

# Figure 1

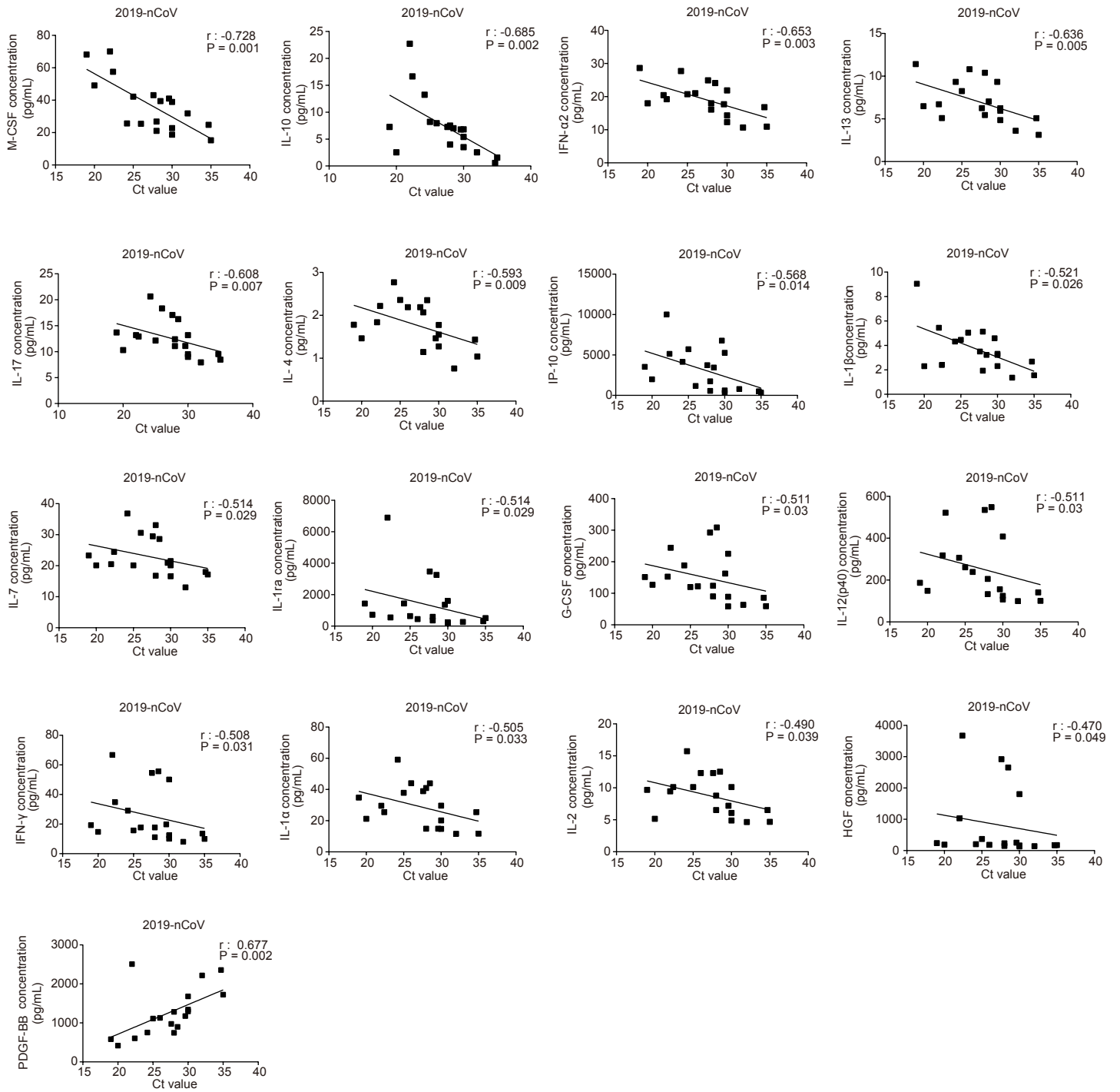


Figure. 2

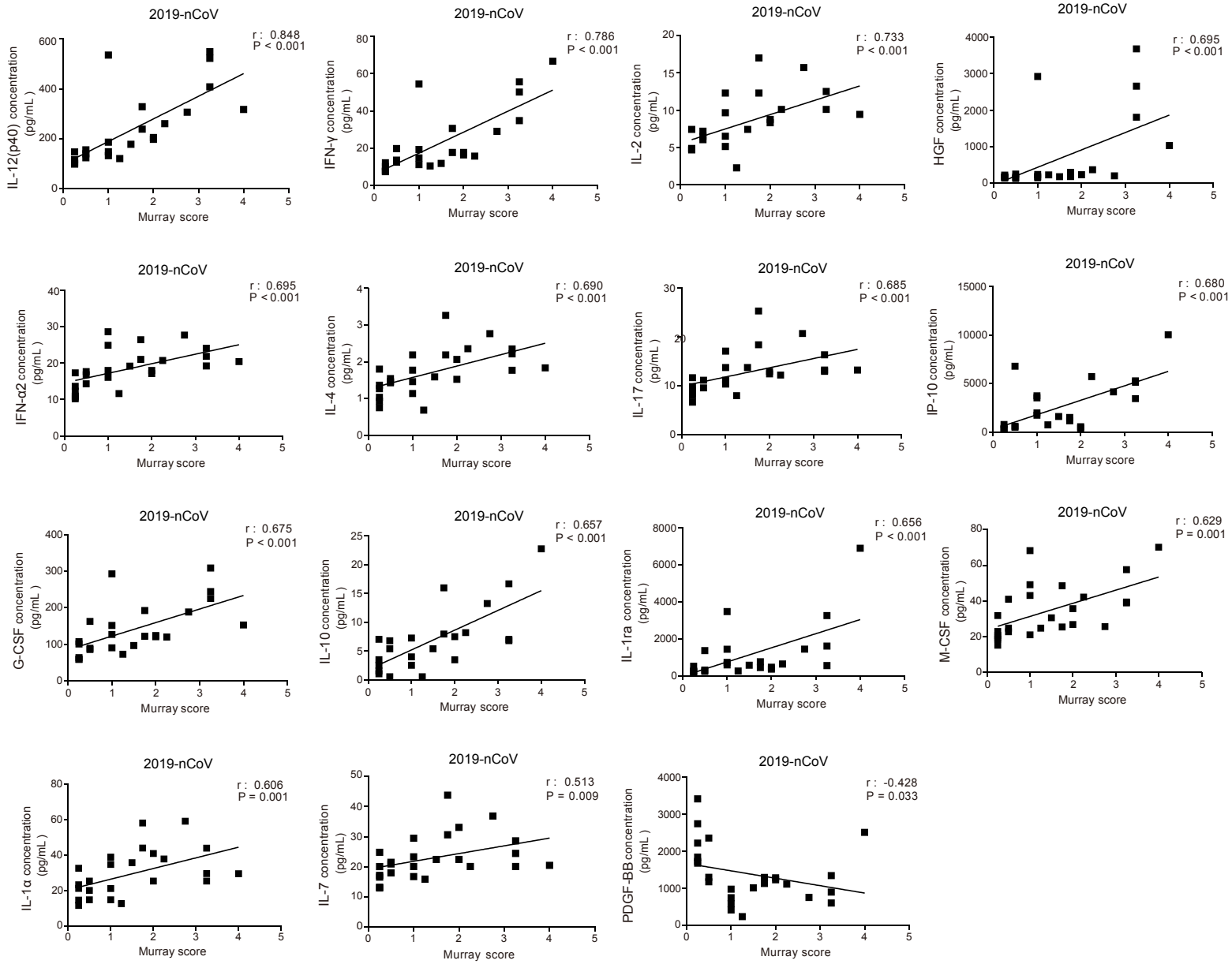


