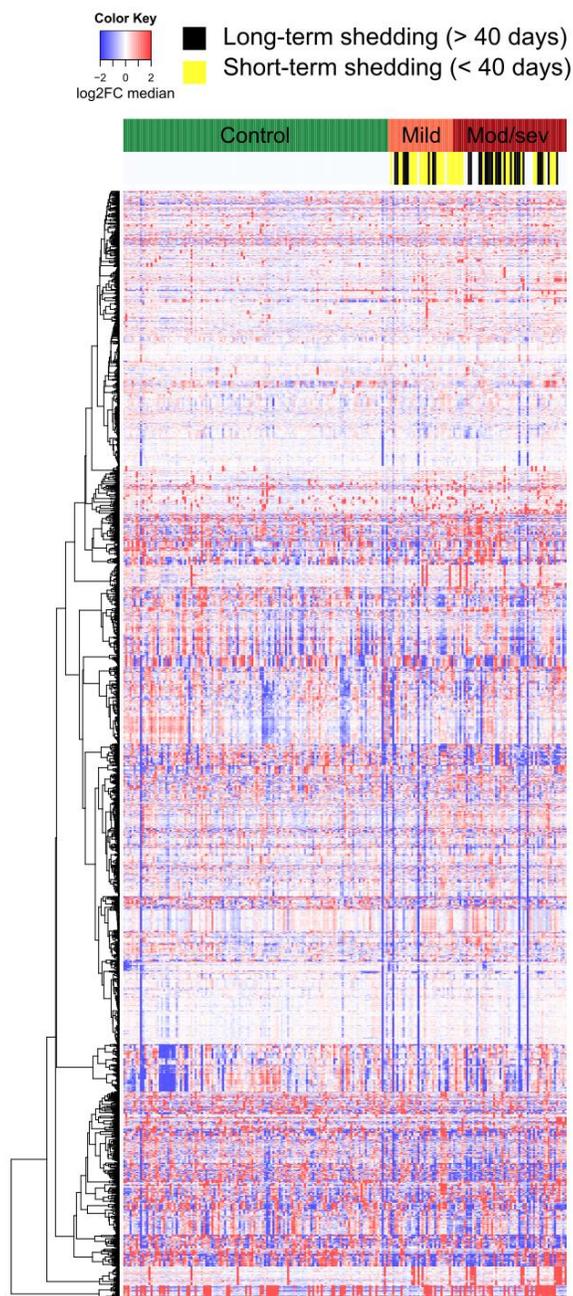
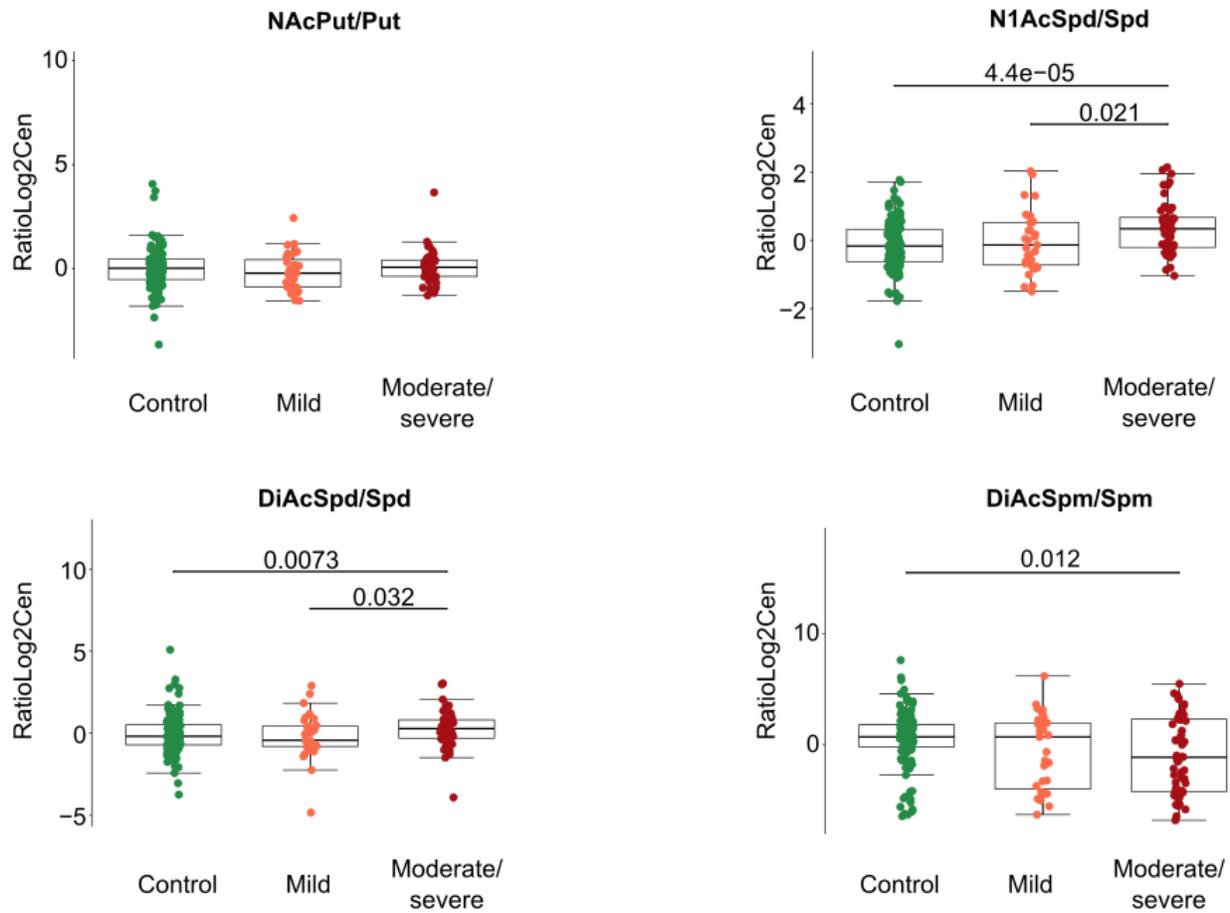


