COVID-19 subject UPHS-0323

2021-06-23

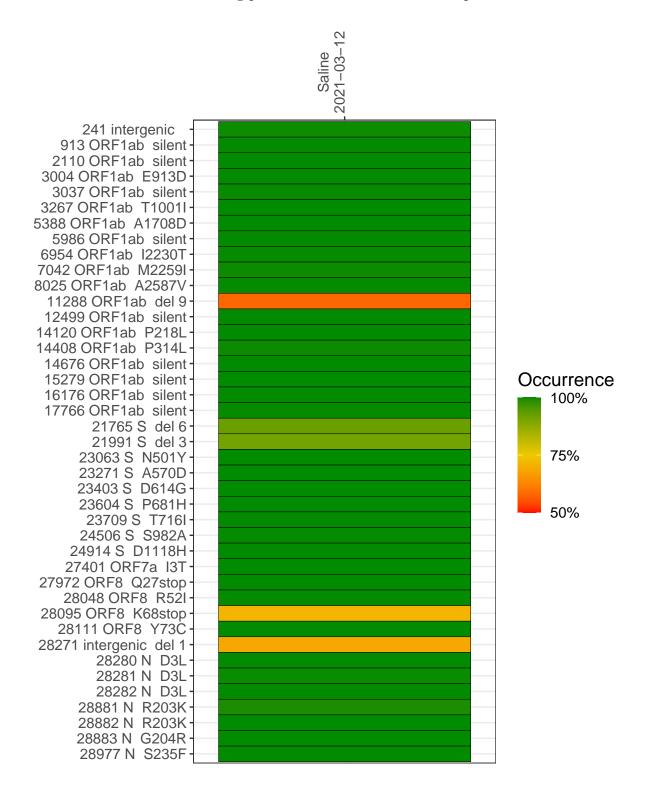
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1368-1	single experiment	NA	Saline	2021-03-12	29.85	B.1.1.7	99.8%	99.8%

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.



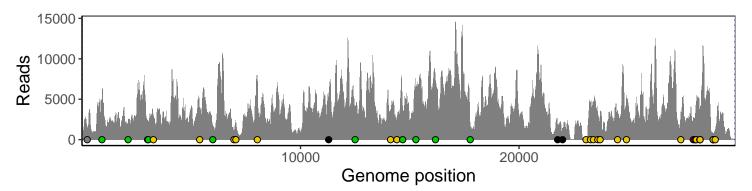
Saline 2021-03-12

	2021-03-12
241 intergenic	1455
913 ORF1ab silent	4805
2110 ORF1ab silent	1955
3004 ORF1ab E913D	2241
3037 ORF1ab silent	1950
3267 ORF1ab T1001I	3081
5388 ORF1ab A1708D	3739
5986 ORF1ab silent	1783
6954 ORF1ab I2230T	724
7042 ORF1ab M2259I	2343
8025 ORF1ab A2587V	7926
11288 ORF1ab del 9	2880
12499 ORF1ab silent	3968
14120 ORF1ab P218L	3433
14408 ORF1ab P314L	2160
14676 ORF1ab silent	3354
15279 ORF1ab silent	6013
16176 ORF1ab silent	7094
17766 ORF1ab silent	1923
21765 S del 6	1691
21991 S del 3	1207
23063 S N501Y	191
23271 S A570D	4311
23403 S D614G	4658
23604 S P681H	3285
23709 S T716I	2708
24506 S S982A	3605
24914 S D1118H	5183
27401 ORF7a I3T	2948
27972 ORF8 Q27stop	2701
28048 ORF8 R52I	2663
28095 ORF8 K68stop	4276
28111 ORF8 Y73C	4640
28271 intergenic del 1	
	3257
28280 N D3L	2157
28281 N D3L	2157
28282 N D3L	2335
28881 N R203K	559
28882 N R203K	555
28883 N G204R	557
28977 N S235F	1234
	1368-1
	36.
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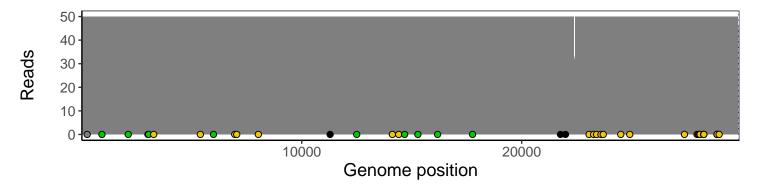
Analyses of individual experiments and composite results

VSP1368-1 | 2021-03-12 | Saline | UPHS-0323 | genomes | single experiment

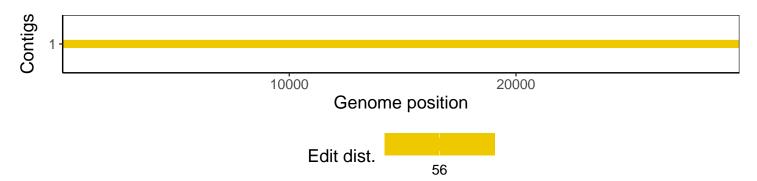
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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				