

# Tracking a few SARS-CoV-2 mutations of interest

David Meyer

dmm@{1-4-5.net,uoregon.edu}

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<b>B.1.1.7</b> <b>20I/501Y.V1</b>	<b>B.1.351</b> <b>20H/501Y.V2</b>	<b>P.1</b> <b>20J/501Y.V3</b>
-	S:K417N	S:K417T
-	S:E484K	S:E484K
S:N501Y	S:N501Y	S:N501Y
S:P681H	-	-
S: del 69-70	-	-
Orf8:Q27*	-	-

Table 1: Mutations of interest found in current SARS-CoV-2 variants [3, 4]

TABLE. Characteristics of SARS-CoV-2 variants of concern — worldwide, September 2020–January 2021						
Variant designation	First identification		Characteristic mutations (protein; mutation)	No. of current sequence-confirmed cases		No. of countries with sequences
	Location	Date		United States	Worldwide	
B.1.1.7 (20I/501Y.V1)	United Kingdom	Sep 2020	ORF1ab: T1001L, A1708D, I2230T, del3675–3677 SGF S: del69–70 HV, del144 Y, N501Y, A570D, D614G, P681H, T761I, S982A, D1118H ORF8: Q27stop, R52I, Y73C N: D3L, S235F	76	15,369	36
B.1.351 (20H/501Y.V2)	South Africa	Oct 2020	ORF1ab: K1655N E: P71L N: T205I S:K417N, E484K, N501Y, D614G, A701V	0	415	13
P.1 (20J/501Y.V3)	Brazil and Japan	Jan 2021	ORF1ab: F681L, I760T, S1188L, K1795Q, del3675–3677 SGF, E5662D S: L18F, T20N, P36S, D138Y, R190S, K417T, E484K, N501Y, H655Y, T1027I ORF3a: C174G ORF8: E92K ORF9: Q77E ORF14: V49L N: P80R	0	35	2

Abbreviations: del = deletion; E = envelope protein; N = nucleocapsid protein; ORF = open reading frame; S = spike protein.

Figure 1: Characteristics of SARS-CoV-2 variants of concern [1]

gene	nucleotide	amino acid
ORF1ab	C3267T	T1001I
	C5388A	A1708D
	T6954C	I2230T
	11288-11296 deletion	SGF 3675-3677 deletion
spike	21765-21770 deletion	HV 69-70 deletion
	21991-21993 deletion	Y144 deletion
	A23063T	N501Y
	C23271A	A570D
	C23604A	P681H
	C23709T	T716I
	T24506G	S982A
	G24914C	D1118H
Orf8	C27972T	Q27stop
	G28048T	R52I
	A28111G	Y73C
N		
	28280 GAT->CTA	D3L
	C28977T	S235F

Figure 2: Protein altering mutations defining the B.1.1.7 variant [2]

## References

- [1] Emergence of sars-cov-2 b.1.1.7 lineage — united states, december 29, 2020–january 12, 2021. <https://www.cdc.gov/mmwr/volumes/70/wr/pdfs/mm7003e2-H.pdf>, 2021. [Online; accessed 15-January-2021].
- [2] Investigation of novel sars-cov-2 variant (variant of concern 202012/01). [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/947048/Technical\\_Briefing\\_VOC\\_SH\\_NJL2\\_SH2.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/947048/Technical_Briefing_VOC_SH_NJL2_SH2.pdf), 2021. [Online; accessed 15-January-2021].
- [3] Nextstrain: Real-time tracking of pathogen evolution. <https://nextstrain.org>, 2021. [Online; accessed 14-January-2021].
- [4] Sars-cov-2 lineages. <https://cov-lineages.org>, 2021. [Online; accessed 14-January-2021].