COVID-19 subject UPHS-1617

2021-06-03

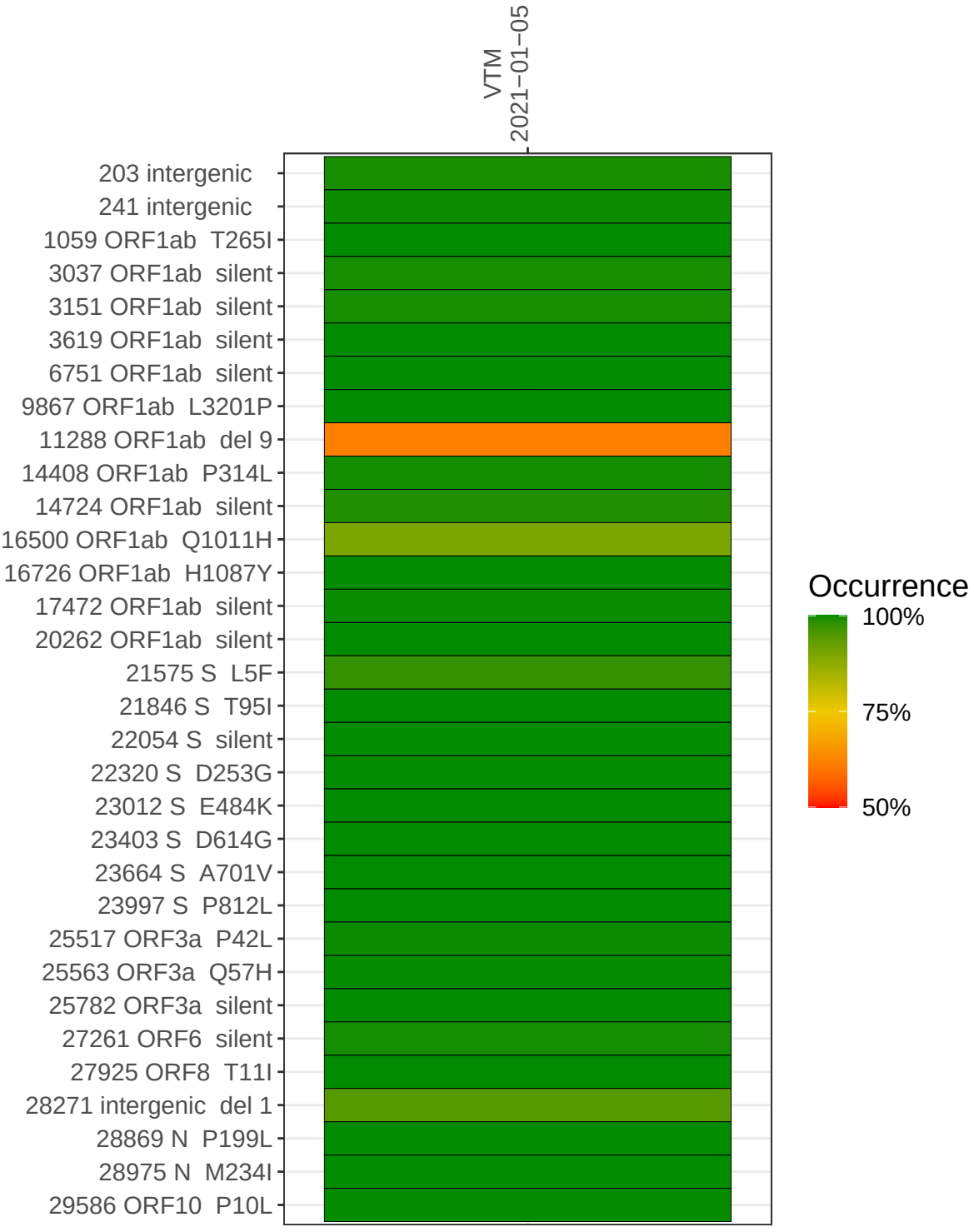
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

