

COVID-19 subject UPHS-0140

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.

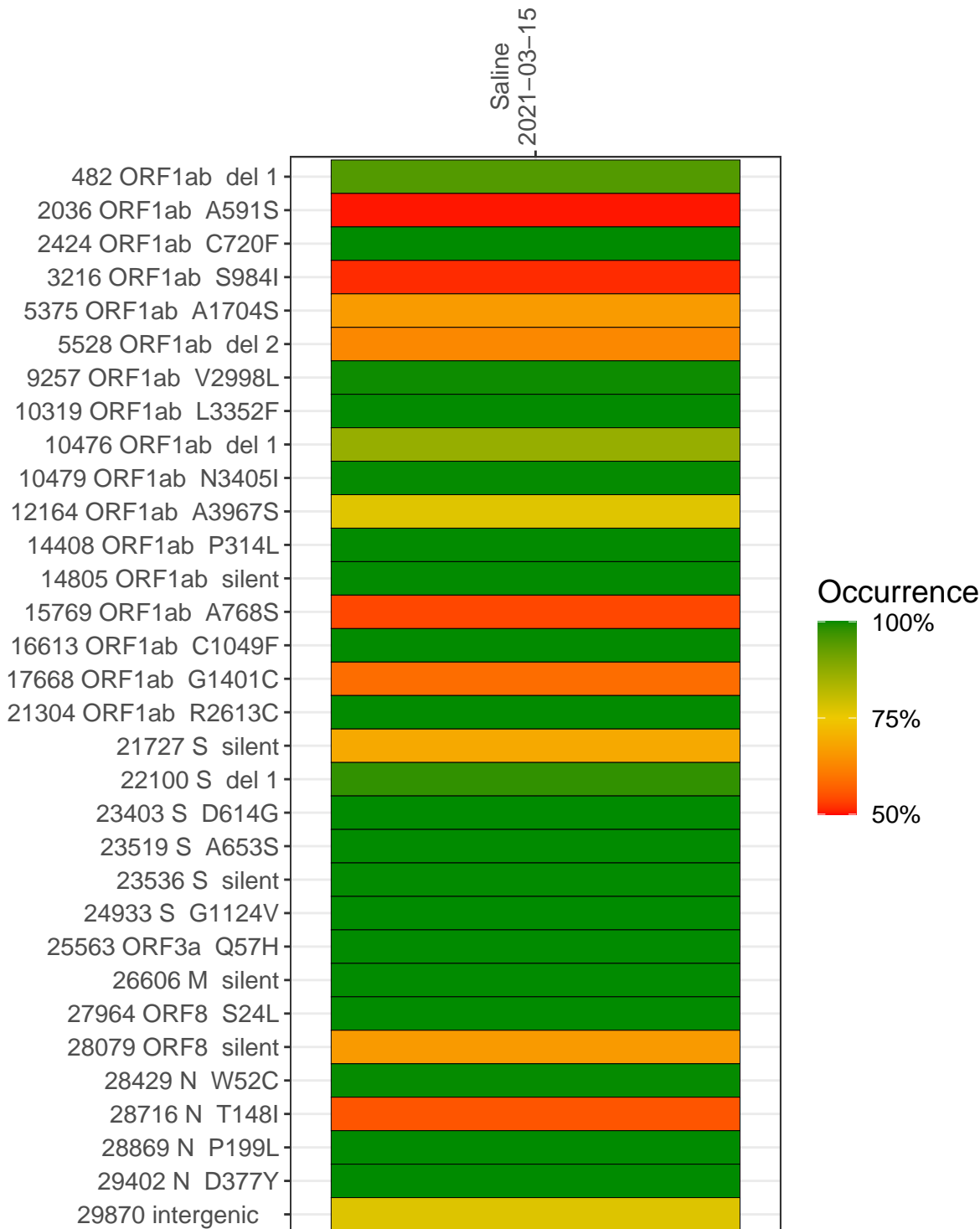
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with $> 90\%$ sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (≥ 5 reads)
VSP1125-1	single experiment	NA	Saline	2021-03-15	1.72	NA	57.7%	55.7%

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 2021-03-15	
482 ORF1ab del 1	719	
2036 ORF1ab A591S	5132	
2424 ORF1ab C720F	57	
3216 ORF1ab S984I	7080	
5375 ORF1ab A1704S	4429	
5528 ORF1ab del 2	3970	
9257 ORF1ab V2998L	3241	
10319 ORF1ab L3352F	4648	
10476 ORF1ab del 1	3510	
10479 ORF1ab N3405I	3212	
12164 ORF1ab A3967S	11778	
14408 ORF1ab P314L	7246	
14805 ORF1ab silent	9818	
15769 ORF1ab A768S	16294	
16613 ORF1ab C1049F	5069	
17668 ORF1ab G1401C	6019	
21304 ORF1ab R2613C	13977	
21727 S silent	4538	
22100 S del 1	1599	
23403 S D614G	16655	
23519 S A653S	3428	
23536 S silent	4111	
24933 S G1124V	4316	
25563 ORF3a Q57H	4504	
26606 M silent	6571	
27964 ORF8 S24L	10939	
28079 ORF8 silent	8399	
28429 N W52C	1605	
28716 N T148I	1520	
28869 N P199L	1672	
29402 N D377Y	4710	
29870 intergenic	44	