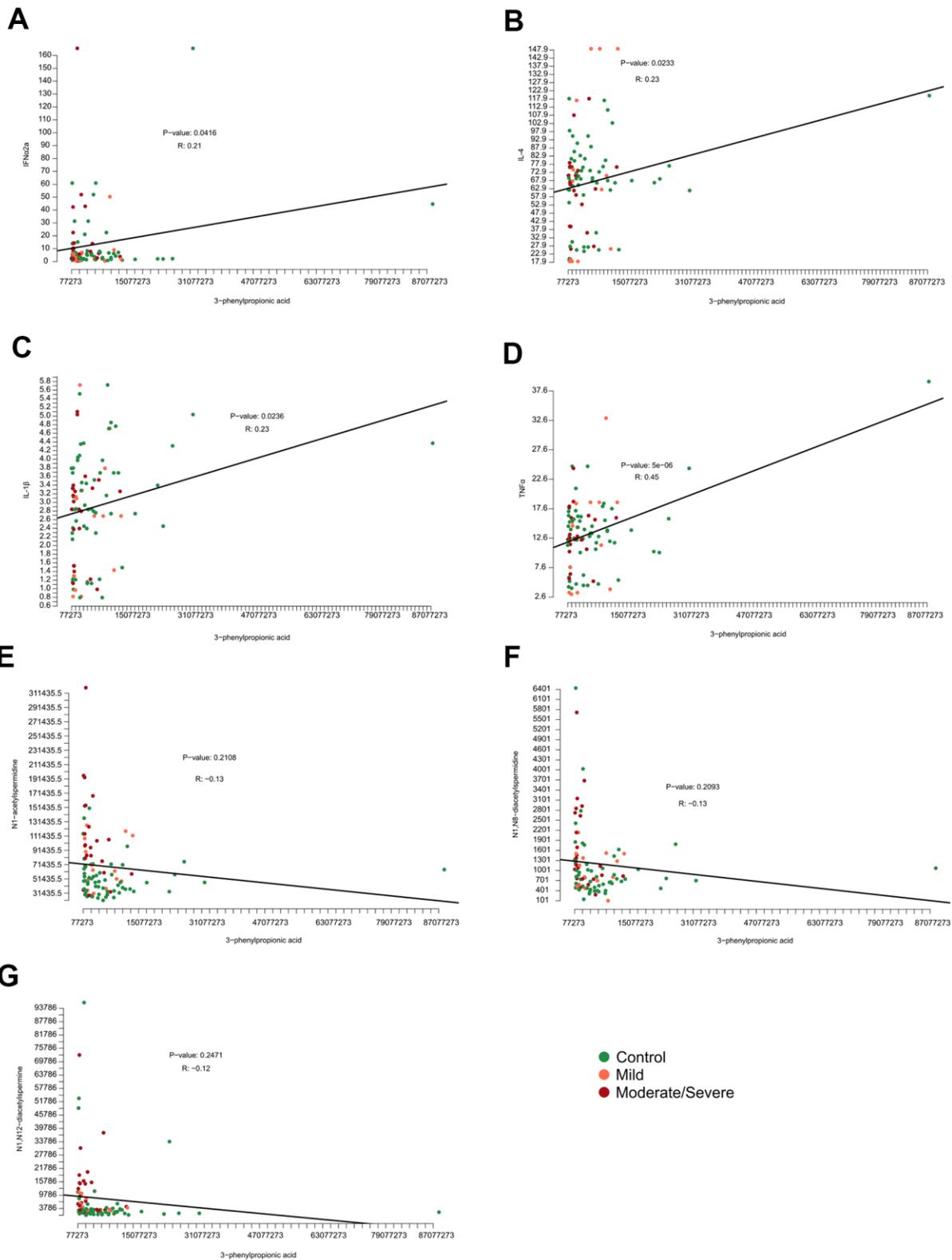
SUPPLEMENTARY FIGURES



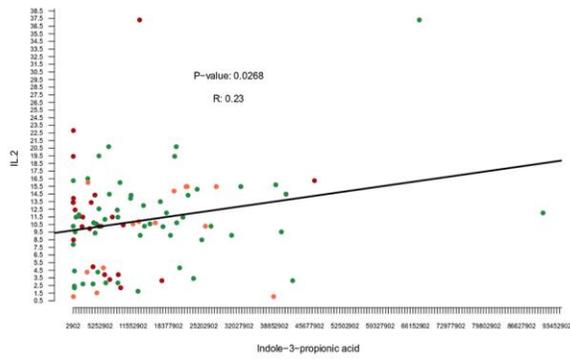
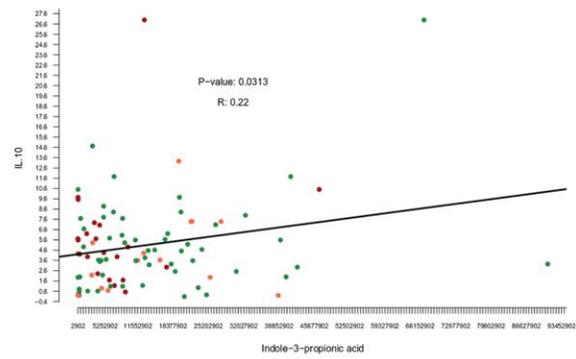
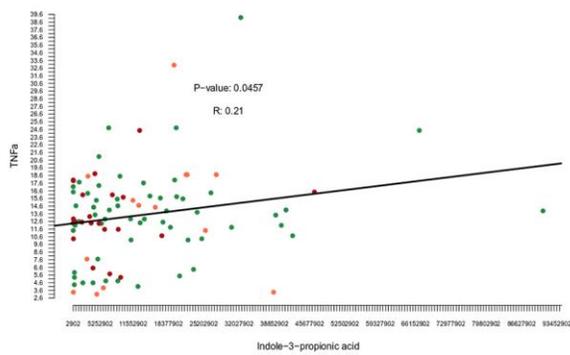
Supplementary Figure 1. Heatmap representing the serum metabolome of each individual cancer patients clustered by clinical severity of Covid-19. Untargeted metabolomic data on 211 serum samples from 204 patients were normalized area of non-identified mass spectrometric peaks. Results are listed in Supplementary Table 2.



