

COVID-19 subject UPHS-0128

2021-03-29

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.

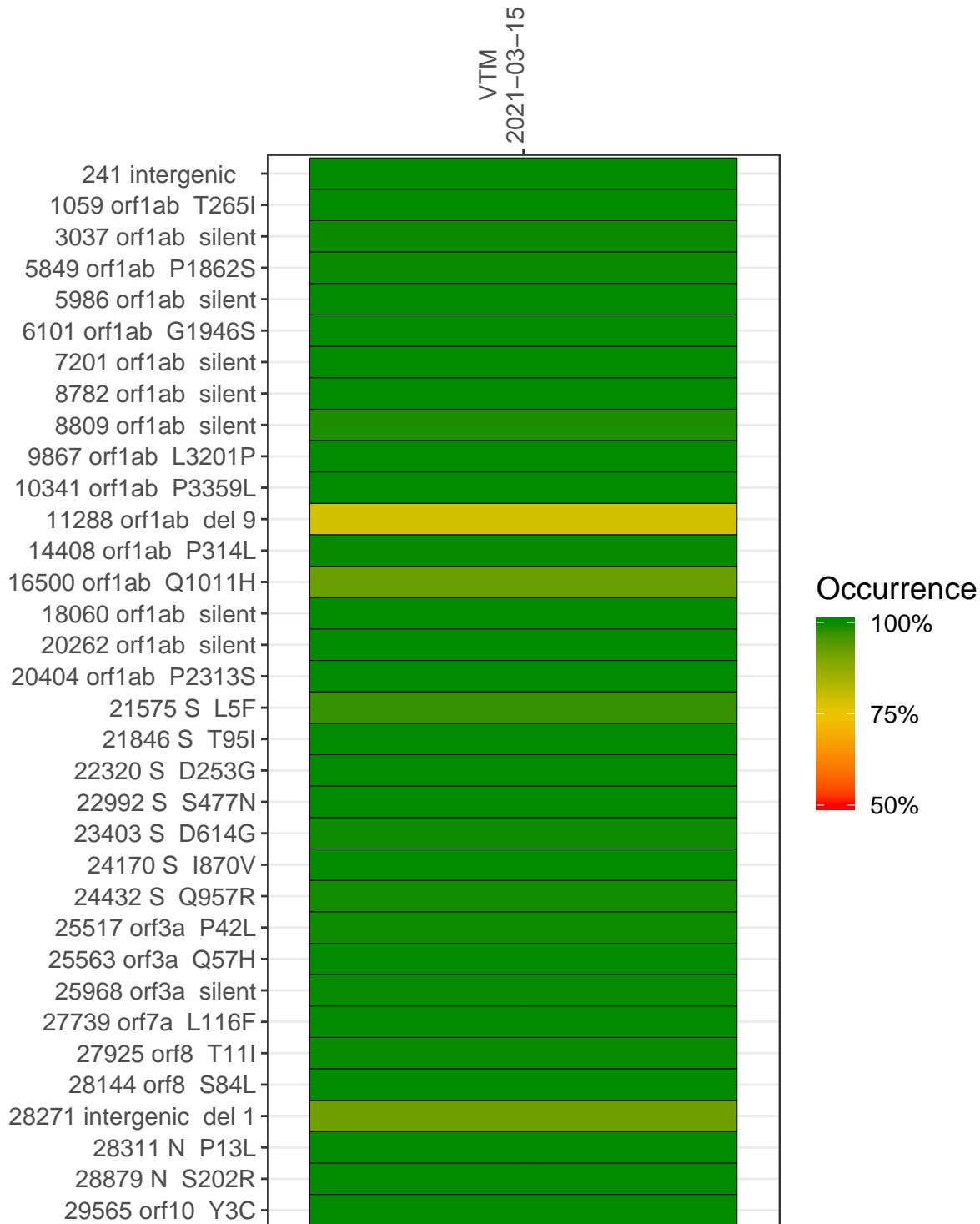
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with $> 90\%$ sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (≥ 5 reads)
VSP1113-1	single experiment	NA	VTM	2021-03-15	29.79	B.1.526	99.9%	99.8%

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

241 intergenic	136
1059 orf1ab T265I	345
3037 orf1ab silent	389
5849 orf1ab P1862S	842
5986 orf1ab silent	323
6101 orf1ab G1946S	395
7201 orf1ab silent	208
8782 orf1ab silent	485
8809 orf1ab silent	432
9867 orf1ab L3201P	66
10341 orf1ab P3359L	846
11288 orf1ab del 9	731
14408 orf1ab P314L	693
16500 orf1ab Q1011H	450
18060 orf1ab silent	667
20262 orf1ab silent	119
20404 orf1ab P2313S	176
21575 S L5F	111
21846 S T95I	575
22320 S D253G	36
22992 S S477N	146
23403 S D614G	664
24170 S I870V	234
24432 S Q957R	233
25517 orf3a P42L	283
25563 orf3a Q57H	257
25968 orf3a silent	598
27739 orf7a L116F	204
27925 orf8 T11I	1040
28144 orf8 S84L	579
28271 intergenic del 1	393
28311 N P13L	379
28879 N S202R	59
29565 orf10 Y3C	376

