COVID-19 subject UPHS-0416

2021-05-05

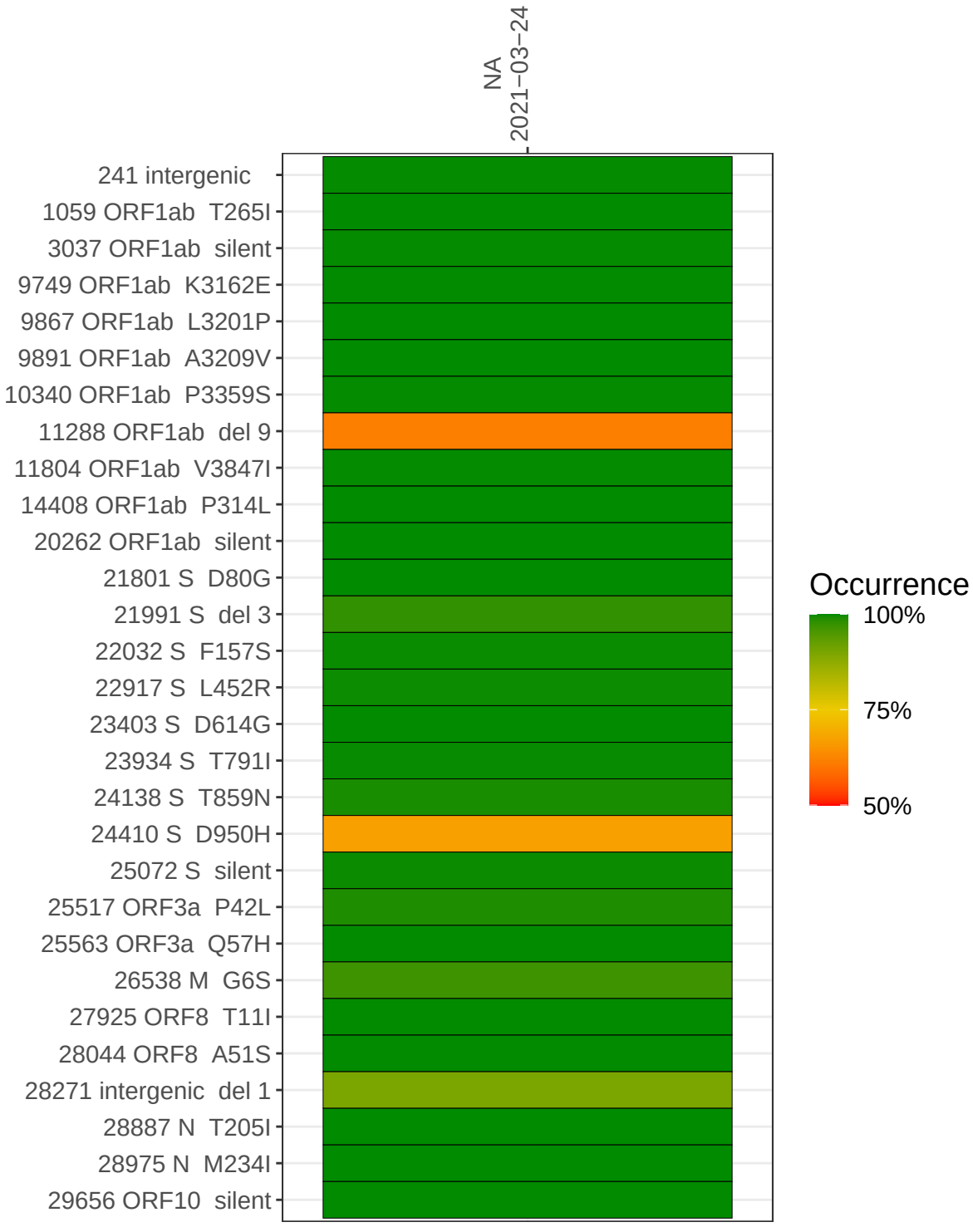
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

