COVID-19 subject UPHS-0318

2021-04-17

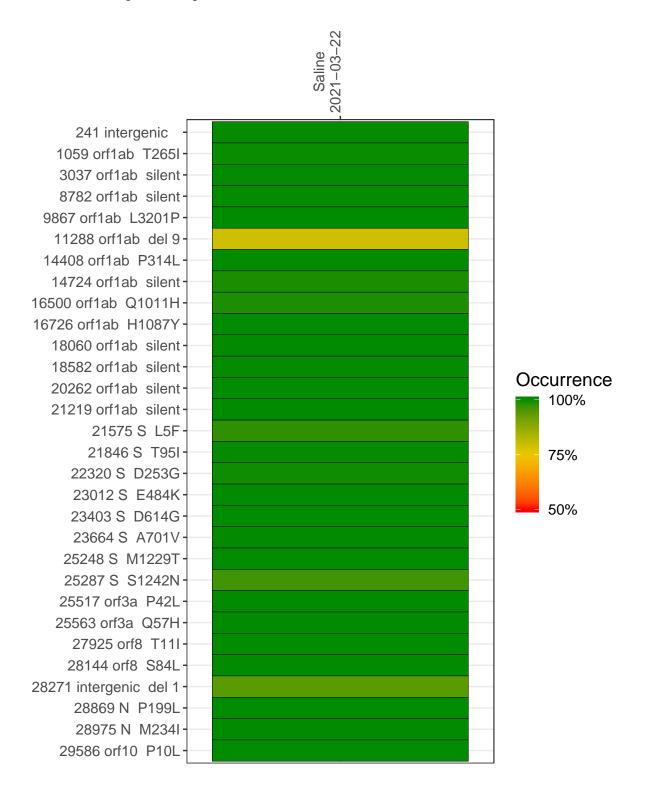
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1363-1	single experiment	NA	Saline	2021-03-22	29.81	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

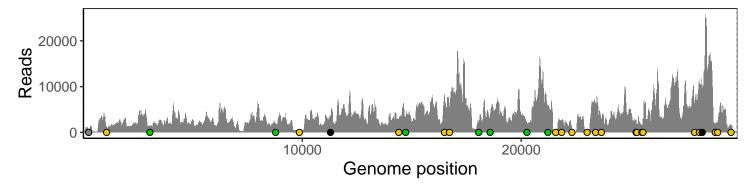
	2021–03–22
241 intergenic	697
1059 orf1ab T265I	873
3037 orf1ab silent	1215
8782 orf1ab silent	1809
9867 orf1ab L3201P	309
11288 orf1ab del 9	2220
14408 orf1ab P314L	2614
14724 orf1ab silent	2771
16500 orf1ab Q1011H	7437
16726 orf1ab H1087Y	5705
18060 orf1ab silent	2151
18582 orf1ab silent	3068
20262 orf1ab silent	1892
21219 orf1ab silent	5458
21575 S L5F	614
21846 S T95I	2229
22320 S D253G	780
23012 S E484K	56
23403 S D614G	6339
23664 S A701V	2468
25248 S M1229T	2682
25287 S S1242N	1421
25517 orf3a P42L	1483
25563 orf3a Q57H	2791
27925 orf8 T11I	5909
28144 orf8 S84L	10575
28271 intergenic del 1	9101
28869 N P199L	1741
28975 N M234I	2534
29586 orf10 P10L	1617
	363–1
	<u>o</u>



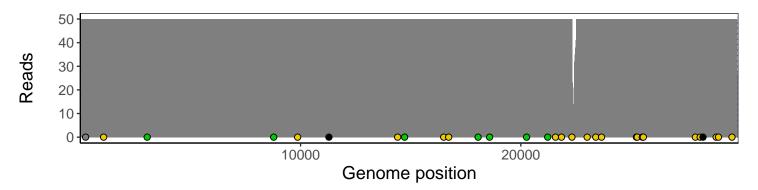
Analyses of individual experiments and composite results

VSP1363-1 | 2021-03-22 | Saline | UPHS-0318 | genomes | single experiment

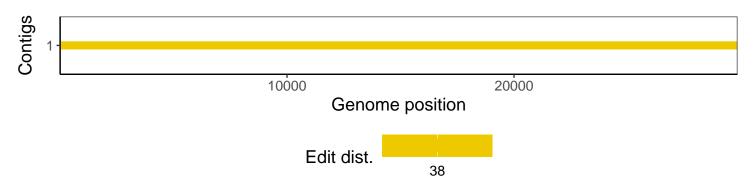
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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