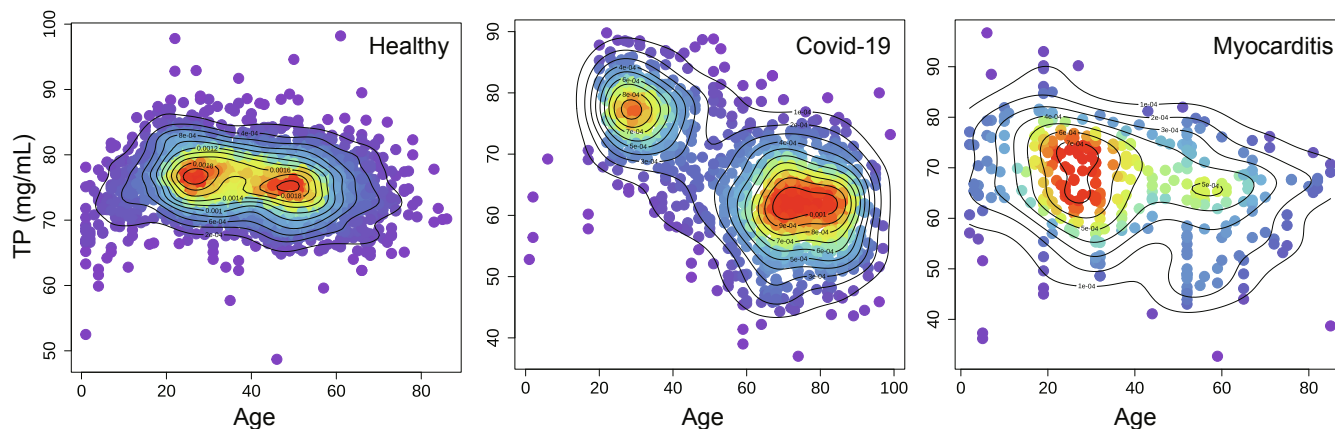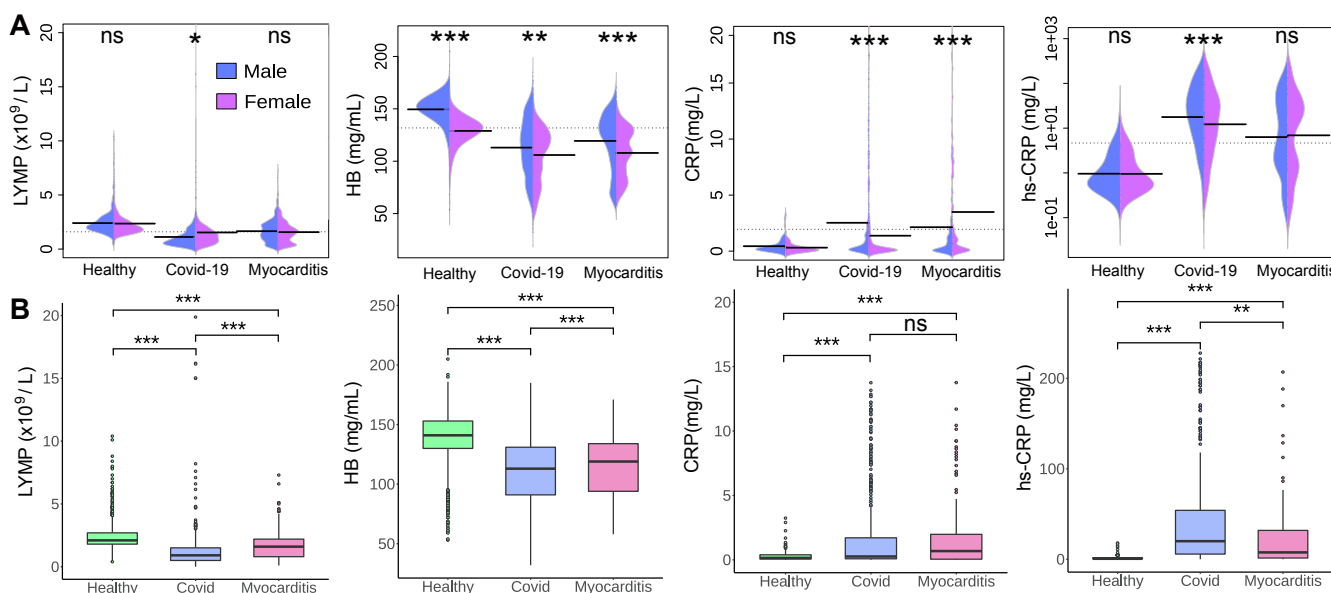**Supplemental information**

