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## **Lipidomic Profiling in Inflammatory Bowel Disease:**

### **Comparison between Ulcerative Colitis and Crohn's Disease**

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## **Abstract**

**Background:** Inflammatory bowel disease (IBD), which encompasses ulcerative colitis (UC) and Crohn's disease (CD), is thought to be caused by abnormal host immune responses to the intestinal microbiome. However, the precise etiology of IBD remains unknown. Lipid metabolism and signalling are suggested to play important roles in inflammation with significant implications for IBD. In the present study, we aimed to characterize lipidomic profiles in IBD with comparison between healthy controls, UC and CD.

**Methods:** Patients with IBD (n=40, UC:16 and CD:24) and age- and gender-matched healthy volunteers (n=84) were recruited. Plasma lipid profiles containing 333 lipid species were measured using electrospray-ionisation tandem mass spectrometry.

**Results:** 86 individual lipid species were significantly changed in CD compared to controls (78 decreased while 8 increased), with the majority belonging to the ether lipids including the alkylphospholipids (alkylphosphatidylcholine and alkylphosphatidylethanolamine) and plasmalogens (alkenylphosphatidylcholine and alkenylphosphatidylethanolamine). Of these 86 lipid species, 33 remained significantly and negatively associated with CD after adjusting for age, sex, waist circumference, current smoking, and diastolic blood pressure in logistic regression. In contrast, only 5 lipid species significantly differed between UC and controls.

**Conclusion:** We demonstrate that a number of ether lipids (alkylphospholipid and plasmalogens) are significantly and negatively associated with CD. These alterations of lipid profiles particularly plasmalogens may contribute to the pathogenesis of IBD.

**Key Words:** inflammatory bowel disease, Crohn's disease, ulcerative colitis, lipid profiles, plasmalogens

## **Introduction**

Inflammatory bowel disease (IBD) is a chronic inflammatory disorder, encompassing two related and distinct forms of intestinal inflammation: ulcerative colitis (UC) and Crohn's disease (CD). The development and course of IBD are affected by several factors, including genetic predisposition, the intestinal microbiota, other environmental factors and a dysregulated host immune response.<sup>1</sup> However, the precise etiology of IBD remains unknown. IBD is conventionally treated with steroids and immunosuppressive or immunomodulatory medications. The introduction of biologic therapy such as anti-tumour necrosis factor (TNF)- $\alpha$  monoclonal antibodies has significantly improved the treatment of IBD. However, these treatments are not universally effective and can have severe adverse effects.<sup>2</sup> Novel treatments without side effects are therefore greatly demanded.

Dyslipidemia has been reported in IBD. Unlike other inflammatory disorders such as rheumatoid arthritis, IBD seems to be associated with lower levels of total cholesterol and low-density lipoprotein cholesterol (LDL-C).<sup>3,4</sup> Triglyceride levels have been reported either increased or unchanged in IBD.<sup>3,5-7</sup> However, the relationship between the individual molecular species of lipids and IBD has not been investigated. Accumulating evidence has suggested that lipid metabolism and signalling play important roles in inflammation with significant implications for IBD.<sup>8</sup> In the present study, we aimed to characterize lipidomic profiles in IBD with comparison between UC and CD.

## **Materials and Methods**

The study was approved by the Human Ethics Research Committee of the Alfred Hospital and all subjects provided written informed consent prior to their participation. All clinical investigation was conducted according to the principles expressed in the Declaration of Helsinki.

### **Study subjects**

Patients with IBD (n=40, UC:16 and CD:24) were recruited from the IBD Clinic at the Alfred Hospital. The diagnosis of IBD was established by standard clinical, laboratory, radiological, endoscopic and histological criteria. Age- and gender-matched healthy volunteers (n=84) were recruited from the risk evaluation clinic of Baker IDI Heart and Diabetes Institute. Patients and controls were older than 35 years. Subjects with known cerebrovascular, coronary or peripheral vascular disease were excluded. Disease activity in CD patients was assessed by the Harvey Bradshaw Index (HBI), while in UC patients was assessed by “Truelove-Witts criteria”.<sup>9</sup> Montreal classification was used to characterize clinical phenotypes of IBD patients.<sup>10</sup>

### **Participant demographics**

On the day of the assessment, a detailed medical history and IBD history were obtained. Body weight and height were recorded and BMI was calculated, and waist circumference was measured. Blood pressures were measured in the seated position using an automated sphygmomanometer (HEM-907; Omron). Venous blood samples were obtained after overnight fasting. Fasting plasma lipids (total cholesterol, triglycerides, LDL-C and high-density lipoprotein cholesterol (HDL-C)), glucose and liver function were determined at the Department of Chemical Pathology of the Alfred Hospital. For each participant, a Framingham Risk Score for 10-year

'hard' coronary heart disease endpoints was calculated (see <http://cvdrisk.nhlbi.nih.gov/calculator.asp>).

### **Sample preparation and lipid extraction**

Total lipid extraction from a 10  $\mu$ L aliquot of plasma was performed by a single-phase chloroform:methanol (2:1) extraction.<sup>11, 12</sup>

### **High-performance liquid chromatography–mass spectrometry analysis**

Lipid analysis was performed by liquid chromatography, electrospray ionization–tandem mass spectrometry using an Agilent 1200 liquid chromatography system combined with AB SCIEX API 4000 Q/TRAP mass spectrometer with a turbo-ionspray source (350°C) and Analyst 1.5 data system. The major lipid species of the following lipid classes and subclasses: dihydroceramide (dhCer), ceramide (Cer), monohexosylceramide (MHC), dihexosylceramide (DHC), trihexosylceramide (THC), GM<sub>3</sub> ganglioside (GM3), Sphingomyelin (SM), phosphatidylglycerol (PG), phosphatidylinositol (PI), phosphatidylethanolamine (PE), Phosphatidylcholine (PC), phosphatidylserine (PS), lysophosphatidylethanolamine (LPE), alkylphosphatidylethanolamine (PE(O)), alkenylphosphatidylethanolamine (PE(P)), lysophosphatidylcholine (LPC), alkylphosphatidylcholine (PC(O)), alkenylphosphatidylcholine (PC(P)), lysoalkylphosphatidylcholine (LPO), cholesterol ester (CE), diacylglycerol (DG), and triacylglycerol (TG) were analysed using multiple reaction monitoring experiments. A total of 63 diacylglycerol and triacylglycerol species and 270 other lipid species were analyzed in 2 separate experiments. These experiments were used to determine lipid profiles consisting of 333 lipid species on the total cohort in addition to 38 quality control samples that were evenly spaced within

the analytic run. Results were expressed as x1000 pmol/mL of plasma. Values for each lipid class or subclass were calculated as the sum of the individual lipid species within the class or subclass. For clarity we refer the lipid classes by the complete name and use abbreviations for the individual lipid species only.

### **Inflammatory cytokines**

Plasma levels of tumour necrosis factor (TNF)- $\alpha$ , interleukin (IL)-6, IL-1 $\beta$ , and IL-10 were measured using multiplex kits from Millipore (Massachusetts, USA) according to the manufacturer's instruction. The appropriate cytokine standards, plasma samples (25 $\mu$ L), and fluorescent conjugated, antibody-immobilized beads were added to wells of a pre-wet filtered plate and then incubated overnight at 4°C. The following day, the plate was washed twice with wash buffer and then incubated with secondary detection antibody for 1 h, followed by subsequent incubation with streptavidin- phycoerythrin for 30 min. After the plate was washed twice again with wash buffer, it was run on the Luminex system (Biorad) with the addition of sheath fluid. Concentrations of different analytes in the plasma samples were determined by using respective standard curves generated in the multiplex assays. Neat plasma samples were used for all assays.

Macrophage migration inhibitory factor (MIF) in plasma was measured using commercial ELISA kits (R&D System) according to the manufacturer's instructions. All samples and standards were measured in duplicate and averages used. High-sensitivity CRP in plasma was measured at the Department of Chemical Pathology of the Alfred Hospital.

### **Statistical analysis**

Data were expressed as median and interquartile range unless otherwise stated. We first performed a Kruskal-Wallis one-way ANOVA test to determine the differences of lipid classes, subclasses, and species between CD, UC, and control groups. The resultant p-values were corrected for multiple comparisons using the Benjamini-Hochberg method.<sup>13</sup> Post-Hoc, pair wise differences between CD, UC, and control samples were determined using the Mann Whitney U test, and the resultant pair wise p-values were corrected by the Dunn-Sidak approach.<sup>14</sup>

Binary logistic regression analysis on the IQR normalised lipid data (adjusting for age, sex, waist circumference, diastolic blood pressure, and current smoking status) was used to determine the associations of lipid classes, subclasses and individual lipid species with CD. The resultant odds ratio for a given lipid measurement represents the number of times an individual with a lipid measurement in the 75<sup>th</sup> percentile is more likely to have CD than an individual with a lipid measurement in the 25<sup>th</sup> percentile. Similar analyses were performed to identify lipids associated with UC and CD (comparing with UC). For all the analyses, the p-values were corrected for multiple comparisons using the Benjamini-Hochberg method<sup>13</sup> and the statistical significance was determined at the level of <0.05 after correcting for multiple comparisons.

## Results

### Subject characteristics

Table 1 shows characteristics of study subjects. The groups were matched by age and gender. Smoking was more prevalent in patients with IBD (both UC and CD) compared with controls. Diastolic blood pressure was significantly higher in patients with IBD (both UC and CD) compared with controls. There was no difference in BMI among the three groups, but waist circumference was greater in CD than controls. CD had significantly lower levels of cholesterol than UC and controls, and had lower levels of LDL-C compared to controls. TG was significantly higher in CD compared to UC. Both CD and UC had normal HDL-C, and blood glucose levels. Their liver function was normal. IL-6 and MIF were significantly higher in both UC and CD than controls. IL-1 $\beta$  and TNF- $\alpha$  were significantly higher in UC than controls, while IL-10 was higher in UC than controls and CD (Table 1).

There was no difference in anti-hypertensive treatment and lipid-lowering therapy among the three groups. As would be expected, more UC patients were treated with mesalazine while more CD patients were treated with anti-TNF- $\alpha$  therapy. Other treatments for IBD did not differ significantly between UC and CD (Table 1).

Mean disease duration for UC and CD patients were similar (Table 1). In the CD group, the average disease score was 2.4 (as assessed by HBI), while in the UC group, all but one patient had mild disease at the time of their cardiovascular assessment. Thus, at the time of assessment, most patients were effectively treated with regard to disease signs and symptoms. Montreal classification showed that only one patient in CD group was diagnosed before age of 16. CD could affect either ileum or colon, or ileocolonic region (none of them had isolated upper gastrointestinal disease). 10 out of 24 CD patients had either structuring or penetrating behavior (Table 1). Five

patients had concomitant perianal disease. UC patients had either left-sided UC or extensive UC (none of them was classified as having ulcerative proctitis).

### **Plasma lipid profiling**

Twenty-four lipid classes and subclasses consisting of 333 lipid species were measured. Nine lipid classes (monohexosylceramide, dihydroceramide, trihexosylceramide, alkylphosphatidylcholine, alkenylphosphatidylcholine, alkylphosphatidylethanolamine, alkenylphosphatidylethanolamine, lysoalkylphosphatidylcholine and phosphatidylserine) were significantly lower in CD compared to controls (Table 2). These lipid classes except monohexosylceramide and lysoalkylphosphatidylcholine remained significantly associated with CD in binary logistic regression analysis adjusted for age, sex, waist circumference, current smoking, and diastolic blood pressure (Table 4). Eighty-six individual lipid species (from 20 lipid classes and subclasses) were significantly different in CD compared to controls (Table 3, Supplement Table 1). Among these 86 species, the majority were decreased in CD except 8 lipid species (LPC 16:1, PE 32:0, PE 34:3, LPE 18:1, LPE 18:2, PI 32:1, PI 34:0, and PI 34:1) which were increased in CD (Supplement Table 1). Most species different in the CD group belong to the ether lipids including the alkylphospholipids and the alkenylphospholipids(plasmalogens). In addition, all 6 lipid species of phosphatidylserine were different in CD. Out of 86 lipid species altered in CD, 33 remained significantly associated with CD after adjusting for age, sex, waist circumference, current smoking, and diastolic blood pressure in a binary logistic regression model. All lipid species except LPE 18:2 showed a negative association with CD (Table 5, Supplement Table 2). The dihexosylceramide and sphingomyelin classes themselves did not show significant

differences between groups, but DHC 18:0, DHC 22:0, DHC 24:0 and SM 39:1, SM 41:1, SM 41:2 were negatively associated with CD in the logistic regression model.

In contrast, no lipid class was significantly different in UC compared to controls (Table 2) and only 5 lipid species (PC 33:1, PC 34:1, PC (P-34:1), PE (P-36:4), and PS 36:2) significantly differed between UC and controls (Table 3, Supplement Table 1). Comparison between CD and UC demonstrated that 5 lipid classes (trihexosylceramide, GM<sub>3</sub> ganglioside, alkylphosphatidylcholine, alkenylphosphatidylcholine, and alkylphosphatidylethanolamine (Table 2) and 29 individual lipid species were significantly different between the two groups (Table 3, Supplement Table 1). However, these lipid classes and lipid species were not significantly associated with CD against UC after adjusting for age, sex, waist circumference, current smoking and diastolic blood pressure in logistic regression (Supplement Table 2).

## Discussion

This study provides a detailed characterisation of the plasma lipid profiles associated with IBD, UC and CD. We have demonstrated that plasma lipid profiles differ profoundly in CD, but not in UC. The most significant finding in our study was that a number of ether lipids (alkylphospholipid and alkenylphospholipids (plasmalogens)) were negatively associated with CD. These alterations of lipid profiles particularly plasmalogens may contribute to the pathogenesis of IBD.

Previous studies have demonstrated lower levels of total cholesterol and LDL-C in IBD patients.<sup>4</sup> In this study, we observed that lower levels of total cholesterol and LDL-C are found in CD compared to UC patients. Furthermore, we observed a profound difference in plasma phospholipids and sphingolipids in CD, but not in UC, compared to controls. Notably, a number of plasmalogens and ether phospholipids were negatively associated with CD. Plasmalogens are a unique class of membrane glycerophospholipids containing an alkyl chain linked by a vinyl-ether bond at the sn-1 position, and enriched in polyunsaturated fatty acids at the sn-2 position of the glycerol backbone. Plasmalogens represent up to 18% of the total phospholipid mass in humans and the most common types present in mammalian system are alkenylphosphatidylethanolamine or alkenylphosphatidylcholine.<sup>15</sup> The vinyl ether linkage of the plasmalogens is particularly susceptible to oxidation by reactive oxygen species<sup>16,17</sup> and so they are proposed to act as antioxidants and protect other lipids in lipoproteins and membranes against oxidation.<sup>18, 19</sup> While the ether linkage of the alkylphospholipids is not susceptible to oxidation, the high proportion of polyunsaturated fatty acids in these lipids render them also susceptible to oxidative modification. Thus the observed lower levels of plasmalogens in CD may be due to enhanced oxidative decomposition of plasmalogens since an increase in oxidative stress is associated with IBD.<sup>20</sup> In

CD patients, lipid peroxidation was documented by higher plasma malondialdehyde concentrations,<sup>21</sup> but whether CD and UC differ in the extent of oxidative stress is unknown. Alternatively, decreased levels of plasmalogens in plasma may be related to a decreased biosynthesis which is thought to be controlled by the formation and availability of the long chain fatty alcohol used to produce the 1-O-alkyldihydroxyacetonephosphate in the peroxisome, an early process in plasmalogen biosynthesis.<sup>18</sup> A profound decrease in plasmalogens in CD, but not UC, may also be due to the larger intestinal involvement in CD,<sup>22</sup> raising the possibility of using these lipids as markers of disease severity or burden. The decrease of plasmalogen classes and species seems not related to the degree of inflammation since they are not correlated to circulating inflammatory markers (data not shown). Future work will be required to fully understand the drivers and consequences of plasmalogen metabolism in CD and to fully evaluate their potential as biomarkers in IBD.

The decrease of plasmalogens could contribute to the pathogenesis of IBD, particularly CD. Ample evidence has indicated that oxidant-mediated injury plays an important role in the pathogenesis of IBD.<sup>23-25</sup> Oxidative stress is an important mediator of inflammation, and reactive oxygen species enhances inflammatory response in the gut by up-regulating TNF- $\alpha$  expression through the NF- $\kappa$ B signaling pathway,<sup>26</sup> while antioxidants have shown protective roles in a murine model of IBD.<sup>27</sup> The decrease of plasmalogens may lead to impaired antioxidant defence, thus contributing to the pathology of IBD.<sup>28</sup> In addition to their scavenger functions, plasmalogens also play significant roles in membrane fluidity and membrane fusion<sup>29,30</sup> and cholesterol efflux.<sup>31-33</sup> It has been shown the plasmalogen-containing cell membranes were less fluid than the plasmalogen-deficient membrane<sup>29</sup> and low membrane fluidity reduces membrane permeability.<sup>34</sup> The decrease in the amount of plasmalogens also induces a decreased rate of intracellular

cholesterol transport from cell membrane to the endoplasmic reticulum, which increases the cholesterol levels in cell membrane.<sup>32</sup> It is known that membrane permeability is affected by the cholesterol content, with a high cholesterol content inducing membrane permeability.<sup>35</sup> So the decrease in plasmalogens could cause increased membrane permeability, thus contributing to the pathogenesis of IBD since increased intestinal epithelial permeability potentially plays an important role in IBD.<sup>36</sup>

In addition to plasmalogens, we have also observed decreases in total phosphatidylserine and several phosphatidylserine species in CD. Phosphatidylserine accounts for 5-10% of cellular phospholipids and it is found in greatest abundance in the inner face of the plasma membrane. Other membrane phospholipids are phosphatidylcholine and phosphatidylethanolamine, but in our study we did not find associations between phosphatidylcholine and phosphatidylethanolamine and IBD. Phosphatidylserine has a stimulatory effect on protein kinase C (PKC), and the latter is responsible for a number of cellular responses to stimuli. PKC activation, particularly activation of PKC isoforms iota and zeta, seems important for maintaining the epithelial monolayer and protecting against IBD.<sup>37,38</sup> So, the decrease in phosphatidylserine may affect PKC activation, and subsequently affect epithelium barrier function in the gut.

Two sphingolipid classes, the ceramide precursor (dihydroceramide), and the ceramide metabolite (trihexosylceramide)) and 11 sphingolipid species including four sphingomyelin species were found to be negatively associated with IBD in our study, suggesting a possible dysregulation of sphingolipid metabolism in IBD. Ceramides and other sphingolipids are structural elements of cell membrane. Sphingolipids also play key roles in the modulation of inflammation.<sup>39</sup> A previous study has reported that dietary supplementation with sphingomyelin alleviates the symptoms of IBD in mice by reducing disease activity, inhibiting myeloperoxidase activity and

increasing the amount of immunoglobulin A.<sup>40</sup> However, the detailed roles of different sphingolipids in IBD need further investigation.

It is now known that adipose tissue is an active endocrine organ involved in metabolic syndrome and regulation of inflammation by secreting adipokines and other cytokines. Accumulating evidence indicates that obesity may be associated with the pathogenesis, progression and outcome of IBD.<sup>41-43</sup> Although most CD patients have normal or low BMI, CD patients with increased BMI have poorer outcome and require earlier surgical intervention.<sup>43</sup> On the other hand, central obesity/visceral fat accumulation could be a hallmark of CD.<sup>42</sup> Consistently, in our study, we found that both CD and UC patients had normal BMI and that CD patients had a higher waist circumference than control patients, suggesting that central obesity is more associated with CD than BMI. A very recent study reported that measures of adiposity were associated with an increased risk of CD but not UC in a large prospective cohort consisting of 11,498 U.S. women.<sup>44</sup> Further studies are needed to investigate why the excessive adiposity increases the risk of CD, but not the risk of UC. In the present study, most IBD patients were in remission at the time of plasma sampling and lipid analysis. It will be interesting to compare lipid profiles between IBD patients in remission and those with acute inflammation. In addition, due to moderate sample size, it is not feasible to look at the relationships between lipid profiles and sub-classification of CD (clinical phenotype and disease duration and activity). Larger scale studies will thus be required to further explore such relationships.