Figure 3

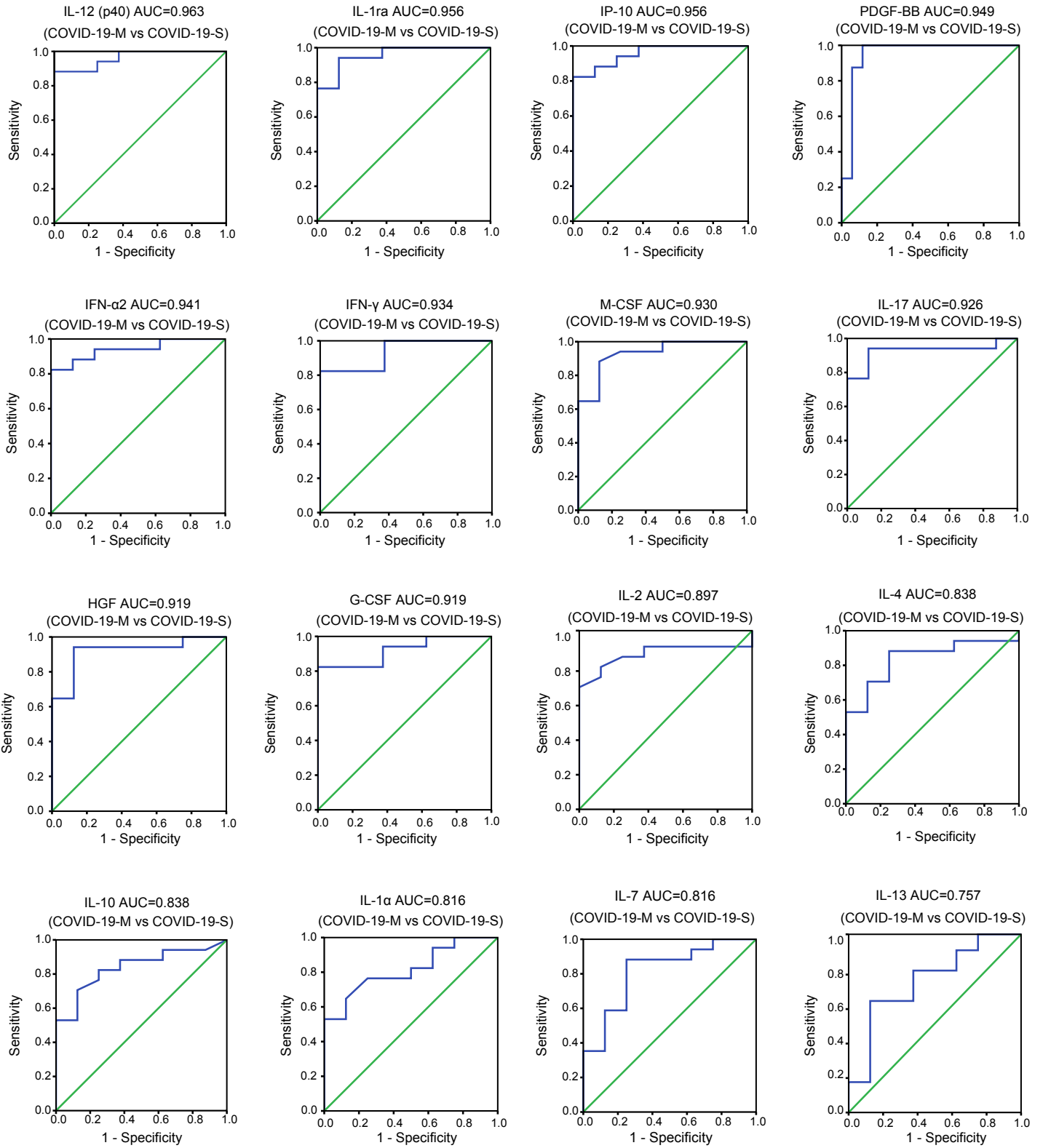


Figure. 4

