplasia or granuloma seen	
CD 8	A	59	M	Intestinal mucosal surgical specimen with acute inflammation focally present No dysplasia or granuloma seen	Deep glands 2+ cytoplasmic staining Superficial glands with diffuse 1+ to 2+ cytoplasmic staining
CD 8	B	59	M	Colonic mucosal surgical specimen with no significant histopathologic changes No dysplasia or granuloma seen	Deep glands minimal cytoplasmic staining Superficial glands with patchy 3+ cytoplasmic staining
CD 8	C	59	M	Colonic mucosal surgical specimen with minimal expansion of the lamina propria by chronic inflammatory cells No dysplasia or granuloma seen	Deep glands without significant staining Superficial glands with 3+ cytoplasmic staining
CD 9	A	22	F	Colonic mucosal surgical specimen with no significant histopathologic changes No dysplasia or granuloma seen	Deep glands without significant staining Superficial glands with 1+ cytoplasmic staining
CD 9	B	22	F	Colonic mucosal surgical specimen with prominent acute inflammation and crypt architectural disarray Focal reactive atypia is noted in areas of acute inflammation No dysplasia or granuloma seen	Deep glands without significant staining Superficial glands without significant staining
CD 9	C	22	F	Polypoid colonic mucosal surgical specimen with ulceration, significant acute inflammation, granulation tissue formation, and hyperplastic glands No dysplasia or granuloma seen These features are compatible with an inflammatory type polyp	Deep glands with minimal cytoplasmic staining Surface epithelium with focal patchy 1+ cytoplasmic staining
CD 9	D	22	F	Colonic mucosal surgical specimen with no significant histopathologic changes No dysplasia or granuloma seen	Deep glands with 1+ cytoplasmic staining Superficial glands with 2+ subnuclear staining
CD 10	A	72	F	Colonic mucosal surgical specimen without definite pathologic abnormalities	Deep glands without significant staining Superficial glands with 3+ cytoplasmic staining

CD 10	B	72	F	Colonic mucosal surgical specimen with mild architectural disarray and focal acute inflammation	Deep glands without significant staining Superficial glands with diffuse 3+ cytoplasmic staining
CD 10	C	72	F	Colonic mucosal surgical specimen with architectural disarray and minimal focal acute inflammation	Deep glands without significant staining Superficial glands with 2+ cytoplasmic staining
CD 10	D	72	F	Colonic mucosal surgical specimen with architectural disarray and focal acute inflammation	Deep glands without significant staining Superficial glands with 1+ to 2+ cytoplasmic staining in areas predominantly subnuclear
CD 11	A	63	M	Colonic mucosa surgical specimen without significant pathologic abnormalities	2+ equal supranuclear and subnuclear staining
CD 12	A	53	F	Colonic mucosa surgical specimen without significant pathologic abnormalities	2+ focal staining supranuclear and subnuclear
CD 13	A	33	M	Colonic mucosal surgical specimen with irregular architecture	2+ predominant subnuclear staining
CD 14	A	34	F	Colonic mucosal surgical specimen with irregular architecture	Small focus with adequate 3+ staining both supranuclear and subnuclear
CD 15	A	39	M	Colonic mucosal surgical specimen without significant pathologic abnormalities	One fragment overstained Other fragment with 2+ to 3+ predominantly subnuclear staining
CD 16	A	45	M	Colonic mucosal surgical specimen with architectural disarray	Staining pattern more prominent 3+ subnuclear
UC 1	A	45	M	Colonic mucosal surgical specimen with acute inflammation and architectural disarray No dysplasia or granuloma seen	Deep glands no significant staining Superficial epithelium patchy 2+ subnuclear and perinuclear staining
UC 2	A	22	M	Colonic mucosa with focal cryptitis, crypt abscess and expansion of lamina propria with chronic and acute inflammatory cells and lymphoid aggregated Architectural disarray present. No dysplasia or granuloma seen	Deep glands focal 1+ cytoplasmic staining Superficial glands patchy 2+ subnuclear staining Superficial glands other areas 2+ cytoplasmic staining
UC 3	A	24	F	Colonic mucosal surgical specimen with no significant histopathologic changes No dysplasia or granuloma seen	Deep glands no significant staining Superficial epithelium 3+ cytoplasmic staining
UC 3	B	24	F	Colonic mucosal surgical specimen with ulceration, acute colitis, and crypt architectural disarray	Deep glands minimal focal cytoplasmic staining Patchy 2+ to 3+ cytoplasmic staining