In conclusion, we demonstrate that a number of plasma lipids particularly plasmalogens are decreased in CD. Decreases in plasmalogens may play a role in the pathology of IBD.

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**Table 1.** Characteristics of Subjects

Characteristics	Control (n = 84)	UC (n = 16)	CD (n = 24)
Age (year)	50.5 (42.5,60.5)	52.5 (42.5,58)	51.0 (42.5,60)
Gender (M/F)	39/45	9/7	15/9
Montreal classification	NA	E1/E2/E3: 0/6/10	A1/A2/A3: 1/13/10 L1/L2/L3: 6/9/9 B1/B2/B3: 14/6/4
Disease duration (y)	NA	5.5 (1.25,19.75)	8.5 (3.25,17)
BMI (kg/m <sup>2</sup> )	25.3 (23.3,28.1)	24.1 (21.6,30.1)	25.4 (23.3,33.1)
Waist (cm)	90 (80,99)	86.5 (77,97)	96.0 (89.0,104.5)*
Current smoker (Y/N)	16/68	9/7**	12/12**
DM (Y/N)	7/77	1/15	3/21
SBP (mmHg)	119 (109,128)	128 (119,134)	119 (115,132)
DBP (mmHg)	68 (62,74)	77 (70,85)**	74 (67,79)*
<i>Lipids</i>			
TC (mmol/L)	5.50 (5.00,6.00)	5.80 (4.95,6.30)#	5.05 (4.15,5.35)*
HDL-C (mmol/L)	1.45 (1.25,1.70)	1.60 (1.25,2.10)	1.40 (1.15,1.60)
LDL-C (mmol/L)	3.40 (3.05,3.95)	3.45 (2.95,4.05)	3.05 (2.10,3.55)*
TG (mmol/L)	1.00 (0.70,1.40)	0.85 (0.70,1.05)##	1.20 (0.85,2.00)
Glucose (mmol/L)	4.80 (4.50,5.20)	4.65 (4.40,5.20)	4.60 (4.40,5.25)
Framingham risk score	2.00 (0.00,5.50)	3.50 (0.50,8.00)	2.00 (0.50,6.00)
<i>Inflammatory markers</i>			
CRP (μg/mL)	1.20 (0.50,2.70)	1.95 (0.70,5.35)	1.80 (0.85,3.70)
Interleukin-1β (pg/mL)	0.50 (0.13,1.11)	0.88 (0.50,1.72)*	0.42 (0.21,1.41)
Interleukin-6 (pg/mL)	0.36 (0.13,0.65)	0.93 (0.41,1.78)**	0.93 (0.45,1.86)*
Interleukin-10 (pg/mL)	10.9 (5.4,16.9)	25.7 (18.5,39.4)***#	14.2 (8.5,24.4)
TNF-α (pg/mL)	2.11 (1.33,3.59)	3.10 (2.25,4.60)*	2.75 (2.14,4.84)
MIF (ng/mL)	33.4 (25.0,49.6)	60.29 (48.0,73.8)*	58.43 (45.6,70.4)*
<i>Medications</i>			
Statins (Y/N)	3/81	1/15	1/23
Anti-HT (Y/N)	6/78	2/14	2/22
Steroids (Y/N)	NA	3/13	4/20

Sulfasalazine (Y/N)	NA	5/11	4/20
Mesalazine (Y/N)	NA	9/7#	5/18
6-MP (Y/N)	NA	1/16	3/21
Azathioprine (Y/N)	NA	3/13	10/14
Cyclosporine (Y/N)	NA	2/14	0/24
Anti-TNF- $\alpha$ (Y/N)	NA	0/16##	9/15
Methotrexate (Y/N)	NA	1/15	1/23
<i>Liver function</i>			
Total protein (g/L)	ND	72.5 (70,74.75)	70 (67,73)
Albumin (g/L)	ND	39 (35.5, 41.75)	37 (36, 38)
Bilirubin ( $\mu$ mol/L)	ND	8.5 (6.25, 13.75)	11 (7, 15)
ALT (U/L)	ND	19 (11.25, 30.75)	19 (13, 24)
GGT (U/L)	ND	20 (15.25, 27)	19 (16, 27)
ALP (U/L)	ND	74 (63, 88)	75 (60, 88)

Data were expressed as median and interquartile range unless otherwise stated. All p values were computed using Wilcoxon ranksum test. \*, \*\*, \*\*\* p<0.05, p<0.01, and p<0.001 vs. controls, respectively. #, # p<0.05, and p<0.01 vs. CD, respectively. Anti-HT treatment: anti-hypertensive treatment; CD: Crohn's disease; DBP: diastolic blood pressure; FRS: Framingham Risk Score; HDL-C: high-density lipoprotein cholesterol; LDL-C: low-density lipoprotein cholesterol; TG: triglycerides; LLT: lipid-lowering therapy; SBP: systolic blood pressure; UC: ulcerative colitis, CRP: C-reactive protein; IL-1 $\beta$ : interleukin-1 $\beta$ ; IL-6: interleukin-6; IL-10: interleukin-10; MIF: macrophage migration inhibitory factor; TNF- $\alpha$ : tumour necrosis factor- $\alpha$ ; ALT: Alamine transaminase; GGT: Gamma-glutamyl transferase; ALP: alkaline phosphatase; NA: not applicable; ND: not done. Montreal Classification for ulcerative colitis: E1, ulcerative proctitis; E2, left-sided UC; E3, extensive UC. Montreal Classification for Crohn's disease: age at diagnosis: A1, <16 years; A2, between 17 and 40 years; A3, >40 years; location: L1, ileal; L2, colonic; L3, ileocolonic; behavior: B1, nonstricturing, nonpenetrating; B2, stricturing; B3, penetrating.

**Table 2.** Relative Levels of Lipid Classes and Subclasses in Inflammatory Bowel Disease

Lipid Class	Control (n = 84)	UC (n = 16)	CD (n = 24)
Dihydroceramide	1.01 (0.805,1.26)	0.896 (0.744,1.12)	<b>0.837 (0.634,1.07)*</b>
Ceramide	11 (9.29,12)	11 (9.05,14)	10 (8.34,13)
Monohexosylceramide	8.67 (7.21,9.97)	8.73 (7.50,11)	<b>7.01 (6.34,8.90)*</b>
Dihexosylceramide	5.53 (4.75,6.48)	5.98 (4.45,7.11)	4.86 (4.43,6.00)
Trihexosylceramide	1.66 (1.42,2.01)	1.72 (1.43,2.29)#	<b>1.32 (1.16,1.54)**</b>
G <sub>M3</sub> ganglioside	2.81 (2.46,3.21)	3.08 (2.76,3.60)#	2.47 (2.33,3.03)
Sphingomyelin	327 (304,355)	344 (307,376)	311 (284,333)
Phosphatidylcholine	1205 (1109,1304)	1220 (1104,1291)	1212 (1102,1298)
Alkylphosphatidylcholine	45 (39,51)	45 (38,52)#	<b>38 (33,42)***</b>
Alkenylphosphatidylcholine	25 (22,28)	25 (21,29)##	<b>19 (16,22)***</b>
Lysophosphatidylcholine	99 (84,115)	112 (92,125)	104 (79,124)
Lysoalkylphosphatidylecholine	0.636 (0.547,0.773)	0.619 (0.522,0.744)	<b>0.546 (0.428,0.627)*</b>
Phosphatidylethanolamine	26 (19,36)	27 (19,31)	24 (20,37)
Alkylphosphatidylethanolamine	2.81 (2.22,3.98)	2.75 (2.25,3.55)##	<b>1.88 (1.34,2.49)***</b>
Alkenylphosphatidylethanolamine	3.66 (2.67,4.66)	2.97 (2.52,3.74)	<b>2.61 (1.78,3.04)***</b>
Lysophosphatidylethanolamine	15 (12,19)	18 (14,21)	17 (13,23)
Phosphatidylinositol	130 (103,163)	142 (100,174)	141 (113,165)
Lysophosphatidylinositol	3.25 (2.78,3.76)	3.33 (2.84,5.37)	3.76 (2.58,4.83)
Phosphatidylserine	3.17 (1.43,8.13)	1.50 (1.02,2.39)	<b>1.27 (0.786,1.79)***</b>
Phosphatidylglycerol	0.111 (0.0638,0.164)	0.0976 (0.0585,0.128)	0.129 (0.0401,0.146)
Free cholesterol	975 (869,1083)	1046 (827,1173)	910 (751,1016)
Cholesterol ester	1415 (1270,1659)	1417 (1306,1538)	1506 (1193,1773)
Diacylglycerol	55 (37,80)	45 (37,57)	66 (49,96)
Triacylglycerol	373 (253,494)	301 (255,380)	417 (331,685)

Data were expressed as x1000pmol/mL, median and interquartile range. \*, \*\*, \*\*\* p<0.05, p<0.01, and p<0.001 vs. control, respectively. #, ## p<0.05, and p<0.01 vs. CD, respectively. p-values are corrected for multiple comparisons using the Benjamini-Hochberg method. UC: ulcerative colitis, CD: Crohn's disease.

**Table 3.** Summary of Lipid Species Associated with Inflammatory Bowel Disease

Lipid class	No. of individual species			
	total	UC vs. control	CD vs. control	CD vs. UC
Dihydroceramide	4	0	2	0
Monohexosylceramide	6	0	3	1
Dihexosylceramide	6	0	3	0
Trihexosylceramide	5	0	4	3
G <sub>M3</sub> ganglioside	6	0	1	2
Sphingomyelin	19	0	4	0
Phosphatidylcholine	51	2	5	0
Alkylphosphatidylcholine	19	0	14	4
Alkenylphosphatidylcholine	14	1	10	8
Lysophosphatidylcholine	22	0	3	1
Lysoalkylphosphatidylecholine	10	0	4	0
Phosphatidylethanolamine	21	0	2	0
Alkylphosphatidylethanolamine	12	0	11	8
Alkenylphosphatidylethanolamine	11	1	7	2
Lysophosphatidylethanolamine	6	0	2	0
Phosphatidylinositol	16	0	3	0
Phosphatidylserine	6	1	6	0
Cholesterol ester	22	0	2	0
Total	256	5	86	29

All other lipid classes have 0 significant lipid species.

**Table 4.** Associations of Total Lipid Classes with CD (vs. Controls)

<b>Lipid Class</b>	<b>IQR Odds Ratio</b>	<b><i>p</i>-value*</b>
Dihydroceramide	0.29 (0.13 ,0.64)	<b>2.02E-02</b>
Ceramide	0.63 (0.32 ,1.22)	0.28
Monohexosylceramide	0.47 (0.20 ,1.07)	0.14
Dihexosylceramide	0.45 (0.21 ,0.99)	0.10
Trihexosylceramide	0.27 (0.10 ,0.73)	<b>3.71E-02</b>
G <sub>M3</sub> ganglioside	0.55 (0.25 ,1.21)	0.24
Sphingomyelin	0.46 (0.24 ,0.91)	0.07
Phosphatidylcholine	0.70 (0.35 ,1.37)	0.45
Alkylphosphatidylcholine	0.14 (0.05 ,0.38)	<b>2.97E-03</b>
Alkenylphosphatidylcholine	0.17 (0.05 ,0.54)	<b>2.02E-02</b>
Lysophosphatidylcholine	1.13 (0.56 ,2.26)	0.78
Lysoalkylphosphatidylecholine	0.40 (0.19 ,0.84)	0.05
Phosphatidylethanolamine	0.86 (0.50 ,1.50)	0.70
Alkylphosphatidylethanolamine	0.16 (0.04 ,0.61)	<b>3.42E-02</b>
Alkenylphosphatidylethanolamine	0.13 (0.05 ,0.37)	<b>2.97E-03</b>
Lysophosphatidylethanolamine	1.97 (1.04 ,3.74)	0.09
Phosphatidylinositol	0.89 (0.43 ,1.85)	0.78
Lysophosphatidylinositol	1.24 (0.70 ,2.19)	0.66
Phosphatidylserine	0.10 (0.02 ,0.50)	<b>2.99E-02</b>
Phosphatidylglycerol	0.82 (0.46 ,1.46)	0.67
Free cholesterol	0.48 (0.25 ,0.92)	0.07
Cholesterol ester	0.83 (0.40 ,1.73)	0.70
Diacylglycerol	1.02 (0.67 ,1.56)	0.93
Triacylglycerol	1.13 (0.73 ,1.76)	0.70

\**p*-values are corrected for multiple comparisons using the Benjamini-Hochberg method. Associations of total lipid classes with CD (vs. controls) were determined by logistic regression adjusting for age, sex, waist circumference, current smoking, and diastolic blood pressure

**Table 5.** Associations of Lipid Species against CD vs. Controls

<b>Lipid Species</b>	<b>IQR Odds Ratio</b>	<b><i>p</i>-value*</b>
dhCer 22:0	0.30 (0.14 ,0.64)	<b>3.92E-02</b>
dhCer 24:0	0.23 (0.10 ,0.53)	<b>2.53E-02</b>
DHC 18:0	0.32 (0.15 ,0.69)	<b>4.83E-02</b>
DHC 22:0	0.13 (0.04 ,0.38)	<b>1.83E-02</b>
DHC 24:0	0.25 (0.11 ,0.58)	<b>2.94E-02</b>
THC 22:0	0.14 (0.04 ,0.44)	<b>2.78E-02</b>
THC 24:0	0.11 (0.04 ,0.34)	<b>1.83E-02</b>
SM 39:1	0.18 (0.07 ,0.45)	<b>1.83E-02</b>
SM 41:1	0.22 (0.10 ,0.48)	<b>1.83E-02</b>
SM 41:2	0.34 (0.16 ,0.70)	<b>4.83E-02</b>
SM 42:1	0.23 (0.09 ,0.58)	<b>3.92E-02</b>
PC(O-32:2)	0.21 (0.08 ,0.61)	<b>4.83E-02</b>
PC(O-34:4)	0.06 (0.01 ,0.26)	<b>1.83E-02</b>
PC(O-35:4)	0.24 (0.10 ,0.60)	<b>3.92E-02</b>
PC(O-36:0)	0.12 (0.04 ,0.39)	<b>2.53E-02</b>
PC(O-36:3)	0.19 (0.06 ,0.55)	<b>3.92E-02</b>
PC(O-36:4)	0.13 (0.05 ,0.37)	<b>1.83E-02</b>
PC(O-36:5)	0.20 (0.07 ,0.57)	<b>3.92E-02</b>
PC(O-38:5)	0.27 (0.11 ,0.63)	<b>3.92E-02</b>
PC(P-36:4)	0.24 (0.09 ,0.60)	<b>3.92E-02</b>
PC(P-38:4)	0.19 (0.08 ,0.49)	<b>2.53E-02</b>
PE(O-36:4)	0.10 (0.03 ,0.38)	<b>2.78E-02</b>
PE(O-38:4)	0.07 (0.02 ,0.29)	<b>1.83E-02</b>
PE(P-36:4)	0.17 (0.05 ,0.51)	<b>3.92E-02</b>
PE(P-38:4)	0.06 (0.01 ,0.31)	<b>2.78E-02</b>
PE(P-38:5)	0.15 (0.05 ,0.45)	<b>2.66E-02</b>
PE(P-38:6)	0.15 (0.05 ,0.48)	<b>2.94E-02</b>
PE(P-40:5)	0.06 (0.02 ,0.25)	<b>1.83E-02</b>
PE(P-40:6)	0.16 (0.06 ,0.48)	<b>2.94E-02</b>
LPE 18:2	2.57 (1.36 ,4.87)	<b>4.85E-02</b>
PS 38:4	0.07 (0.01 ,0.43)	<b>4.93E-02</b>
PS 40:5	0.17 (0.05 ,0.52)	<b>3.92E-02</b>
PS 40:6	0.14 (0.04 ,0.50)	<b>3.92E-02</b>

\**p*-values are corrected for multiple comparisons using the Benjamini-Hochberg method. Associations of lipid species with CD (vs. controls) were determined by logistic regression adjusting for age, sex, waist circumference, current smoking, and diastolic blood pressure.

**Supplementary Table 1:** Kruskal Wallis analysis comparing three groups.

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
dhCer 18:0	0.0691 (0.0469,0.0849)	0.0722 (0.0611,0.0843)	0.065 (0.0383,0.087)	0.82	0.98	0.91	0.91
dhCer 22:0	0.211 (0.161,0.265)	0.171 (0.151,0.23)	0.163 (0.119,0.21)	<b>3.52E-02</b>	0.21	<b>1.04E-02</b>	0.90
dhCer 24:0	0.498 (0.383,0.606)	0.389 (0.353,0.514)	0.38 (0.301,0.451)	<b>2.78E-02</b>	0.21	<b>7.60E-03</b>	0.71
dhCer 24:1	0.252 (0.213,0.324)	0.24 (0.194,0.308)	0.221 (0.172,0.276)	0.41	0.89	0.28	0.77
Total dhCer	1.01 (0.805,1.26)	0.896 (0.744,1.12)	0.837 (0.634,1.07)	<b>3.63E-02</b>	0.37	<b>1.80E-02</b>	0.45
Cer 16:0	0.351 (0.302,0.406)	0.419 (0.304,0.493)	0.353 (0.317,0.414)	0.54	0.46	0.99	0.62
Cer 18:0	0.144 (0.105,0.178)	0.147 (0.115,0.176)	0.14 (0.109,0.187)	0.76	0.78	0.97	0.99
Cer 20:0	0.164 (0.124,0.203)	0.186 (0.125,0.233)	0.163 (0.125,0.22)	0.83	0.87	0.99	0.94
Cer 22:0	1.48 (1.14,1.70)	1.39 (1.19,1.95)	1.38 (1.12,1.76)	0.86	1.00	0.92	0.91
Cer 24:0	6.26 (5.39,7.39)	6.41 (4.98,7.95)	5.58 (4.80,7.70)	0.53	0.97	0.49	0.64
Cer 24:1	2.26 (1.80,2.70)	2.28 (2.01,3.28)	2.25 (1.93,2.93)	0.59	0.53	0.94	0.82
Total Cer	11 (9.29,12)	11 (9.05,14)	10 (8.34,13)	0.72	0.98	0.81	0.78
MHC 16:0	1.04 (0.858,1.19)	1.17 (0.751,1.49)	0.893 (0.779,1.07)	0.21	0.59	0.14	0.26
MHC 18:0	0.139 (0.117,0.172)	0.164 (0.134,0.178)	0.128 (0.104,0.178)	0.42	0.37	0.91	0.35
MHC 20:0	0.173 (0.148,0.207)	0.196 (0.156,0.219)	0.141 (0.118,0.172)	<b>2.31E-02</b>	0.66	<b>6.56E-03</b>	<b>2.30E-02</b>
MHC 22:0	1.85 (1.58,2.17)	1.63 (1.53,2.03)	1.54 (1.22,1.75)	<b>3.94E-02</b>	0.92	<b>4.74E-03</b>	0.29
MHC 24:0	3.16 (2.69,3.74)	3.48 (2.58,3.70)	2.53 (2.00,3.27)	0.06	1.00	<b>1.28E-02</b>	0.09
MHC 24:1	2.15 (1.79,2.53)	2.18 (1.91,3.24)	1.99 (1.64,2.45)	0.34	0.71	0.45	0.21
Total MHC	8.67 (7.21,9.97)	8.73 (7.50,11)	7.01 (6.34,8.90)	<b>3.63E-02</b>	0.88	<b>1.57E-02</b>	0.07
DHC 16:0	4.30 (3.54,4.94)	4.59 (3.47,5.77)	3.79 (3.39,4.81)	0.34	0.83	0.33	0.27
DHC 18:0	0.0842 (0.0621,0.106)	0.0684 (0.0493,0.0958)	0.0673 (0.0452,0.0774)	<b>4.37E-02</b>	0.32	<b>1.09E-02</b>	0.86
DHC 20:0	0.0538 (0.0404,0.0723)	0.0451 (0.0288,0.0618)	0.0491 (0.0328,0.0581)	0.22	0.32	0.17	1.00
DHC 22:0	0.197 (0.167,0.274)	0.155 (0.135,0.232)	0.149 (0.109,0.18)	<b>1.58E-03</b>	0.19	<b>4.25E-05</b>	0.35
DHC 24:0	0.207 (0.181,0.261)	0.192 (0.153,0.259)	0.157 (0.121,0.2)	<b>4.02E-03</b>	0.50	<b>1.77E-04</b>	0.12
DHC 24:1	0.67 (0.575,0.883)	0.667 (0.506,0.774)	0.605 (0.511,0.701)	0.28	0.85	0.13	0.80

