

COVID-19 subject UPHS-0388

2021-06-23

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.

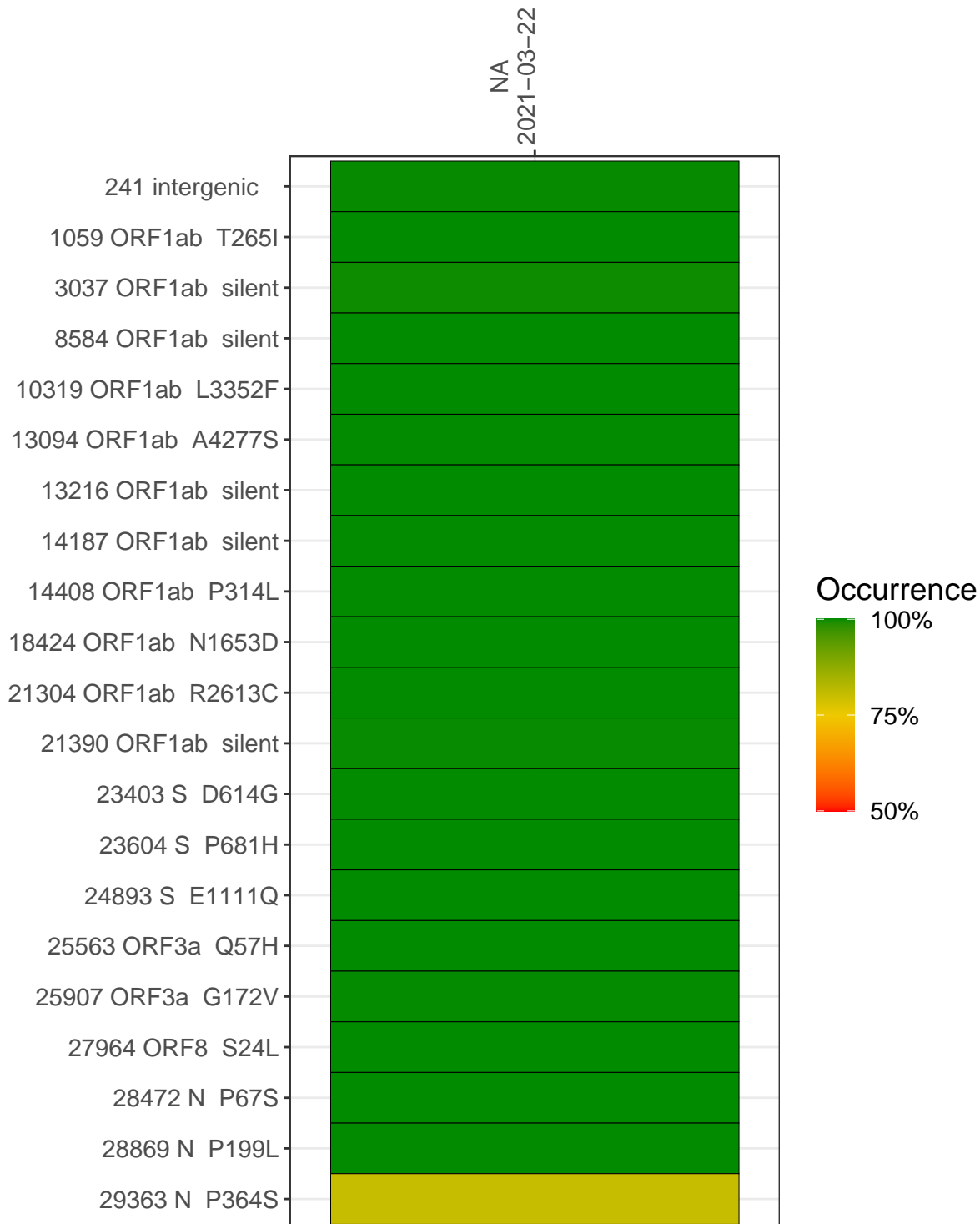
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with $> 90\%$ sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (≥ 5 reads)
VSP1515-1	single experiment	NA	NA	2021-03-22	29.89	B.1.2	99.8%	99.7%

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.



NA
2021-03-22

241 intergenic	1488
1059 ORF1ab T265I	1508
3037 ORF1ab silent	3385
8584 ORF1ab silent	3790
10319 ORF1ab L3352F	2717
13094 ORF1ab A4277S	10510
13216 ORF1ab silent	17411
14187 ORF1ab silent	5483
14408 ORF1ab P314L	5458
18424 ORF1ab N1653D	7921
21304 ORF1ab R2613C	6361
21390 ORF1ab silent	7628
23403 S D614G	7910
23604 S P681H	6095
24893 S E1111Q	9561
25563 ORF3a Q57H	7132
25907 ORF3a G172V	6255
27964 ORF8 S24L	15414
28472 N P67S	9959
28869 N P199L	2036
29363 N P364S	8576

