# COVID-19 subject UPHS-0421

2021-06-23

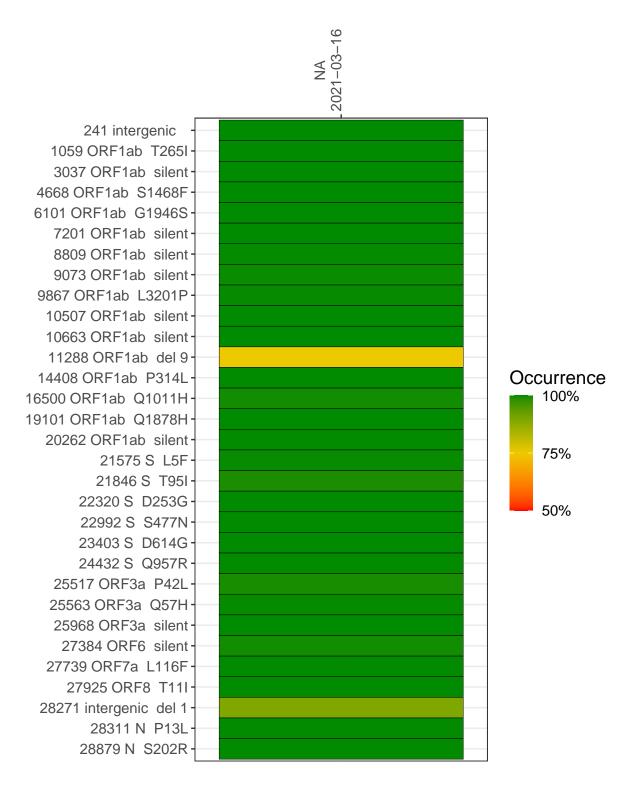
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

Table 1. Sample summary.

Experiment	Туре	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP1547-1	single experiment	NA	NA	2021-03-16	29.86	B.1.526	99.9%	99.8%

#### 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 2021-03-16

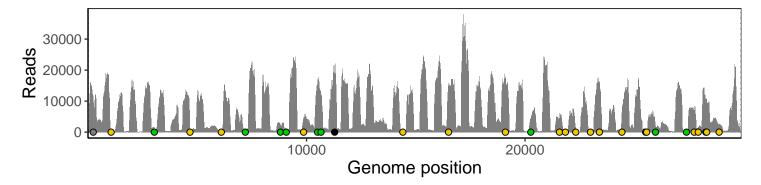
	2021-03-10
241 intergenic	9483
1059 ORF1ab T265I	235
3037 ORF1ab silent	974
4668 ORF1ab S1468F	1003
6101 ORF1ab G1946S	216
7201 ORF1ab silent	203
8809 ORF1ab silent	2286
9073 ORF1ab silent	938
9867 ORF1ab L3201P	3904
10507 ORF1ab silent	14022
10663 ORF1ab silent	10106
11288 ORF1ab del 9	12649
14408 ORF1ab P314L	388
16500 ORF1ab Q1011H	14509
19101 ORF1ab Q1878H	17491
20262 ORF1ab silent	4063
21575 S L5F	4442
21846 S T95I	337
22320 S D253G	1091
22992 S S477N	158
23403 S D614G	15777
24432 S Q957R	4342
25517 ORF3a P42L	547
25563 ORF3a Q57H	647
25968 ORF3a silent	2002
27384 ORF6 silent	407
27739 ORF7a L116F	6710
27925 ORF8 T11I	1647
28271 intergenic del 1	10322
28311 N P13L	10011
28879 N S202R	2560
	7-1
	74.



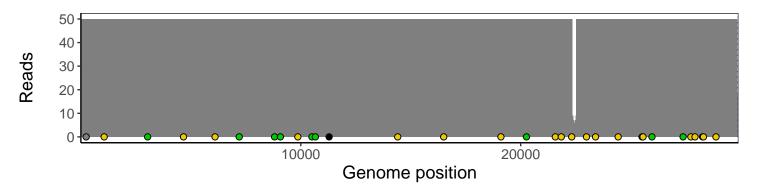
### Analyses of individual experiments and composite results

#### VSP1547-1 | 2021-03-16 | NA | UPHS-0421 | genomes | single experiment

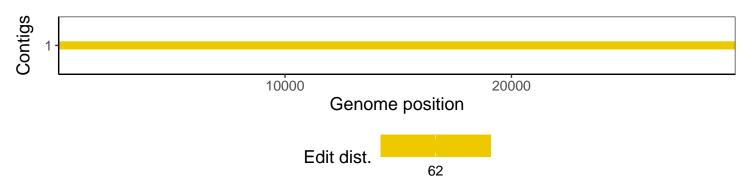
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	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
${\bf Summarized Experiment}$	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