COVID-19 subject UPHS-0286

2021-06-23

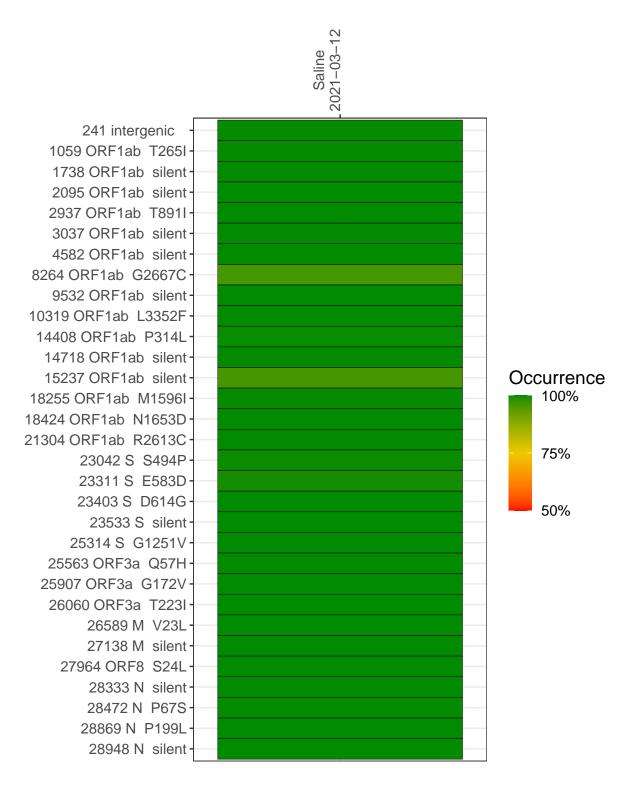
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1331-1	single experiment	NA	Saline	2021-03-12	29.84	B.1.2	99.8%	99.7%

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.



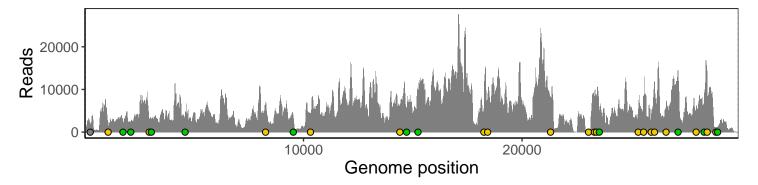
Saline 2021-03-12

	2021-03-12
241 intergenic	1918
1059 ORF1ab T265I	1841
1738 ORF1ab silent	2118
2095 ORF1ab silent	2100
2937 ORF1ab T891I	2875
3037 ORF1ab silent	2707
4582 ORF1ab silent	2587
8264 ORF1ab G2667C	6396
9532 ORF1ab silent	3724
10319 ORF1ab L3352F	4280
14408 ORF1ab P314L	5367
14718 ORF1ab silent	5221
15237 ORF1ab silent	10047
18255 ORF1ab M1596I	5332
18424 ORF1ab N1653D	8030
21304 ORF1ab R2613C	7725
23042 S S494P	385
23311 S E583D	8309
23403 S D614G	8368
23533 S silent	4681
25314 S G1251V	5353
25563 ORF3a Q57H	8237
25907 ORF3a G172V	2864
26060 ORF3a T223I	11316
26589 M V23L	6386
27138 M silent	14366
27964 ORF8 S24L	5788
28333 N silent	6592
28472 N P67S	13955
28869 N P199L	997
28948 N silent	1276
	<u>\(\frac{1}{2} \)</u>
	VSP1331-1
	S
	>

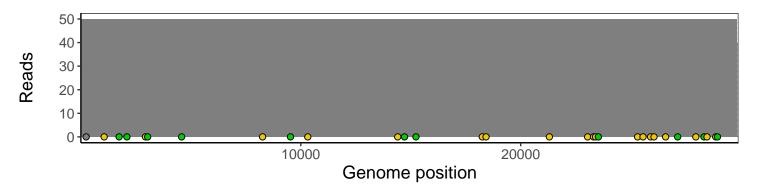
Analyses of individual experiments and composite results

VSP1331-1 | 2021-03-12 | Saline | UPHS-0286 | genomes | single experiment

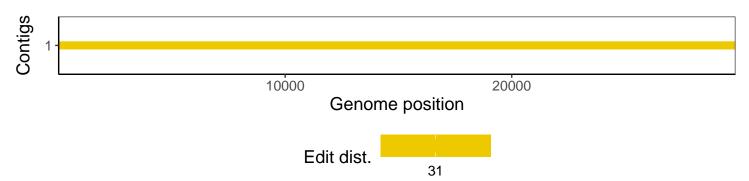
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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