

**Supplementary Table 1. Laboratory results of patients with SARS-CoV-2 infection**

	①Mild (n=30)	②Severe (n=20)	③ Extremely severe (n=15)	<i>p</i> value		
				① vs ②	① vs ③	② vs ③
<b>Blood routine</b>						
Leucocytes (× 10 <sup>9</sup> /L)	5.2(2.4)	6.9(3.8)	8.7(4.1)	0.081	<0.001	0.086
Neutrophils (× 10 <sup>9</sup> /L)	3.8(2.4)	5.7(3.7)	7.7(3.9)	0.020	<0.001	0.060
Lymphocytes (× 10 <sup>9</sup> /L)	0.9(0.4)	0.8(0.4)	0.5(0.2)	0.151	<0.001	0.028
Monocytes (× 10 <sup>9</sup> /L)	0.4(0.2)	0.4(0.2)	0.5(0.4)	0.774	0.426	0.243
Eosinophils (× 10 <sup>9</sup> /L)	0.06(0.08)	0.02(0.03)	0.03(0.1)	0.062	0.046	0.763
Basophils (× 10 <sup>9</sup> /L)	0.01(0.01)	0.01(0.01)	0.01(0.01)	0.164	0.797	0.137
Red blood cells (× 10 <sup>12</sup> /L)	4(0.7)	4.2(0.5)	4.1(0.7)	0.470	0.923	0.582
Hemoglobin (g/L)	126.6(15.5)	129.4(15.8)	121.9(18)	0.428	0.300	0.257
Platelets (× 10 <sup>9</sup> /L)	230(82.6)	200.7(89)	185.9(121.9)	0.188	0.075	0.377
<b>Biochemistry</b>						
Alanine aminotransferase (U/L)	32.7(24.7)	35.1(23.4)	52.5(83.9)	0.559	0.555	0.987
Aspartate aminotransferase (U/L)	33.7(20.5)	41.7(18.2)	43.2(29)	0.111	0.185	0.764
Total protein (g/L)	69.9(5.2)	67.5(7.4)	66.4(6)	0.137	0.015	0.828
Albumin (g/L)	34.2(5.7)	32.5(4.5)	30.6(5.7)	0.312	0.018	0.162
Globulin (g/L)	35.6(4.8)	35(4.3)	35.8(4.6)	0.663	0.838	0.701
Total bilirubin (μmol/L)	8.5(4.3)	9.5(2.4)	13.9(6.1)	0.209	0.005	0.022
γ-glutamyl transpeptidase (U/L)	57.5(81.2)	47.2(41.8)	63.5(46.7)	0.440	0.028	0.117
Alkaline phosphatase (U/L)	78.5(42.3)	64.8(23.3)	89.1(35.7)	0.428	0.118	0.024
Lactate dehydrogenase (U/L)	305.6(103.7)	424.1(162.6)	542.5(220.9)	0.006	<0.001	0.138
Blood urea nitrogen (mmol/L)	3.9(1.9)	5.8(3.4)	6.4(2.2)	0.016	<0.001	0.257
Serum creatinine (μmol/L)	65.2(21.4)	81.9(28.1)	69.4(18.8)	0.014	0.373	0.250
<b>Coagulation function</b>						
Activated partial thromboplastin time (s)	39.9(5.4)	42.4(7.3)	39.7(7.3)	0.294	0.674	0.205
Prothrombin time (s)	14.1(1)	14.3(1.1)	15.1(1.9)	0.494	0.089	0.230
Fibrinogen (g/L)	5.2(1.4)	5.8(1.2)	7.1(5.8)	0.098	0.782	0.359
D-dimer (μg/mL)	1.6(3)	4.7(7.4)	6.9(8.4)	0.081	<0.001	0.086
<b>Infection biomarkers</b>						
Procalcitonin (ng/ml)	0.1(0.4)	0.3(0.6)	0.8(1.2)	0.008	<0.001	0.021
C-reactive protein (mg/L)	53.6(57.7)	91.8(77.8)	114.9(62.5)	0.022	0.002	0.086
Serum ferritin (ng/mL)	821.1(651.9)	1331(1205)	1368(638.8)	0.094	0.003	0.342