Decoding acute myocarditis in patients

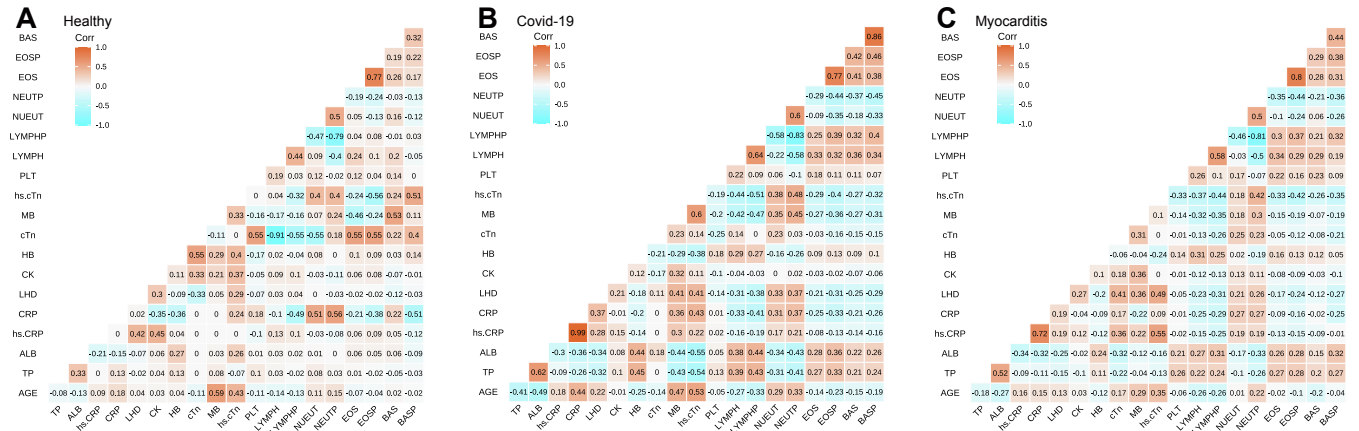# with COVID-19: Early detection through machine