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
Total DHC	5.53 (4.75,6.48)	5.98 (4.45,7.11)	4.86 (4.43,6.00)	0.13	0.99	0.09	0.27
THC 16:0	0.76 (0.618,0.85)	0.768 (0.635,1.08)	0.653 (0.547,0.713)	0.11	0.69	0.06	0.08
THC 18:0	0.122 (0.0968,0.148)	0.113 (0.0947,0.144)	0.0972 (0.0796,0.123)	0.15	0.87	<b>3.74E-02</b>	0.52
THC 22:0	0.208 (0.151,0.27)	0.216 (0.167,0.266)	0.133 (0.109,0.165)	<b>2.28E-03</b>	1.00	<b>8.23E-05</b>	<b>2.91E-03</b>
THC 24:0	0.203 (0.165,0.246)	0.206 (0.176,0.246)	0.144 (0.122,0.171)	<b>6.75E-04</b>	1.00	<b>7.40E-06</b>	<b>2.91E-03</b>
THC 24:1	0.397 (0.303,0.493)	0.416 (0.336,0.56)	0.3 (0.265,0.384)	0.06	0.53	<b>4.86E-02</b>	<b>2.12E-02</b>
Total THC	1.66 (1.42,2.01)	1.72 (1.43,2.29)	1.32 (1.16,1.54)	<b>5.48E-03</b>	0.91	<b>1.84E-03</b>	<b>1.39E-02</b>
GM3 16:0	0.872 (0.751,1.02)	1.03 (0.844,1.16)	0.848 (0.771,0.935)	0.21	0.12	0.92	0.06
GM3 18:0	0.351 (0.317,0.426)	0.398 (0.344,0.45)	0.3 (0.256,0.364)	<b>1.40E-02</b>	0.49	<b>5.79E-03</b>	<b>5.17E-03</b>
GM3 20:0	0.162 (0.135,0.197)	0.189 (0.138,0.218)	0.169 (0.154,0.187)	0.48	0.40	0.82	0.86
GM3 22:0	0.441 (0.346,0.531)	0.449 (0.386,0.534)	0.341 (0.304,0.455)	0.20	1.00	0.07	0.20
GM3 24:0	0.349 (0.278,0.402)	0.35 (0.332,0.381)	0.29 (0.256,0.364)	0.30	1.00	0.17	0.36
GM3 24:1	0.624 (0.545,0.736)	0.702 (0.588,0.836)	0.59 (0.512,0.712)	0.31	0.26	0.90	0.21
Total GM3	2.81 (2.46,3.21)	3.08 (2.76,3.60)	2.47 (2.33,3.03)	0.06	0.22	0.19	<b>2.92E-02</b>
SM 31:1	0.327 (0.281,0.428)	0.368 (0.273,0.421)	0.291 (0.214,0.365)	0.35	0.90	0.26	0.43
SM 32:1	9.93 (8.50,12)	10 (8.56,12)	8.45 (7.30,9.98)	0.17	0.87	0.08	0.11
SM 32:2	0.95 (0.782,1.21)	0.972 (0.815,1.21)	0.985 (0.771,1.20)	0.96	0.99	1.00	1.00
SM 33:1	5.98 (5.17,7.05)	6.28 (5.48,7.13)	5.32 (4.52,6.34)	0.27	0.94	0.17	0.22
SM 34:1	87 (76,98)	96 (79,103)	80 (70,86)	0.08	0.32	0.10	<b>3.42E-02</b>
SM 34:2	12 (11,14)	13 (11,15)	12 (10,14)	0.63	0.91	0.75	0.60
SM 34:3	0.0886 (0.075,0.104)	0.0941 (0.0757,0.109)	0.0965 (0.0735,0.117)	0.67	0.96	0.64	0.97
SM 35:1	2.79 (2.39,3.43)	3.06 (2.40,3.50)	2.51 (1.79,3.39)	0.41	0.91	0.32	0.49
SM 35:2	0.504 (0.442,0.598)	0.511 (0.455,0.584)	0.464 (0.319,0.571)	0.47	1.00	0.35	0.56
SM 36:1	15 (14,17)	15 (14,18)	15 (11,18)	0.70	0.79	0.95	0.75
SM 36:2	7.85 (6.84,8.95)	7.96 (6.62,9.35)	8.08 (5.90,10)	0.96	0.99	1.00	0.98
SM 36:3	0.658 (0.559,0.766)	0.664 (0.518,0.869)	0.678 (0.482,0.853)	0.99	1.00	1.00	1.00

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
SM 37:2	0.392 (0.318,0.454)	0.377 (0.333,0.529)	0.343 (0.265,0.46)	0.49	0.95	0.49	0.43
SM 38:1	117 (107,128)	125 (112,139)	120 (104,127)	0.52	0.40	1.00	0.60
SM 38:2	5.49 (4.19,6.71)	6.36 (4.88,7.67)	6.61 (5.39,7.95)	0.10	0.19	0.06	0.98
SM 39:1	5.32 (4.56,6.01)	5.10 (4.21,5.73)	4.07 (3.35,5.16)	<b>1.39E-02</b>	0.65	<b>9.45E-04</b>	0.19
SM 41:1	16 (14,18)	14 (13,16)	14 (12,15)	<b>6.48E-03</b>	0.23	<b>4.99E-04</b>	0.43
SM 41:2	13 (11,14)	13 (11,14)	12 (8.78,13)	0.15	0.96	<b>3.74E-02</b>	0.41
SM 42:1	24 (21,27)	22 (20,25)	19 (16,23)	<b>1.26E-02</b>	0.21	<b>1.40E-03</b>	0.43
Total SM	327 (304,355)	344 (307,376)	311 (284,333)	0.13	0.53	0.22	0.14
PC 28:0	0.194 (0.125,0.332)	0.264 (0.136,0.471)	0.249 (0.178,0.448)	0.32	0.64	0.22	1.00
PC 29:0	0.0657 (0.0436,0.0977)	0.0775 (0.0471,0.113)	0.0674 (0.0528,0.112)	0.70	0.85	0.81	0.99
PC 30:0	2.45 (1.75,3.49)	2.97 (1.94,4.20)	2.84 (1.98,4.21)	0.49	0.61	0.52	1.00
PC 31:0	0.745 (0.581,0.942)	0.791 (0.663,0.991)	0.749 (0.538,1.09)	0.76	0.77	0.98	0.98
PC 31:1	0.921 (0.758,1.07)	0.943 (0.825,1.07)	0.831 (0.626,1.17)	0.68	0.84	0.88	0.71
PC 32:0	7.84 (6.96,9.15)	8.50 (7.93,10)	8.10 (7.08,9.34)	0.48	0.34	1.00	0.56
PC 32:1	14 (11,17)	15 (12,23)	18 (11,27)	0.22	0.41	0.14	0.99
PC 32:2	4.99 (4.35,6.23)	5.27 (4.39,6.26)	5.20 (4.57,6.00)	0.86	0.90	0.99	0.99
PC 32:3	0.248 (0.211,0.295)	0.275 (0.215,0.326)	0.275 (0.231,0.341)	0.36	0.66	0.28	0.96
PC 33:0	1.06 (0.934,1.27)	1.09 (0.991,1.24)	1.00 (0.849,1.30)	0.82	0.92	0.99	0.82
PC 33:1	2.93 (2.36,3.41)	3.37 (2.98,4.11)	3.34 (2.26,4.45)	0.12	<b>4.81E-02</b>	0.30	0.98
PC 33:2	2.46 (2.08,2.96)	2.49 (2.15,3.35)	2.38 (1.70,3.14)	0.76	0.86	0.96	0.82
PC 33:3	0.0772 (0.058,0.0953)	0.0825 (0.0639,0.105)	0.0836 (0.0606,0.122)	0.57	0.68	0.68	1.00
PC 34:0	2.55 (2.30,2.95)	2.71 (2.28,3.07)	2.41 (2.14,2.72)	0.30	0.98	0.17	0.41
PC 34:1	139 (125,163)	165 (140,207)	163 (143,179)	<b>4.37E-02</b>	<b>2.93E-02</b>	0.10	0.80
PC 34:2	222 (199,244)	224 (200,264)	233 (192,247)	0.87	0.93	1.00	0.90
PC 34:3	11 (8.96,13)	12 (9.32,16)	13 (10,15)	0.21	0.37	0.12	1.00
PC 34:4	1.04 (0.739,1.31)	1.04 (0.766,1.14)	1.09 (0.766,1.46)	0.70	0.95	0.84	0.71

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PC 34:5	0.121 (0.0681,0.172)	0.0909 (0.0652,0.166)	0.109 (0.0552,0.198)	0.82	0.82	1.00	0.95
PC 35:0	0.193 (0.159,0.226)	0.174 (0.155,0.209)	0.184 (0.133,0.231)	0.53	0.61	0.65	1.00
PC 35:1	4.76 (4.02,5.54)	5.18 (4.57,5.75)	4.57 (3.42,6.30)	0.52	0.41	0.98	0.66
PC 35:2	7.15 (6.54,8.62)	7.37 (6.29,8.72)	6.90 (5.45,8.29)	0.56	1.00	0.51	0.62
PC 35:3	1.26 (1.08,1.41)	1.41 (1.04,1.59)	1.26 (1.06,1.39)	0.69	0.60	1.00	0.92
PC 35:4	0.91 (0.737,1.16)	0.846 (0.711,1.09)	0.907 (0.688,1.15)	0.70	0.69	0.99	0.91
PC 35:5	0.129 (0.0852,0.225)	0.0984 (0.073,0.123)	0.0977 (0.054,0.245)	0.58	0.47	0.88	1.00
PC 36:0	0.299 (0.251,0.365)	0.254 (0.221,0.325)	0.248 (0.202,0.295)	0.06	0.31	<b>1.89E-02</b>	0.86
PC 36:1	49 (42,57)	49 (44,65)	49 (43,55)	0.70	0.74	1.00	0.70
PC 36:2	177 (167,202)	178 (163,203)	172 (156,191)	0.59	1.00	0.50	0.83
PC 36:3	95 (88,109)	103 (96,119)	103 (92,118)	0.26	0.30	0.27	1.00
PC 36:4a	16 (12,19)	16 (13,19)	14 (12,18)	0.76	0.97	0.87	0.83
PC 36:4b	88 (72,101)	84 (68,91)	88 (69,105)	0.70	0.66	1.00	0.83
PC 36:5	25 (17,35)	23 (17,28)	22 (14,36)	0.89	0.97	0.97	1.00
PC 36:6	0.728 (0.557,1.01)	0.664 (0.521,0.91)	0.586 (0.487,1.00)	0.63	0.80	0.69	0.99
PC 37:4	4.52 (3.72,5.02)	4.21 (3.29,4.73)	3.75 (3.06,4.82)	0.20	0.45	0.09	0.96
PC 37:5	0.835 (0.584,1.20)	0.814 (0.543,0.927)	0.635 (0.53,1.36)	0.70	0.89	0.76	1.00
PC 37:6	0.589 (0.447,0.769)	0.517 (0.358,0.821)	0.449 (0.324,0.593)	0.26	0.95	0.10	0.77
PC 38:2	12 (10,13)	12 (9.96,13)	11 (8.33,12)	0.54	1.00	0.44	0.80
PC 38:3	39 (31,46)	38 (28,44)	39 (31,44)	0.83	0.84	1.00	0.97
PC 38:4	71 (62,86)	63 (53,73)	65 (54,72)	0.10	0.13	0.08	1.00
PC 38:5	54 (43,61)	49 (43,56)	48 (43,57)	0.69	0.75	0.87	0.99
PC 38:6a	5.68 (4.75,6.87)	5.65 (4.38,7.18)	5.59 (4.10,6.71)	0.81	0.98	0.83	0.99
PC 38:6b	51 (40,62)	48 (41,58)	39 (33,52)	0.23	0.88	0.09	0.56
PC 38:7	1.94 (1.66,2.57)	1.82 (1.45,2.24)	1.54 (1.39,2.22)	0.25	0.71	0.12	0.89
PC 39:5	1.03 (0.855,1.25)	0.973 (0.713,1.11)	0.98 (0.737,1.25)	0.49	0.54	0.61	0.99

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PC 39:6	1.71 (1.20,2.12)	1.47 (1.02,1.90)	1.10 (0.767,1.60)	0.08	0.71	<b>1.61E-02</b>	0.64
PC 39:7	0.099 (0.0821,0.138)	0.1 (0.0736,0.142)	0.0746 (0.0639,0.0876)	0.06	0.97	<b>8.37E-03</b>	0.27
PC 40:4	3.19 (2.62,3.93)	3.31 (2.06,4.32)	3.07 (2.43,4.12)	0.99	1.00	1.00	1.00
PC 40:5	16 (13,19)	16 (13,17)	16 (13,18)	0.85	0.88	1.00	0.98
PC 40:6	26 (20,33)	23 (20,31)	21 (15,31)	0.28	0.80	0.14	0.89
PC 40:7	4.95 (4.16,5.79)	4.67 (3.88,5.71)	3.99 (3.22,4.79)	0.18	0.92	<b>4.58E-02</b>	0.51
PC 40:8	1.26 (1.07,1.45)	1.12 (0.925,1.48)	1.01 (0.871,1.14)	<b>3.15E-02</b>	0.49	<b>4.86E-03</b>	0.60
Total PC	1205 (1109,1304)	1220 (1104,1291)	1212 (1102,1298)	0.96	0.97	1.00	0.98
PC(O-32:0)	1.32 (1.16,1.53)	1.30 (1.14,1.83)	1.14 (1.01,1.49)	0.26	0.93	0.15	0.26
PC(O-32:1)	0.325 (0.263,0.37)	0.333 (0.258,0.436)	0.275 (0.254,0.351)	0.42	0.90	0.38	0.43
PC(O-32:2)	0.059 (0.0443,0.0843)	0.0653 (0.0479,0.0764)	0.0511 (0.0314,0.0572)	0.05	1.00	<b>9.90E-03</b>	0.08
PC(O-34:1)	3.02 (2.66,3.45)	3.68 (2.81,4.10)	2.75 (2.48,3.34)	0.11	0.13	0.44	<b>2.49E-02</b>
PC(O-34:2)	2.54 (2.07,3.14)	2.40 (2.01,3.40)	1.95 (1.67,2.31)	<b>1.39E-02</b>	1.00	<b>1.00E-03</b>	<b>3.69E-02</b>
PC(O-34:3)	0.113 (0.0904,0.142)	0.109 (0.0771,0.15)	0.078 (0.0654,0.0985)	<b>1.94E-02</b>	1.00	<b>2.17E-03</b>	0.05
PC(O-34:4)	0.0505 (0.0297,0.0764)	0.0319 (0.0246,0.047)	0.0215 (0.0133,0.0349)	<b>6.75E-04</b>	0.08	<b>2.07E-05</b>	0.17
PC(O-35:4)	0.117 (0.0862,0.159)	0.102 (0.0693,0.124)	0.0878 (0.0573,0.116)	<b>1.94E-02</b>	0.19	<b>4.17E-03</b>	0.68
PC(O-36:0)	0.0473 (0.0358,0.0623)	0.0388 (0.0341,0.0555)	0.0315 (0.0273,0.0416)	<b>1.11E-03</b>	0.54	<b>2.14E-05</b>	<b>3.69E-02</b>
PC(O-36:1)	0.492 (0.411,0.594)	0.538 (0.372,0.663)	0.411 (0.314,0.469)	<b>1.94E-02</b>	0.98	<b>2.11E-03</b>	0.06
PC(O-36:2)	1.54 (1.26,1.90)	1.85 (1.54,2.22)	1.41 (1.07,1.54)	<b>2.83E-02</b>	0.11	0.09	<b>6.23E-03</b>
PC(O-36:3)	3.09 (2.71,3.74)	2.91 (2.48,3.63)	2.51 (2.23,2.82)	<b>1.37E-02</b>	0.90	<b>7.74E-04</b>	0.09
PC(O-36:4)	8.46 (7.24,9.71)	8.04 (6.94,9.25)	6.88 (5.90,7.64)	<b>3.11E-03</b>	0.74	<b>8.23E-05</b>	0.07
PC(O-36:5)	5.30 (4.57,6.38)	5.27 (4.45,6.15)	4.55 (3.53,4.99)	<b>1.40E-02</b>	0.83	<b>1.09E-03</b>	0.11
PC(O-38:4)	5.37 (4.71,6.52)	5.58 (4.42,7.00)	4.52 (3.72,5.47)	<b>4.37E-02</b>	1.00	<b>7.97E-03</b>	0.08
PC(O-38:5)	7.01 (6.15,8.31)	6.61 (5.99,7.45)	6.02 (5.08,6.81)	<b>1.40E-02</b>	0.64	<b>1.40E-03</b>	0.12
PC(O-40:5)	2.72 (2.40,3.09)	2.68 (2.24,3.29)	2.32 (2.13,2.63)	<b>3.52E-02</b>	1.00	<b>3.96E-03</b>	0.19
PC(O-40:6)	1.27 (1.12,1.50)	1.21 (1.01,1.39)	1.10 (0.959,1.43)	0.21	0.49	0.10	0.98

