

COVID-19 subject UPHS-0131

2021-05-05

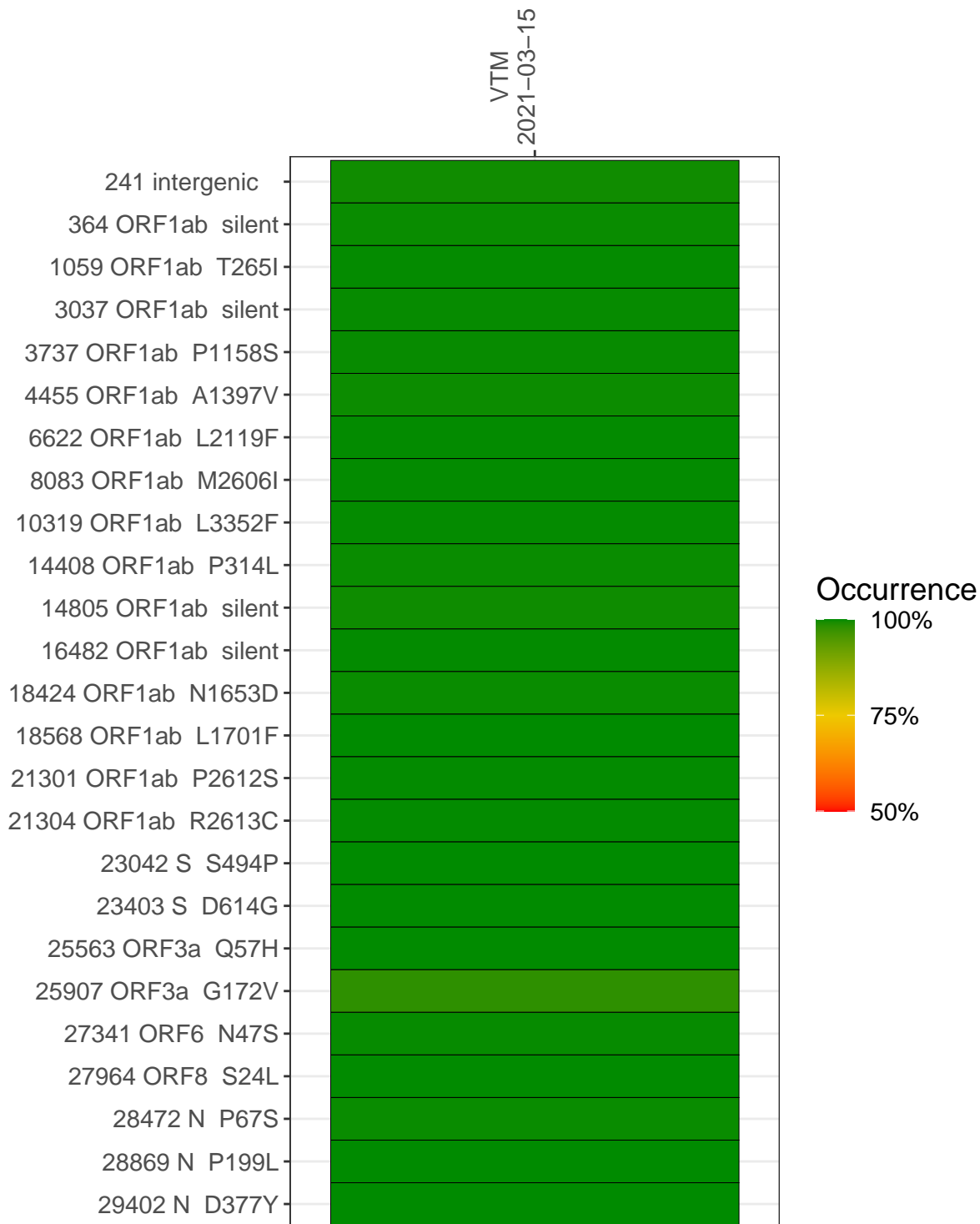
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (≥ 5 reads)
VSP1116-1	single experiment	NA	VTM	2021-03-15	29.92	B.1.2	99.9%	99.8%

Variants shared across samples

The heat map below shows how variants (reference genome /home/everett/projects/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
2021-03-15

241 intergenic	1197
364 ORF1ab silent	956
1059 ORF1ab T265I	3344
3037 ORF1ab silent	3495
3737 ORF1ab P1158S	3703
4455 ORF1ab A1397V	3021
6622 ORF1ab L2119F	8024
8083 ORF1ab M2606I	1208
10319 ORF1ab L3352F	5421
14408 ORF1ab P314L	6200
14805 ORF1ab silent	1193
16482 ORF1ab silent	1614
18424 ORF1ab N1653D	1420
18568 ORF1ab L1701F	827
21301 ORF1ab P2612S	4848
21304 ORF1ab R2613C	4774
23042 S S494P	602
23403 S D614G	3247
25563 ORF3a Q57H	2824
25907 ORF3a G172V	1069
27341 ORF6 N47S	4792
27964 ORF8 S24L	8629
28472 N P67S	5105
28869 N P199L	271
29402 N D377Y	419