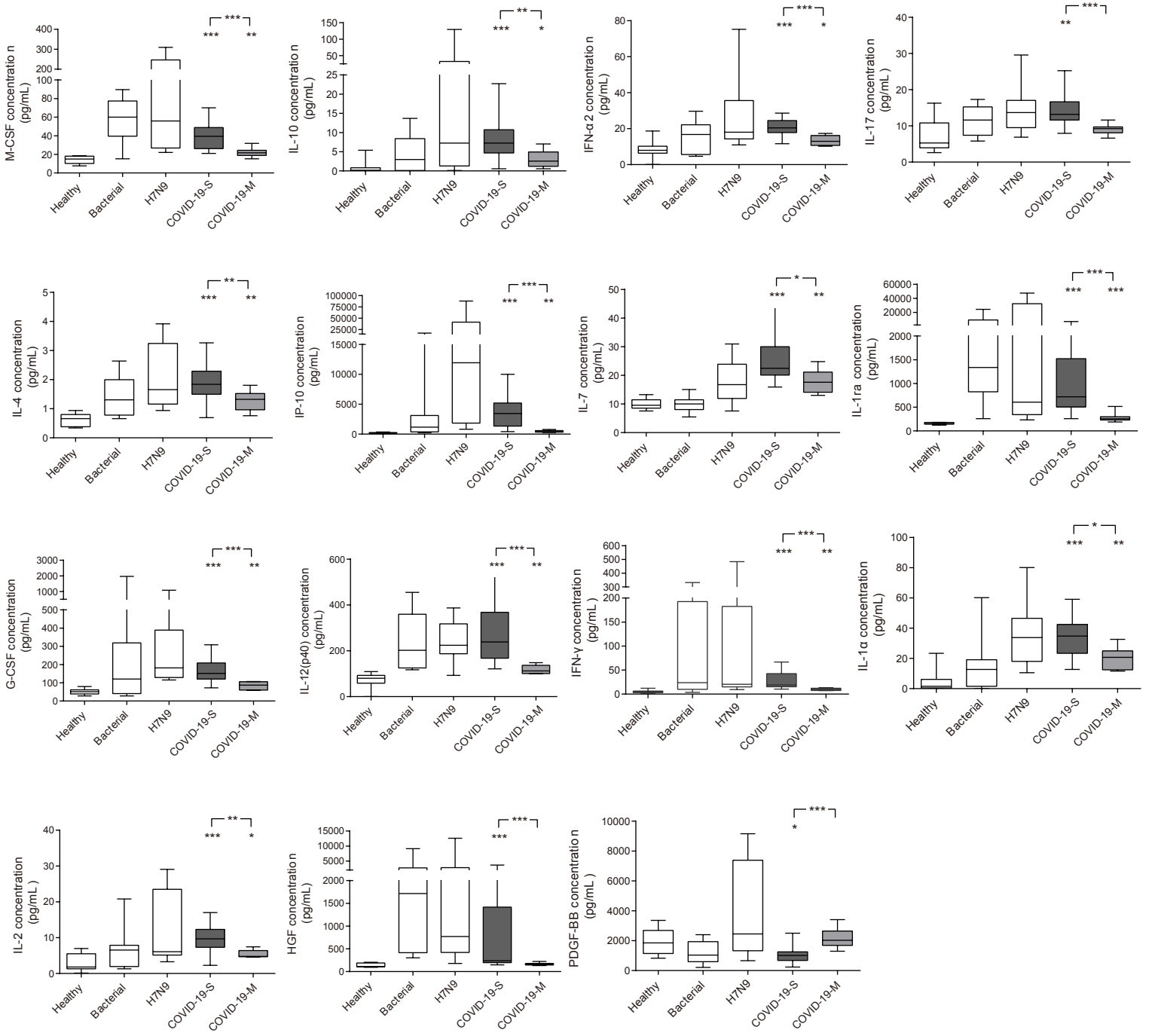


Table S1. Epidemiological and clinical features of subjects hospitalized with 2019-nCoV, H7N9 avian influenza virus and bacterial infections.