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PC(O-40:7)	1.53 (1.25,1.92)	1.49 (1.19,1.70)	1.09 (0.934,1.48)	<b>1.37E-02</b>	0.84	<b>9.19E-04</b>	0.07
Total PC(O)	45 (39,51)	45 (38,52)	38 (33,42)	<b>5.93E-04</b>	0.98	<b>3.02E-05</b>	<b>1.65E-02</b>
PC(P-30:0)	0.0965 (0.0828,0.12)	0.123 (0.0905,0.139)	0.0863 (0.0677,0.108)	0.06	0.16	0.14	<b>2.70E-02</b>
PC(P-32:0)	1.03 (0.881,1.17)	1.02 (0.893,1.37)	0.854 (0.683,1.06)	0.07	0.78	<b>2.79E-02</b>	<b>4.64E-02</b>
PC(P-32:1)	0.199 (0.173,0.238)	0.234 (0.182,0.27)	0.191 (0.151,0.236)	0.42	0.42	0.79	0.40
PC(P-34:1)	1.88 (1.65,2.33)	2.36 (1.93,2.77)	1.68 (1.45,2.06)	<b>1.94E-02</b>	<b>3.17E-02</b>	0.19	<b>2.38E-03</b>
PC(P-34:2)	4.04 (3.36,4.73)	3.99 (3.25,5.09)	3.31 (2.47,3.96)	<b>2.78E-02</b>	0.99	<b>3.96E-03</b>	0.06
PC(P-34:3)	0.111 (0.0806,0.135)	0.118 (0.0835,0.153)	0.0786 (0.0596,0.115)	0.13	0.85	0.05	0.13
PC(P-36:2)	1.79 (1.38,2.13)	1.98 (1.59,2.55)	1.46 (1.22,1.77)	<b>4.08E-02</b>	0.44	<b>3.04E-02</b>	<b>1.79E-02</b>
PC(P-36:4)	5.31 (4.70,6.47)	5.27 (4.39,6.15)	4.68 (3.53,5.11)	<b>1.94E-02</b>	0.77	<b>1.74E-03</b>	0.21
PC(P-36:5)	0.559 (0.443,0.795)	0.519 (0.414,0.71)	0.413 (0.31,0.596)	0.12	0.87	<b>2.73E-02</b>	0.45
PC(P-38:4)	2.26 (1.93,2.59)	2.25 (1.62,2.44)	1.77 (1.37,1.97)	<b>3.13E-03</b>	0.67	<b>6.99E-05</b>	0.18
PC(P-38:5)	3.75 (3.23,4.48)	3.12 (2.98,3.90)	2.61 (2.35,3.41)	<b>1.11E-03</b>	0.15	<b>5.93E-05</b>	<b>2.49E-02</b>
PC(P-38:6)	0.802 (0.61,1.01)	0.673 (0.582,0.859)	0.498 (0.341,0.612)	<b>6.75E-04</b>	0.48	<b>7.67E-06</b>	<b>4.28E-03</b>
PC(P-40:5)	1.74 (1.50,2.14)	1.68 (1.53,1.94)	1.18 (0.945,1.53)	<b>6.75E-04</b>	0.99	<b>9.52E-06</b>	<b>7.62E-04</b>
PC(P-40:6)	0.718 (0.529,0.89)	0.623 (0.564,0.943)	0.409 (0.331,0.545)	<b>6.75E-04</b>	1.00	<b>1.51E-05</b>	<b>6.84E-04</b>
Total PC(P)	25 (22,28)	25 (21,29)	19 (16,22)	<b>5.93E-04</b>	1.00	<b>5.37E-05</b>	<b>8.97E-03</b>
LPC 14:0	1.28 (0.973,1.58)	1.28 (0.957,1.72)	1.32 (1.02,1.61)	0.89	1.00	0.94	0.98
LPC 15:0	0.676 (0.561,0.801)	0.749 (0.537,0.942)	0.653 (0.458,0.933)	0.76	0.74	1.00	0.89
LPC 16:0	50 (41,57)	57 (44,64)	52 (43,62)	0.61	0.54	0.93	0.92
LPC 16:1	1.87 (1.42,2.36)	2.16 (1.62,2.81)	2.38 (1.77,2.99)	0.10	0.36	<b>3.24E-02</b>	0.94
LPC 17:0	1.00 (0.8,1.25)	1.02 (0.806,1.27)	0.957 (0.648,1.40)	0.89	1.00	0.93	0.98
LPC 17:1	0.244 (0.199,0.296)	0.284 (0.245,0.313)	0.27 (0.185,0.341)	0.47	0.30	0.85	0.99
LPC 18:0	10 (8.96,12)	10 (8.21,12)	9.31 (8.07,11)	0.41	0.97	0.25	0.82
LPC 18:1	10 (8.27,13)	12 (10,15)	11 (8.52,14)	0.21	0.07	0.70	0.68
LPC 18:2	16 (13,19)	18 (14,21)	16 (12,20)	0.73	0.72	1.00	0.85

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
LPC 18:3	0.32 (0.256,0.473)	0.383 (0.271,0.609)	0.371 (0.269,0.622)	0.29	0.25	0.43	1.00
LPC 20:0	0.0487 (0.0391,0.0613)	0.0524 (0.0391,0.067)	0.0358 (0.0303,0.0521)	0.06	0.94	<b>1.44E-02</b>	0.11
LPC 20:1	0.0829 (0.0687,0.108)	0.0901 (0.0664,0.102)	0.081 (0.0594,0.0938)	0.46	0.97	0.40	0.41
LPC 20:2	0.111 (0.0882,0.144)	0.121 (0.107,0.153)	0.105 (0.0883,0.152)	0.61	0.58	1.00	0.56
LPC 20:3	1.43 (1.00,1.72)	1.39 (1.20,1.84)	1.45 (1.11,1.91)	0.54	0.81	0.52	1.00
LPC 20:4	2.61 (2.00,3.39)	2.51 (2.06,3.05)	2.61 (2.05,3.46)	0.94	0.96	1.00	1.00
LPC 20:5	0.506 (0.37,0.735)	0.525 (0.332,0.732)	0.443 (0.303,0.875)	0.97	1.00	0.99	1.00
LPC 22:0	0.0156 (0.0134,0.0193)	0.0178 (0.0155,0.0222)	0.0132 (0.0104,0.0162)	<b>1.94E-02</b>	0.22	<b>1.50E-02</b>	<b>1.17E-02</b>
LPC 22:1	0.00787 (0.00659,0.01)	0.00811 (0.00643,0.011)	0.0074 (0.00623,0.00928)	0.76	0.94	0.89	0.77
LPC 22:5	0.361 (0.298,0.476)	0.411 (0.325,0.449)	0.415 (0.319,0.548)	0.59	0.99	0.51	0.80
LPC 22:6	0.973 (0.72,1.20)	0.868 (0.751,1.16)	0.764 (0.554,1.06)	0.44	0.98	0.30	0.64
LPC 24:0	0.0526 (0.044,0.0606)	0.0599 (0.0483,0.0614)	0.0449 (0.0346,0.0615)	0.23	0.55	0.20	0.27
LPC 26:0	0.0204 (0.0169,0.0251)	0.0231 (0.0179,0.0261)	0.0177 (0.0149,0.022)	0.20	0.46	0.28	0.06
Total LPC	99 (84,115)	112 (92,125)	104 (79,124)	0.71	0.58	0.98	0.94
LPC(O-16:0)	0.289 (0.246,0.364)	0.287 (0.241,0.343)	0.256 (0.195,0.276)	0.10	0.98	<b>2.11E-02</b>	0.27
LPC(O-18:0)	0.0488 (0.0395,0.0642)	0.0517 (0.0391,0.0612)	0.0452 (0.0304,0.0474)	0.10	0.99	<b>1.93E-02</b>	0.25
LPC(O-18:1)	0.129 (0.108,0.167)	0.129 (0.111,0.154)	0.128 (0.0899,0.149)	0.55	0.99	0.46	0.82
LPC(O-20:0)	0.0107 (0.00805,0.0131)	0.0101 (0.00611,0.0149)	0.00887 (0.00641,0.0104)	0.20	1.00	<b>4.96E-02</b>	0.45
LPC(O-20:1)	0.00501 (0.00409,0.00697)	0.0048 (0.00352,0.00805)	0.00441 (0.00328,0.00527)	0.29	1.00	0.13	0.66
LPC(O-22:0)	0.0169 (0.0143,0.0198)	0.0179 (0.0115,0.024)	0.0132 (0.0109,0.0155)	<b>3.94E-02</b>	0.98	<b>3.96E-03</b>	0.26
LPC(O-22:1)	0.0113 (0.00854,0.014)	0.0113 (0.00844,0.0167)	0.00916 (0.00738,0.0121)	0.23	0.99	0.09	0.32
LPC(O-24:0)	0.0514 (0.0429,0.0617)	0.0549 (0.0401,0.0687)	0.0457 (0.0397,0.0543)	0.30	0.93	0.19	0.36
LPC(O-24:1)	0.0441 (0.034,0.0568)	0.0455 (0.0404,0.0553)	0.0378 (0.03,0.0495)	0.47	0.87	0.51	0.41
LPC(O-24:2)	0.00716 (0.00551,0.0101)	0.00666 (0.00449,0.0077)	0.00567 (0.00412,0.00789)	0.21	0.49	0.09	0.99
Total LPC(O)	0.636 (0.547,0.773)	0.619 (0.522,0.744)	0.546 (0.428,0.627)	0.06	0.99	<b>1.72E-02</b>	0.32

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PE 32:0	0.0238 (0.0159,0.0322)	0.0267 (0.0156,0.0367)	0.0351 (0.0282,0.0534)	<b>2.37E-02</b>	0.86	<b>2.19E-03</b>	0.29
PE 32:1	0.0635 (0.0365,0.104)	0.0791 (0.0333,0.12)	0.0886 (0.0427,0.148)	0.31	0.92	0.17	0.75
PE 34:1	0.755 (0.53,1.20)	0.842 (0.552,1.04)	0.993 (0.703,1.29)	0.31	1.00	0.19	0.33
PE 34:2	1.25 (0.877,1.90)	1.48 (1.09,1.99)	1.61 (1.16,2.11)	0.28	0.62	0.16	0.96
PE 34:3	0.0704 (0.0491,0.11)	0.136 (0.059,0.158)	0.102 (0.0827,0.151)	<b>2.31E-02</b>	0.12	<b>7.37E-03</b>	1.00
PE 35:1	0.0675 (0.0438,0.0921)	0.058 (0.0349,0.0743)	0.0827 (0.0421,0.12)	0.41	0.71	0.58	0.26
PE 35:2	0.0881 (0.0544,0.136)	0.0864 (0.0512,0.128)	0.0992 (0.0752,0.135)	0.51	0.99	0.40	0.69
PE 36:0	0.0268 (0.0183,0.0337)	0.0236 (0.0191,0.0435)	0.0268 (0.017,0.0343)	0.92	0.97	1.00	0.96
PE 36:1	0.827 (0.537,1.28)	0.755 (0.548,1.06)	0.994 (0.623,1.29)	0.65	0.94	0.79	0.56
PE 36:2	4.23 (2.74,5.97)	4.31 (2.83,5.44)	5.08 (3.40,5.88)	0.67	0.99	0.69	0.71
PE 36:3	1.21 (0.758,1.55)	1.22 (0.919,1.51)	1.44 (1.20,1.90)	0.25	0.99	0.10	0.41
PE 36:4	1.83 (1.36,2.54)	1.93 (1.53,2.45)	1.87 (1.44,3.01)	0.73	0.98	0.73	0.95
PE 36:5	0.175 (0.095,0.27)	0.186 (0.127,0.308)	0.16 (0.121,0.451)	0.65	0.97	0.58	0.96
PE 38:3	1.24 (0.883,1.65)	1.19 (0.676,1.39)	1.06 (0.795,1.91)	0.63	0.54	0.99	0.82
PE 38:4	5.84 (4.23,7.99)	5.00 (3.59,6.14)	5.02 (3.34,7.39)	0.45	0.34	0.79	0.92
PE 38:5	2.05 (1.46,2.67)	1.81 (1.37,2.47)	2.41 (1.30,3.32)	0.70	0.78	0.96	0.73
PE 38:6	3.02 (1.97,4.31)	2.85 (2.38,3.84)	2.57 (1.78,4.65)	0.82	0.98	0.87	0.98
PE 40:4	0.16 (0.07,0.271)	0.102 (0.0707,0.133)	0.101 (0.0525,0.211)	0.21	0.16	0.27	0.98
PE 40:5	0.653 (0.427,0.936)	0.583 (0.409,0.707)	0.625 (0.392,0.916)	0.47	0.32	0.98	0.68
PE 40:6	1.74 (1.17,2.63)	1.49 (1.09,1.95)	1.25 (0.982,2.83)	0.51	0.62	0.58	1.00
PE 40:7	0.294 (0.202,0.459)	0.234 (0.157,0.354)	0.256 (0.207,0.349)	0.50	0.57	0.62	0.91
Total PE	26 (19,36)	27 (19,31)	24 (20,37)	0.72	0.75	0.99	0.73
PE(O-34:1)	0.13 (0.102,0.173)	0.149 (0.113,0.187)	0.0801 (0.0629,0.128)	<b>1.76E-02</b>	0.87	<b>2.29E-03</b>	<b>3.42E-02</b>
PE(O-34:2)	0.0844 (0.0516,0.116)	0.0884 (0.0679,0.135)	0.048 (0.0349,0.0797)	<b>1.40E-02</b>	0.64	<b>4.39E-03</b>	<b>4.70E-03</b>
PE(O-36:2)	0.144 (0.106,0.204)	0.152 (0.116,0.217)	0.106 (0.0648,0.135)	<b>2.78E-02</b>	0.92	<b>6.89E-03</b>	<b>1.95E-02</b>
PE(O-36:3)	0.126 (0.0787,0.176)	0.102 (0.0766,0.228)	0.0869 (0.0371,0.133)	0.11	1.00	<b>2.35E-02</b>	0.30

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PE(O-36:4)	0.52 (0.362,0.757)	0.524 (0.362,0.618)	0.34 (0.204,0.465)	<b>4.02E-03</b>	0.98	<b>1.95E-04</b>	<b>1.39E-02</b>
PE(O-36:5)	0.0758 (0.0491,0.111)	0.0938 (0.0489,0.113)	0.0395 (0.0254,0.0671)	<b>1.39E-02</b>	0.98	<b>1.46E-03</b>	<b>1.79E-02</b>
PE(O-36:6)	0.0599 (0.04,0.0908)	0.038 (0.0319,0.0872)	0.0371 (0.001,0.0628)	0.06	0.53	<b>1.52E-02</b>	0.50
PE(O-38:4)	0.481 (0.328,0.734)	0.517 (0.389,0.635)	0.309 (0.219,0.436)	<b>3.13E-03</b>	1.00	<b>1.83E-04</b>	<b>4.28E-03</b>
PE(O-38:5)	0.593 (0.446,0.804)	0.572 (0.462,0.76)	0.38 (0.301,0.546)	<b>1.82E-02</b>	0.99	<b>1.79E-03</b>	<b>5.00E-02</b>
PE(O-40:5)	0.196 (0.145,0.259)	0.191 (0.138,0.252)	0.146 (0.108,0.187)	0.10	0.97	<b>1.97E-02</b>	0.26
PE(O-40:6)	0.144 (0.113,0.191)	0.135 (0.0883,0.177)	0.109 (0.078,0.167)	0.34	0.75	0.23	0.89
PE(O-40:7)	0.174 (0.133,0.266)	0.192 (0.16,0.232)	0.133 (0.0859,0.155)	<b>1.39E-02</b>	0.99	<b>1.89E-03</b>	<b>6.83E-03</b>
Total PE(O)	2.81 (2.22,3.98)	2.75 (2.25,3.55)	1.88 (1.34,2.49)	<b>1.10E-03</b>	1.00	<b>1.67E-04</b>	<b>7.49E-03</b>
PE(P-34:1)	0.0723 (0.048,0.0993)	0.0603 (0.0532,0.0815)	0.0639 (0.0378,0.0805)	0.45	0.78	0.33	1.00
PE(P-34:2)	0.0861 (0.0609,0.126)	0.0817 (0.0678,0.126)	0.0814 (0.0612,0.105)	0.64	1.00	0.60	0.77
PE(P-36:1)	0.0636 (0.0461,0.107)	0.0557 (0.0502,0.11)	0.0525 (0.0394,0.0842)	0.44	0.99	0.31	0.56
PE(P-36:2)	0.244 (0.176,0.374)	0.231 (0.176,0.36)	0.2 (0.146,0.25)	0.23	1.00	0.09	0.30
PE(P-36:4)	0.357 (0.255,0.566)	0.245 (0.201,0.331)	0.218 (0.165,0.292)	<b>3.13E-03</b>	<b>4.46E-02</b>	<b>5.14E-04</b>	0.77
PE(P-38:4)	0.569 (0.391,0.888)	0.444 (0.379,0.541)	0.371 (0.272,0.489)	<b>4.05E-03</b>	0.24	<b>2.82E-04</b>	0.30
PE(P-38:5)	1.05 (0.869,1.42)	0.84 (0.76,1.07)	0.695 (0.511,0.964)	<b>3.11E-03</b>	0.21	<b>1.83E-04</b>	0.16
PE(P-38:6)	0.296 (0.216,0.401)	0.26 (0.199,0.319)	0.19 (0.133,0.244)	<b>2.31E-03</b>	0.28	<b>8.79E-05</b>	0.11
PE(P-40:4)	0.0427 (0.0286,0.083)	0.0349 (0.0244,0.0544)	0.0296 (0.0186,0.0368)	<b>1.76E-02</b>	0.32	<b>2.28E-03</b>	0.48
PE(P-40:5)	0.375 (0.291,0.492)	0.352 (0.288,0.382)	0.231 (0.173,0.28)	<b>5.10E-04</b>	0.50	<b>1.73E-06</b>	<b>1.95E-03</b>
PE(P-40:6)	0.253 (0.19,0.342)	0.215 (0.179,0.283)	0.142 (0.103,0.178)	<b>9.19E-04</b>	0.67	<b>2.00E-05</b>	<b>4.71E-03</b>
Total PE(P)	3.66 (2.67,4.66)	2.97 (2.52,3.74)	2.61 (1.78,3.04)	<b>5.93E-04</b>	0.24	<b>3.35E-05</b>	0.15
LPE 16:0	2.16 (1.77,2.82)	2.51 (2.01,3.00)	2.55 (2.02,3.20)	0.28	0.42	0.24	1.00
LPE 18:0	2.76 (2.28,3.44)	2.93 (2.43,3.80)	2.77 (2.34,3.53)	0.86	0.90	0.99	0.98
LPE 18:1	2.33 (2.01,3.20)	3.04 (2.21,4.14)	3.04 (2.39,5.06)	<b>2.93E-02</b>	0.16	<b>9.90E-03</b>	0.92
LPE 18:2	3.99 (3.29,5.29)	4.75 (4.06,6.25)	5.10 (4.08,7.10)	<b>2.06E-02</b>	0.06	<b>1.17E-02</b>	1.00
LPE 20:4	1.80 (1.52,2.29)	2.02 (1.49,2.47)	1.92 (1.50,2.42)	0.84	0.93	0.95	0.99

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
LPE 22:6	1.50 (1.27,1.78)	1.51 (1.33,1.85)	1.40 (1.13,1.91)	0.64	0.96	0.73	0.54
Total LPE	15 (12,19)	18 (14,21)	17 (13,23)	0.11	0.21	0.14	1.00
PI 32:0	0.68 (0.435,1.12)	0.659 (0.342,1.44)	1.00 (0.541,2.52)	0.25	1.00	0.10	0.49
PI 32:1	1.21 (0.887,2.07)	1.29 (0.756,3.23)	2.19 (1.15,4.59)	0.13	0.97	<b>2.20E-02</b>	0.70
PI 34:0	0.255 (0.199,0.402)	0.357 (0.139,0.523)	0.391 (0.247,0.857)	0.18	0.92	<b>3.98E-02</b>	0.75
PI 34:1	11 (7.92,14)	12 (7.24,20)	16 (10,21)	0.11	0.82	<b>1.89E-02</b>	0.83
PI 36:1	9.78 (7.73,13)	11 (7.85,17)	11 (9.17,14)	0.47	0.67	0.45	1.00
PI 36:2	26 (20,32)	26 (18,33)	26 (19,34)	0.97	1.00	0.99	1.00
PI 36:3	6.38 (5.24,8.20)	6.75 (5.04,9.66)	7.59 (5.64,9.43)	0.41	0.97	0.23	0.92
PI 36:4	7.54 (5.34,10)	7.15 (4.90,11)	8.45 (6.46,12)	0.47	1.00	0.32	0.75
PI 38:2	0.698 (0.482,0.937)	0.746 (0.599,1.04)	0.764 (0.493,0.901)	0.65	0.56	0.98	0.92
PI 38:3	8.53 (6.90,11)	8.16 (7.03,12)	9.81 (5.32,12)	0.99	1.00	1.00	1.00
PI 38:4	44 (34,58)	47 (31,54)	42 (32,52)	0.51	0.85	0.41	0.99
PI 38:5	3.90 (3.19,5.05)	3.81 (2.87,5.69)	4.61 (3.31,5.75)	0.54	1.00	0.46	0.71
PI 38:6	1.07 (0.776,1.58)	1.32 (0.768,1.68)	1.07 (0.776,1.88)	0.86	0.92	0.97	1.00
PI 40:4	0.51 (0.389,0.698)	0.705 (0.383,0.874)	0.544 (0.4,0.827)	0.59	0.50	0.96	0.89
PI 40:5	2.01 (1.61,2.69)	2.04 (1.52,2.59)	2.43 (1.40,3.47)	0.82	1.00	0.91	0.78
PI 40:6	2.22 (1.59,3.03)	2.45 (1.70,3.15)	1.84 (1.34,2.99)	0.54	0.92	0.57	0.54
Total PI	130 (103,163)	142 (100,174)	141 (113,165)	0.93	0.99	0.94	0.98
LPI 18:1	0.856 (0.73,1.06)	1.06 (0.88,1.44)	1.02 (0.729,1.34)	0.28	0.20	0.49	0.96
LPI 18:2	0.927 (0.727,1.12)	0.843 (0.699,1.39)	1.13 (0.717,1.37)	0.58	1.00	0.41	0.98
LPI 20:4	1.45 (1.22,1.67)	1.54 (1.42,1.88)	1.54 (1.16,2.25)	0.53	0.58	0.68	1.00
Total LPI	3.25 (2.78,3.76)	3.33 (2.84,5.37)	3.76 (2.58,4.83)	0.61	0.85	0.54	1.00
PS 36:1	1.26 (0.433,3.19)	0.428 (0.344,0.956)	0.473 (0.267,0.649)	<b>1.40E-02</b>	0.06	<b>5.38E-03</b>	0.97
PS 36:2	0.176 (0.0669,0.429)	0.0796 (0.001,0.142)	0.0829 (0.001,0.139)	<b>1.01E-02</b>	<b>3.43E-02</b>	<b>3.66E-03</b>	1.00
PS 38:3	0.258 (0.121,0.658)	0.158 (0.074,0.195)	0.119 (0.0457,0.212)	<b>2.31E-02</b>	0.12	<b>7.92E-03</b>	0.91

