COVID-19 subject UPHS-0639

2021-06-23

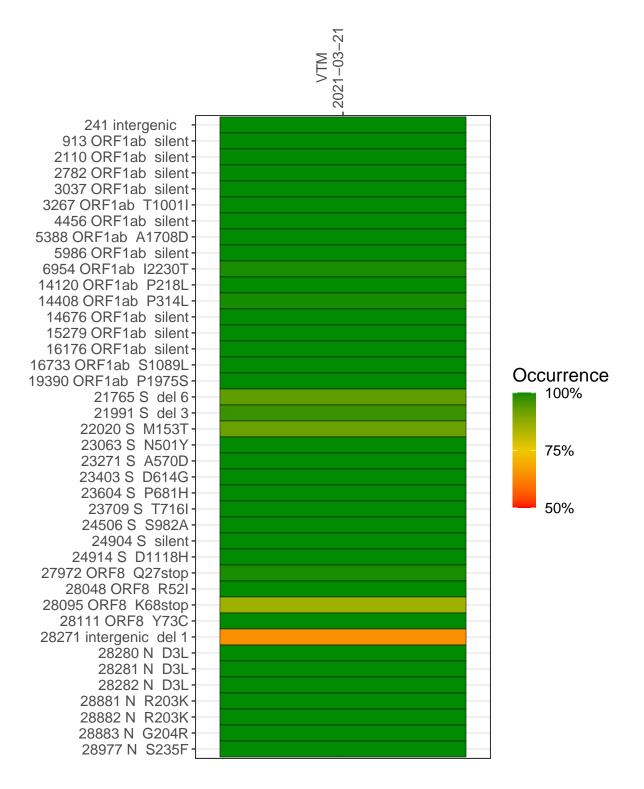
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with > 90% sequence coverage.

Table 1. Sample summary.

Experiment	Туре	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP1824-1	single experiment	NA	VTM	2021-03-21	29.71	B.1.1.7	99.7%	99.3%

Variants shared across samples

The heat map below shows how variants (reference genome /home/common/SARS-CoV-2-Philadelphia/Wuhan-Hu-1) are shared across subject samples where the percent variance is colored. Variants are called if a variant position is covered by 5 or more reads, the alternative base is found in > 50% of read pairs and the variant yields a PHRED score > 20. Gray tiles denote positions where the variant was not the major variant or no variants were found. The relative base compositions of each experiment used to calculate tiles are shown in the following plot where the total number of position reads are shown atop of each plot.



VTM 2021-03-21

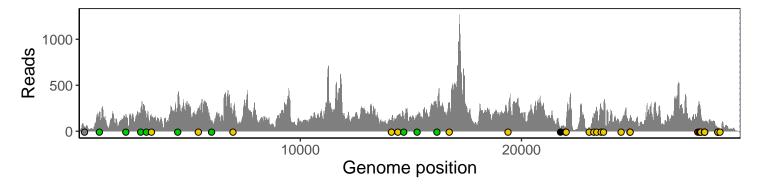
	2021-03-21
241 intergenic	44
913 ORF1ab silent	201
2110 ORF1ab silent	108
2782 ORF1ab silent	232
3037 ORF1ab silent	151
3267 ORF1ab T1001I	172
4456 ORF1ab silent	347
5388 ORF1ab A1708D	213
5986 ORF1ab silent	119
6954 ORF1ab I2230T	136
14120 ORF1ab P218L	108
14408 ORF1ab P314L	157
14676 ORF1ab silent	109
15279 ORF1ab silent	145
16176 ORF1ab silent	261
16733 ORF1ab S1089L	291
19390 ORF1ab P1975S	200
21765 S del 6	30
21991 S del 3	35
22020 S M153T	63
23063 S N501Y	46
23271 S A570D	164
23403 S D614G	264
23604 S P681H	243
23709 S T716I	213
24506 S S982A	112
24904 S silent	137
24914 S D1118H	171
27972 ORF8 Q27stop	263
28048 ORF8 R52I	285
28095 ORF8 K68stop	242
28111 ORF8 Y73C	185
28271 intergenic del 1	84
28280 N D3L	54
28281 N D3L	54
28282 N D3L	55
28881 N R203K	24
28882 N R203K	24
28883 N G204R	24
28977 N S235F	26
	-42
	78,
	VSP1824-1
	>



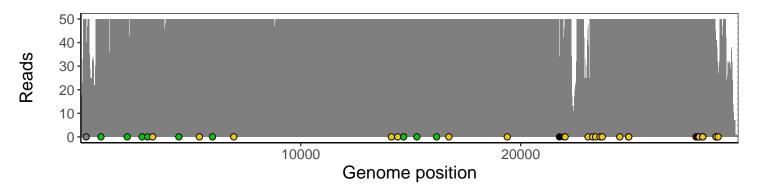
Analyses of individual experiments and composite results

VSP1824-1 | 2021-03-21 | VTM | UPHS-0639 | genomes | single experiment

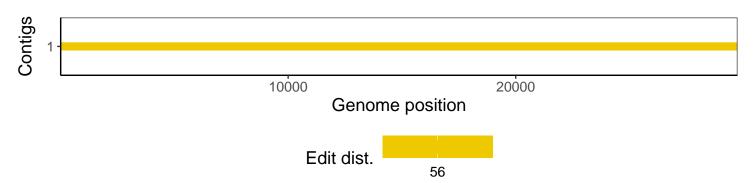
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



Software environment

Software/R package	Version
R	3.4.0
bwa	0.7.17-r1198-dirty
samtools	1.10 Using htslib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htslib $1.10.2-57-gf58a6f3$
pangolin	3.1.3
genbankr	1.4.0
optparse	1.6.0
forcats	0.3.0
stringr	1.4.0
dplyr	0.8.1
purrr	0.2.5
readr	1.1.1
tidyr	0.8.1
tibble	2.1.2
ggplot2	3.3.3
tidyverse	1.2.1
ShortRead	1.34.2
GenomicAlignments	1.12.2
${\bf Summarized Experiment}$	1.6.5
DelayedArray	0.2.7
matrixStats	0.54.0
Biobase	2.36.2
Rsamtools	1.28.0
GenomicRanges	1.28.6
GenomeInfoDb	1.12.3
Biostrings	2.44.2
XVector	0.16.0
IRanges	2.10.5
S4Vectors	0.14.7
BiocParallel	1.10.1
BiocGenerics	0.22.1