

COVID-19 subject UPHS-0160

2021-03-31

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.

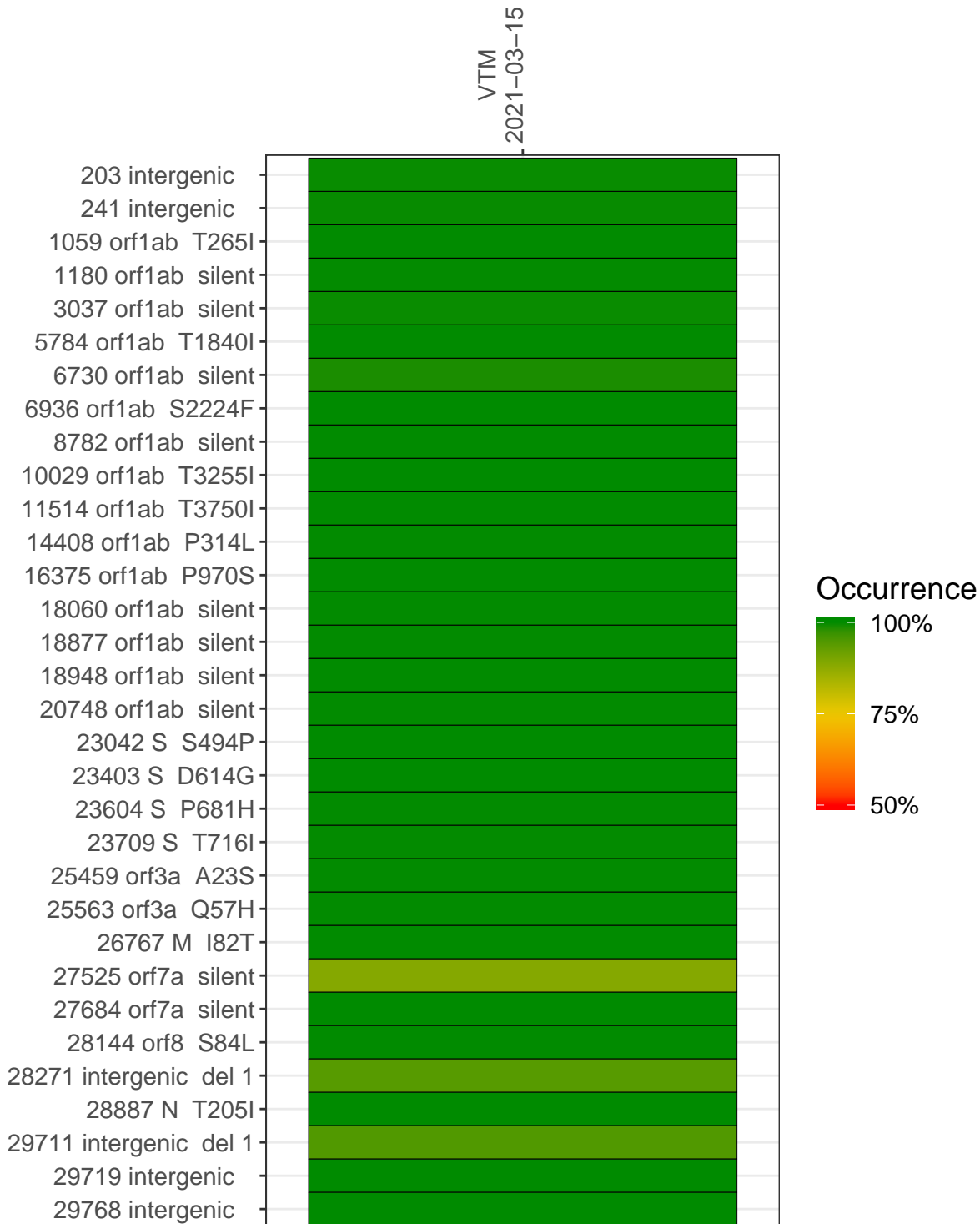
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with $> 90\%$ sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (≥ 5 reads)
VSP1145-1	single experiment	NA	VTM	2021-03-15	29.68	B.1.442	99.3%	99.3%

Variants shared across samples

The heat map below shows how variants (reference genome USA-WA1-2020) 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	
203 intergenic	5868	
241 intergenic	4492	
1059 orf1ab T265I	5576	
1180 orf1ab silent	5610	
3037 orf1ab silent	5002	
5784 orf1ab T1840I	5813	
6730 orf1ab silent	7632	
6936 orf1ab S2224F	38	
8782 orf1ab silent	8290	
10029 orf1ab T3255I	3182	
11514 orf1ab T3750I	6849	
14408 orf1ab P314L	7709	
16375 orf1ab P970S	8071	
18060 orf1ab silent	7958	
18877 orf1ab silent	16039	
18948 orf1ab silent	13694	
20748 orf1ab silent	15717	
23042 S S494P	507	
23403 S D614G	8302	
23604 S P681H	9617	
23709 S T716I	8748	
25459 orf3a A23S	7700	
25563 orf3a Q57H	11218	
26767 M I82T	7781	
27525 orf7a silent	492	
27684 orf7a silent	67	
28144 orf8 S84L	7650	
28271 intergenic del 1	6513	
28887 N T205I	1749	
29711 intergenic del 1	623	
29719 intergenic	545	
29768 intergenic	695	
	VSP1145-1	