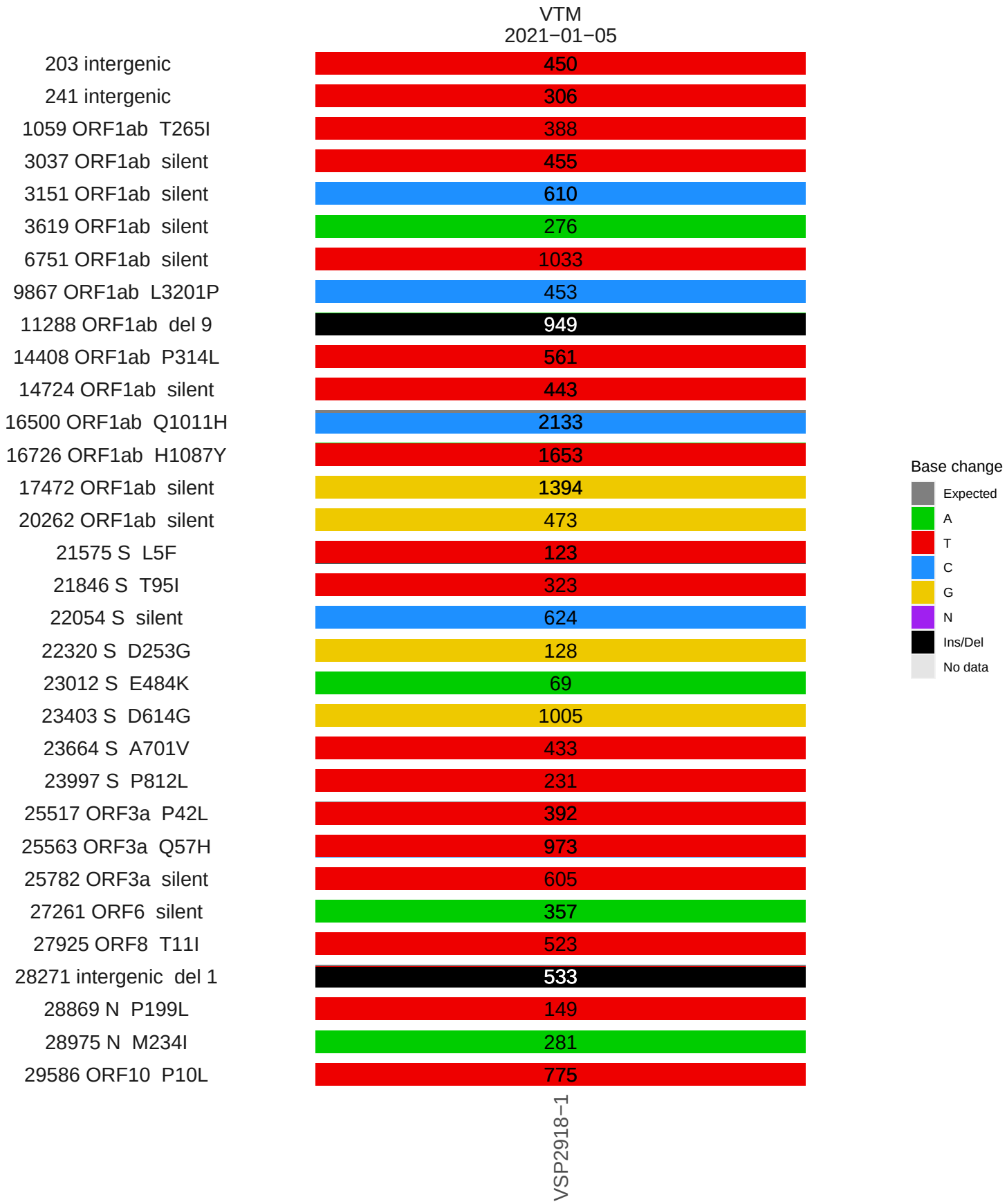
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2918-1	single experiment	NA	VTM	2021-01-05	29.81	B.1.526	99.8%	99.5%

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.