Base change

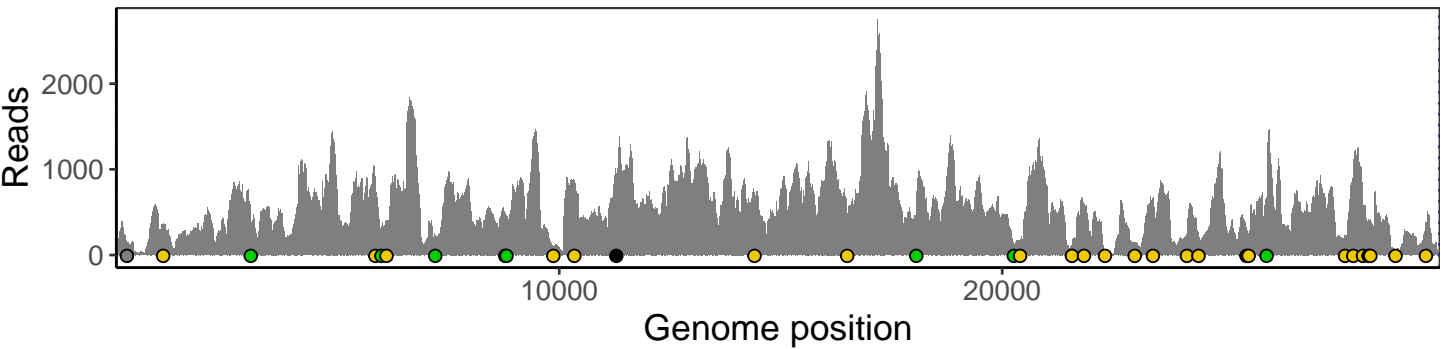
Expected
A
T
C
G
N
Ins/Del
No data

VSP1113-1

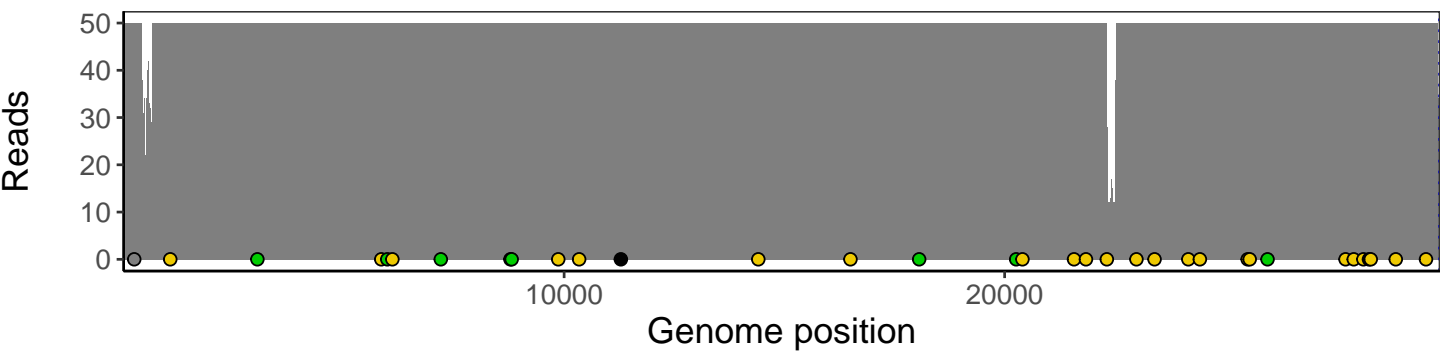
Analyses of individual experiments and composite results

VSP1113-1 | 2021-03-15 | VTM | UPHS-0128 | genomes | single experiment

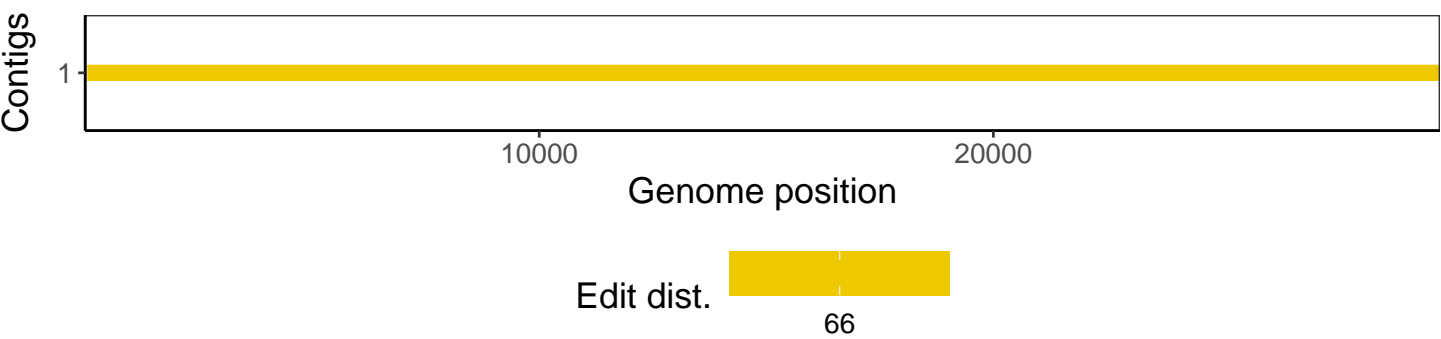
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	2.3.3
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