<b>Characteristics</b>	<b>2019-nCoV</b>	<b>H7N9</b>	<b>Bacteria</b>	<b>Control</b>
<b>Median age (range)</b>	62.5 (10-72)	56 (21-67)	41 (31.5-49)	28 (25-34)
<b>Age subgroups</b>				
0–15 years	1/12 (8.3%)	0/8 (0%)	1/8 (12.5%)	0/8 (0%)
16–59 years	4/12 (33.3%)	6/8 (75%)	5/8 (62.5%)	8/8 (100%)
≥60 years	7/12 (58.3%)	2/8 (25%)	2/8 (25%)	0/8 (0%)
<b>Male (%)</b>	8/12 (66.7%)	5/8 (62.5%)	5/8 (62.5%)	4/8 (50%)
<b>Initial symptoms</b>				
Fever	9/12 (75%)	8/8 (100%)	5/8 (62.5%)	0/8 (0%)
Cough	12/12 (100%)	7/8 (75%)	3/8 (37.5%)	0/8 (0%)
Headache	0/12 (0%)	3/8 (37.5%)	1/8 (12.5%)	0/8 (0%)
Myalgia	4/12 (33.3%)	4/8 (50%)	0/8 (0%)	0/8 (0%)
Chill	5/12 (41.7%)	5/8 (62.5%)	0/8 (0%)	0/8 (0%)
Nausea or vomiting	2/12 (16.7%)	0/8 (0%)	1/8 (12.5%)	0/8 (0%)
Diarrhea	3/12 (25%)	2/8 (25%)	0/8 (0%)	0/8 (0%)
<b>Co-existing chronic medical conditions</b>	6/12 (50%)	6/8 (50%)	5/8 (62.5%)	0/8 (0%)
Chronic heart disease	4/12 (33.3%)	4/8 (33.3%)	2/8 (25%)	0/8 (0%)
Chronic lung disease	1/12 (8.3%)	5/8 (41.7%)	1/8 (12.5%)	0/8 (0%)
Chronic renal disease	2/12 (16.7%)	2/8 (16.7%)	0/8 (0%)	0/8 (0%)
Chronic liver disease	1/12 (8.3%)	3/8 (25%)	0/8 (0%)	0/8 (0%)
Diabetes	2/12 (16.7%)	6/8 (50%)	0/8 (0%)	0/8 (0%)
Cancer	0/12 (0%)	4/8 (33.3%)	1/8 (12.5%)	0/8 (0%)
<b>Bacterial co-infections</b>	2/12 (16.7%)	7/8 (87.5%)	NA	0/8 (0%)
<b>Interval, median days (IQ+R)</b>				
Onset to admission	6.5 (5, 9.25)	6 (4.75, 7)	1 (0, 3.5)	NA
Onset to starting antiviral treatment	6 (5, 9.25)	5.5 (3.75, 6.25)	NA	NA
Onset to laboratory confirmation	7 (4.5, 14.5)	7 (5.75, 8.25)	6 (4.5, 8)	NA
<b>Complications</b>				
Pneumonia	12/12 (100%)	8/8 (100%)	8/8 (100%)	0/8 (0%)
ARDS	6/12 (50%)	7/8 (87.5%)	6/8 (75%)	0/8 (0%)
Severe ARDS	2/12 (16.7%)	5/8 (62.5%)	2/8 (25%)	0/8 (0%)
Respiratory failure	3/12 (25%)	7/8 (87.5%)	5/8 (62.5%)	0/8 (0%)
Hepatic insufficiency	2/12 (16.7%)	4/8 (50%)	4/8 (50%)	0/8 (0%)
Renal insufficiency	2/12 (16.7%)	2/8 (25%)	5/8 (62.5%)	0/8 (0%)
Cardiac failure	1/12 (8.3%)	3/8 (37.5%)	3/8 (37.5%)	0/8 (0%)
Shock	1/12 (8.3%)	1/8 (12.5%)	4/8 (50%)	0/8 (0%)
<b>Treatment</b>				
Received antivirals ≤ 2 days after illness onset	1/12 (8.3%)	1/8 (12.5%)	NA	NA
Received antivirals 3-5 days after illness onset	4/12 (33.3%)	3/8 (37.5%)	NA	NA
Received antivirals 6 days after illness onset	7/12 (58.3%)	4/8 (50%)	NA	NA
Corticosteroid	2/12 (16.7%)	8/8 (100%)	2/8 (25%)	NA
Mechanical ventilation	5/12 (41.7%)	7/8 (87.5%)	7/8 (87.5%)	NA