learning and hematological indices

Haiyang Li, Zhangkai J. Cheng, Xing Fu, Mingtao Liu, Peng Liu, Wenhan Cao, Zhiman Liang, Fei Wang, and Baoqing Sun
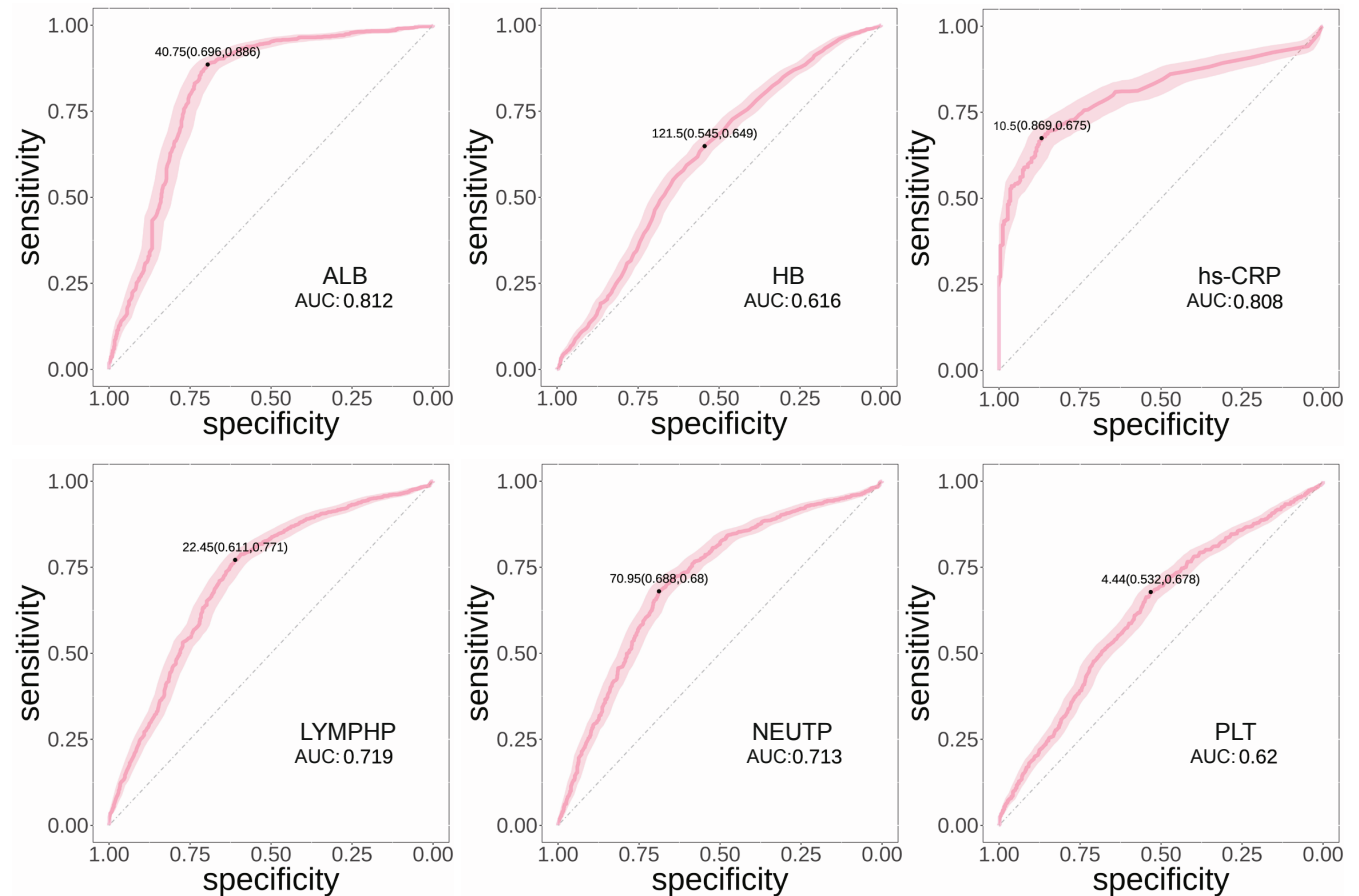
