COVID-19 subject UPHS-0238

2021-06-23

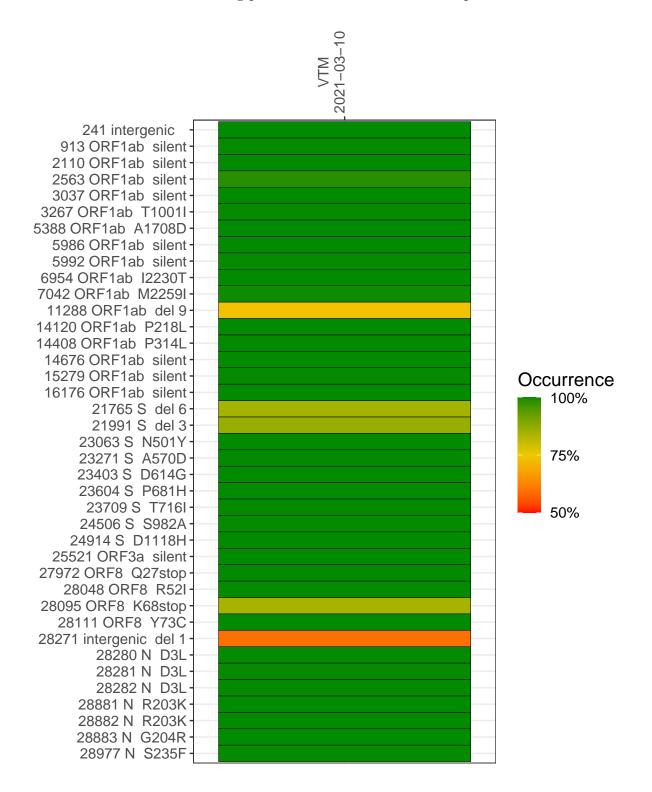
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1283-1	single experiment	NA	VTM	2021-03-10	29.87	B.1.1.7	99.9%	99.8%

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 2021-03-10

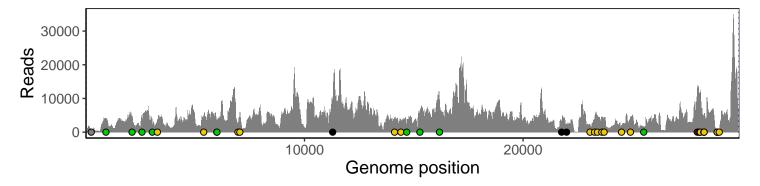
	2021-03-10
241 intergenic	701
913 ORF1ab silent	3870
2110 ORF1ab silent	4567
2563 ORF1ab silent	4969
3037 ORF1ab silent	2738
3267 ORF1ab T1001I	3823
5388 ORF1ab A1708D	4535
5986 ORF1ab silent	3559
5992 ORF1ab silent	3601
6954 ORF1ab I2230T	2757
7042 ORF1ab M2259I	4785
11288 ORF1ab del 9	6256
14120 ORF1ab P218L	4126
14408 ORF1ab P314L	3404
14676 ORF1ab silent	2059
15279 ORF1ab silent	5593
16176 ORF1ab silent	9573
21765 S del 6	2823
21991 S del 3	2115
23063 S N501Y	2190
23271 S A570D	3678
23403 S D614G	4790
23604 S P681H	4277
23709 S T716I	4087
24506 S S982A	2012
24914 S D1118H	4573
25521 ORF3a silent	1611
27972 ORF8 Q27stop	12621
28048 ORF8 R52I	11313
28095 ORF8 K68stop	11507
28111 ORF8 Y73C	11165
28271 intergenic del 1	4489
28280 N D3L	2580
28281 N D3L	2580
28282 N D3L	2776
28881 N R203K	516
28882 N R203K	507
28883 N G204R	518
28977 N S235F	725
	89



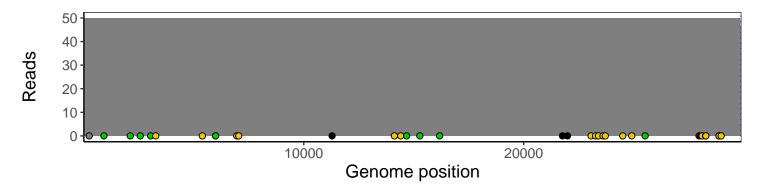
Analyses of individual experiments and composite results

VSP1283-1 | 2021-03-10 | VTM | UPHS-0238 | genomes | single experiment

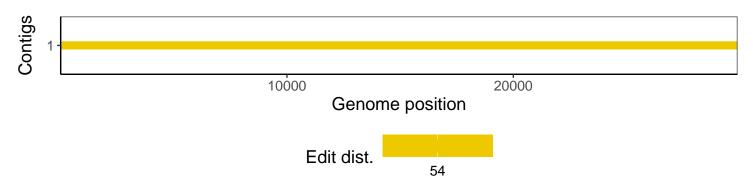
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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				