Base change

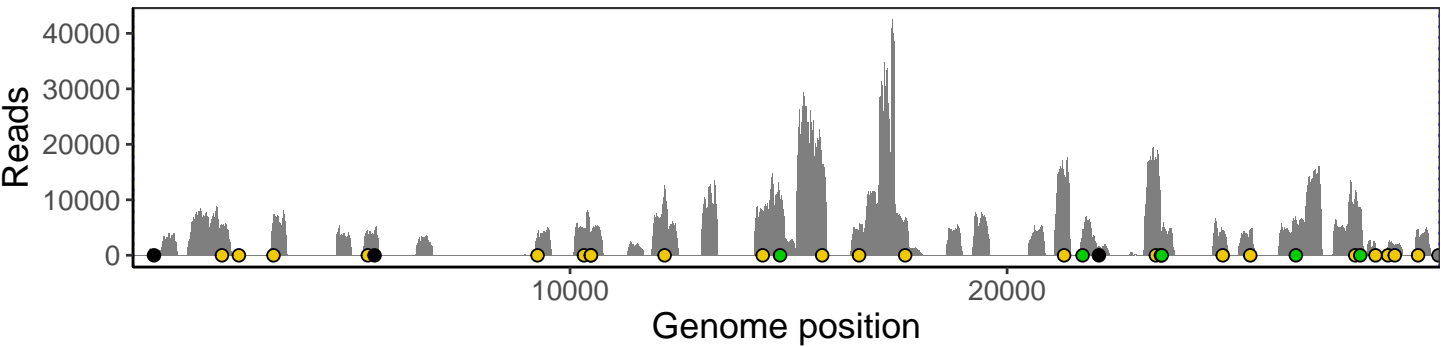
- Expected
- A
- T
- C
- G
- N
- Ins/Del
- No data

VSP1125-1

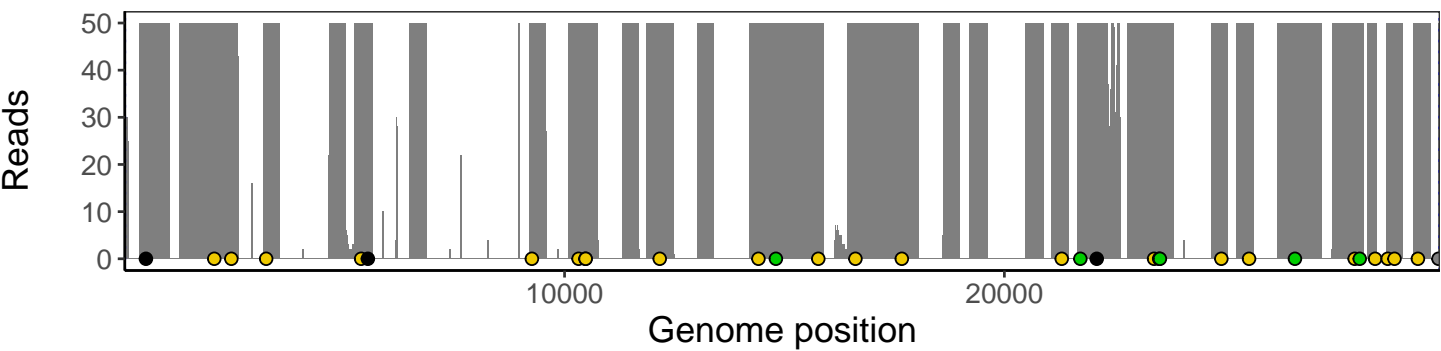
Analyses of individual experiments and composite results

VSP1125-1 | 2021-03-15 | Saline | UPHS-0140 | genomes | single experiment

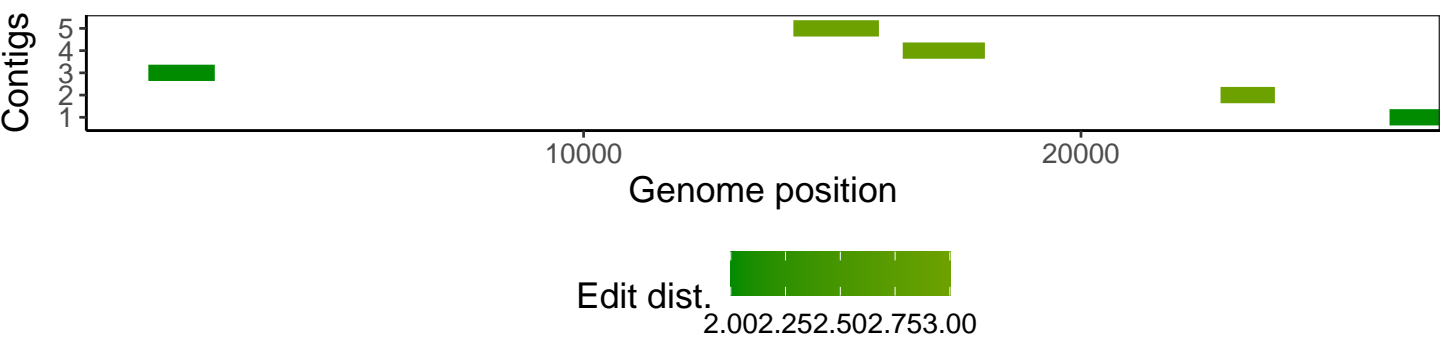
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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 htlib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htlib 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
SummarizedExperiment	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