Supplementary Figure 2. Ratios of acetylated over non-acetylated polyamines in cancer patients with different levels of Covid-19 severity. The ratios were calculated as Log^2Cen of the areas of mass spectrometric peaks of N_1 -acetylputrescine (NAcPut) over putrescine (Put), N_1 -acetylspermidine (N_1AcSpd) or N_1, N_8 -diacetylspermidine (DiAcSpd) over spermidine (Spd), or $\text{N}_1, \text{N}_{12}$ -diacetylspermine (DiAcSpm) over spermine (Spm). Black bars indicate p-values.

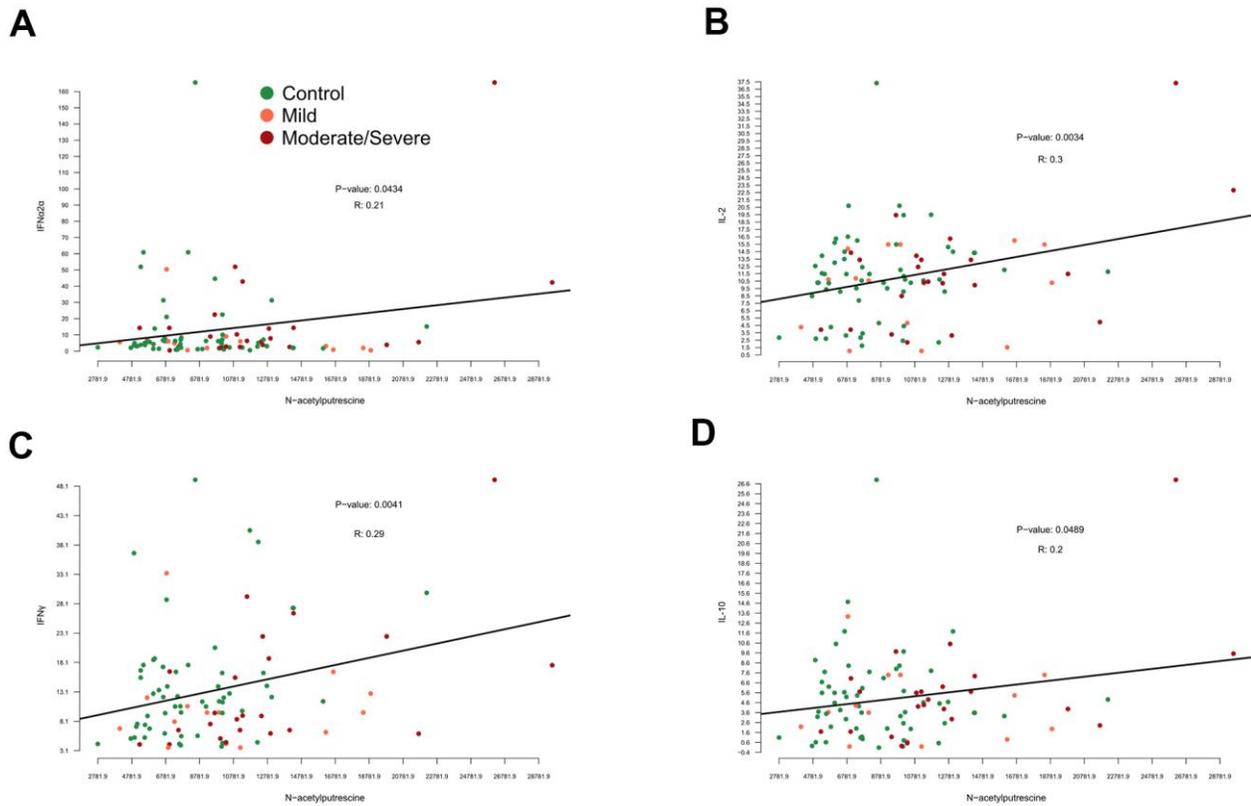


Supplementary Figure 3. Correlation of 3-phenylpropionic acid with immune parameters. Levels of 3-phenylpropionic acid was plotted against the concentrations of (A) interferon- α 2a (IFN α 2a), (B) interleukin-4 (IL-4), (C) Interleukin-1 β (IL-1 β), and (D) tumor necrosis factor alpha (TNF α), (E) N₁-acetylspermidine, (F) N₁,N₈-diacetylspermidine and (G) N₁,N₁₂-diacetylspermidine.