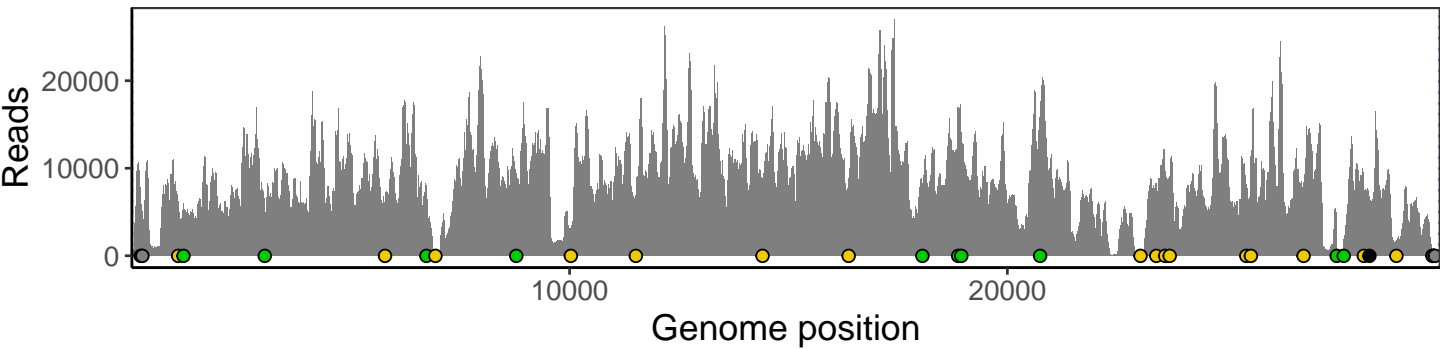
Base change

- Expected
- A
- T
- C
- G
- N
- Ins/Del
- No data

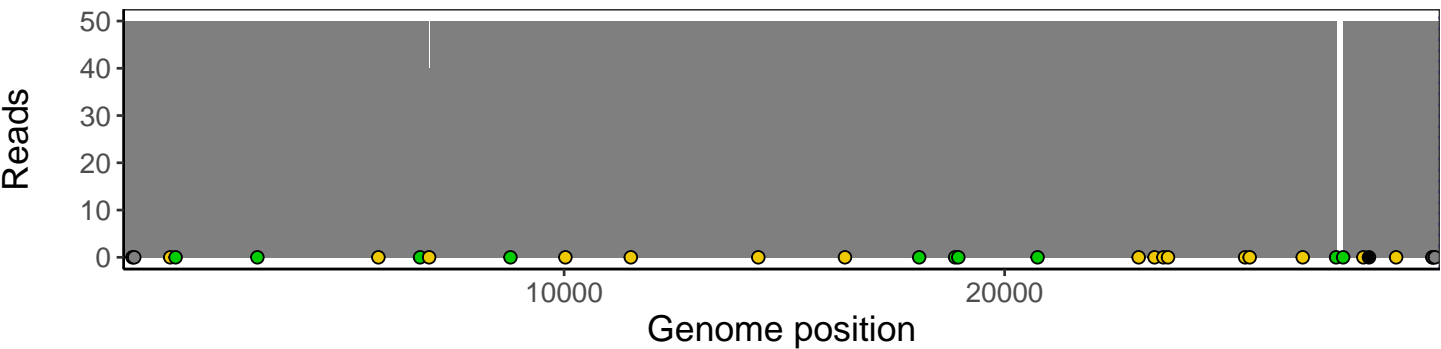
Analyses of individual experiments and composite results

VSP1145-1 | 2021-03-15 | VTM | UPHS-0160 | genomes | single experiment

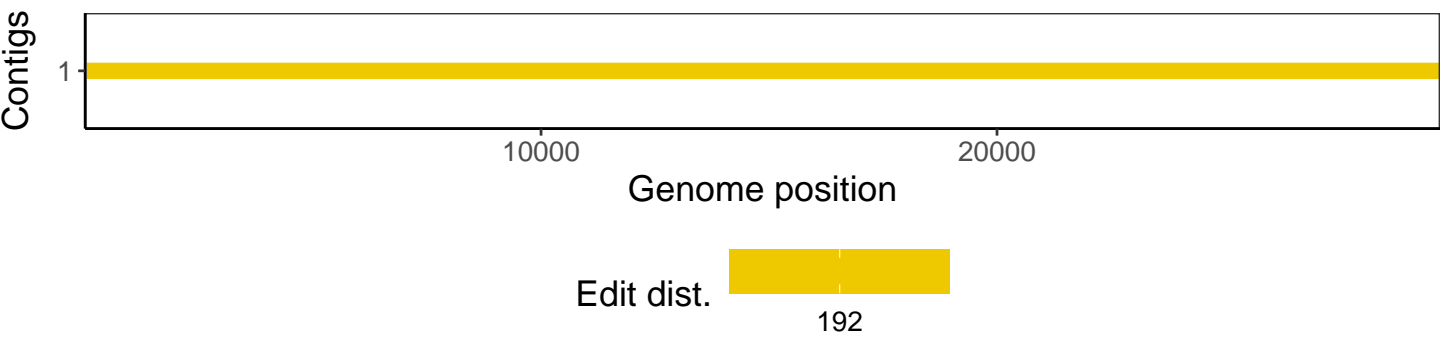
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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 htlib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htlib 1.10.2-57-gf58a6f3
pangolin	2.3.3
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	3.0.0
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