Base change

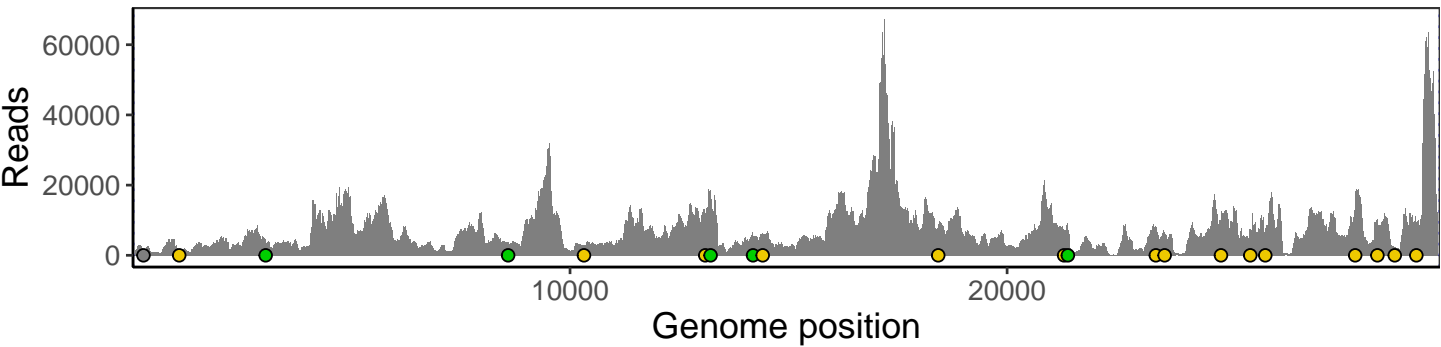
- Expected
- A
- T
- C
- G
- N
- Ins/Del
- No data

VSP1515-1

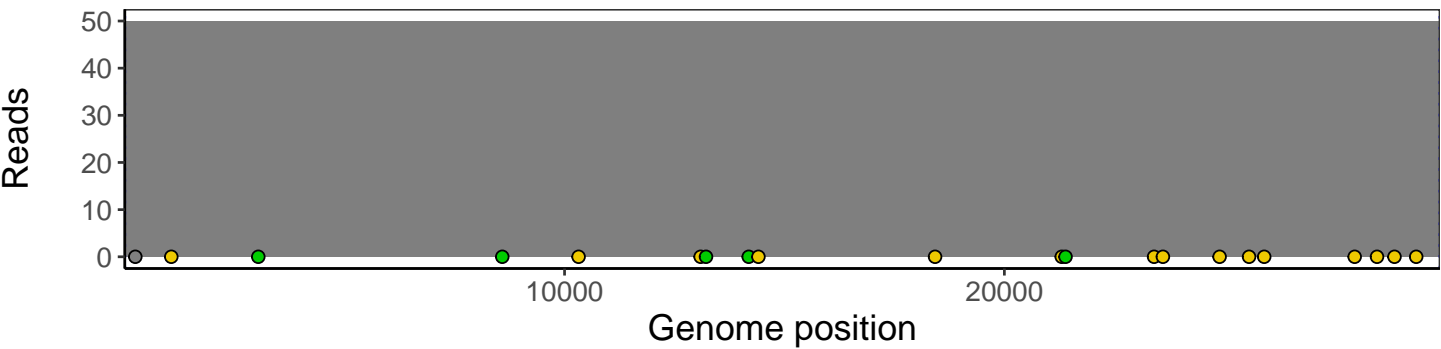
Analyses of individual experiments and composite results

VSP1515-1 | 2021-03-22 | NA | UPHS-0388 | genomes | single experiment

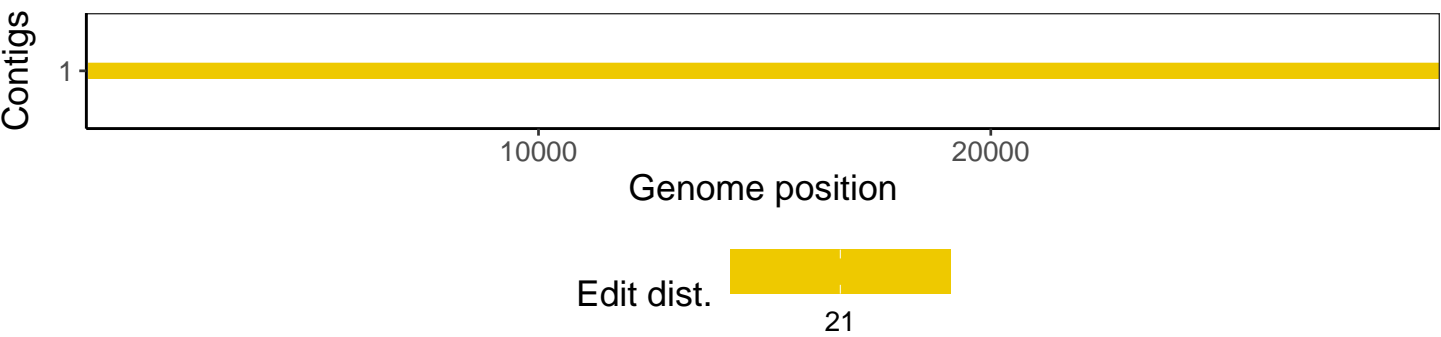
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	3.1.3
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	3.3.3
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