NA: Not applicable.



Table S3. Cytokine comparison among healthy controls, bacteria-infected patients, H7N9-infected patients and 2019-nCoV infected patients (Day0-7, Day8-14, Day15-)

Cytokine	Healthy			Bacteria			H7N9			2019-nCoV								
	P <sup>a</sup> value	P <sup>b</sup> value	P <sup>c</sup> value	P <sup>d</sup> value	P <sup>e</sup> value	P <sup>f</sup> value	P <sup>g</sup> value	P <sup>h</sup> value	P <sup>i</sup> value	Mean	SE	Mean	SE	Mean	SE	P <sup>j</sup> value	P <sup>k</sup> value	P <sup>l</sup> value
IL-1β	0.037	0.020	0.019	-	-	-	-	0.046	#	4.08	1.02	3.63	0.48	3.35	0.49	-	-	-
IL-1ra	0.001	<0.001	0.003	#	0.011	-	-	-	-	1478.23	917.46	889.43	308.43	867.02	259.33	-	-	-
IL-2	0.027	0.002	0.005	-	-	-	-	-	-	6.44	0.84	8.91	0.68	7.74	0.68	#	-	-
IL-4	0.004	0.001	0.003	-	-	-	-	-	-	1.32	0.15	1.90	0.18	1.47	0.10	0.043	-	-
IL-5	-	-	-	-	-	-	-	0.020	-	0.10	0.00	0.10	0.00	0.10	0.00	-	-	-
IL-6	-	#	#	0.028	0.017	-	-	-	-	0.00	3.54	10.07	2.22	34.62	22.56	-	#	-
IL-7	0.003	0.001	0.003	#	<0.001	0.003	-	-	-	9.98	1.46	25.54	2.10	19.65	1.02	0.017	-	-
IL-8	0.008	0.001	0.003	-	-	-	-	0.049	-	9.87	2.79	15.85	3.24	16.70	6.49	-	-	-
IL-9	-	-	-	-	0.030	0.019	-	-	-	254.65	6.41	248.48	5.69	263.36	5.75	-	-	-
IL-10	0.006	0.001	0.009	-	-	-	-	-	-	6.45	2.79	7.05	1.36	4.33	1.17	-	-	-
IL-12 (p70)	-	0.014	0.040	-	0.012	0.012	-	-	-	3.62	0.34	6.74	0.53	4.78	0.53	-	-	0.034
IL-13	0.011	0.001	0.008	0.002	<0.001	0.003	-	-	-	6.61	0.90	7.65	0.67	6.86	1.06	-	-	-
IL-15	-	-	-	-	-	-	-	-	-	104.65	43.18	218.73	39.35	190.10	66.90	#	-	-
IL-17	#	0.008	0.040	-	-	-	-	-	-	10.26	0.99	13.49	1.33	11.56	0.67	-	-	-
Eotaxin	-	-	-	-	-	-	-	-	-	44.86	6.72	38.29	4.69	45.29	8.15	-	-	-
FGF basic	-	0.003	0.008	-	-	-	-	-	-	37.23	3.52	43.14	2.51	39.63	3.85	-	-	-
G-CSF	0.005	0.001	0.003	-	-	-	-	0.036	-	107.31	14.62	148.44	23.14	136.99	26.02	-	-	-
GM-CSF	#	0.038	#	-	-	-	-	-	-	2.43	0.36	3.15	0.48	2.37	0.38	-	-	-
IFN-γ	0.005	0.001	0.003	-	-	-	-	-	-	19.65	8.00	22.36	4.59	22.20	7.14	-	-	-
IP-10	0.002	<0.001	0.003	-	-	-	-	0.007	#	2680.72	1294.44	1946.64	529.30	2944.85	1304.24	-	-	-
MCP-1 (MCAF)	0.028	0.001	0.008	-	-	-	-	-	-	34.48	11.44	41.98	10.99	74.12	40.87	-	-	-
