



Supplemental Figure 1. Changes in COVID-19 patient serum polar metabolites and lipid classes. (A) Autoscaled mean of each group for significantly varied polar molecules between disease vs. healthy or severe vs. moderate comparison. (B-M) Combined lipidomic datasets comparing moderate to healthy, severe to healthy or severe to moderate via unpaired t-test. PUFA-containing lipids (B-D), PE-plasmalogen (E-G), cholesterol esters (H-J), lyso-phospholipids (K-M) are overlaid. Horizontal dotted lines represent the p-value cutoff for an FDR of 10 % (moderate vs. healthy: 0.050, severe vs. healthy: 0.032, severe vs. moderate: 0.017). Vertical dotted lines reflect a positive or negative 2-fold change in signal. (N-P) Volcanos plots of the LM dataset with lipid species colored by their parent PUFA.

Supplemental Table 1. Patient demographics, preexisting conditions and treatment distributions.

Patient data were compared using the chi-square test or Fisher's exact test for categorical variables and one-way analysis of variance (ANOVA) or unpaired t test was used for continuous variables. *, Fisher's exact test between moderate and severe patients (no significant differences between these groups in all demographic categories).

	Healthy (n=19)	Moderate (n=18)	Severe (n=20)	p-value
Demographics				
Mean Age ± SD (Range)	42.7 ± 14.92 (21-72)	60.56 ± 14.11 (26-92)	63.6 ± 15.17 (32-91)	<0.001/0.8045*
Mean BMI ± SD (Range)		29.65 ± 8.37 (19.49-55.04)	31.08 ± 5.84 (22.87-44)	0.5402
Gender, n (%)				0.6391
Male	9 (47.37%)	11 (61.11%)	12 (60%)	
Female	10 (52.63%)	7 (38.89%)	8 (40%)	
Race, n (%)				0.8932
White	15 (78.95%)	13 (72.22%)	14 (70%)	
Black	2 (10.53%)	2 (11.11%)	3 (15%)	
Hispanic	1 (5.26%)	2 (11.11%)	3 (15%)	
Asian	1 (5.26%)	1 (5.56%)	0 (0%)	
Comorbidities				
Heart disease		5 (27.78%)	10 (50%)	0.1983
Hyperlipidemia		4 (22.22%)	6 (30%)	0.719
Hypertension		10 (55.56%)	15 (75%)	0.3071
Chronic lung diseases		1 (5.56%)	4 (20%)	0.3436
Diabetes		5 (27.78%)	7 (35%)	0.7342
Therapies				
Tocilizumab		9 (50%)	18 (90%)	0.0113
Hydroxychloroquine		13 (72.22%)	20 (100%)	0.0171
Steroids		2 (11.11%)	8 (40%)	0.0673
Antiviral				0.5292
Azatanavir		11 (61.11%)	13 (65%)	
Remdesivir trial		2 (11.11%)	4 (20%)	
Mechanical ventilation		0 (0%)	13 (65%)	<0.0001
Intensive Care Unit		0 (0%)	20 (100%)	<0.0001
Admission to draw date (days)		3 ± 1	4 ± 2	0.0435