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
PS 38:4	1.22 (0.527,3.06)	0.536 (0.37,0.801)	0.449 (0.311,0.719)	<b>4.15E-03</b>	0.07	<b>7.74E-04</b>	0.40
PS 40:5	0.156 (0.0752,0.328)	0.114 (0.0742,0.156)	0.0847 (0.001,0.111)	<b>1.01E-02</b>	0.42	<b>8.01E-04</b>	0.14
PS 40:6	0.208 (0.118,0.351)	0.129 (0.0989,0.23)	0.0974 (0.0553,0.141)	<b>2.60E-03</b>	0.15	<b>1.35E-04</b>	0.30
Total PS	3.17 (1.43,8.13)	1.50 (1.02,2.39)	1.27 (0.786,1.79)	<b>2.01E-03</b>	0.08	<b>9.45E-04</b>	0.78
PG 34:1	0.0527 (0.0389,0.0773)	0.0546 (0.035,0.0712)	0.0515 (0.0317,0.094)	0.82	0.83	1.00	0.94
PG 36:2	0.0521 (0.0271,0.086)	0.0429 (0.001,0.0633)	0.0481 (0.001,0.084)	0.66	0.62	0.96	0.90
Total PG	0.111 (0.0638,0.164)	0.0976 (0.0585,0.128)	0.129 (0.0401,0.146)	0.72	0.65	1.00	0.85
COH	975 (869,1083)	1046 (827,1173)	910 (751,1016)	0.22	0.86	0.12	0.17
Total COH	975 (869,1083)	1046 (827,1173)	910 (751,1016)	0.13	0.86	0.12	0.17
CE 14:0	20 (15,25)	18 (16,26)	21 (15,33)	0.76	0.99	0.82	0.85
CE 15:0	16 (13,19)	15 (13,19)	17 (13,21)	0.79	0.94	0.91	0.89
CE 16:0	442 (395,494)	425 (373,497)	419 (369,539)	0.84	0.94	0.93	1.00
CE 16:1	92 (69,124)	101 (66,159)	130 (71,232)	0.28	0.82	0.13	0.87
CE 16:2	2.58 (2.09,3.27)	2.41 (2.01,3.38)	2.55 (2.14,4.04)	0.76	0.95	0.87	0.83
CE 17:0	9.80 (8.24,12)	9.80 (7.99,11)	8.70 (5.78,11)	0.47	1.00	0.31	0.77
CE 17:1	7.91 (5.07,11)	8.94 (7.30,11)	10 (4.91,17)	0.31	0.53	0.26	0.92
CE 18:0	26 (22,32)	24 (21,30)	20 (18,25)	0.06	0.95	<b>1.31E-02</b>	0.16
CE 18:1	280 (259,319)	305 (277,337)	298 (233,372)	0.51	0.36	0.95	0.93
CE 18:2	318 (288,350)	301 (276,346)	314 (274,356)	0.72	0.68	0.98	0.98
CE 18:3	41 (32,53)	47 (38,51)	41 (32,65)	0.70	0.75	0.90	0.99
CE 20:1	0.248 (0.208,0.298)	0.268 (0.167,0.345)	0.214 (0.168,0.237)	0.07	0.97	<b>1.19E-02</b>	0.22
CE 20:3	4.33 (3.41,5.86)	4.04 (3.01,5.08)	4.44 (3.63,6.75)	0.46	0.75	0.56	0.40
CE 20:4	104 (88,130)	92 (78,103)	94 (76,133)	0.28	0.14	0.62	0.98
CE 20:5	36 (25,50)	26 (20,50)	32 (18,47)	0.50	0.40	0.84	0.98
CE 22:0	0.107 (0.0858,0.135)	0.114 (0.083,0.149)	0.0876 (0.0754,0.116)	0.23	0.98	0.09	0.33
CE 22:1	0.0678 (0.0538,0.0928)	0.078 (0.0494,0.111)	0.0589 (0.047,0.0802)	0.37	1.00	0.22	0.56

<b>Lipids</b>	<b>Control<sup>1</sup></b>	<b>UC<sup>1</sup></b>	<b>CD<sup>1</sup></b>	<b>Kruskal - Wallis Test - corrected p-value</b>	<b>p-value<sup>2</sup> (Control Vs UC )</b>	<b>p-value<sup>2</sup> (Control Vs CD )</b>	<b>p-value<sup>2</sup> (UC Vs CD)</b>
CE 22:4	0.038 (0.0295,0.0486)	0.0396 (0.0335,0.0502)	0.0392 (0.0313,0.0519)	0.86	0.91	0.98	1.00
CE 22:5	0.566 (0.461,0.699)	0.562 (0.435,0.626)	0.572 (0.386,0.739)	0.83	0.84	1.00	0.98
CE 22:6	8.72 (6.84,11)	7.33 (5.81,12)	7.27 (3.97,10)	0.35	0.60	0.29	0.99
CE 24:0	0.0826 (0.0665,0.109)	0.092 (0.0584,0.111)	0.0785 (0.064,0.0946)	0.65	0.98	0.67	0.71
CE 24:1	0.0715 (0.0581,0.0901)	0.0771 (0.0514,0.0981)	0.0711 (0.0492,0.086)	0.79	0.93	0.89	0.91
Total CE	1415 (1270,1659)	1417 (1306,1538)	1506 (1193,1773)	0.98	1.00	1.00	0.99
DG 14:0/16:0	0.212 (0.001,0.369)	0.2 (0.14,0.264)	0.306 (0.177,0.645)	0.23	1.00	0.09	0.26
DG 14:0/18:1	0.568 (0.301,1.07)	0.567 (0.371,0.741)	0.717 (0.456,1.69)	0.35	0.97	0.26	0.33
DG 14:0/18:2	0.239 (0.13,0.361)	0.203 (0.0578,0.33)	0.286 (0.173,0.531)	0.38	0.78	0.44	0.27
DG 16:0/16:0	0.655 (0.449,1.08)	0.63 (0.474,0.786)	0.908 (0.575,1.64)	0.25	0.99	0.13	0.25
DG 16:0/18:0	0.933 (0.527,1.47)	0.795 (0.464,0.918)	1.32 (0.598,2.20)	0.20	0.44	0.22	0.11
DG 16:0/18:1	5.33 (3.53,10.00)	5.21 (4.13,6.96)	7.26 (5.25,12)	0.30	1.00	0.19	0.22
DG 16:0/18:2	2.69 (1.62,3.85)	2.18 (1.71,3.21)	3.14 (2.11,5.25)	0.44	0.88	0.48	0.32
DG 16:0/20:3	0.296 (0.18,0.397)	0.28 (0.162,0.358)	0.321 (0.232,0.6)	0.30	0.96	0.22	0.23
DG 16:0/20:4	0.573 (0.36,0.845)	0.498 (0.367,0.771)	0.799 (0.425,1.66)	0.27	1.00	0.15	0.25
DG 16:0/22:5	0.264 (0.178,0.386)	0.236 (0.196,0.306)	0.327 (0.171,0.487)	0.58	0.99	0.56	0.62
DG 16:0/22:6	0.425 (0.255,0.711)	0.344 (0.262,0.597)	0.371 (0.178,0.764)	0.82	0.98	0.87	0.96
DG 16:1/18:1	3.01 (1.78,4.75)	2.75 (2.03,3.42)	3.66 (2.73,5.60)	0.28	0.98	0.23	0.11
DG 18:0/18:1	2.45 (1.64,4.00)	2.16 (1.79,2.67)	2.86 (2.28,4.77)	0.31	0.92	0.30	0.17
DG 18:0/18:2	1.00 (0.653,1.51)	0.805 (0.583,1.19)	1.19 (0.824,1.75)	0.33	0.45	0.66	0.19
DG 18:0/20:4	0.339 (0.244,0.454)	0.296 (0.251,0.396)	0.309 (0.243,0.469)	0.70	0.75	0.91	0.99
DG 18:1/18:1	15 (9.98,21)	12 (9.35,16)	16 (13,21)	0.49	0.78	0.70	0.29
DG 18:1/18:2	12 (8.88,17)	10 (7.89,15)	14 (9.47,18)	0.52	0.51	0.94	0.49
DG 18:1/18:3	2.28 (1.56,3.21)	1.86 (1.17,2.68)	2.49 (1.96,3.30)	0.51	0.60	0.87	0.38
DG 18:1/20:3	1.12 (0.788,1.42)	1.01 (0.83,1.27)	1.11 (0.899,1.57)	0.69	1.00	0.74	0.62
DG 18:1/20:4	2.40 (1.68,3.25)	1.93 (1.59,2.65)	2.76 (1.94,4.20)	0.41	0.77	0.55	0.21

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
DG 18:2/18:2	2.19 (1.55,3.22)	1.75 (1.28,2.47)	1.90 (1.57,3.38)	0.50	0.34	0.99	0.77
Total DG	55 (37,80)	45 (37,57)	66 (49,96)	0.28	0.75	0.49	0.15
TG 14:0/16:0/18:1	7.22 (3.41,11)	6.57 (3.73,9.65)	9.78 (5.32,21)	0.23	0.98	0.11	0.25
TG 14:0/16:0/18:2	4.01 (1.91,6.10)	3.55 (2.45,5.47)	4.95 (3.53,12)	0.25	1.00	0.13	0.25
TG 14:0/16:1/18:1	5.57 (2.89,9.39)	4.38 (3.40,7.39)	8.41 (4.95,13)	0.16	0.98	0.06	0.11
TG 14:0/16:1/18:2	1.34 (0.711,1.87)	1.01 (0.671,1.42)	1.88 (0.963,2.44)	0.21	0.65	0.14	0.19
TG 14:0/17:0/18:1	1.96 (0.997,3.29)	1.79 (1.13,2.93)	3.13 (1.30,5.59)	0.25	1.00	0.12	0.27
TG 14:0/18:0/18:1	0.582 (0.262,0.989)	0.52 (0.379,0.752)	0.86 (0.334,1.77)	0.28	1.00	0.13	0.45
TG 14:0/18:2/18:2	0.979 (0.68,1.42)	0.82 (0.372,1.23)	0.998 (0.693,1.64)	0.62	0.64	0.99	0.52
TG 14:1/16:0/18:1	1.05 (0.556,2.00)	0.993 (0.78,1.39)	1.59 (1.00,3.11)	0.22	1.00	0.10	0.19
TG 14:1/16:1/18:0	4.06 (2.04,6.78)	3.38 (2.07,8.46)	5.30 (3.51,11)	0.24	1.00	0.09	0.38
TG 14:1/18:0/18:2	0.365 (0.249,0.467)	0.323 (0.269,0.46)	0.511 (0.318,0.728)	0.20	1.00	0.06	0.29
TG 14:1/18:1/18:1	4.21 (2.81,5.21)	3.24 (2.54,4.30)	4.75 (3.12,7.85)	0.29	0.57	0.40	0.20
TG 15:0/16:0/18:1	1.12 (0.558,1.74)	1.00 (0.697,1.52)	1.52 (0.735,3.00)	0.26	1.00	0.12	0.33
TG 15:0/18:1/18:1	1.01 (0.696,1.36)	1.02 (0.679,1.50)	1.43 (0.683,1.78)	0.39	1.00	0.24	0.54
TG 16:0/16:0/16:0	1.80 (0.929,3.62)	2.05 (1.06,3.15)	3.34 (1.14,7.85)	0.19	0.94	0.06	0.29
TG 16:0/16:0/18:0	2.32 (1.01,4.86)	2.21 (1.24,3.95)	4.50 (1.25,8.94)	0.28	1.00	0.13	0.40
TG 16:0/16:0/18:1	30 (17,45)	28 (22,38)	45 (26,75)	0.24	0.99	0.10	0.32
TG 16:0/16:0/18:2	7.28 (4.38,11)	5.65 (5.15,9.81)	8.52 (5.74,15)	0.34	0.96	0.29	0.25
TG 16:0/16:1/17:0	2.39 (1.16,4.01)	2.16 (1.40,2.90)	3.65 (1.65,6.84)	0.22	1.00	0.08	0.32
TG 16:0/16:1/18:1	35 (23,50)	30 (26,40)	47 (34,60)	0.22	0.96	0.15	0.07
TG 16:0/17:0/18:0	0.167 (0.0766,0.277)	0.15 (0.115,0.201)	0.368 (0.106,0.608)	0.23	1.00	0.10	0.29
TG 16:0/17:0/18:1	1.75 (0.883,2.65)	1.57 (1.12,2.04)	2.83 (1.24,4.72)	0.24	0.98	0.12	0.23
TG 16:0/17:0/18:2	3.20 (1.77,4.67)	2.63 (2.18,3.30)	4.18 (2.17,6.98)	0.28	0.92	0.22	0.20
TG 16:0/18:0/18:1	8.62 (4.57,14)	7.64 (5.62,11)	12 (5.43,26)	0.39	1.00	0.26	0.47
TG 16:0/18:1/18:1	96 (64,122)	81 (60,104)	99 (73,128)	0.54	0.73	0.73	0.56

Lipids	Control <sup>1</sup>	UC <sup>1</sup>	CD <sup>1</sup>	Kruskal - Wallis Test - corrected p-value	p-value <sup>2</sup> (Control Vs UC )	p-value <sup>2</sup> (Control Vs CD )	p-value <sup>2</sup> (UC Vs CD)
TG 16:0/18:1/18:2	48 (36,63)	46 (30,50)	49 (35,66)	0.65	0.61	1.00	0.71
TG 16:0/18:2/18:2	12 (7.72,14)	10 (6.19,15)	11 (7.63,15)	0.76	0.81	0.95	0.94
TG 16:1/16:1/16:1	0.437 (0.266,0.633)	0.405 (0.227,0.781)	0.629 (0.363,0.934)	0.21	0.98	0.08	0.27
TG 16:1/16:1/18:0	0.561 (0.296,0.913)	0.483 (0.389,0.742)	0.797 (0.43,1.56)	0.28	1.00	0.13	0.41
TG 16:1/16:1/18:1	4.84 (3.30,6.63)	4.07 (2.90,5.98)	5.60 (4.00,7.86)	0.41	0.92	0.41	0.27
TG 16:1/17:0/18:1	5.22 (3.44,7.19)	5.08 (3.73,6.69)	7.77 (3.67,9.77)	0.30	1.00	0.17	0.40
TG 16:1/18:1/18:1	8.02 (5.77,11)	7.36 (6.10,8.61)	8.90 (6.24,12)	0.52	0.85	0.68	0.36
TG 16:1/18:1/18:2	13 (9.48,16)	11 (6.90,16)	14 (8.62,18)	0.62	0.65	0.96	0.60
TG 17:0/18:1/18:1	3.08 (2.07,3.90)	2.62 (2.15,3.60)	3.52 (2.38,4.69)	0.52	0.89	0.58	0.45
TG 18:0/18:0/18:0	0.0297 (0.0186,0.0491)	0.0282 (0.0175,0.0346)	0.0529 (0.022,0.0859)	0.24	0.94	0.17	0.12
TG 18:0/18:0/18:1	0.504 (0.324,0.874)	0.457 (0.374,0.889)	0.808 (0.404,1.45)	0.41	1.00	0.31	0.40
TG 18:0/18:1/18:1	6.23 (4.04,9.21)	4.96 (4.10,7.28)	7.19 (5.34,12)	0.31	0.81	0.32	0.20
TG 18:0/18:2/18:2	1.32 (0.86,1.57)	0.975 (0.698,1.69)	1.13 (0.768,1.78)	0.65	0.62	1.00	0.68
TG 18:1/18:1/18:1	13 (10,18)	12 (8.66,17)	16 (11,22)	0.49	0.85	0.50	0.56
TG 18:1/18:1/18:2	8.99 (6.49,12)	7.90 (5.15,11)	10 (5.91,14)	0.54	0.59	0.93	0.49
TG 18:1/18:1/20:4	1.42 (1.06,1.74)	1.05 (0.747,1.32)	1.33 (1.15,1.91)	0.22	0.09	1.00	0.12
TG 18:1/18:1/22:6	0.984 (0.712,1.17)	0.679 (0.565,0.891)	0.914 (0.806,1.28)	0.22	0.09	0.98	0.13
TG 18:1/18:2/18:2	5.77 (3.92,7.85)	4.68 (3.15,7.85)	6.31 (3.44,9.57)	0.65	0.59	0.99	0.80
TG 18:2/18:2/18:2	0.543 (0.348,0.822)	0.414 (0.269,0.8)	0.492 (0.309,1.02)	0.64	0.60	0.97	0.82
TG 18:2/18:2/20:4	0.387 (0.253,0.57)	0.302 (0.191,0.464)	0.412 (0.25,0.562)	0.49	0.32	1.00	0.70
Total TG	373 (253,494)	301 (255,380)	417 (331,685)	0.24	0.81	0.31	0.19

Data were expressed as x1000pmol/mL. <sup>1</sup>Median (Q1 - Q3), <sup>2</sup>Dunn-Sidak Corrected p-value

**Supplementary Table 2:** Associations of lipid species against UC vs. Controls, CD vs. Controls and UC vs. CD . Analysis was performed using logistic regression adjusted for age, sex, waist, current smoking, and diastolic blood pressure.