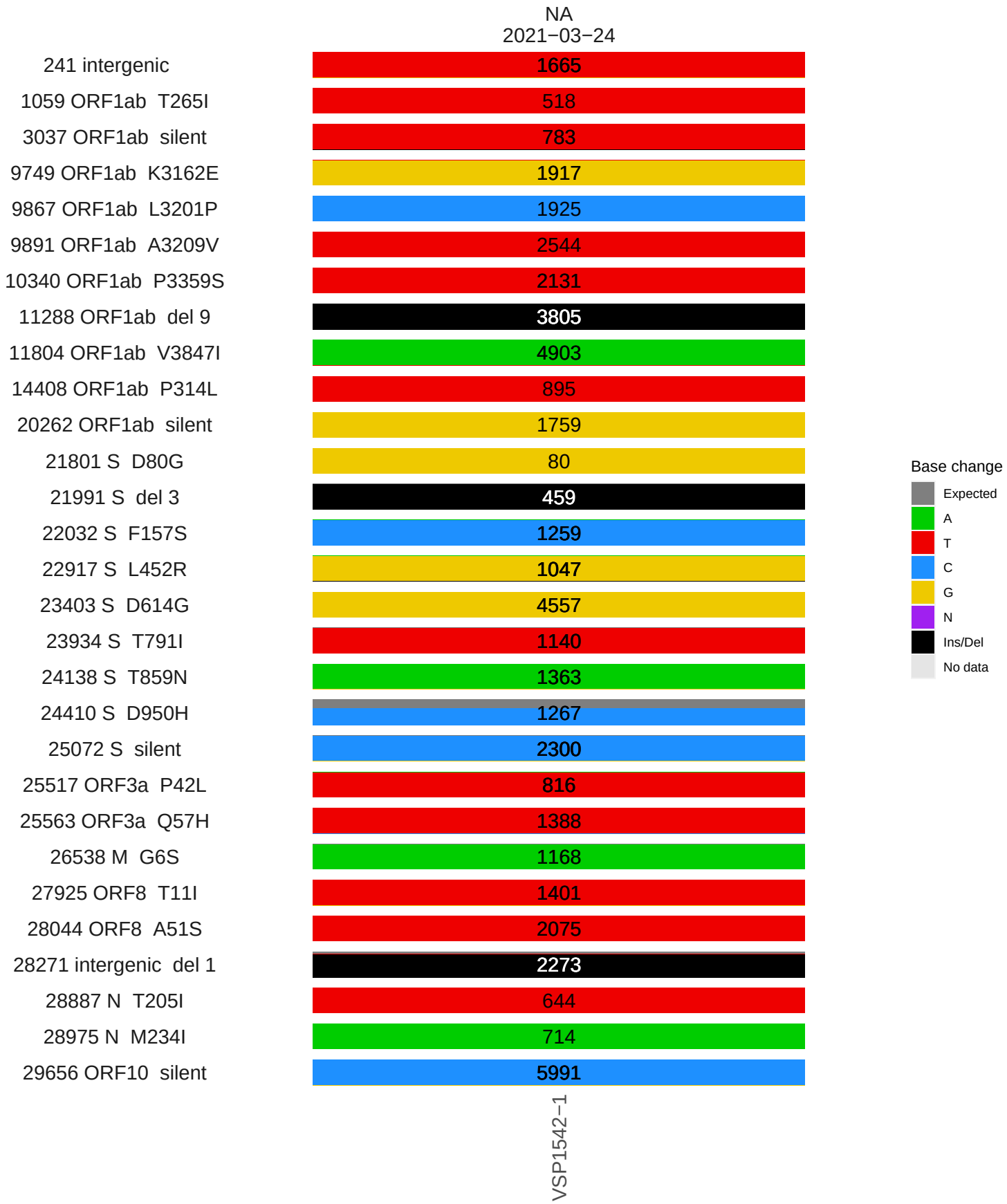
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP1542-1	single experiment	NA	NA	2021-03-24	22.29	B.1.526.1	99.8%	99.1%

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.