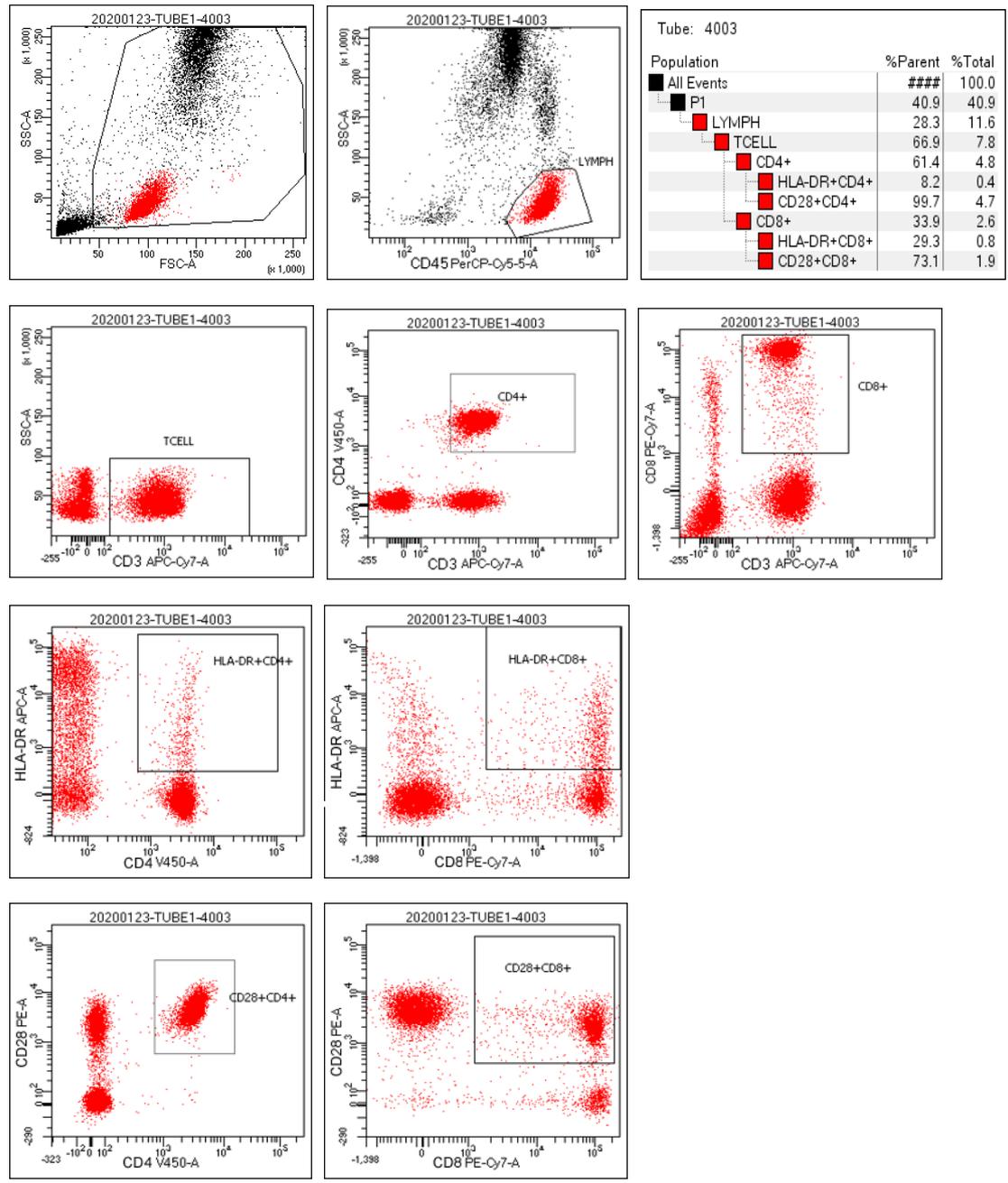
Erythrocyte sedimentation rate (mm/h)	41.8(24.3)	48.8(29.1)	46.2(30)	0.488	0.718	0.629
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Data are n (%), mean (SD). SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