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
dhCer 18:0	0.86 (0.49 ,1.49)	0.86	0.64 (0.37 ,1.13)	0.34	0.53 (0.20 ,1.42)	0.55
dhCer 22:0	0.47 (0.18 ,1.22)	0.80	0.30 (0.14 ,0.64)	<b>3.92E-02</b>	0.69 (0.22 ,2.21)	0.73
dhCer 24:0	0.46 (0.18 ,1.20)	0.80	0.23 (0.10 ,0.53)	<b>2.53E-02</b>	0.65 (0.23 ,1.84)	0.64
dhCer 24:1	0.84 (0.37 ,1.91)	0.87	0.50 (0.26 ,0.96)	0.18	0.70 (0.29 ,1.72)	0.65
Total dhCer	0.55 (0.22 ,1.38)	0.77	0.29 (0.13 ,0.64)	<b>2.02E-02</b>	0.58 (0.18 ,1.91)	0.48
Cer 16:0	1.72 (0.78 ,3.79)	0.84	1.06 (0.58 ,1.95)	0.94	0.60 (0.22 ,1.64)	0.60
Cer 18:0	1.03 (0.39 ,2.76)	0.98	1.06 (0.51 ,2.22)	0.95	0.85 (0.25 ,2.92)	0.91
Cer 20:0	0.91 (0.48 ,1.72)	0.90	0.72 (0.40 ,1.29)	0.50	0.75 (0.20 ,2.77)	0.83
Cer 22:0	1.00 (0.46 ,2.18)	0.99	0.66 (0.34 ,1.30)	0.48	0.83 (0.28 ,2.48)	0.87
Cer 24:0	1.04 (0.47 ,2.30)	0.96	0.53 (0.27 ,1.03)	0.25	0.61 (0.20 ,1.87)	0.61
Cer 24:1	1.91 (0.87 ,4.18)	0.80	1.07 (0.51 ,2.21)	0.95	0.72 (0.28 ,1.82)	0.69
Total Cer	1.25 (0.58 ,2.71)	0.86	0.63 (0.32 ,1.22)	0.28	0.63 (0.21 ,1.95)	0.52
MHC 16:0	1.28 (0.62 ,2.62)	0.84	0.63 (0.30 ,1.32)	0.46	0.24 (0.05 ,1.05)	0.51
MHC 18:0	1.75 (0.73 ,4.18)	0.84	1.14 (0.62 ,2.12)	0.87	0.61 (0.20 ,1.83)	0.61
MHC 20:0	1.08 (0.53 ,2.21)	0.91	0.38 (0.18 ,0.78)	0.08	0.39 (0.11 ,1.45)	0.54
MHC 22:0	0.77 (0.37 ,1.60)	0.84	0.33 (0.14 ,0.79)	0.09	0.50 (0.17 ,1.47)	0.55
MHC 24:0	0.87 (0.42 ,1.80)	0.88	0.38 (0.16 ,0.89)	0.15	0.37 (0.10 ,1.34)	0.54
MHC 24:1	1.66 (0.85 ,3.24)	0.81	0.89 (0.47 ,1.66)	0.89	0.34 (0.10 ,1.16)	0.54
Total MHC	1.12 (0.56 ,2.25)	0.89	0.47 (0.20 ,1.07)	0.14	0.34 (0.10 ,1.12)	0.23
DHC 16:0	1.21 (0.50 ,2.97)	0.87	0.61 (0.30 ,1.26)	0.41	0.32 (0.09 ,1.20)	0.54
DHC 18:0	0.47 (0.19 ,1.15)	0.80	0.32 (0.15 ,0.69)	<b>4.83E-02</b>	0.45 (0.10 ,1.95)	0.58
DHC 20:0	0.66 (0.30 ,1.42)	0.84	0.60 (0.31 ,1.16)	0.34	0.74 (0.22 ,2.46)	0.81
DHC 22:0	0.39 (0.14 ,1.13)	0.80	0.13 (0.04 ,0.38)	<b>1.83E-02</b>	0.29 (0.09 ,0.93)	0.45
DHC 24:0	0.53 (0.22 ,1.29)	0.84	0.25 (0.11 ,0.58)	<b>2.94E-02</b>	0.36 (0.10 ,1.22)	0.54
DHC 24:1	0.86 (0.35 ,2.12)	0.90	0.49 (0.22 ,1.10)	0.28	0.54 (0.19 ,1.50)	0.57
Total DHC	1.00 (0.43 ,2.31)	1.00	0.45 (0.21 ,0.99)	0.10	0.31 (0.08 ,1.18)	0.23

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
THC 16:0	1.96 (0.84 ,4.56)	0.80	0.51 (0.23 ,1.12)	0.30	0.13 (0.02 ,0.72)	0.42
THC 18:0	0.68 (0.28 ,1.66)	0.84	0.34 (0.14 ,0.82)	0.10	0.35 (0.09 ,1.38)	0.54
THC 22:0	0.92 (0.56 ,1.51)	0.90	0.14 (0.04 ,0.44)	<b>2.78E-02</b>	0.04 (0.00 ,0.37)	0.42
THC 24:0	0.81 (0.42 ,1.54)	0.84	0.11 (0.04 ,0.34)	<b>1.83E-02</b>	0.00 (0.00 ,0.28)	0.42
THC 24:1	1.89 (0.91 ,3.93)	0.80	0.52 (0.23 ,1.15)	0.31	0.16 (0.04 ,0.71)	0.42
Total THC	1.37 (0.66 ,2.87)	0.80	0.27 (0.10 ,0.73)	<b>3.71E-02</b>	0.04 (0.00 ,0.37)	0.12
GM3 16:0	2.59 (1.01 ,6.67)	0.80	0.85 (0.42 ,1.72)	0.85	0.22 (0.06 ,0.88)	0.43
GM3 18:0	1.54 (0.74 ,3.20)	0.84	0.38 (0.17 ,0.88)	0.14	0.14 (0.03 ,0.63)	0.42
GM3 20:0	1.55 (0.58 ,4.17)	0.84	1.41 (0.70 ,2.86)	0.56	0.91 (0.39 ,2.12)	0.92
GM3 22:0	0.67 (0.26 ,1.73)	0.84	0.32 (0.12 ,0.82)	0.11	0.55 (0.14 ,2.12)	0.61
GM3 24:0	0.73 (0.32 ,1.67)	0.84	0.58 (0.29 ,1.15)	0.33	0.85 (0.35 ,2.10)	0.86
GM3 24:1	1.79 (0.87 ,3.70)	0.80	0.84 (0.46 ,1.53)	0.79	0.52 (0.18 ,1.49)	0.57
Total GM3	1.77 (0.75 ,4.18)	0.77	0.55 (0.25 ,1.21)	0.24	0.30 (0.08 ,1.09)	0.23
SM 31:1	1.29 (0.45 ,3.74)	0.86	0.54 (0.26 ,1.13)	0.31	0.56 (0.20 ,1.57)	0.57
SM 32:1	1.47 (0.61 ,3.55)	0.84	0.42 (0.19 ,0.94)	0.17	0.45 (0.19 ,1.11)	0.54
SM 32:2	1.40 (0.46 ,4.28)	0.85	0.76 (0.36 ,1.64)	0.73	0.59 (0.21 ,1.70)	0.60
SM 33:1	1.46 (0.62 ,3.40)	0.84	0.50 (0.24 ,1.07)	0.27	0.44 (0.15 ,1.31)	0.54
SM 34:1	2.44 (0.89 ,6.67)	0.80	0.40 (0.17 ,0.90)	0.15	0.15 (0.04 ,0.60)	0.42
SM 34:2	1.71 (0.69 ,4.25)	0.84	0.63 (0.31 ,1.25)	0.42	0.32 (0.10 ,0.97)	0.48
SM 34:3	1.33 (0.57 ,3.08)	0.84	1.12 (0.61 ,2.06)	0.89	0.67 (0.24 ,1.84)	0.65
SM 35:1	1.24 (0.46 ,3.34)	0.87	0.50 (0.23 ,1.12)	0.30	0.31 (0.06 ,1.57)	0.54
SM 35:2	1.28 (0.54 ,3.05)	0.86	0.52 (0.25 ,1.09)	0.28	0.36 (0.11 ,1.22)	0.54
SM 36:1	1.26 (0.66 ,2.42)	0.84	0.49 (0.22 ,1.09)	0.28	0.35 (0.08 ,1.47)	0.54
SM 36:2	1.26 (0.56 ,2.84)	0.86	0.67 (0.34 ,1.32)	0.49	0.36 (0.10 ,1.31)	0.54
SM 36:3	1.38 (0.56 ,3.40)	0.84	0.84 (0.46 ,1.56)	0.80	0.37 (0.08 ,1.65)	0.55
SM 37:2	1.25 (0.53 ,2.99)	0.86	0.48 (0.22 ,1.04)	0.25	0.29 (0.06 ,1.40)	0.54
SM 38:1	1.89 (0.95 ,3.75)	0.80	0.87 (0.47 ,1.63)	0.87	0.45 (0.17 ,1.15)	0.54
SM 38:2	3.36 (1.01 ,11.13)	0.80	2.32 (0.92 ,5.86)	0.27	0.62 (0.20 ,1.94)	0.63
SM 39:1	0.85 (0.32 ,2.30)	0.90	0.18 (0.07 ,0.45)	<b>1.83E-02</b>	0.33 (0.09 ,1.19)	0.54

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
SM 41:1	0.54 (0.23 ,1.29)	0.84	0.22 (0.10 ,0.48)	<b>1.83E-02</b>	0.46 (0.18 ,1.17)	0.54
SM 41:2	1.12 (0.50 ,2.50)	0.90	0.34 (0.16 ,0.70)	<b>4.83E-02</b>	0.32 (0.08 ,1.24)	0.54
SM 42:1	0.41 (0.17 ,0.97)	0.80	0.23 (0.09 ,0.58)	<b>3.92E-02</b>	0.38 (0.10 ,1.42)	0.54
Total SM	1.91 (0.79 ,4.62)	0.77	0.46 (0.24 ,0.91)	0.07	0.26 (0.08 ,0.84)	0.15
PC 28:0	1.29 (0.69 ,2.38)	0.84	1.54 (0.87 ,2.71)	0.35	0.98 (0.41 ,2.32)	0.98
PC 29:0	1.28 (0.52 ,3.13)	0.86	1.27 (0.71 ,2.28)	0.65	1.30 (0.57 ,2.96)	0.73
PC 30:0	1.51 (0.57 ,4.00)	0.84	1.50 (0.69 ,3.28)	0.54	1.20 (0.36 ,4.04)	0.89
PC 31:0	1.28 (0.59 ,2.81)	0.85	1.15 (0.63 ,2.11)	0.85	1.22 (0.47 ,3.22)	0.83
PC 31:1	1.19 (0.46 ,3.05)	0.89	0.86 (0.43 ,1.71)	0.86	0.77 (0.23 ,2.57)	0.83
PC 32:0	1.45 (0.88 ,2.39)	0.81	0.96 (0.59 ,1.57)	0.96	0.57 (0.21 ,1.54)	0.57
PC 32:1	1.65 (0.92 ,2.95)	0.80	1.65 (0.94 ,2.88)	0.28	0.77 (0.26 ,2.34)	0.82
PC 32:2	1.27 (0.39 ,4.12)	0.88	0.76 (0.35 ,1.69)	0.73	0.66 (0.24 ,1.80)	0.63
PC 32:3	2.08 (0.65 ,6.71)	0.84	1.34 (0.63 ,2.82)	0.68	0.63 (0.18 ,2.15)	0.67
PC 33:0	0.98 (0.50 ,1.89)	0.98	0.89 (0.51 ,1.58)	0.89	0.96 (0.40 ,2.31)	0.96
PC 33:1	2.05 (0.98 ,4.27)	0.80	1.58 (0.86 ,2.90)	0.35	1.07 (0.37 ,3.13)	0.95
PC 33:2	2.04 (0.84 ,4.97)	0.80	0.82 (0.41 ,1.64)	0.79	0.69 (0.24 ,1.99)	0.69
PC 33:3	1.50 (0.70 ,3.25)	0.84	1.33 (0.75 ,2.38)	0.56	1.06 (0.52 ,2.18)	0.94
PC 34:0	0.87 (0.50 ,1.52)	0.86	0.58 (0.32 ,1.05)	0.26	0.53 (0.19 ,1.42)	0.55
PC 34:1	3.36 (1.36 ,8.34)	0.80	1.48 (0.72 ,3.06)	0.52	0.42 (0.15 ,1.22)	0.54
PC 34:2	1.39 (0.55 ,3.54)	0.84	0.78 (0.38 ,1.60)	0.73	0.63 (0.21 ,1.84)	0.62
PC 34:3	2.08 (0.86 ,5.04)	0.80	1.47 (0.72 ,3.00)	0.52	0.52 (0.15 ,1.88)	0.60
PC 34:4	0.72 (0.27 ,1.90)	0.84	1.04 (0.52 ,2.07)	0.97	1.26 (0.44 ,3.57)	0.83
PC 34:5	0.69 (0.27 ,1.76)	0.84	1.11 (0.66 ,1.88)	0.87	1.36 (0.49 ,3.78)	0.75
PC 35:0	0.65 (0.30 ,1.39)	0.84	0.46 (0.22 ,0.97)	0.19	0.81 (0.23 ,2.83)	0.87
PC 35:1	1.16 (0.51 ,2.61)	0.89	0.79 (0.43 ,1.48)	0.70	0.63 (0.22 ,1.79)	0.61
PC 35:2	1.17 (0.45 ,3.03)	0.90	0.71 (0.37 ,1.35)	0.53	0.57 (0.18 ,1.80)	0.60
PC 35:3	1.45 (0.61 ,3.48)	0.84	1.06 (0.64 ,1.78)	0.93	0.94 (0.44 ,1.99)	0.95
PC 35:4	0.61 (0.24 ,1.56)	0.84	0.87 (0.42 ,1.80)	0.89	1.09 (0.42 ,2.82)	0.94
PC 35:5	0.71 (0.33 ,1.53)	0.84	1.02 (0.55 ,1.92)	0.98	1.05 (0.46 ,2.42)	0.96

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
PC 36:0	0.50 (0.21 ,1.20)	0.80	0.52 (0.22 ,1.22)	0.35	0.99 (0.42 ,2.29)	0.98
PC 36:1	1.60 (0.68 ,3.77)	0.84	0.55 (0.25 ,1.22)	0.35	0.24 (0.06 ,0.91)	0.44
PC 36:2	1.01 (0.47 ,2.14)	0.99	0.68 (0.36 ,1.28)	0.48	0.56 (0.20 ,1.54)	0.57
PC 36:3	2.35 (0.69 ,7.95)	0.84	1.34 (0.57 ,3.15)	0.73	0.80 (0.22 ,2.90)	0.86
PC 36:4a	1.16 (0.46 ,2.90)	0.90	1.14 (0.60 ,2.16)	0.88	0.81 (0.35 ,1.89)	0.81
PC 36:4b	0.65 (0.28 ,1.50)	0.84	0.66 (0.31 ,1.38)	0.50	0.70 (0.21 ,2.37)	0.75
PC 36:5	0.86 (0.40 ,1.85)	0.88	0.99 (0.56 ,1.75)	0.99	0.87 (0.36 ,2.08)	0.88
PC 36:6	0.70 (0.27 ,1.81)	0.84	1.00 (0.56 ,1.79)	1.00	1.03 (0.41 ,2.54)	0.98
PC 37:4	0.63 (0.28 ,1.43)	0.84	0.39 (0.19 ,0.80)	0.08	0.43 (0.10 ,1.88)	0.57
PC 37:5	0.81 (0.37 ,1.75)	0.86	0.93 (0.49 ,1.79)	0.94	0.86 (0.32 ,2.29)	0.88
PC 37:6	1.11 (0.43 ,2.86)	0.91	0.66 (0.29 ,1.49)	0.55	0.63 (0.21 ,1.88)	0.63
PC 38:2	1.22 (0.51 ,2.95)	0.87	0.66 (0.33 ,1.33)	0.49	0.35 (0.11 ,1.13)	0.54
PC 38:3	0.64 (0.24 ,1.74)	0.84	0.59 (0.28 ,1.26)	0.40	0.95 (0.44 ,2.04)	0.95
PC 38:4	0.58 (0.24 ,1.37)	0.84	0.37 (0.18 ,0.76)	0.07	0.68 (0.30 ,1.54)	0.60
PC 38:5	0.64 (0.24 ,1.69)	0.84	0.89 (0.46 ,1.72)	0.89	0.85 (0.35 ,2.08)	0.86
PC 38:6a	0.90 (0.38 ,2.10)	0.90	0.71 (0.37 ,1.37)	0.54	0.55 (0.15 ,1.98)	0.60
PC 38:6b	0.73 (0.27 ,1.98)	0.85	0.68 (0.31 ,1.48)	0.56	0.59 (0.20 ,1.70)	0.60
PC 38:7	0.72 (0.32 ,1.60)	0.84	0.80 (0.42 ,1.53)	0.73	0.84 (0.38 ,1.87)	0.83
PC 39:5	0.60 (0.24 ,1.51)	0.84	0.83 (0.42 ,1.64)	0.80	1.03 (0.39 ,2.71)	0.98
PC 39:6	0.88 (0.32 ,2.36)	0.90	0.61 (0.26 ,1.39)	0.48	0.51 (0.15 ,1.70)	0.57
PC 39:7	1.18 (0.62 ,2.24)	0.86	0.68 (0.31 ,1.48)	0.56	0.59 (0.26 ,1.38)	0.57
PC 40:4	0.93 (0.37 ,2.33)	0.94	0.71 (0.35 ,1.44)	0.56	0.84 (0.30 ,2.37)	0.87
PC 40:5	0.57 (0.22 ,1.50)	0.84	0.81 (0.38 ,1.74)	0.80	1.15 (0.38 ,3.44)	0.91
PC 40:6	0.61 (0.23 ,1.59)	0.84	0.64 (0.30 ,1.38)	0.49	0.63 (0.17 ,2.40)	0.70
PC 40:7	1.17 (0.52 ,2.62)	0.88	0.84 (0.42 ,1.69)	0.84	0.64 (0.22 ,1.80)	0.62
PC 40:8	0.64 (0.29 ,1.42)	0.84	0.46 (0.22 ,1.00)	0.21	0.62 (0.23 ,1.67)	0.60
Total PC	1.26 (0.52 ,3.07)	0.86	0.70 (0.35 ,1.37)	0.45	0.44 (0.15 ,1.30)	0.30
PC(O-32:0)	1.63 (0.81 ,3.31)	0.84	0.56 (0.24 ,1.33)	0.42	0.43 (0.13 ,1.37)	0.54
PC(O-32:1)	1.69 (0.93 ,3.08)	0.80	0.64 (0.32 ,1.29)	0.44	0.60 (0.29 ,1.22)	0.54