MIP-1α	0.009	<0.001	0.004	-	-	-	-	0.049	-	2.54	0.35	4.22	1.00	3.63	0.98	-	-	-
PDGF-βB	-	-	-	-	-	-	-	-	-	1651.44	426.27	1241.39	170.50	1370.23	266.40	-	-	-
MIP-1β	-	-	-	-	-	-	-	0.025	-	160.45	3.18	159.07	5.19	169.04	5.34	-	-	-
RANTES	-	-	-	-	-	-	-	0.043	-	5683.14	925.79	4763.66	456.24	6404.49	1272.99	-	-	-
TNF-α	#	0.002	0.003	-	-	-	-	-	-	70.85	4.36	81.14	4.78	76.86	4.51	-	-	0.042
VEGF	-	-	-	-	-	-	-	0.030	#	112.19	12.95	126.58	12.13	113.28	9.97	-	-	-
IL-1α	0.006	<0.001	0.005	-	0.017	#	-	-	-	21.46	3.21	32.58	3.78	22.07	3.02	#	-	-
IL-2Rα	-	0.014	#	-	-	-	-	0.008	0.017	68.48	11.31	91.07	12.53	89.23	10.26	-	-	-
IL-3	-	0.003	#	-	0.014	0.039	-	-	-	0.38	0.05	0.77	0.11	0.45	0.05	-	-	0.017
IL-12 (p40)	0.004	<0.001	0.003	0.049	-	-	-	-	-	166.36	29.38	263.82	46.56	207.24	51.43	-	-	#
IL-16	0.049	0.004	0.035	-	-	-	-	-	-	56.54	15.36	48.52	18.26	154.14	65.84	-	-	-
IL-18	0.004	0.001	0.008	#	0.017	-	-	0.025	-	111.64	28.12	79.63	8.04	95.26	12.86	-	-	-
CTACK	#	0.006	0.019	-	-	-	-	#	-	486.00	83.70	641.32	88.69	728.05	174.99	-	-	-
GRO-α	-	-	-	-	-	-	-	-	-	669.95	20.46	657.17	23.28	723.07	51.58	-	-	-
HGF	0.037	0.006	0.013	0.005	0.025	0.019	-	0.028	-	306.64	121.51	875.59	354.58	518.05	322.31	-	-	-
IFN-α2	0.015	0.001	0.012	-	-	-	-	-	-	16.63	2.47	18.58	1.37	17.93	1.02	-	-	-
LIF	0.047	0.001	0.018	-	-	-	-	-	-	12.58	7.97	28.11	6.11	5.77	4.54	#	-	-
MCP-3	0.036	0.003	0.012	-	-	-	-	-	-	4.43	1.35	7.29	1.35	6.81	2.79	#	-	-
M-CSF	0.001	0.001	0.003	-	0.017	#	-	-	-	39.97	8.50	32.22	3.53	32.31	3.97	-	-	-
MIF	#	-	-	-	0.020	-	-	-	-	1295.66	173.44	1116.72	113.22	1511.60	325.36	-	-	-
MIG	0.011	0.001	0.005	-	-	-	-	0.021	#	469.21	258.66	939.15	390.93	749.79	489.35	-	-	0.015
b-NGF	0.017	0.002	0.005	-	-	-	-	-	-	1.49	0.18	2.55	0.42	2.04	0.25	-	-	-
SCF	-	0.007	0.019	-	-	-	-	-	-	58.44	8.34	78.61	12.45	78.51	16.59	-	-	-
SCGF-β	0.037	0.017	#	-	-	-	-	0.028	0.005	84399.44	14867.23	93153.33	14483.77	78223.91	18421.01	-	-	-
SDF-1α	-	-	#	-	-	-	-	-	-	761.70	52.72	750.62	33.61	846.36	78.83	-	-	-
TNF-β	-	0.001	0.001	-	-	-	-	-	-	0.91	0.57	2.35	0.51	1.62	0.52	-	-	-
TRAIL	0.002	0.001	0.003	#	#	#	-	-	-	43.32	3.81	39.70	1.77	45.13	4.31	-	-	-