Base change

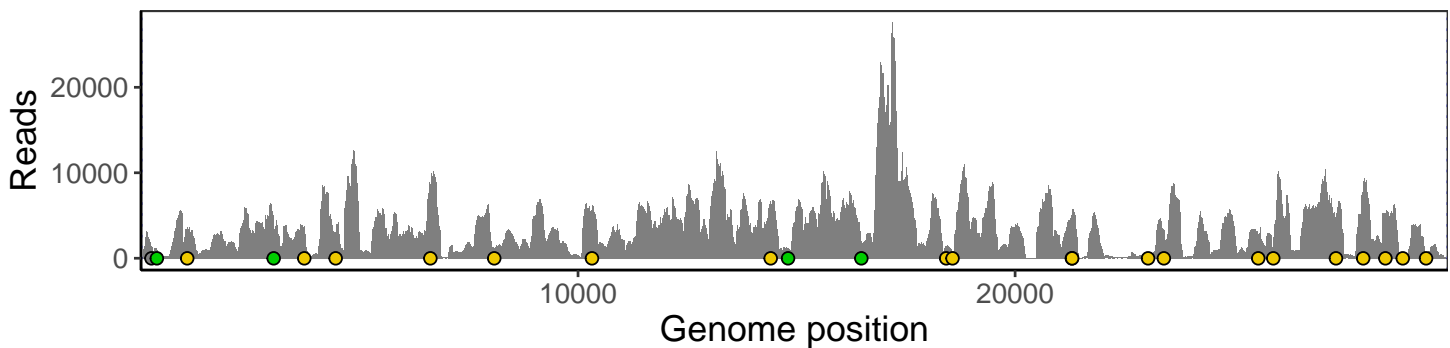


VSP1116-1

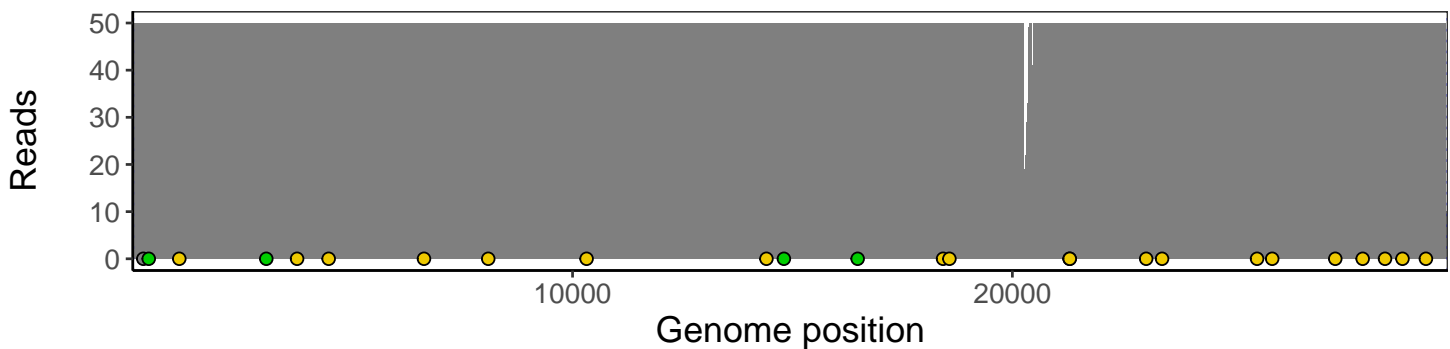
Analyses of individual experiments and composite results

VSP1116-1 | 2021-03-15 | VTM | UPHS-0131 | genomes | single experiment

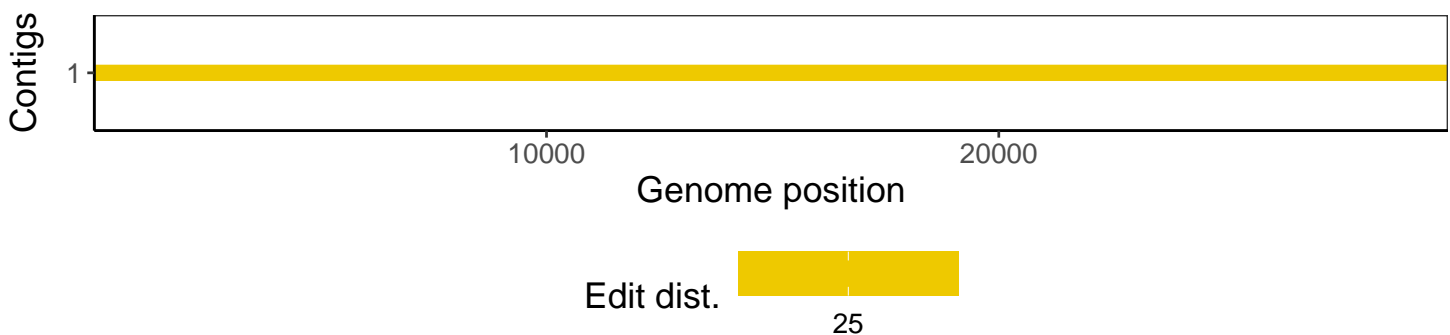
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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 htlib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htlib 1.10.2-57-gf58a6f3
pangolin	2.3.8
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	3.0.0
tidyverse	1.2.1
ShortRead	1.34.2
GenomicAlignments	1.12.2
SummarizedExperiment	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