COVID-19 subject UPHS-0306

2021-05-05

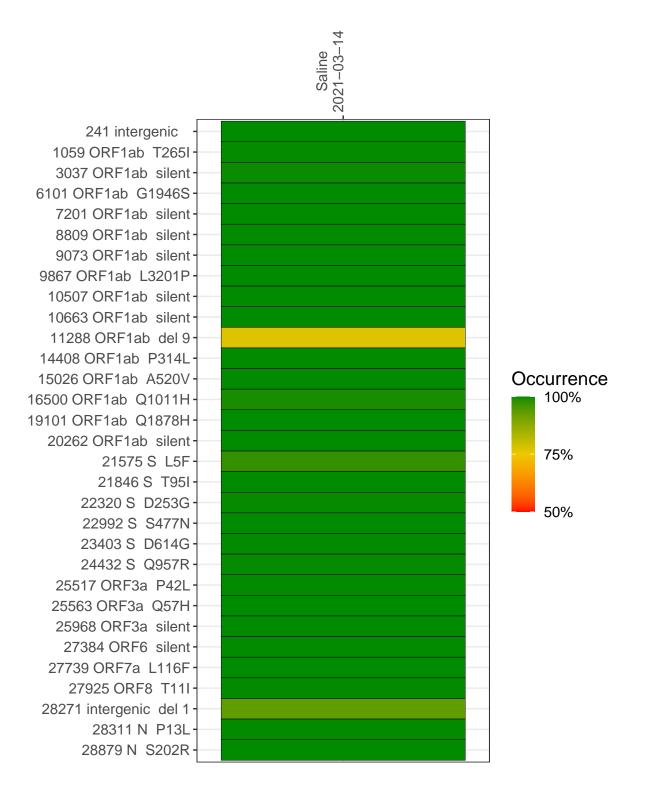
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1351-1	single experiment	NA	Saline	2021-03-14	29.78	B.1.526.2	99.8%	99.7%

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.



Saline 2021-03-14

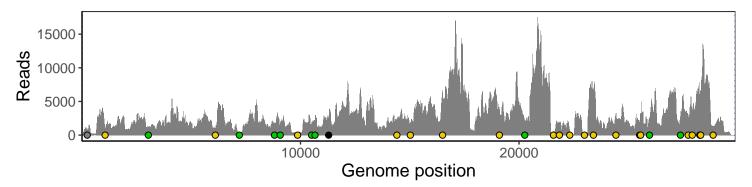
241 intergenic	800
1059 ORF1ab T265I	1016
3037 ORF1ab silent	1111
6101 ORF1ab G1946S	941
7201 ORF1ab silent	259
8809 ORF1ab silent	1430
9073 ORF1ab silent	1611
9867 ORF1ab L3201P	152
10507 ORF1ab silent	1555
10663 ORF1ab silent	1769
11288 ORF1ab del 9	1665
14408 ORF1ab P314L	2080
15026 ORF1ab A520V	1752
16500 ORF1ab Q1011H	5784
19101 ORF1ab Q1878H	3914
20262 ORF1ab silent	2023
21575 S L5F	468
21846 S T95I	1678
22320 S D253G	682
22992 S S477N	54
23403 S D614G	6720
24432 S Q957R	2715
25517 ORF3a P42L	1808
25563 ORF3a Q57H	3094
25968 ORF3a silent	2435
27384 ORF6 silent	2369
27739 ORF7a L116F	2573
27925 ORF8 T11I	3630
28271 intergenic del 1	5920
28311 N P13L	6327
28879 N S202R	1288
	7
	351
	VSP1351–1
	>



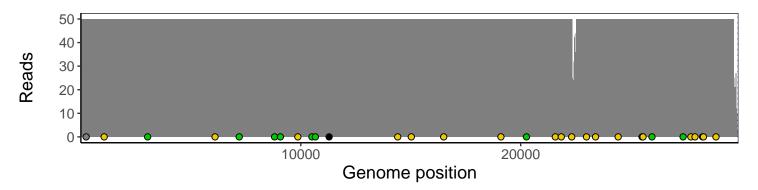
Analyses of individual experiments and composite results

VSP1351-1 | 2021-03-14 | Saline | UPHS-0306 | genomes | single experiment

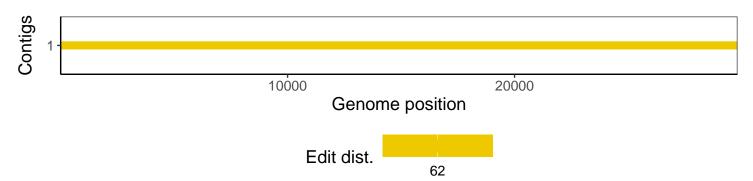
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	3.0.0
tidyverse	1.2.1
ShortRead	1.34.2
${\it Genomic Alignments}$	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
$\operatorname{GenomeInfoDb}$	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