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
PC(O-32:2)	0.93 (0.42 ,2.05)	0.92	0.21 (0.08 ,0.61)	<b>4.83E-02</b>	0.20 (0.04 ,1.04)	0.51
PC(O-34:1)	2.94 (1.36 ,6.34)	0.80	0.74 (0.34 ,1.63)	0.69	0.11 (0.02 ,0.61)	0.42
PC(O-34:2)	1.37 (0.69 ,2.76)	0.84	0.31 (0.13 ,0.75)	0.08	0.44 (0.17 ,1.13)	0.54
PC(O-34:3)	1.11 (0.50 ,2.47)	0.90	0.27 (0.09 ,0.81)	0.12	0.35 (0.12 ,1.06)	0.51
PC(O-34:4)	0.56 (0.24 ,1.31)	0.84	0.06 (0.01 ,0.26)	<b>1.83E-02</b>	0.22 (0.04 ,1.16)	0.54
PC(O-35:4)	0.30 (0.10 ,0.91)	0.80	0.24 (0.10 ,0.60)	<b>3.92E-02</b>	0.32 (0.07 ,1.42)	0.54
PC(O-36:0)	0.50 (0.20 ,1.25)	0.81	0.12 (0.04 ,0.39)	<b>2.53E-02</b>	0.24 (0.06 ,0.90)	0.43
PC(O-36:1)	1.38 (0.54 ,3.54)	0.84	0.26 (0.10 ,0.68)	0.07	0.20 (0.05 ,0.77)	0.42
PC(O-36:2)	3.09 (1.19 ,7.98)	0.80	0.59 (0.27 ,1.27)	0.40	0.11 (0.02 ,0.53)	0.42
PC(O-36:3)	1.01 (0.37 ,2.76)	0.99	0.19 (0.06 ,0.55)	<b>3.92E-02</b>	0.36 (0.12 ,1.11)	0.54
PC(O-36:4)	0.57 (0.22 ,1.47)	0.84	0.13 (0.05 ,0.37)	<b>1.83E-02</b>	0.16 (0.04 ,0.67)	0.42
PC(O-36:5)	0.67 (0.30 ,1.49)	0.84	0.20 (0.07 ,0.57)	<b>3.92E-02</b>	0.24 (0.07 ,0.80)	0.42
PC(O-38:4)	0.90 (0.35 ,2.27)	0.91	0.34 (0.16 ,0.74)	0.07	0.24 (0.06 ,0.93)	0.45
PC(O-38:5)	1.01 (0.37 ,2.78)	0.99	0.27 (0.11 ,0.63)	<b>3.92E-02</b>	0.23 (0.06 ,0.84)	0.43
PC(O-40:5)	1.38 (0.63 ,3.04)	0.84	0.37 (0.17 ,0.82)	0.09	0.33 (0.10 ,1.07)	0.51
PC(O-40:6)	0.82 (0.38 ,1.77)	0.86	0.67 (0.34 ,1.34)	0.49	0.81 (0.30 ,2.16)	0.83
PC(O-40:7)	1.06 (0.39 ,2.91)	0.96	0.32 (0.12 ,0.88)	0.15	0.30 (0.09 ,1.06)	0.51
Total PC(O)	1.08 (0.40 ,2.91)	0.96	0.14 (0.05 ,0.38)	<b>2.97E-03</b>	0.09 (0.02 ,0.51)	0.12
PC(P-30:0)	1.68 (0.85 ,3.33)	0.81	0.49 (0.25 ,0.97)	0.19	0.22 (0.05 ,0.98)	0.48
PC(P-32:0)	2.00 (0.87 ,4.57)	0.80	0.43 (0.19 ,0.96)	0.19	0.27 (0.07 ,1.05)	0.51
PC(P-32:1)	1.87 (0.94 ,3.72)	0.80	0.84 (0.45 ,1.55)	0.79	0.45 (0.16 ,1.21)	0.54
PC(P-34:1)	4.11 (1.47 ,11.48)	0.80	0.42 (0.16 ,1.09)	0.27	0.08 (0.02 ,0.39)	0.42
PC(P-34:2)	1.49 (0.55 ,4.02)	0.84	0.33 (0.13 ,0.81)	0.10	0.25 (0.07 ,0.88)	0.43
PC(P-34:3)	1.62 (0.65 ,4.03)	0.84	0.69 (0.31 ,1.52)	0.57	0.49 (0.20 ,1.21)	0.54
PC(P-36:2)	2.12 (0.84 ,5.34)	0.80	0.39 (0.15 ,1.00)	0.21	0.08 (0.01 ,0.54)	0.42
PC(P-36:4)	0.63 (0.27 ,1.47)	0.84	0.24 (0.09 ,0.60)	<b>3.92E-02</b>	0.25 (0.07 ,0.85)	0.43
PC(P-36:5)	0.81 (0.41 ,1.59)	0.85	0.68 (0.36 ,1.30)	0.49	0.61 (0.26 ,1.42)	0.57
PC(P-38:4)	0.66 (0.32 ,1.35)	0.84	0.19 (0.08 ,0.49)	<b>2.53E-02</b>	0.22 (0.06 ,0.77)	0.42
PC(P-38:5)	0.59 (0.24 ,1.45)	0.84	0.21 (0.07 ,0.65)	0.07	0.34 (0.11 ,1.03)	0.51

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
PC(P-38:6)	0.75 (0.30 ,1.87)	0.85	0.18 (0.04 ,0.71)	0.10	0.26 (0.08 ,0.88)	0.43
PC(P-40:5)	1.09 (0.52 ,2.30)	0.91	0.14 (0.03 ,0.57)	0.07	0.08 (0.01 ,0.57)	0.42
PC(P-40:6)	1.16 (0.50 ,2.66)	0.89	0.18 (0.04 ,0.84)	0.15	0.21 (0.06 ,0.78)	0.42
Total PC(P)	1.01 (0.43 ,2.35)	1.00	0.17 (0.05 ,0.54)	<b>2.02E-02</b>	0.11 (0.02 ,0.65)	0.12
LPC 14:0	0.91 (0.38 ,2.18)	0.91	1.02 (0.55 ,1.90)	0.98	1.25 (0.47 ,3.36)	0.82
LPC 15:0	1.33 (0.52 ,3.39)	0.85	1.07 (0.53 ,2.16)	0.94	1.32 (0.44 ,3.90)	0.81
LPC 16:0	1.15 (0.42 ,3.19)	0.90	1.06 (0.55 ,2.05)	0.95	0.98 (0.29 ,3.28)	0.98
LPC 16:1	1.65 (0.85 ,3.23)	0.81	1.76 (0.93 ,3.35)	0.28	0.95 (0.37 ,2.43)	0.96
LPC 17:0	0.72 (0.26 ,1.97)	0.84	0.86 (0.42 ,1.73)	0.87	1.12 (0.33 ,3.74)	0.94
LPC 17:1	1.24 (0.47 ,3.27)	0.87	1.33 (0.72 ,2.46)	0.58	1.19 (0.46 ,3.06)	0.86
LPC 18:0	0.85 (0.38 ,1.91)	0.88	0.66 (0.34 ,1.26)	0.44	0.81 (0.35 ,1.89)	0.81
LPC 18:1	2.36 (0.93 ,5.95)	0.80	1.39 (0.73 ,2.67)	0.55	0.58 (0.18 ,1.88)	0.60
LPC 18:2	2.10 (0.69 ,6.37)	0.84	1.28 (0.66 ,2.49)	0.70	0.93 (0.36 ,2.39)	0.95
LPC 18:3	2.54 (1.01 ,6.35)	0.80	1.83 (0.97 ,3.48)	0.25	0.79 (0.25 ,2.54)	0.85
LPC 20:0	1.08 (0.51 ,2.29)	0.91	0.48 (0.20 ,1.17)	0.31	0.39 (0.10 ,1.57)	0.55
LPC 20:1	1.37 (0.63 ,2.95)	0.84	0.69 (0.33 ,1.46)	0.56	0.57 (0.20 ,1.58)	0.57
LPC 20:2	1.79 (0.57 ,5.65)	0.84	1.07 (0.51 ,2.21)	0.95	0.84 (0.26 ,2.77)	0.89
LPC 20:3	1.25 (0.50 ,3.15)	0.86	1.32 (0.70 ,2.51)	0.62	1.21 (0.45 ,3.27)	0.86
LPC 20:4	0.83 (0.30 ,2.25)	0.88	0.97 (0.47 ,2.01)	0.98	0.96 (0.41 ,2.21)	0.96
LPC 20:5	0.90 (0.45 ,1.80)	0.90	1.21 (0.70 ,2.07)	0.73	1.06 (0.48 ,2.31)	0.95
LPC 22:0	1.38 (0.82 ,2.32)	0.84	0.54 (0.24 ,1.24)	0.35	0.22 (0.06 ,0.88)	0.43
LPC 22:1	1.23 (0.67 ,2.25)	0.84	1.03 (0.64 ,1.68)	0.96	0.79 (0.35 ,1.78)	0.75
LPC 22:5	0.97 (0.34 ,2.79)	0.98	1.64 (0.84 ,3.18)	0.35	1.54 (0.61 ,3.92)	0.60
LPC 22:6	0.83 (0.33 ,2.08)	0.88	0.98 (0.53 ,1.81)	0.98	0.85 (0.37 ,1.96)	0.85
LPC 24:0	1.15 (0.60 ,2.22)	0.87	0.70 (0.32 ,1.53)	0.59	0.31 (0.07 ,1.42)	0.54
LPC 26:0	2.35 (0.88 ,6.29)	0.80	0.96 (0.51 ,1.80)	0.97	0.28 (0.07 ,1.05)	0.51
Total LPC	1.47 (0.52 ,4.15)	0.81	1.13 (0.56 ,2.26)	0.78	0.86 (0.22 ,3.32)	0.85
LPC(O-16:0)	0.53 (0.19 ,1.47)	0.84	0.34 (0.15 ,0.76)	0.08	0.70 (0.25 ,1.94)	0.69
LPC(O-18:0)	0.62 (0.26 ,1.51)	0.84	0.37 (0.17 ,0.80)	0.09	0.54 (0.14 ,2.03)	0.60

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
LPC(O-18:1)	0.81 (0.34 ,1.94)	0.86	0.58 (0.28 ,1.19)	0.35	0.75 (0.24 ,2.28)	0.80
LPC(O-20:0)	0.86 (0.34 ,2.19)	0.90	0.44 (0.20 ,0.97)	0.19	0.64 (0.18 ,2.31)	0.69
LPC(O-20:1)	1.15 (0.59 ,2.25)	0.87	0.63 (0.36 ,1.10)	0.31	0.73 (0.34 ,1.56)	0.64
LPC(O-22:0)	0.89 (0.42 ,1.88)	0.90	0.36 (0.16 ,0.78)	0.08	0.50 (0.17 ,1.54)	0.57
LPC(O-22:1)	1.72 (0.76 ,3.88)	0.84	0.61 (0.32 ,1.15)	0.34	0.63 (0.27 ,1.45)	0.57
LPC(O-24:0)	1.43 (0.61 ,3.37)	0.84	0.69 (0.35 ,1.36)	0.51	0.55 (0.21 ,1.41)	0.55
LPC(O-24:1)	1.79 (0.89 ,3.60)	0.80	0.69 (0.30 ,1.55)	0.58	0.49 (0.18 ,1.35)	0.55
LPC(O-24:2)	1.07 (0.57 ,2.02)	0.91	0.61 (0.32 ,1.14)	0.34	0.82 (0.42 ,1.59)	0.74
Total LPC(O)	0.81 (0.33 ,1.99)	0.86	0.40 (0.19 ,0.84)	0.05	0.57 (0.19 ,1.76)	0.45
PE 32:0	1.32 (0.68 ,2.56)	0.84	1.75 (1.01 ,3.03)	0.20	2.51 (0.76 ,8.30)	0.54
PE 32:1	1.12 (0.52 ,2.41)	0.90	1.59 (1.01 ,2.52)	0.20	1.78 (0.67 ,4.74)	0.57
PE 34:1	0.87 (0.42 ,1.79)	0.88	1.06 (0.60 ,1.89)	0.94	1.84 (0.71 ,4.76)	0.55
PE 34:2	1.61 (0.74 ,3.52)	0.84	1.48 (0.84 ,2.63)	0.41	1.54 (0.61 ,3.91)	0.60
PE 34:3	2.40 (1.10 ,5.26)	0.80	1.84 (1.05 ,3.21)	0.17	1.22 (0.51 ,2.96)	0.82
PE 35:1	0.78 (0.39 ,1.57)	0.84	1.10 (0.68 ,1.79)	0.88	1.96 (0.66 ,5.81)	0.57
PE 35:2	1.02 (0.40 ,2.64)	0.99	1.52 (0.81 ,2.84)	0.42	2.04 (0.78 ,5.32)	0.54
PE 36:0	1.15 (0.69 ,1.92)	0.86	1.16 (0.95 ,1.41)	0.36	1.18 (0.75 ,1.86)	0.69
PE 36:1	0.69 (0.28 ,1.70)	0.84	0.95 (0.57 ,1.58)	0.94	1.46 (0.65 ,3.28)	0.60
PE 36:2	0.93 (0.41 ,2.11)	0.92	1.23 (0.69 ,2.19)	0.73	1.55 (0.70 ,3.42)	0.58
PE 36:3	1.18 (0.62 ,2.21)	0.86	1.53 (0.95 ,2.47)	0.28	1.86 (0.79 ,4.39)	0.54
PE 36:4	1.00 (0.53 ,1.91)	0.99	0.98 (0.56 ,1.72)	0.98	1.76 (0.50 ,6.19)	0.61
PE 36:5	1.17 (0.57 ,2.43)	0.87	1.40 (0.79 ,2.46)	0.49	1.93 (0.59 ,6.33)	0.57
PE 38:3	0.61 (0.26 ,1.47)	0.84	0.74 (0.44 ,1.25)	0.49	2.09 (0.57 ,7.58)	0.57
PE 38:4	0.59 (0.24 ,1.44)	0.84	0.62 (0.33 ,1.16)	0.35	1.42 (0.46 ,4.41)	0.73
PE 38:5	0.82 (0.41 ,1.66)	0.86	0.88 (0.50 ,1.55)	0.86	2.65 (0.47 ,15.11)	0.57
PE 38:6	1.22 (0.50 ,2.99)	0.87	0.88 (0.42 ,1.86)	0.89	0.95 (0.27 ,3.39)	0.98
PE 40:4	0.13 (0.02 ,0.72)	0.80	0.38 (0.15 ,0.98)	0.20	2.11 (0.68 ,6.49)	0.55
PE 40:5	0.44 (0.13 ,1.49)	0.84	0.68 (0.35 ,1.32)	0.49	2.25 (0.65 ,7.78)	0.55
PE 40:6	0.70 (0.25 ,1.95)	0.84	0.70 (0.33 ,1.49)	0.58	1.14 (0.32 ,4.09)	0.93

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
PE 40:7	0.97 (0.41 ,2.30)	0.98	0.81 (0.43 ,1.55)	0.75	1.15 (0.55 ,2.40)	0.86
Total PE	0.80 (0.37 ,1.71)	0.86	0.86 (0.50 ,1.50)	0.70	1.85 (0.54 ,6.35)	0.45
PE(O-34:1)	1.28 (0.77 ,2.13)	0.84	0.30 (0.11 ,0.83)	0.12	0.15 (0.03 ,0.77)	0.43
PE(O-34:2)	1.58 (0.93 ,2.66)	0.80	0.30 (0.12 ,0.78)	0.09	0.15 (0.04 ,0.64)	0.42
PE(O-36:2)	1.15 (0.68 ,1.94)	0.86	0.31 (0.11 ,0.90)	0.16	0.21 (0.05 ,0.82)	0.43
PE(O-36:3)	1.31 (0.63 ,2.76)	0.84	0.43 (0.20 ,0.96)	0.19	0.37 (0.12 ,1.17)	0.54
PE(O-36:4)	0.89 (0.34 ,2.31)	0.91	0.10 (0.03 ,0.38)	<b>2.78E-02</b>	0.08 (0.01 ,0.53)	0.42
PE(O-36:5)	1.21 (0.56 ,2.61)	0.86	0.27 (0.10 ,0.73)	0.08	0.05 (0.01 ,0.56)	0.42
PE(O-36:6)	0.90 (0.44 ,1.83)	0.90	0.47 (0.23 ,0.96)	0.19	0.47 (0.19 ,1.17)	0.54
PE(O-38:4)	0.88 (0.34 ,2.27)	0.90	0.07 (0.02 ,0.29)	<b>1.83E-02</b>	0.01 (0.00 ,0.41)	0.42
PE(O-38:5)	1.14 (0.48 ,2.70)	0.90	0.33 (0.11 ,0.98)	0.20	0.42 (0.16 ,1.10)	0.54
PE(O-40:5)	0.79 (0.34 ,1.86)	0.86	0.42 (0.18 ,0.97)	0.19	0.47 (0.16 ,1.36)	0.54
PE(O-40:6)	0.98 (0.45 ,2.16)	0.99	0.92 (0.49 ,1.71)	0.93	0.63 (0.20 ,1.92)	0.63
PE(O-40:7)	1.40 (0.64 ,3.07)	0.84	0.32 (0.09 ,1.09)	0.26	0.25 (0.06 ,0.97)	0.48
Total PE(O)	1.11 (0.48 ,2.61)	0.92	0.16 (0.04 ,0.61)	<b>3.42E-02</b>	0.12 (0.02 ,0.63)	0.12
PE(P-34:1)	1.22 (0.58 ,2.57)	0.86	0.61 (0.28 ,1.31)	0.44	0.84 (0.42 ,1.68)	0.81
PE(P-34:2)	1.43 (0.85 ,2.43)	0.84	0.69 (0.35 ,1.36)	0.51	0.67 (0.31 ,1.44)	0.59
PE(P-36:1)	1.25 (0.50 ,3.09)	0.86	0.54 (0.27 ,1.09)	0.28	0.39 (0.12 ,1.25)	0.54
PE(P-36:2)	1.58 (0.67 ,3.74)	0.84	0.45 (0.20 ,1.02)	0.23	0.53 (0.21 ,1.36)	0.55
PE(P-36:4)	0.36 (0.09 ,1.39)	0.81	0.17 (0.05 ,0.51)	<b>3.92E-02</b>	0.63 (0.28 ,1.46)	0.58
PE(P-38:4)	0.46 (0.14 ,1.53)	0.84	0.06 (0.01 ,0.31)	<b>2.78E-02</b>	0.22 (0.06 ,0.88)	0.43
PE(P-38:5)	0.62 (0.20 ,1.90)	0.84	0.15 (0.05 ,0.45)	<b>2.66E-02</b>	0.40 (0.15 ,1.06)	0.51
PE(P-38:6)	0.54 (0.18 ,1.62)	0.84	0.15 (0.05 ,0.48)	<b>2.94E-02</b>	0.30 (0.09 ,1.05)	0.51
PE(P-40:4)	0.57 (0.20 ,1.57)	0.84	0.21 (0.06 ,0.74)	0.10	0.47 (0.18 ,1.25)	0.54
PE(P-40:5)	0.59 (0.22 ,1.56)	0.84	0.06 (0.02 ,0.25)	<b>1.83E-02</b>	0.02 (0.00 ,0.31)	0.42
PE(P-40:6)	0.90 (0.36 ,2.25)	0.91	0.16 (0.06 ,0.48)	<b>2.94E-02</b>	0.20 (0.05 ,0.79)	0.43
Total PE(P)	0.64 (0.25 ,1.63)	0.77	0.13 (0.05 ,0.37)	<b>2.97E-03</b>	0.35 (0.14 ,0.92)	0.16
LPE 16:0	1.75 (0.97 ,3.19)	0.80	1.71 (0.97 ,3.02)	0.25	1.01 (0.58 ,1.78)	0.98
LPE 18:0	1.05 (0.48 ,2.28)	0.96	1.00 (0.59 ,1.71)	1.00	1.16 (0.43 ,3.13)	0.89