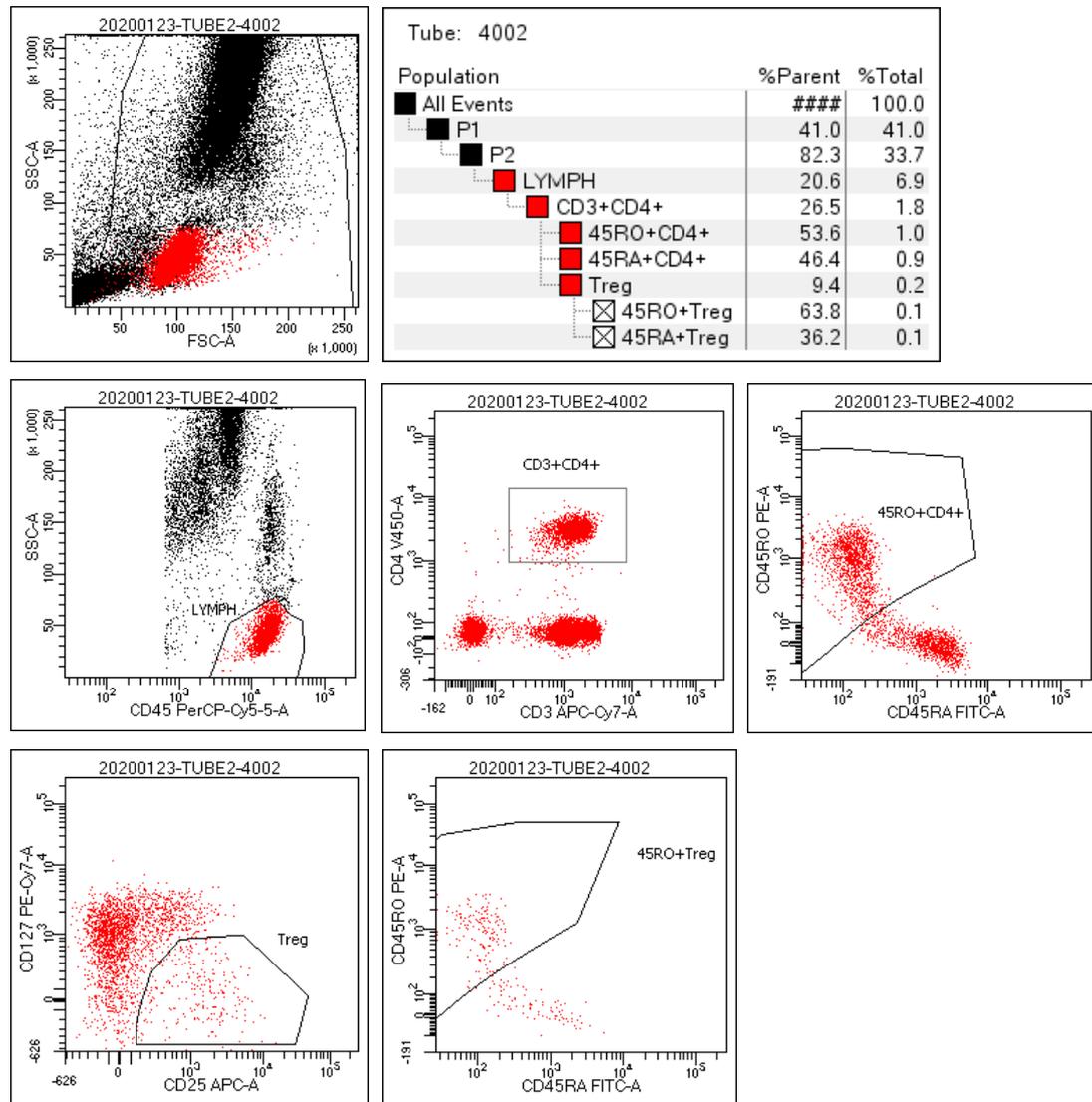
**Supplementary Table 2. The normal ranges of laboratory tests**

