

FR to Ab A										FR to Ab B										FR to Ab C										FR to Ab D1										FR to Ab D2										FR to Ab E1									
Wuhan-Hu-1	1.00	7.05	63.59	63.59	0.95	2.31	37.04	193.00	222.01	Wuhan-Hu-1	1.00	2.93	31.98	31.98	12.17	7.75	34.62	149.10	94.19	Wuhan-Hu-1	1.00	0.79	60.99	60.99	29.87	74.72	71.90	132.67	112.95	Wuhan-Hu-1	1.00	6.20	27.50	27.50	31.36	63.09	85.01	208.92	140.56	Wuhan-Hu-1	1.00	19.12	26.81	26.81	2.42	3.07	35.35	252.06	117.41	Wuhan-Hu-1	1.00	6.38	22.36	22.36	10.43	9.47	75.20	304.26	180.24
	Alpha	7.05	1.00	52.82	52.82	8.07	9.52	28.02	173.71		200.81	Alpha	2.93	1.00	28.22	28.22	15.46	10.91	30.78		142.00	88.66	Alpha	0.79	1.00	59.73	59.73	30.89	76.09		70.56	130.86	111.29	Alpha	6.20	1.00	20.06	20.06	39.51		73.20	74.21	190.89	126.52	Alpha	6.38	1.00	15.01	15.01		17.48	16.46	64.68	280.00	163.42				
	Beta	63.59	52.82	1.00	1.00	65.15	67.36	56.98	79.11		96.84	Beta	31.98	28.22	1.00	1.00	48.05	42.21	9.21		88.74	47.13	Beta	60.99	59.73	1.00	1.00	109.08	181.27		8.52	44.53	32.28	Beta	26.81	6.45	1.00	1.00	29.88		30.71	7.50	177.63	71.44	Beta	22.36	15.01	1.00	1.00		35.11	33.95	56.17	230.40	129.04				
	Gamma	63.59	52.82	1.00	1.00	65.15	67.36	56.98	79.11		96.84	Gamma	31.98	28.22	1.00	1.00	48.05	42.21	9.21		88.74	47.13	Gamma	60.99	59.73	1.00	1.00	109.08	181.27		8.52	44.53	32.28	Gamma	26.81	6.45	1.00	1.00	29.88		30.71	7.50	177.63	71.44	Gamma	22.36	15.01	1.00	1.00		35.11	33.95	56.17	230.40	129.04				
	Delta	0.95	8.07	65.15	65.15	1.00	2.48	38.34	192.49		225.08	Delta	12.17	15.46	48.05	48.05	1.00	14.22	51.00		134.98	117.83	Delta	29.87	30.89	109.08	109.08	1.00	40.07		123.25	190.22	176.56	Delta	2.42	22.00	29.88	29.88	1.00		2.47	38.63	254.12	122.66	Delta	10.43	17.48	35.11	35.11		1.00	7.25	93.47	312.66	209.46				
	Lambda	2.31	9.52	67.36	67.36	2.48	1.00	40.20	199.76		229.43	Lambda	7.75	10.91	42.21	42.21	14.22	1.00	45.05		168.40	109.24	Lambda	74.72	76.09	181.27	181.27	40.07	1.00		200.33	306.52	272.06	Lambda	3.07	22.78	30.71	30.71	2.47		1.00	39.51	262.88	124.08	Lambda	9.47	16.46	33.95	33.95		7.25	1.00	91.80	342.56	206.78				
	Mu	37.04	28.02	56.98	56.98	38.34	40.20	1.00	181.16		134.98	Mu	34.62	30.78	9.21	9.21	51.00	45.05	1.00		106.12	44.26	Mu	71.90	70.56	8.52	8.52	123.25	200.33		1.00	56.85	23.88	Mu	35.35	13.62	7.50	7.50	38.63		39.51	1.00	198.44	60.62	Mu	75.20	64.68	56.17	56.17		93.47	91.80	1.00	415.98	59.95				
	Omicron	193.00	173.71	79.11	79.11	192.49	199.76	181.16	1.00		228.07	Omicron	149.10	142.00	88.74	88.74	134.98	168.40	106.12		1.00	161.95	Omicron	132.67	130.86	44.53	44.53	190.22	306.52		56.85	1.00	87.96	Omicron	208.92	190.89	142.28	142.28	300.47		403.81	253.93	1.00	334.69	Omicron	304.26	280.00	230.40	230.40		312.66	342.56	415.98	1.00	347.02				
	PMS20	222.01	200.81	96.84	96.84	225.08	229.43	134.98	228.07		1.00	PMS20	94.19	88.66	47.13	47.13	117.83	109.24	44.26		161.95	1.00	PMS20	112.95	111.29	32.28	32.28	176.56	272.06		23.88	87.96	1.00	PMS20	140.56	126.52	88.67	88.67	216.01		292.33	30.03	334.69	1.00	PMS20	180.24	163.42	129.04	129.04		209.46	206.78	59.95	347.02	1.00				
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20		Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20		Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20		Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20		Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20										