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
LPE 18:1	2.25 (1.07 ,4.71)	0.80	2.02 (1.22 ,3.33)	0.07	1.42 (0.48 ,4.25)	0.73
LPE 18:2	2.73 (1.24 ,6.01)	0.80	2.57 (1.36 ,4.87)	<b>4.85E-02</b>	1.13 (0.58 ,2.20)	0.86
LPE 20:4	1.30 (0.55 ,3.09)	0.85	0.99 (0.54 ,1.83)	1.00	0.93 (0.31 ,2.80)	0.95
LPE 22:6	1.00 (0.53 ,1.91)	0.99	0.93 (0.52 ,1.65)	0.93	0.80 (0.28 ,2.32)	0.83
Total LPE	2.39 (1.05 ,5.47)	0.35	1.97 (1.04 ,3.74)	0.09	1.15 (0.44 ,3.03)	0.85
PI 32:0	1.20 (0.97 ,1.48)	0.80	1.22 (0.89 ,1.65)	0.45	0.97 (0.61 ,1.54)	0.95
PI 32:1	1.40 (0.97 ,2.02)	0.80	1.52 (0.97 ,2.38)	0.26	1.02 (0.42 ,2.45)	0.98
PI 34:0	1.17 (0.98 ,1.39)	0.80	1.17 (0.89 ,1.53)	0.49	0.94 (0.54 ,1.63)	0.92
PI 34:1	1.65 (0.97 ,2.80)	0.80	1.58 (0.88 ,2.85)	0.34	0.95 (0.37 ,2.40)	0.96
PI 36:1	1.67 (0.84 ,3.33)	0.81	1.15 (0.67 ,1.97)	0.83	0.69 (0.22 ,2.17)	0.73
PI 36:2	1.33 (0.62 ,2.85)	0.84	1.02 (0.53 ,1.96)	0.98	0.90 (0.25 ,3.26)	0.95
PI 36:3	1.48 (0.82 ,2.67)	0.84	1.39 (0.78 ,2.48)	0.49	1.09 (0.45 ,2.62)	0.94
PI 36:4	1.38 (0.69 ,2.74)	0.84	1.14 (0.52 ,2.50)	0.89	1.00 (0.43 ,2.29)	0.99
PI 38:2	1.62 (0.80 ,3.25)	0.84	1.01 (0.51 ,2.01)	1.00	0.91 (0.47 ,1.78)	0.90
PI 38:3	1.08 (0.54 ,2.17)	0.91	0.75 (0.41 ,1.37)	0.57	0.98 (0.32 ,3.05)	0.98
PI 38:4	0.75 (0.32 ,1.78)	0.84	0.53 (0.26 ,1.10)	0.28	0.78 (0.25 ,2.46)	0.83
PI 38:5	1.14 (0.59 ,2.23)	0.88	1.05 (0.57 ,1.94)	0.95	1.20 (0.41 ,3.55)	0.87
PI 38:6	1.38 (0.66 ,2.88)	0.84	1.06 (0.57 ,1.95)	0.95	0.87 (0.27 ,2.77)	0.92
PI 40:4	1.63 (0.67 ,3.97)	0.84	1.07 (0.53 ,2.16)	0.94	0.91 (0.25 ,3.29)	0.95
PI 40:5	0.88 (0.37 ,2.13)	0.90	1.10 (0.53 ,2.27)	0.93	1.83 (0.47 ,7.13)	0.61
PI 40:6	1.30 (0.59 ,2.89)	0.84	0.83 (0.42 ,1.62)	0.79	0.67 (0.23 ,1.97)	0.68
Total PI	1.36 (0.62 ,3.00)	0.81	0.89 (0.43 ,1.85)	0.78	0.91 (0.40 ,2.05)	0.85
LPI 18:1	1.51 (0.98 ,2.32)	0.80	1.15 (0.72 ,1.81)	0.79	0.66 (0.35 ,1.22)	0.55
LPI 18:2	1.61 (0.95 ,2.72)	0.80	1.44 (0.77 ,2.68)	0.49	0.59 (0.23 ,1.49)	0.57
LPI 20:4	1.64 (0.92 ,2.91)	0.80	1.07 (0.56 ,2.05)	0.94	0.53 (0.14 ,1.99)	0.60
Total LPI	1.66 (1.02 ,2.70)	0.35	1.24 (0.70 ,2.19)	0.66	0.50 (0.17 ,1.47)	0.39
PS 36:1	0.27 (0.07 ,0.97)	0.80	0.17 (0.04 ,0.65)	0.08	0.80 (0.47 ,1.38)	0.64
PS 36:2	0.23 (0.07 ,0.76)	0.80	0.18 (0.05 ,0.64)	0.07	0.74 (0.24 ,2.33)	0.80
PS 38:3	0.32 (0.10 ,1.00)	0.80	0.18 (0.05 ,0.68)	0.08	0.75 (0.41 ,1.36)	0.60

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
PS 38:4	0.24 (0.06 ,0.92)	0.80	0.07 (0.01 ,0.43)	<b>4.93E-02</b>	0.74 (0.44 ,1.25)	0.57
PS 40:5	0.41 (0.16 ,1.07)	0.80	0.17 (0.05 ,0.52)	<b>3.92E-02</b>	0.68 (0.35 ,1.34)	0.57
PS 40:6	0.35 (0.12 ,0.97)	0.80	0.14 (0.04 ,0.50)	<b>3.92E-02</b>	0.51 (0.22 ,1.20)	0.54
Total PS	0.26 (0.08 ,0.92)	0.35	0.10 (0.02 ,0.50)	<b>2.99E-02</b>	0.75 (0.43 ,1.31)	0.45
PG 34:1	0.74 (0.37 ,1.50)	0.84	1.08 (0.67 ,1.73)	0.91	1.51 (0.68 ,3.33)	0.60
PG 36:2	0.61 (0.23 ,1.59)	0.84	0.65 (0.33 ,1.27)	0.44	1.91 (0.50 ,7.34)	0.60
Total PG	0.57 (0.21 ,1.56)	0.77	0.82 (0.46 ,1.46)	0.67	1.60 (0.67 ,3.80)	0.45
COH	1.50 (0.76 ,2.95)	0.84	0.48 (0.25 ,0.92)	0.15	0.39 (0.14 ,1.09)	0.54
Total COH	1.50 (0.76 ,2.95)	0.77	0.48 (0.25 ,0.92)	0.07	0.39 (0.14 ,1.09)	0.23
CE 14:0	0.67 (0.30 ,1.50)	0.84	1.16 (0.65 ,2.09)	0.83	2.71 (0.69 ,10.59)	0.54
CE 15:0	0.80 (0.35 ,1.83)	0.86	1.09 (0.62 ,1.92)	0.91	1.75 (0.62 ,4.92)	0.58
CE 16:0	0.70 (0.26 ,1.86)	0.84	0.69 (0.33 ,1.43)	0.55	0.88 (0.24 ,3.14)	0.93
CE 16:1	1.06 (0.53 ,2.13)	0.93	1.57 (0.88 ,2.78)	0.34	1.92 (0.53 ,6.91)	0.60
CE 16:2	0.67 (0.27 ,1.64)	0.84	1.12 (0.60 ,2.10)	0.89	2.02 (0.53 ,7.72)	0.59
CE 17:0	0.83 (0.37 ,1.86)	0.87	0.53 (0.27 ,1.02)	0.23	0.78 (0.27 ,2.21)	0.81
CE 17:1	1.00 (0.49 ,2.06)	0.99	1.28 (0.68 ,2.44)	0.68	1.62 (0.59 ,4.45)	0.60
CE 18:0	1.16 (0.45 ,2.97)	0.90	0.33 (0.14 ,0.79)	0.09	0.62 (0.26 ,1.45)	0.57
CE 18:1	1.57 (0.77 ,3.17)	0.84	0.86 (0.45 ,1.63)	0.85	0.50 (0.16 ,1.58)	0.57
CE 18:2	0.61 (0.27 ,1.39)	0.84	0.79 (0.47 ,1.33)	0.59	0.97 (0.39 ,2.41)	0.98
CE 18:3	1.33 (0.62 ,2.88)	0.84	0.89 (0.44 ,1.79)	0.89	0.67 (0.21 ,2.14)	0.70
CE 20:1	1.88 (0.94 ,3.76)	0.80	0.35 (0.16 ,0.77)	0.08	0.41 (0.14 ,1.17)	0.54
CE 20:3	0.40 (0.11 ,1.49)	0.84	1.26 (0.56 ,2.79)	0.79	2.12 (0.69 ,6.51)	0.55
CE 20:4	0.56 (0.21 ,1.50)	0.84	0.58 (0.28 ,1.22)	0.36	0.83 (0.40 ,1.73)	0.81
CE 20:5	0.63 (0.26 ,1.56)	0.84	0.95 (0.57 ,1.57)	0.94	1.00 (0.35 ,2.80)	0.99
CE 22:0	1.27 (0.91 ,1.78)	0.84	0.58 (0.30 ,1.12)	0.31	0.69 (0.34 ,1.40)	0.59
CE 22:1	1.54 (0.88 ,2.70)	0.81	0.57 (0.27 ,1.19)	0.35	0.46 (0.16 ,1.32)	0.54
CE 22:4	1.08 (0.45 ,2.59)	0.92	1.00 (0.55 ,1.79)	1.00	1.01 (0.43 ,2.41)	0.98
CE 22:5	0.56 (0.21 ,1.51)	0.84	0.92 (0.44 ,1.94)	0.94	1.72 (0.42 ,6.98)	0.66
CE 22:6	0.68 (0.26 ,1.76)	0.84	0.70 (0.38 ,1.29)	0.49	0.69 (0.19 ,2.47)	0.75

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
CE 24:0	1.24 (0.94 ,1.63)	0.80	0.65 (0.31 ,1.36)	0.49	0.64 (0.27 ,1.49)	0.59
CE 24:1	1.60 (0.97 ,2.65)	0.80	0.80 (0.44 ,1.43)	0.68	0.59 (0.24 ,1.46)	0.57
Total CE	0.83 (0.32 ,2.15)	0.88	0.83 (0.40 ,1.73)	0.70	0.91 (0.32 ,2.56)	0.85
DG 14:0/16:0	0.93 (0.47 ,1.86)	0.91	1.52 (0.96 ,2.41)	0.27	1.53 (0.73 ,3.18)	0.57
DG 14:0/18:1	0.81 (0.43 ,1.52)	0.84	1.15 (0.70 ,1.91)	0.79	1.38 (0.72 ,2.64)	0.60
DG 14:0/18:2	0.88 (0.52 ,1.48)	0.86	1.15 (0.80 ,1.65)	0.69	1.49 (0.71 ,3.10)	0.58
DG 16:0/16:0	0.81 (0.46 ,1.43)	0.84	1.31 (0.95 ,1.80)	0.31	1.50 (0.77 ,2.94)	0.57
DG 16:0/18:0	0.52 (0.21 ,1.27)	0.84	1.33 (0.88 ,2.00)	0.40	2.02 (0.75 ,5.44)	0.55
DG 16:0/18:1	0.64 (0.24 ,1.67)	0.84	1.19 (0.71 ,1.99)	0.74	1.73 (0.75 ,4.01)	0.55
DG 16:0/18:2	0.76 (0.36 ,1.58)	0.84	1.05 (0.76 ,1.44)	0.91	1.53 (0.76 ,3.05)	0.57
DG 16:0/20:3	0.86 (0.45 ,1.67)	0.87	1.27 (0.89 ,1.81)	0.43	1.82 (0.83 ,3.95)	0.54
DG 16:0/20:4	0.81 (0.41 ,1.59)	0.85	1.10 (0.86 ,1.42)	0.67	2.18 (0.73 ,6.53)	0.54
DG 16:0/22:5	0.85 (0.44 ,1.64)	0.86	1.06 (0.67 ,1.68)	0.93	1.39 (0.53 ,3.67)	0.70
DG 16:0/22:6	0.91 (0.55 ,1.50)	0.88	0.83 (0.50 ,1.40)	0.73	0.91 (0.39 ,2.13)	0.93
DG 16:1/18:1	0.67 (0.27 ,1.69)	0.84	1.39 (0.77 ,2.51)	0.50	1.68 (0.75 ,3.77)	0.55
DG 18:0/18:1	0.51 (0.18 ,1.46)	0.84	1.02 (0.63 ,1.64)	0.98	1.68 (0.74 ,3.79)	0.55
DG 18:0/18:2	0.62 (0.27 ,1.41)	0.84	0.99 (0.70 ,1.39)	0.98	1.51 (0.72 ,3.16)	0.57
DG 18:0/20:4	0.70 (0.36 ,1.35)	0.84	0.64 (0.35 ,1.16)	0.35	0.92 (0.42 ,1.98)	0.92
DG 18:1/18:1	0.63 (0.25 ,1.63)	0.84	0.92 (0.57 ,1.47)	0.89	1.56 (0.62 ,3.89)	0.60
DG 18:1/18:2	0.69 (0.31 ,1.54)	0.84	0.93 (0.60 ,1.44)	0.90	1.61 (0.56 ,4.65)	0.61
DG 18:1/18:3	0.72 (0.30 ,1.76)	0.84	0.92 (0.58 ,1.45)	0.89	1.39 (0.58 ,3.35)	0.67
DG 18:1/20:3	0.99 (0.59 ,1.66)	0.99	1.05 (0.76 ,1.45)	0.91	1.09 (0.59 ,2.01)	0.89
DG 18:1/20:4	0.76 (0.33 ,1.74)	0.84	1.02 (0.74 ,1.41)	0.96	1.47 (0.54 ,4.01)	0.66
DG 18:2/18:2	0.73 (0.36 ,1.50)	0.84	0.96 (0.68 ,1.34)	0.93	1.53 (0.60 ,3.88)	0.61
Total DG	0.61 (0.23 ,1.58)	0.77	1.02 (0.67 ,1.56)	0.93	1.63 (0.75 ,3.53)	0.39
TG 14:0/16:0/18:1	0.72 (0.36 ,1.44)	0.84	1.46 (0.77 ,2.79)	0.49	2.80 (0.70 ,11.23)	0.54
TG 14:0/16:0/18:2	0.84 (0.43 ,1.66)	0.86	1.45 (0.87 ,2.39)	0.36	2.05 (0.70 ,5.99)	0.55
TG 14:0/16:1/18:1	0.74 (0.31 ,1.76)	0.84	1.41 (0.82 ,2.44)	0.45	2.35 (0.72 ,7.67)	0.54
TG 14:0/16:1/18:2	0.81 (0.40 ,1.64)	0.85	1.22 (0.89 ,1.67)	0.44	1.65 (0.79 ,3.46)	0.55

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
TG 14:0/17:0/18:1	0.78 (0.36 ,1.67)	0.84	1.68 (0.89 ,3.18)	0.31	4.08 (0.86 ,19.45)	0.54
TG 14:0/18:0/18:1	0.68 (0.31 ,1.50)	0.84	1.44 (0.89 ,2.34)	0.35	3.00 (0.62 ,14.64)	0.55
TG 14:0/18:2/18:2	0.77 (0.37 ,1.62)	0.84	1.09 (0.85 ,1.39)	0.73	1.65 (0.72 ,3.78)	0.57
TG 14:1/16:0/18:1	0.71 (0.32 ,1.61)	0.84	1.59 (0.83 ,3.05)	0.37	2.90 (0.69 ,12.12)	0.54
TG 14:1/16:1/18:0	0.97 (0.42 ,2.24)	0.98	1.49 (0.92 ,2.41)	0.31	2.08 (0.63 ,6.88)	0.57
TG 14:1/18:0/18:2	1.04 (0.63 ,1.70)	0.94	1.28 (0.84 ,1.95)	0.49	1.77 (0.56 ,5.62)	0.60
TG 14:1/18:1/18:1	0.77 (0.37 ,1.62)	0.84	1.20 (0.81 ,1.78)	0.58	2.27 (0.71 ,7.21)	0.55
TG 15:0/16:0/18:1	0.84 (0.38 ,1.89)	0.87	1.63 (0.90 ,2.95)	0.31	3.21 (0.73 ,13.99)	0.54
TG 15:0/18:1/18:1	0.92 (0.47 ,1.79)	0.90	1.20 (0.66 ,2.19)	0.78	2.10 (0.50 ,8.85)	0.60
TG 16:0/16:0/16:0	0.85 (0.53 ,1.36)	0.84	1.40 (0.96 ,2.05)	0.28	2.31 (0.61 ,8.81)	0.57
TG 16:0/16:0/18:0	0.67 (0.34 ,1.34)	0.84	1.30 (0.96 ,1.78)	0.30	2.87 (0.58 ,14.24)	0.55
TG 16:0/16:0/18:1	0.69 (0.31 ,1.54)	0.84	1.52 (0.83 ,2.79)	0.41	2.50 (0.76 ,8.18)	0.54
TG 16:0/16:0/18:2	0.72 (0.30 ,1.73)	0.84	1.22 (0.81 ,1.84)	0.56	2.00 (0.74 ,5.45)	0.55
TG 16:0/16:1/17:0	0.76 (0.34 ,1.68)	0.84	1.62 (0.89 ,2.94)	0.33	3.41 (0.78 ,14.93)	0.54
TG 16:0/16:1/18:1	0.66 (0.27 ,1.61)	0.84	1.26 (0.75 ,2.11)	0.60	1.81 (0.80 ,4.09)	0.54
TG 16:0/17:0/18:0	0.74 (0.40 ,1.38)	0.84	1.33 (0.93 ,1.90)	0.33	3.13 (0.70 ,14.02)	0.54
TG 16:0/17:0/18:1	0.66 (0.29 ,1.49)	0.84	1.37 (0.76 ,2.48)	0.52	4.55 (0.83 ,25.11)	0.54
TG 16:0/17:0/18:2	0.59 (0.25 ,1.42)	0.84	1.21 (0.68 ,2.13)	0.74	4.18 (0.80 ,21.94)	0.54
TG 16:0/18:0/18:1	0.58 (0.25 ,1.34)	0.84	1.20 (0.78 ,1.84)	0.64	2.40 (0.66 ,8.67)	0.55
TG 16:0/18:1/18:1	0.66 (0.28 ,1.57)	0.84	0.91 (0.52 ,1.59)	0.89	1.56 (0.59 ,4.11)	0.60
TG 16:0/18:1/18:2	0.64 (0.27 ,1.54)	0.84	0.92 (0.58 ,1.47)	0.89	1.54 (0.61 ,3.93)	0.60
TG 16:0/18:2/18:2	0.73 (0.32 ,1.62)	0.84	0.97 (0.69 ,1.37)	0.95	1.51 (0.63 ,3.61)	0.60
TG 16:1/16:1/16:1	1.05 (0.52 ,2.14)	0.94	1.43 (0.90 ,2.26)	0.34	1.90 (0.57 ,6.34)	0.59
TG 16:1/16:1/18:0	0.75 (0.32 ,1.73)	0.84	1.37 (0.94 ,2.01)	0.31	2.20 (0.67 ,7.27)	0.55
TG 16:1/16:1/18:1	0.89 (0.37 ,2.13)	0.90	1.32 (0.75 ,2.33)	0.56	1.62 (0.62 ,4.25)	0.60
TG 16:1/17:0/18:1	0.80 (0.39 ,1.66)	0.85	1.22 (0.63 ,2.35)	0.78	2.66 (0.63 ,11.21)	0.55
TG 16:1/18:1/18:1	0.82 (0.39 ,1.74)	0.86	1.02 (0.65 ,1.59)	0.98	1.41 (0.68 ,2.92)	0.60
TG 16:1/18:1/18:2	0.80 (0.39 ,1.68)	0.85	0.99 (0.63 ,1.55)	0.99	1.63 (0.56 ,4.79)	0.61
TG 17:0/18:1/18:1	0.73 (0.34 ,1.57)	0.84	0.89 (0.52 ,1.54)	0.87	1.55 (0.49 ,4.92)	0.66

Predictor	UC Vs Control		CD Vs Control		UC Vs CD	
	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*	IQR Odds Ratio	<i>p</i> -value*
TG 18:0/18:0/18:0	0.57 (0.25 ,1.26)	0.84	1.10 (0.91 ,1.33)	0.56	3.28 (0.67 ,16.02)	0.54
TG 18:0/18:0/18:1	0.56 (0.23 ,1.37)	0.84	1.07 (0.86 ,1.34)	0.75	2.10 (0.64 ,6.91)	0.57
TG 18:0/18:1/18:1	0.64 (0.22 ,1.87)	0.84	1.00 (0.71 ,1.41)	1.00	1.95 (0.70 ,5.44)	0.55
TG 18:0/18:2/18:2	0.74 (0.33 ,1.67)	0.84	1.01 (0.82 ,1.24)	0.97	1.96 (0.71 ,5.40)	0.55
TG 18:1/18:1/18:1	0.93 (0.56 ,1.54)	0.90	0.99 (0.71 ,1.38)	0.98	1.51 (0.57 ,3.99)	0.63
TG 18:1/18:1/18:2	0.85 (0.44 ,1.64)	0.86	1.04 (0.73 ,1.48)	0.93	1.73 (0.67 ,4.42)	0.57
TG 18:1/18:1/20:4	0.75 (0.35 ,1.61)	0.84	0.94 (0.65 ,1.36)	0.90	1.35 (0.58 ,3.14)	0.69
TG 18:1/18:1/22:6	0.80 (0.38 ,1.67)	0.85	0.97 (0.71 ,1.33)	0.94	1.28 (0.58 ,2.79)	0.73
TG 18:1/18:2/18:2	0.91 (0.50 ,1.65)	0.90	1.02 (0.76 ,1.38)	0.96	1.65 (0.57 ,4.78)	0.60
TG 18:2/18:2/18:2	0.83 (0.40 ,1.72)	0.86	1.03 (0.82 ,1.29)	0.92	1.68 (0.60 ,4.67)	0.60
TG 18:2/18:2/20:4	0.89 (0.45 ,1.75)	0.90	1.00 (0.76 ,1.33)	1.00	1.34 (0.64 ,2.79)	0.65
Total TG	0.63 (0.25 ,1.60)	0.77	1.13 (0.73 ,1.76)	0.70	2.23 (0.77 ,6.48)	0.30

\**p*-values are corrected for multiple comparisons with Benjamini-Hochberg method.