COVID-19 subject UPHS-0320

2021-04-17

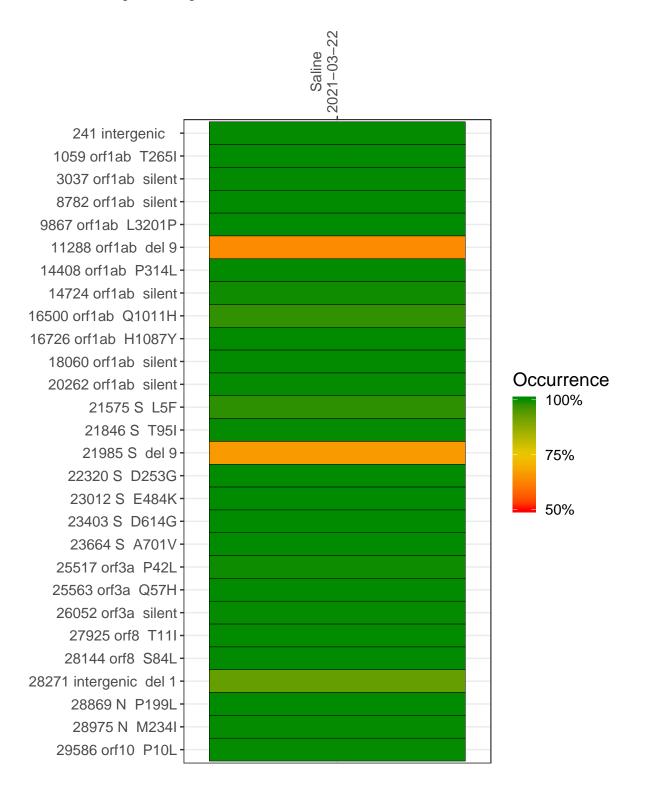
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1365-1	single experiment	NA	Saline	2021-03-22	29.80	B.1.526	99.8%	99.8%

Variants shared across samples

The heat map below shows how variants (reference genome /home/everett/projects/SARS-CoV-2-Philadelphia/USA-WA1-2020) 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 2021-03-22

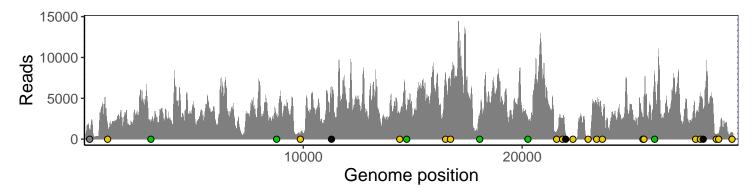
	2021-03-22
241 intergenic	1068
1059 orf1ab T265I	1555
3037 orf1ab silent	1848
8782 orf1ab silent	2729
9867 orf1ab L3201P	586
11288 orf1ab del 9	3529
14408 orf1ab P314L	2750
14724 orf1ab silent	2891
16500 orf1ab Q1011H	7 660
16726 orf1ab H1087Y	6549
18060 orf1ab silent	2738
20262 orf1ab silent	2278
21575 S L5F	772
21846 S T95I	2215
21985 S del 9	551
22320 S D253G	44
23012 S E484K	79
23403 S D614G	4472
23664 S A701V	2367
25517 orf3a P42L	2509
25563 orf3a Q57H	5103
26052 orf3a silent	8043
27925 orf8 T11I	2488
28144 orf8 S84L	5194
28271 intergenic del 1	3554
28869 N P199L	549
28975 N M234I	802
29586 orf10 P10L	832
	1965–1
	99



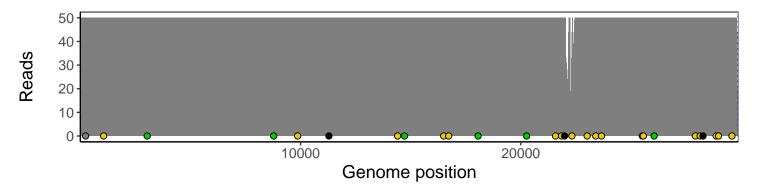
Analyses of individual experiments and composite results

VSP1365-1 | 2021-03-22 | Saline | UPHS-0320 | genomes | single experiment

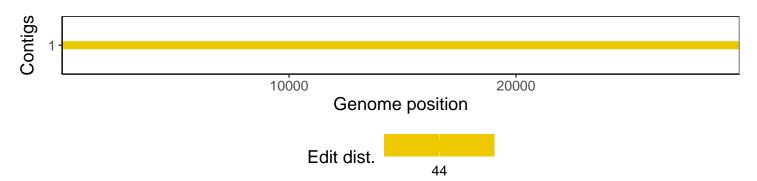
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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