

Supplementary Materials

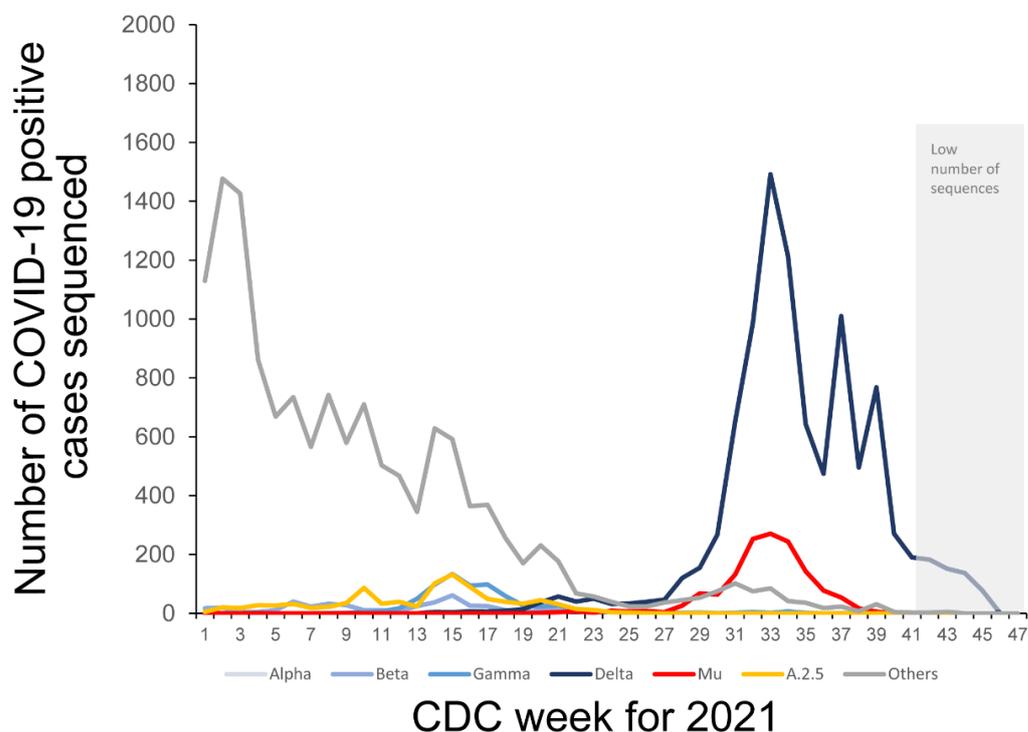


Figure S1. Distribution of COVID-19 positive cases sequenced by CDC week for variants Alpha, Beta, Gamma, Delta, Mu, A.2.5 and others. The Mu variant was present in Québec from CDC week 27 (4th of July) to CDC week 42 (17th of October). The A.2.5 variant was present at low level from the beginning of 2021 to CDC week 29 (18th of July).

Table S1. Binding Kinetics of the interaction between SARS-CoV-2 RBD and sACE2 quantified by Biolayer Interferometry.

Ligands	Temperature	ACE2 binding (RBD/biolayer interferometry)		
		KD (nM)	Ka (1/Ms)	Kdis (1/s)
WT	10°C	57.19	2.68x10 ⁴	1.53x10 ⁻³
	25°C	162.6	4.72x10 ⁴	7.68x10 ⁻³
R346K	10°C	45.71	2.67x10 ⁴	1.22x10 ⁻³
	25°C	166.4	4.64x10 ⁴	7.72x10 ⁻³
K417N	10°C	120	5.09x10 ⁴	6.11x10 ⁻³
	25°C	264.2	6.45x10 ⁴	1.70x10 ⁻²
L452R	10°C	68.17	1.91x10 ⁴	1.30x10 ⁻³
	25°C	148.3	2.98x10 ⁴	4.41x10 ⁻³
E484K	10°C	56.39	2.99x10 ⁴	1.69x10 ⁻³
	25°C	146.8	5.58x10 ⁴	8.18x10 ⁻³
N501Y	10°C	11.47	2.91x10 ⁴	3.33x10 ⁴
	25°C	35.45	4.42x10 ⁴	1.57x10 ⁻³

Table S2. Summary of ACE2 Binding, plasma binding, and neutralization to variants.

SARS CoV-2 Variants	ACE2 binding ^a	Spike recognition by plasma ^b		Neutralization (ID ₅₀) ^c	
		Naïve vaccinated (3 week post vaccination of 2 nd dose)	Previously infected vaccinated (3 week post vaccination of 2 nd dose)	Naïve vaccinated (3 week post vaccination of 2 nd dose)	Previously infected vaccinated (3 week post vaccination of 2 nd dose)
D614G	1	1	1	1186.8 (1)	2668.2 (1)
B.1.351 (Beta)	4.1	0.70	0.84	190.4 (0.16)	744.4 (0.27)
B.1.617.2 (Delta)	2.32	0.58	0.58	325 (0.27)	374.2 (0.14)
B.1.621 (Mu)	1.69	0.66	0.63	145.5 (0.12)	343.4 (0.12)
A.2.5	2.04	0.72	0.71	361.3 (0.30)	905 (0.33)

- a) ACE2-Fc binding was normalized to CV3-25 binding in each experiment. Values are presented as ratio of normalized ACE2-Fc binding obtain with the D614G Spike. Values represent the means of data obtained from at least three independent experiments.
- b) Plasma binding were normalized to CV3-25 in each experiment. Values are presented as ratio of normalized plasma binding obtained with the D614G Spike. Values represent the means of data obtained with 9-10 plasma from the same group.
- c) The ID₅₀ represents the plasma dilution to inhibit 50% of the infection of 293T-ACE2 cells by pseudo viruses bearing the indicated Spike. Values are presented as the means of ID₅₀ and in parenthesis as ratio of the ID₅₀ obtained with virus bearing the D614G Spike. Values represent the means of data obtained with 9-10 different plasma.