	Normal range
<b>Blood routine</b>	
Leucocytes ( $\times 10^9/L$ )	3.5-9.5
Neutrophils ( $\times 10^9/L$ )	1.8-6.3
Lymphocytes ( $\times 10^9/L$ )	1.1-3.2
Monocytes ( $\times 10^9/L$ )	0.1-0.6
Eosinophils ( $\times 10^9/L$ )	0.02-0.52
Basophils ( $\times 10^9/L$ )	0-0.1
Red blood cell ( $\times 10^{12}/L$ )	Male: 4.3-5.8; Female: 3.8-5.1
Hemoglobin (g/L)	Male: 130-175; Female: 115-150
Platelets ( $\times 10^9/L$ )	125-350
<b>Blood biochemistry</b>	
Alanine aminotransferase (U/L)	Male: $\leq 41$ ; Female: $\leq 32$
Aspartate aminotransferase (U/L)	Male: $\leq 40$ ; Female: $\leq 32$
Total protein (g/L)	65-85 g/L
Albumin (g/L)	35-52 g/L
Globulin(g/L)	20-35 g/L
$\gamma$ -glutamyl transpeptidase (U/L)	Male: 10-71; Female: 6-42
Alkaline phosphatase (U/L)	Male: 40-130; Female: 35-105
Total bilirubin ( $\mu\text{mol/L}$ )	Male: $\leq 26$ ; Female: $\leq 21$
Lactate dehydrogenase (U/L)	Male: 135-225; Female: 135-214
Blood urea nitrogen (mmol/L)	Male: 3.1-8; Female: 2.6-7.5
Serum creatinine ( $\mu\text{mol/L}$ )	Male: 59-104; Female: 45-84
<b>Coagulation function</b>	
Activated partial thromboplastin time (s)	34-47
Prothrombin time (s)	12-14.5
Fibrinogen (g/L)	1.8-4
D-dimer ( $\mu\text{g/mL}$ )	$<0.5$
<b>Infection-related biomarkers</b>	
Procalcitonin (ng/ml)	$<0.05$
C-reactive protein (mg/L)	$<1$
Serum ferritin (ng/mL)	Male: 30-400; Female: 15-150
Erythrocyte sedimentation rate (mm/h)	Male: $\leq 15$ ; Female: $\leq 20$