Supplementary Figure 1 The correlation analysis results of the samples. The groups are the healthy population, COVID-19 patients and myocarditis patients, respectively.
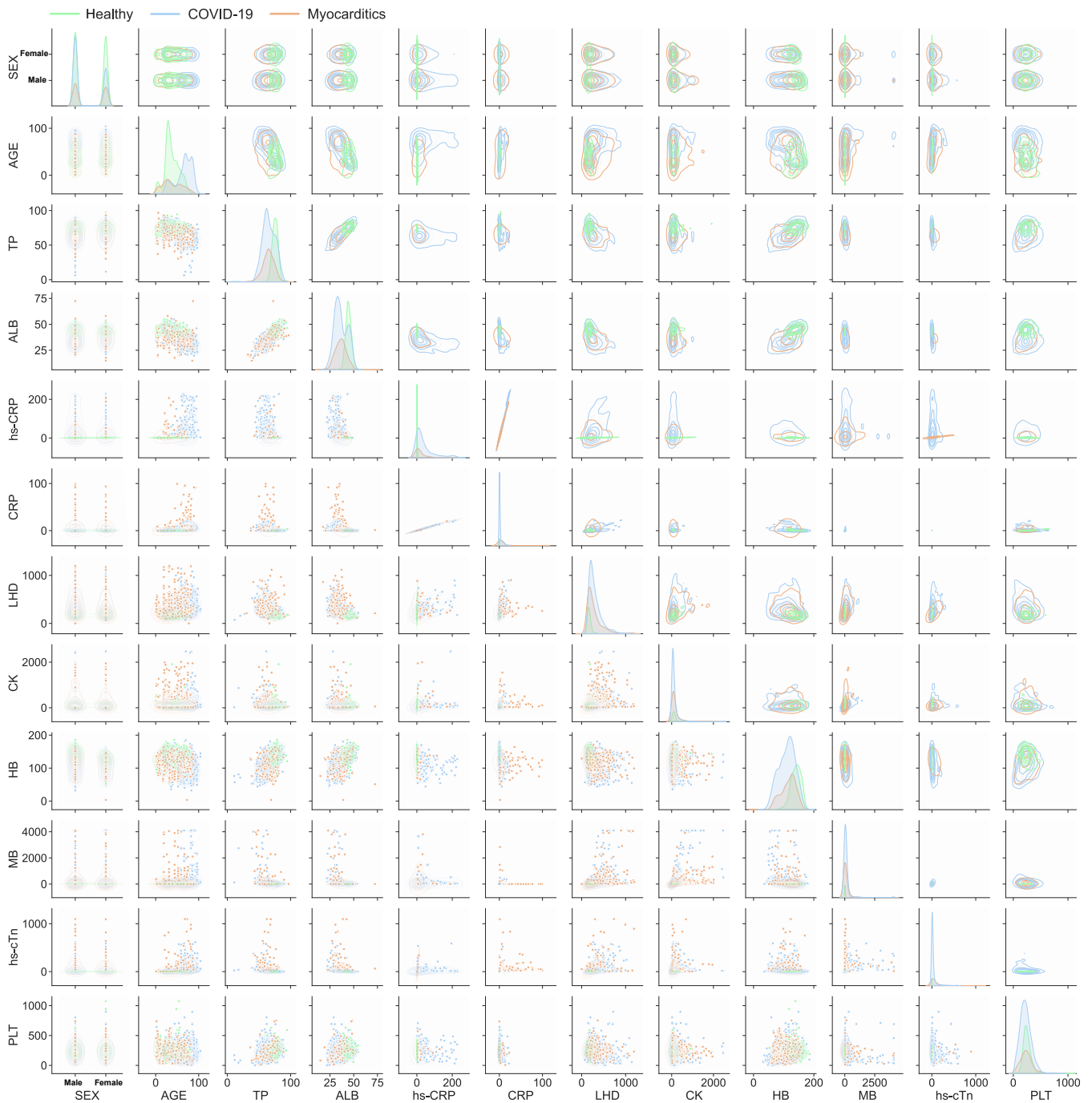