				No dysplasia or granuloma seen	
UC 4	A	37	M	Fragments of benign colonic mucosa showing mucosal ulceration with acute inflammation and architectural disarray Expansion of lamina propria by acute and chronic inflammatory cells also noted No evidence of granuloma formation or dysplasia	Deep glands no significant staining Superficial glands 1+ subnuclear staining patchy
UC 5	A	80	M	Fragments of benign colonic mucosa showing acute inflammation, cryptitis, crypt abscess formation and architectural disarray No evidence of granuloma formation or dysplasia	Deep glands without significant staining Surface epithelium glands with 1+ cytoplasmic staining predominantly subnuclear
UC 5	B	80	M	Fragments of benign colonic mucosa showing acute inflammation, cryptitis, crypt abscess formation and architectural disarray No evidence of granuloma formation or dysplasia	Deep glands without significant staining Surface epithelium glands with 1+ cytoplasmic staining predominantly subnuclear
UC 5	C	80	M	Fragments of benign colonic mucosa showing acute inflammation, cryptitis, crypt abscess formation and architectural disarray No evidence of granuloma formation or dysplasia	Deep glands without significant staining Surface epithelium glands with 1+ cytoplasmic staining predominantly subnuclear
UC 5	D	80	M	Fragments of benign colonic mucosa showing acute inflammation, cryptitis, crypt abscess formation and architectural disarray No evidence of granuloma formation or dysplasia	Deep glands without significant staining Superficial epithelium favor nonspecific staining
UC 6	A	30	F	Small intestinal mucosa within normal limits	No definite specific staining
UC 6	B	30	F	Colonic mucosal surgical specimen with mild expansion of lamina propria by chronic inflammatory cells No dysplasia or granuloma seen	Deep glands without definite staining Surface epithelium 1+ cytoplasmic staining
UC 6	C	30	F	Colonic mucosal surgical specimen with mild expansion of lamina propria by chronic inflammatory cells No dysplasia or granuloma seen	Surface epithelium with 2+ cytoplasmic staining in subnuclear predominance

UC 7	A	50	M	Colonic mucosa with mild expansion of the lamina propria with acute and chronic inflammatory cells	Deep glands without significant staining Superficial epithelium with patchy 1+ cytoplasmic staining
UC 7	B	50	M	Colonic mucosa without definite pathologic abnormalities	Deep glands without significant staining Superficial epithelium with 2+ subnuclear staining
UC 8	A	27	F	Fragments of benign colonic mucosa showing no significant histopathological changes	Deep glands without significant staining Superficial glands with 1+ diffuse cytoplasmic staining
UC 8	B	27	F	Fragments of benign colonic mucosa showing architectural disarray No evidence of acute inflammation, granuloma formation or dysplasia. Paneth cell metaplasia present	Deep glands without significant staining Superficial glands without significant staining Superficial glands with patchy 2+ cytoplasmic staining
UC 8	C	27	F	Fragments of benign colonic mucosa showing acute inflammation and architectural disarray Mild expansion of the lamina propria by acute and chronic inflammatory cells also noted No evidence of granuloma formation or dysplasia Immunostaining for CMV is negative	Deep glands without significant staining Superficial glands with patchy 1+ diffuse and subnuclear staining
UC 8	D	27	F	Fragments of benign colonic mucosa showing acute inflammation and architectural disarray Mild expansion of the lamina propria by acute and chronic inflammatory cells also noted No evidence of granuloma formation or dysplasia	Deep glands without definite staining Superficial epithelium with 1+ predominantly subnuclear staining
UC 9	A	53	M	Adenomatous polyp, see note Three separate fragments of benign unremarkable colonic mucosa also present Note: In cases of established inflammatory bowel disease, a dysplastic polyp raises the differential diagnosis of a DALM	Deep glands minimal cytoplasmic staining Superficial glands with 3+ supranuclear staining
UC 9	B	53	M	Fragments of benign colonic mucosa containing prominent intramucosal lymphoid nodules showing no significant histopathological changes	Deep glands minimal 1+ cytoplasmic staining Superficial glands with patchy 3+ partly subnuclear staining

UC 9	C	53	M	Fragments of benign colonic mucosa showing no significant histopathological changes	Deep glands without significant staining Superficial glands with 2+ to 3+ predominantly subnuclear staining
UC 9	D	53	M	Fragments of benign colonic mucosa showing acute inflammation and architectural disarray Expansion of the lamina propria by acute and chronic inflammatory cells also noted No evidence of granuloma formation or dysplasia	Deep glands without significant staining Superficial epithelium with diffuse 1+ cytoplasmic staining
UC 10	A	48	M	Colonic mucosal surgical specimen with focal hyperplastic changes	Staining only identified and surface glands Superficial glands 3+ supranuclear and subnuclear