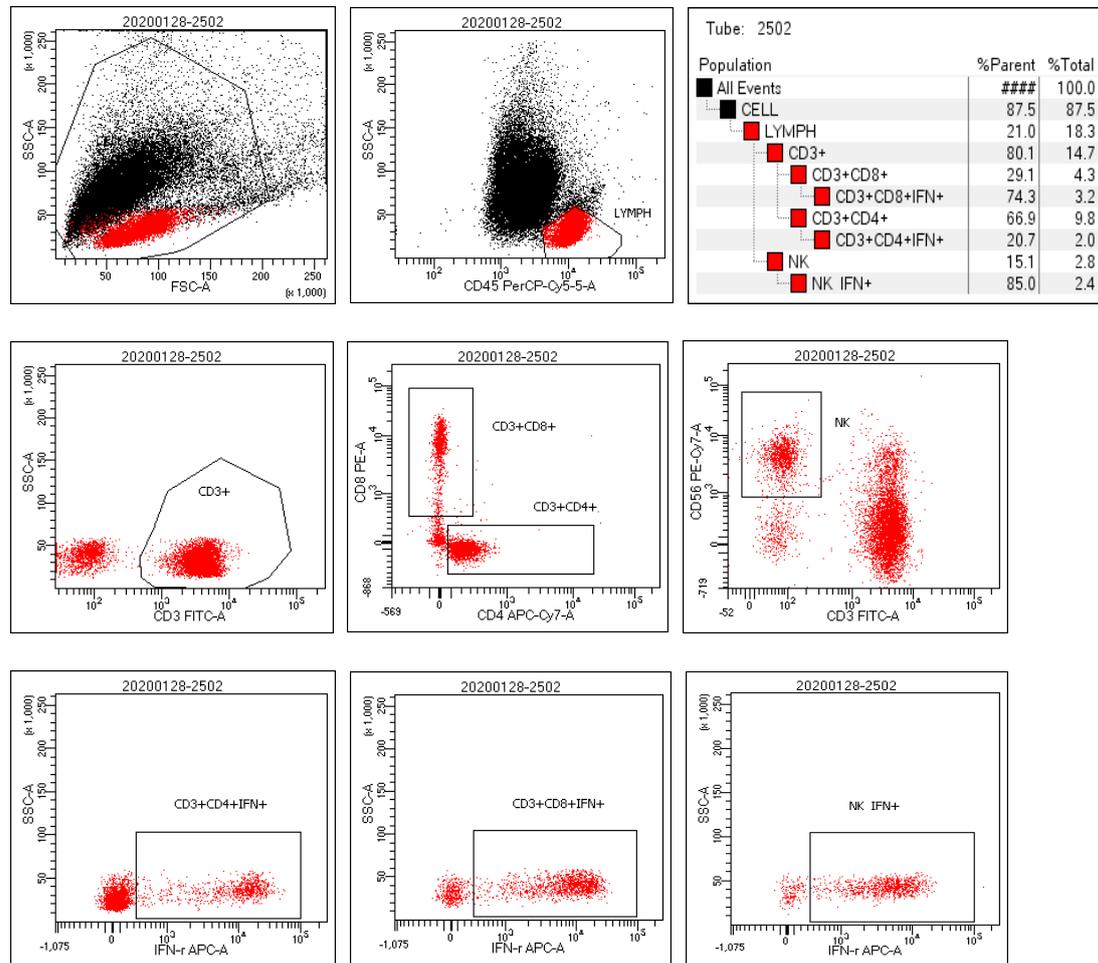
Supplementary Figure 1. (A) Gating strategies for HLA-DR and CD28 expression on CD4<sup>+</sup> and CD8<sup>+</sup> T cells.



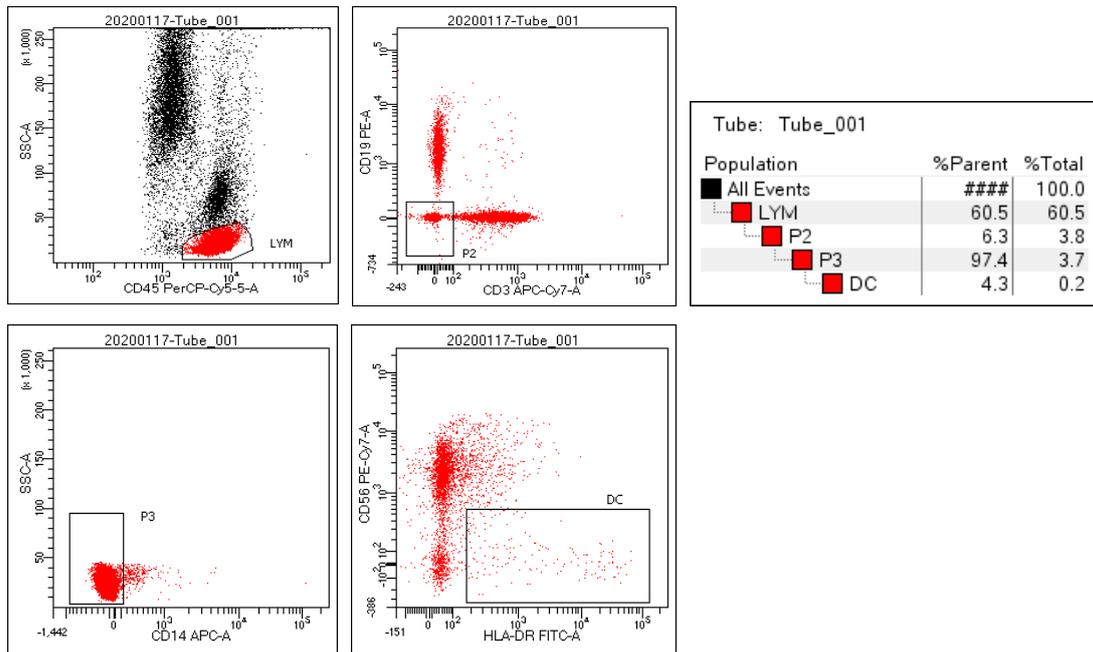
Supplementary Figure 1. (B) Gating strategies for Treg, and CD45RA and CD45RO expression on CD4<sup>+</sup> T cells.



