COVID-19 subject UPHS-0277

2021-04-17

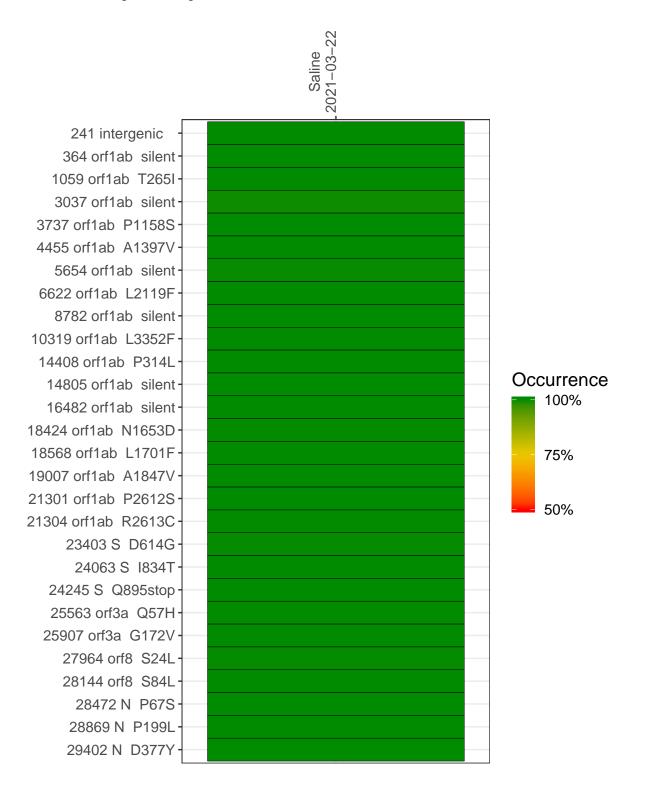
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1322-1	single experiment	NA	Saline	2021-03-22	5.53	NA	82.7%	82.5%

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

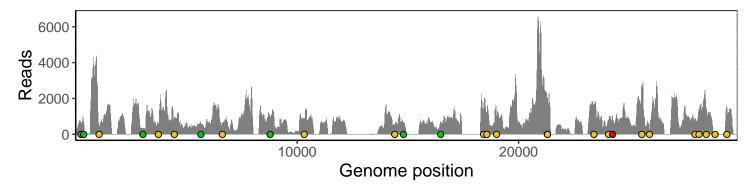
241 intergenic	634
364 orf1ab silent	644
1059 orf1ab T265I	430
3037 orf1ab silent	277
3737 orf1ab P1158S	609
4455 orf1ab A1397V	805
5654 orf1ab silent	554
6622 orf1ab L2119F	588
8782 orf1ab silent	975
10319 orf1ab L3352F	887
14408 orf1ab P314L	501
14805 orf1ab silent	620
16482 orf1ab silent	707
18424 orf1ab N1653D	1550
18568 orf1ab L1701F	1142
19007 orf1ab A1847V	1022
21301 orf1ab P2612S	1763
21304 orf1ab R2613C	1789
23403 S D614G	1624
24063 S 1834T	728
24245 S Q895stop	1071
25563 orf3a Q57H	2640
25907 orf3a G172V	291
27964 orf8 S24L	888
28144 orf8 S84L	1385
28472 N P67S	1479
28869 N P199L	111
29402 N D377Y	1623
	$\overline{\Sigma}$



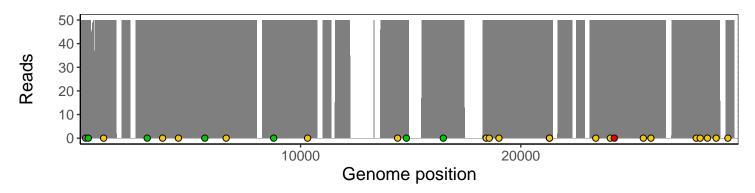
Analyses of individual experiments and composite results

VSP1322-1 | 2021-03-22 | Saline | UPHS-0277 | genomes | single experiment

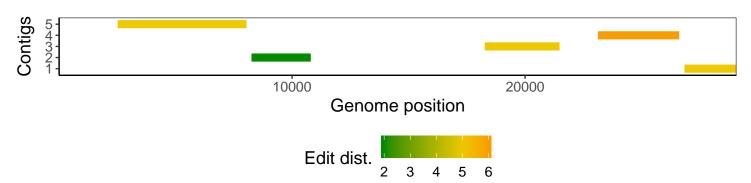
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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