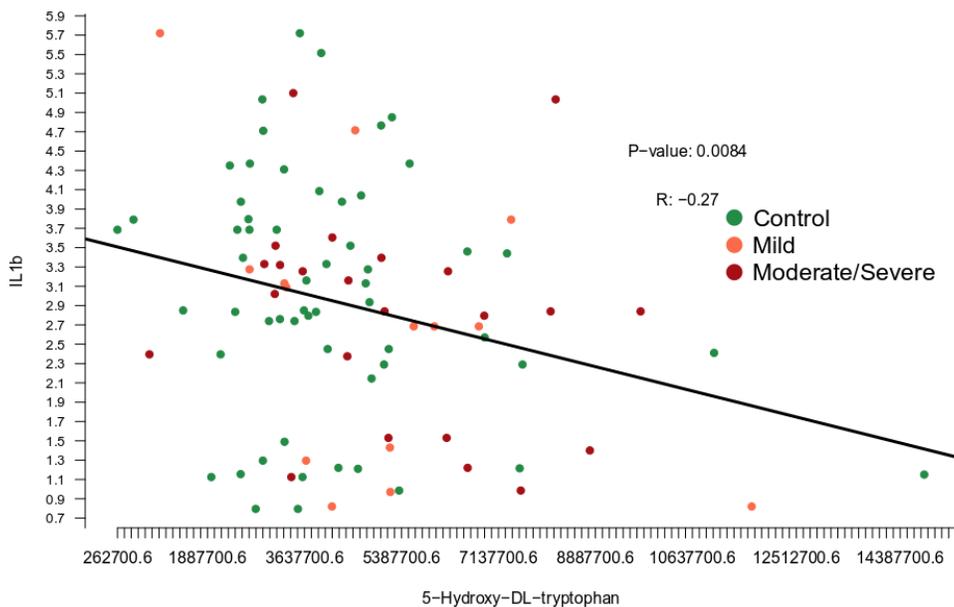
A**B****C**

● Control
 ● Mild
 ● Moderate/Severe

Supplementary Figure 4. Correlation of indole-3-propionic acid with immune parameters. Levels of indole-3-propionic acid was plotted against the concentrations of (A) interleukin-2 (IL-2), (B) interleukin-10 (IL-10), (C) tumor necrosis factor alpha (TNFα).



Supplementary Figure 5. Correlation of N-acetylputrescine with immune parameters. Levels of N-acetylputrescine were plotted against the concentration of (A) interferon- α 2a (IFN α 2a), (B) interleukin-2 (IL-2), (C) interferon- γ (IFN γ) and (D) interleukin-10 (IL-10).



Supplementary Figure 6. Correlation of 5-Hydroxy-DL-tryptophan with interleukin-1 β (IL-1 β) levels. Levels of 5-Hydroxy-DL-tryptophan were plotted against the concentration of Interleukin-1 β (IL-1 β).