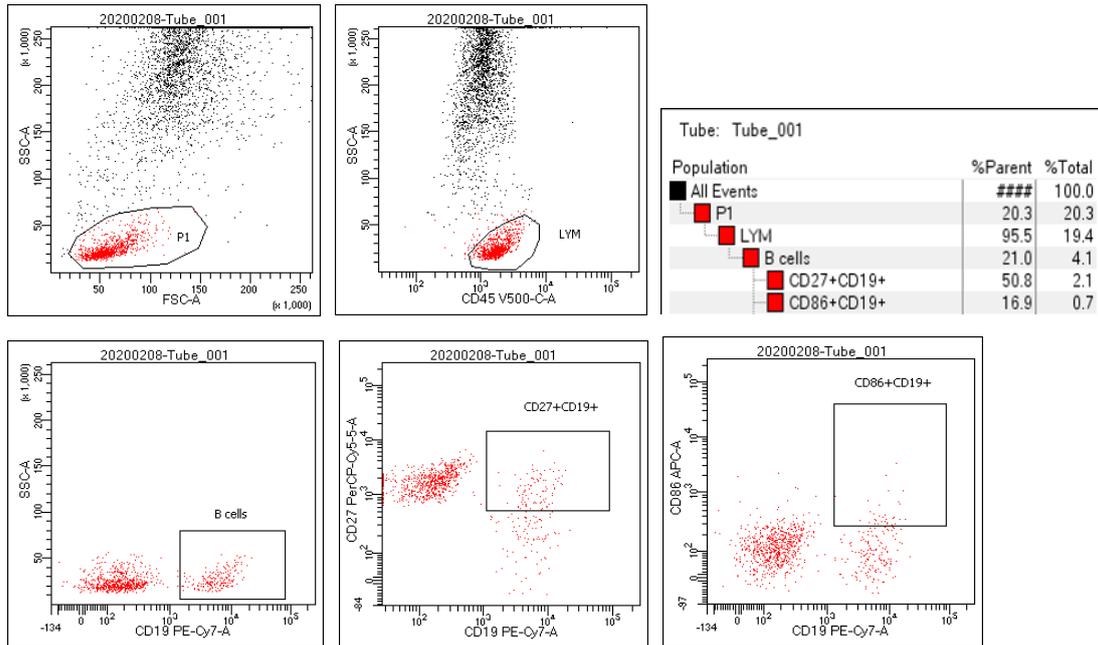
Supplementary Figure 1. (C) Gating strategies for lymphocyte function (IFN- $\gamma$  expression in CD4<sup>+</sup> T cells, CD8<sup>+</sup> T cells and NK cells after PMA/ionomycin stimulation).



Supplementary Figure 1. (D) Gating strategies for identification of DC.



Supplementary Figure 1. (E) Gating strategies for identification of B cell subsets.



Supplementary Figure 1. (F) Gating strategies for PD-1 and Tim-3 expression on CD4<sup>+</sup> and CD8<sup>+</sup> T cells.