FR to Ab E2.1									
Wuhan-Hu-1	1.00	1.00	11.15	11.15	8.86	19.77	39.76	46.46	100.67
Alpha	1.00	1.00	11.15	11.15	8.86	19.77	39.76	46.46	100.67
Beta	11.15	11.15	1.00	1.00	20.99	33.12	25.74	31.77	80.55
Gamma	11.15	11.15	1.00	1.00	20.99	33.12	25.74	31.77	80.55
Delta	8.86	8.86	20.99	20.99	1.00	11.58	52.13	57.20	118.44
Lambda	19.77	19.77	33.12	33.12	11.58	1.00	67.39	75.41	140.34
Mu	39.76	39.76	25.74	25.74	52.13	67.39	1.00	65.69	43.58
Omicron	46.46	46.46	31.77	31.77	57.20	75.41	65.69	1.00	120.03
PMS20	100.67	100.67	80.55	80.55	118.44	140.34	43.58	120.03	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20

FR to Ab E2.2									
Wuhan-Hu-1	1.00	23.02	49.64	49.64	10.36	22.14	38.98	236.38	95.88
Alpha	23.02	1.00	21.64	21.64	35.77	50.25	12.97	173.43	59.22
Beta	49.64	21.64	1.00	1.00	65.14	82.76	19.94	124.80	30.90
Gamma	49.64	21.64	1.00	1.00	65.14	82.76	19.94	124.80	30.90
Delta	10.36	35.77	65.14	65.14	1.00	10.67	53.38	271.23	116.17
Lambda	22.14	50.25	82.76	82.76	10.67	1.00	69.75	310.84	139.24
Mu	38.98	12.97	19.94	19.94	53.38	69.75	1.00	169.61	40.94
Omicron	236.38	173.43	124.80	124.80	271.23	310.84	169.61	1.00	142.44
PMS20	95.88	59.22	30.90	30.90	116.17	139.24	40.94	142.44	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20

FR to Ab E3									
Wuhan-Hu-1	1.00	2.26	9.74	9.74	2.14	2.14	11.36	44.70	25.36
Alpha	2.26	1.00	7.32	7.32	4.44	4.44	8.90	41.51	22.59
Beta	9.74	7.32	1.00	1.00	12.09	12.09	5.00	31.86	14.23
Gamma	9.74	7.32	1.00	1.00	12.09	12.09	5.00	31.86	14.23
Delta	2.14	4.44	12.09	12.09	1.00	3.38	13.74	42.96	28.04
Lambda	2.14	4.44	12.09	12.09	3.38	1.00	13.74	47.80	28.04
Mu	11.36	8.90	5.00	5.00	13.74	13.74	1.00	38.45	12.57
Omicron	44.70	41.51	31.86	31.86	42.96	47.80	38.45	1.00	39.30
PMS20	25.36	22.59	14.23	14.23	28.04	28.04	12.57	39.30	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20

FR to Ab F1									
Wuhan-Hu-1	1.00	4.22	14.85	14.85	9.74	7.69	16.65	119.52	68.11
Alpha	4.22	1.00	10.20	10.20	14.37	12.24	11.93	110.64	61.30
Beta	14.85	10.20	1.00	1.00	26.04	23.69	5.94	91.14	46.37
Gamma	14.85	10.20	1.00	1.00	26.04	23.69	5.94	91.14	46.37
Delta	9.74	14.37	26.04	26.04	1.00	7.23	28.01	120.46	84.48
Lambda	7.69	12.24	23.69	23.69	7.23	1.00	25.62	136.41	81.04
Mu	16.65	11.93	5.94	5.94	28.01	25.62	1.00	102.49	44.11
Omicron	119.52	110.64	91.14	91.14	120.46	136.41	102.49	1.00	122.97
PMS20	68.11	61.30	46.37	46.37	84.48	81.04	44.11	122.97	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20

FR to Ab F2									
Wuhan-Hu-1	1.00	4.25	14.83	14.83	1.60	2.28	16.18	114.52	38.57
Alpha	4.25	1.00	10.15	10.15	5.92	6.64	11.44	105.77	32.91
Beta	14.83	10.15	1.00	1.00	16.67	17.46	9.37	86.81	20.67
Gamma	14.83	10.15	1.00	1.00	16.67	17.46	9.37	86.81	20.67
Delta	1.60	5.92	16.67	16.67	1.00	2.31	18.03	114.47	40.78
Lambda	2.28	6.64	17.46	17.46	2.31	1.00	18.83	119.42	41.73
Mu	16.18	11.44	9.37	9.37	18.03	18.83	1.00	104.32	19.27
Omicron	114.52	105.77	86.81	86.81	114.47	119.42	104.32	1.00	114.30
PMS20	38.57	32.91	20.67	20.67	40.78	41.73	19.27	114.30	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20

FR to Ab F3									
Wuhan-Hu-1	1.00	37.94	106.76	106.76	5.38	4.98	59.76	798.65	252.71
Alpha	37.94	1.00	49.89	49.89	45.36	44.81	15.82	551.48	155.70
Beta	106.76	49.89	1.00	1.00	117.88	117.06	42.42	334.63	70.59
Gamma	106.76	49.89	1.00	1.00	117.88	117.06	42.42	334.63	70.59
Delta	5.38	45.36	117.88	117.88	1.00	4.75	68.35	800.63	271.68
Lambda	4.98	44.81	117.06	117.06	4.75	1.00	67.72	843.41	270.27
Mu	59.76	15.82	42.42	42.42	68.35	67.72	1.00	519.01	120.77
Omicron	798.65	551.48	334.63	334.63	800.63	843.41	519.01	1.00	406.92
PMS20	252.71	155.70	70.59	70.59	271.68	270.27	120.77	406.92	1.00
	Wuhan-Hu-1	Alpha	Beta	Gamma	Delta	Lambda	Mu	Omicron	PMS20