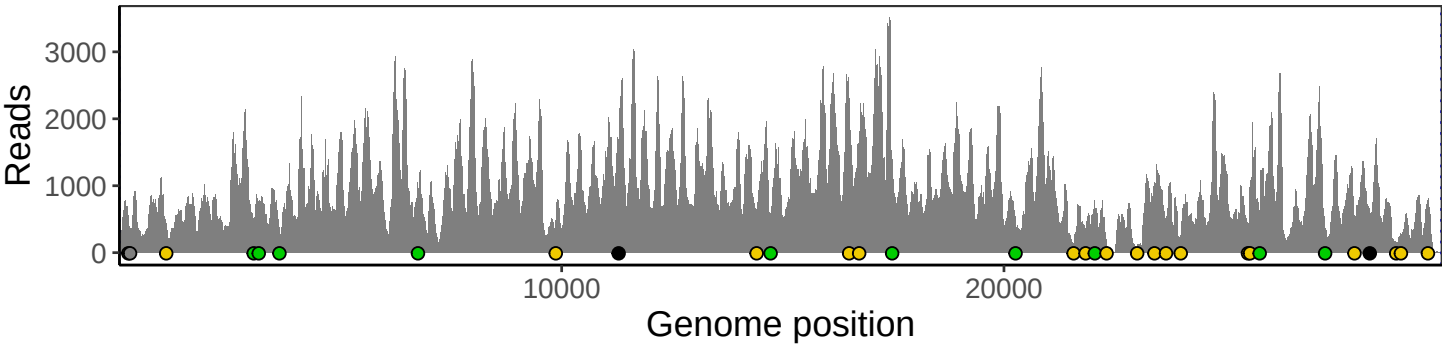



VTM
2021−01−05
203 intergenic
241 intergenic
1059 ORF1ab T265I
3037 ORF1ab silent
3151 ORF1ab silent
3619 ORF1ab silent
6751 ORF1ab silent
9867 ORF1ab L3201P
11288 ORF1ab del 9
14408 ORF1ab P314L
14724 ORF1ab silent
16500 ORF1ab Q1011H
16726 ORF1ab H1087Y
17472 ORF1ab silent
20262 ORF1ab silent
21575 S L5F
21846 S T95I
22054 S silent
22320 S D253G
23012 S E484K
23403 S D614G
23664 S A701V
23997 S P812L
25517 ORF3a P42L
25563 ORF3a Q57H
25782 ORF3a silent
27261 ORF6 silent
27925 ORF8 T11I
28271 intergenic del 1
28869 N P199L
28975 N M234I
29586 ORF10 P10L
450
306
388
455
610
276
1033
453
949
561
443
2133
1653
1394
473
123
323
624
128
69
1005
433
231
392
973
605
357
523
533
149
281
775
VSP2918−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

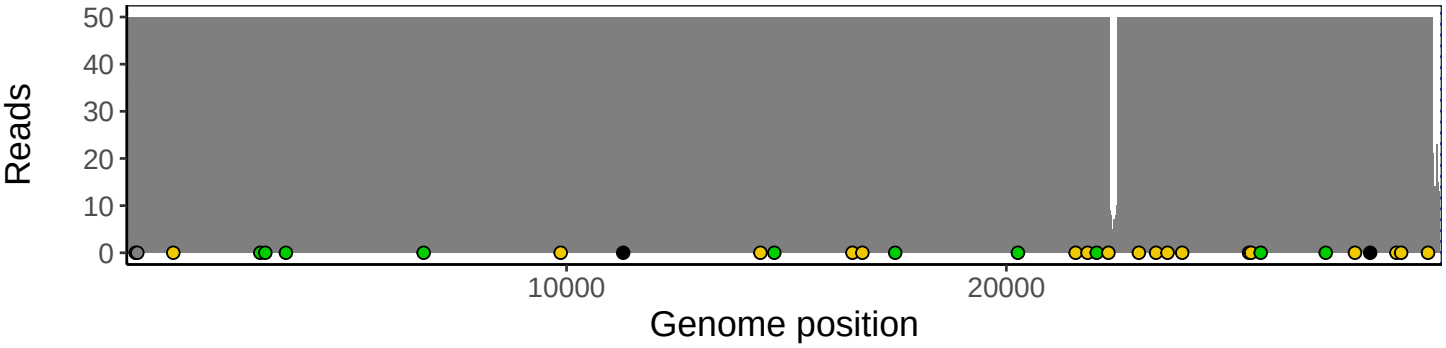
Analyses of individual experiments and composite results

VSP2918-1 | 2021-01-05 | VTM | UPHS-1617 | genomes | single experiment

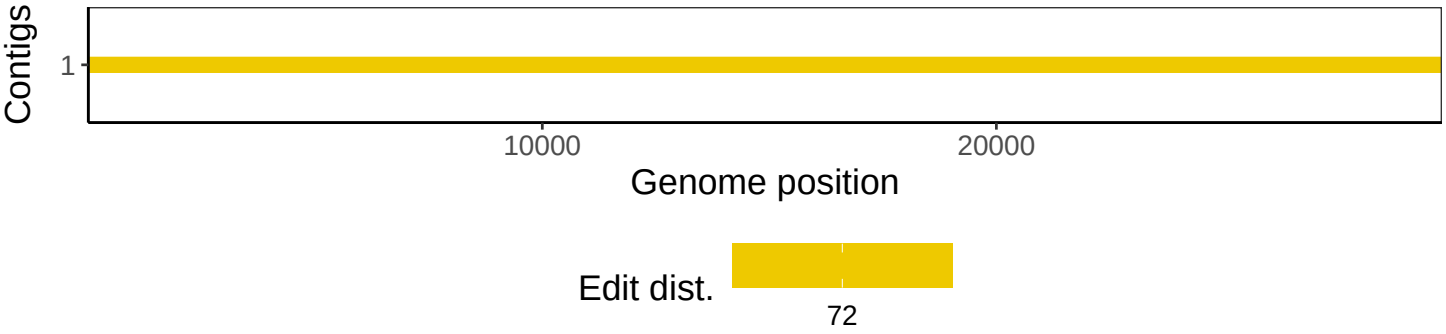
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	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	3.3.3
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