Supplementary Figure 2 The distribution and group statistical significance analysis results of a single indicator (LYMP, HB, CRP, hs-CRP) in the healthy population, COVID-19. Myocarditis patients groups. A) Gender statistical significance distribution. **B**) Group statistical significance distribution. Interquartile range, the mean ± SD and t-test, where a statistically significant difference is denoted by *** (p < 0.001), **(p < 0.01), and * (p < 0.05), and non-significance (p > 0.05) is denoted by "ns".

Supplementary Figure 3 The correlation analysis results of the samples. A) Healthy population. **B**) COVID-19 patients. **C**) Myocarditis patients.

Supplementary Figure 4 The ROC curve performance of Bayes single index prediction model under different indicators.

Supplementary Figure 5 Paired correlation graph between all indicators. The distribution (lower) and concentrated dispersion (upper) of indicators among each group.

Supplementary Figure 6 Analysis and comparison of indicators among different COVID-19 variants (BA.5.2 VS EG.5).
A) The gender distribution of EG.5 variant participants. **B**) The age distribution of EG.5 variant participants. **C**) The correlation analysis results of BA. 5.2 and EG.5 variant. **D**) The ALB/GLB distribution of BA. 5.2 and EG.5 variant. **E**) The LYMPHP/NEUTP distribution of BA. 5.2 and EG.5 variant.**F**) The significance analysis of differences among indicators of BA.5.2 and EG.5 variant. Interquartile range, the mean ± SD and t-test, where a statistically significant differe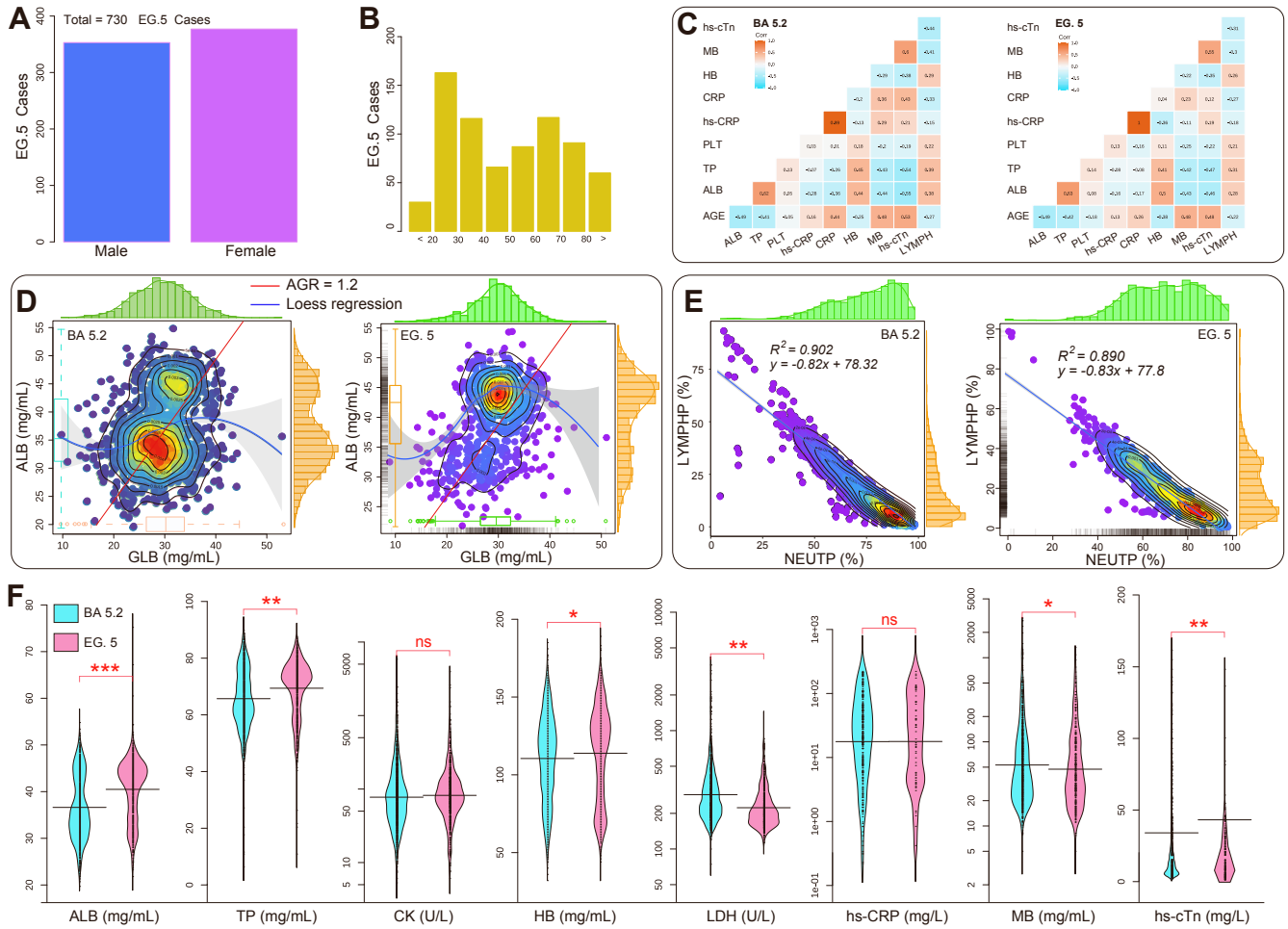nce is denoted by *** ($p < 0.001$), **($p < 0.01$), and * ($p < 0.05$), and non-significance ($p > 0.05$) is denoted by "ns".

TABLE S1 The model performance of the single indicator model and the multi-indicator model and the Youden's Index

Indicator	AUC	Sensitivity	Specificity	Youden's index
CK	0.657	0.735	0.488	0.223
LDH	0.684	0.983	0.514	0.497
MB	0.547	0.763	0.451	0.214
hs-cTn	0.796	0.763	0.732	0.495
ALB	0.812	0.696	0.886	0.582
HB	0.616	0.545	0.649	0.194
hs-CRP	0.808	0.869	0.675	0.544
LYMPHP	0.719	0.611	0.711	0.322
NEUTP	0.713	0.688	0.680	0.368
PLT	0.620	0.532	0.678	0.210
Myocardial biomarkers	0.887	0.917	0.776	0.693
Composite indicator	0.924	0.905	0.851	0.756