P<sup>a</sup> value: Healthy vs COVID-19 patients (Day0-7)      P<sup>b</sup> value: Bacteria patients vs COVID-19 patients (Day0-7)      P<sup>c</sup> value: H7N9 patients vs COVID-19 patients (Day0-7) vs COVID-19 patients (Day8-14)  
 P<sup>d</sup> value: Healthy vs COVID-19 patients (Day8-14)      P<sup>e</sup> value: Bacteria patients vs COVID-19 patients (Day8-14)      P<sup>f</sup> value: H7N9 patients vs COVID-19 patients (Day8-14)  
 P<sup>g</sup> value: Healthy vs COVID-19 patients (Day15-)      P<sup>h</sup> value: Bacteria patients vs COVID-19 patients (Day15-)      P<sup>i</sup> value: H7N9 patients vs COVID-19 patients (Day15-)  
 # : P value [0.05,0.1], - : P value >0.05

8 samples from 8 healthy control, 8 samples from 8 bacteria-infected patients, 8 samples from 8 H7N9-infected patients, 7 samples from 7 2019-nCoV-infected patients (Day0-7), 13 samples from 9 2019-nCoV-infected patients (Day8-14) and 5 samples from 5 2019-nCoV-infected patients (Day15-).

Table S4. Detection of 2019-nCoV at respiratory and non-respiratory sites.

		2019-nCoV		
		Total	Severe	Mild
<b>Nasopharynx</b>				
Detectable RNA (n/N)	Throat	8/11	5/7	3/4
	Sputum	7/10	6/6	1/4
Ct Values (Median; range)	Throat	30 (23-36)	29.2 (25-36)	30 (23-35)
	Sputum	29.1 (20-34.7)	28.3 (20-33.4)	34.3
<b>BALF</b>				
Detectable RNA (n/N)		3/5	3/4	0/1
Ct Values (Median; range)		24 (19-26)	24 (19-26)	U
<b>Plasma</b>				
Detectable RNA (n/N)		0/12	0/8	0/4
Ct Values (Median; range)		U	U	U
<b>Rectum</b>				
Detectable RNA (n/N)		2/7	1/5	1/2
Ct Values (Median;range)		27.5 (27-28)	28	27

U: Undetected.

Throat swabs were obtained after 4–18 d (median 10) of illness.

Sputum were obtained after 4–17 d (median 9.5) of illness.

Plasma samples were obtained after 7–10 d (median 9) of illness.

Rectal swabs were obtained after 4–16.5 d (median 9.5) of illness.