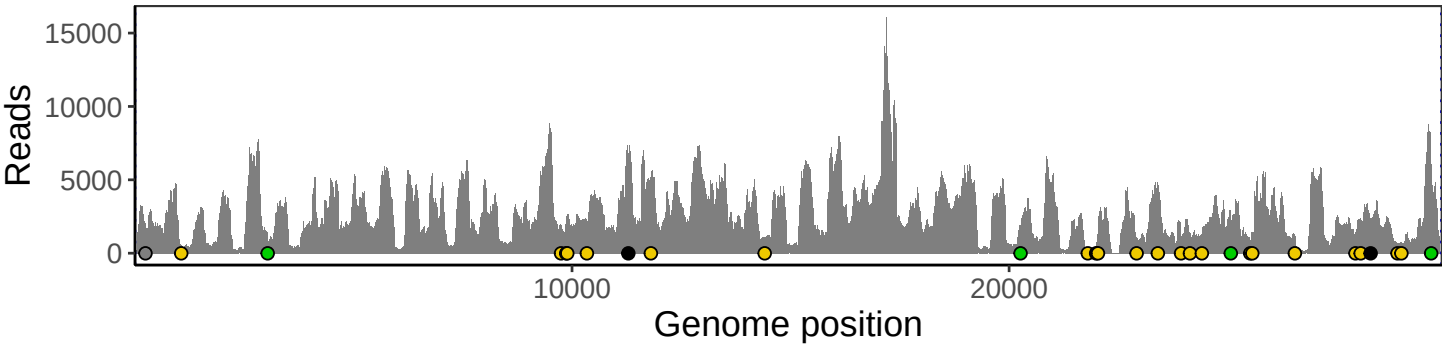



NA
2021−03−24
241 intergenic
1059 ORF1ab T265I
3037 ORF1ab silent
9749 ORF1ab K3162E
9867 ORF1ab L3201P
9891 ORF1ab A3209V
10340 ORF1ab P3359S
11288 ORF1ab del 9
11804 ORF1ab V3847I
14408 ORF1ab P314L
20262 ORF1ab silent
21801 S D80G
21991 S del 3
22032 S F157S
22917 S L452R
23403 S D614G
23934 S T791I
24138 S T859N
24410 S D950H
25072 S silent
25517 ORF3a P42L
25563 ORF3a Q57H
26538 M G6S
27925 ORF8 T11I
28044 ORF8 A51S
28271 intergenic del 1
28887 N T205I
28975 N M234I
29656 ORF10 silent
1665
518
783
1917
1925
2544
2131
3805
4903
895
1759
80
459
1259
1047
4557
1140
1363
1267
2300
816
1388
1168
1401
2075
2273
644
714
5991
VSP1542−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

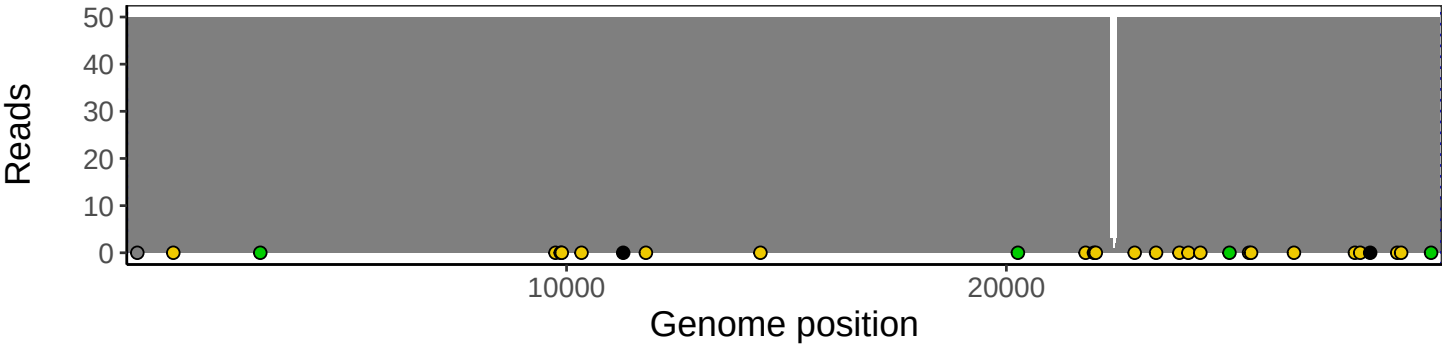
Analyses of individual experiments and composite results

VSP1542-1 | 2021-03-24 | NA | UPHS-0416 | genomes | single experiment

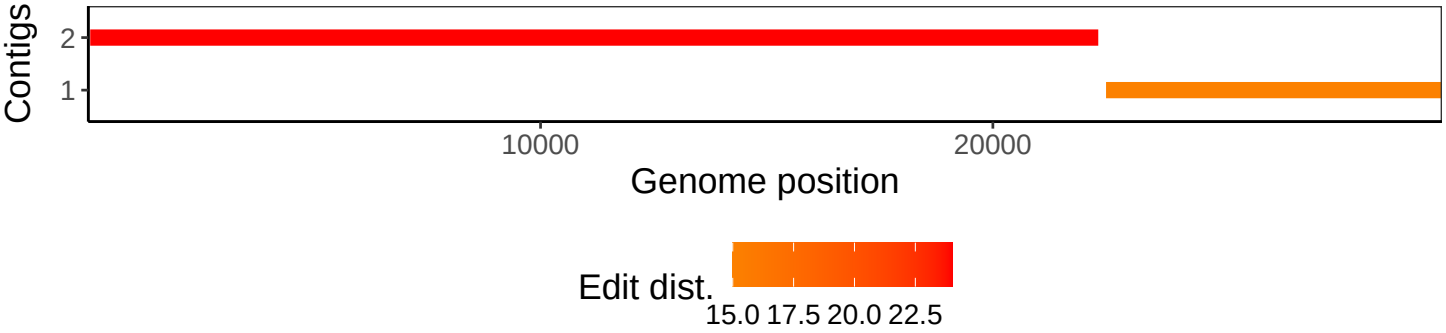
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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