COVID-19 subject UPHS-1221

2021-06-23

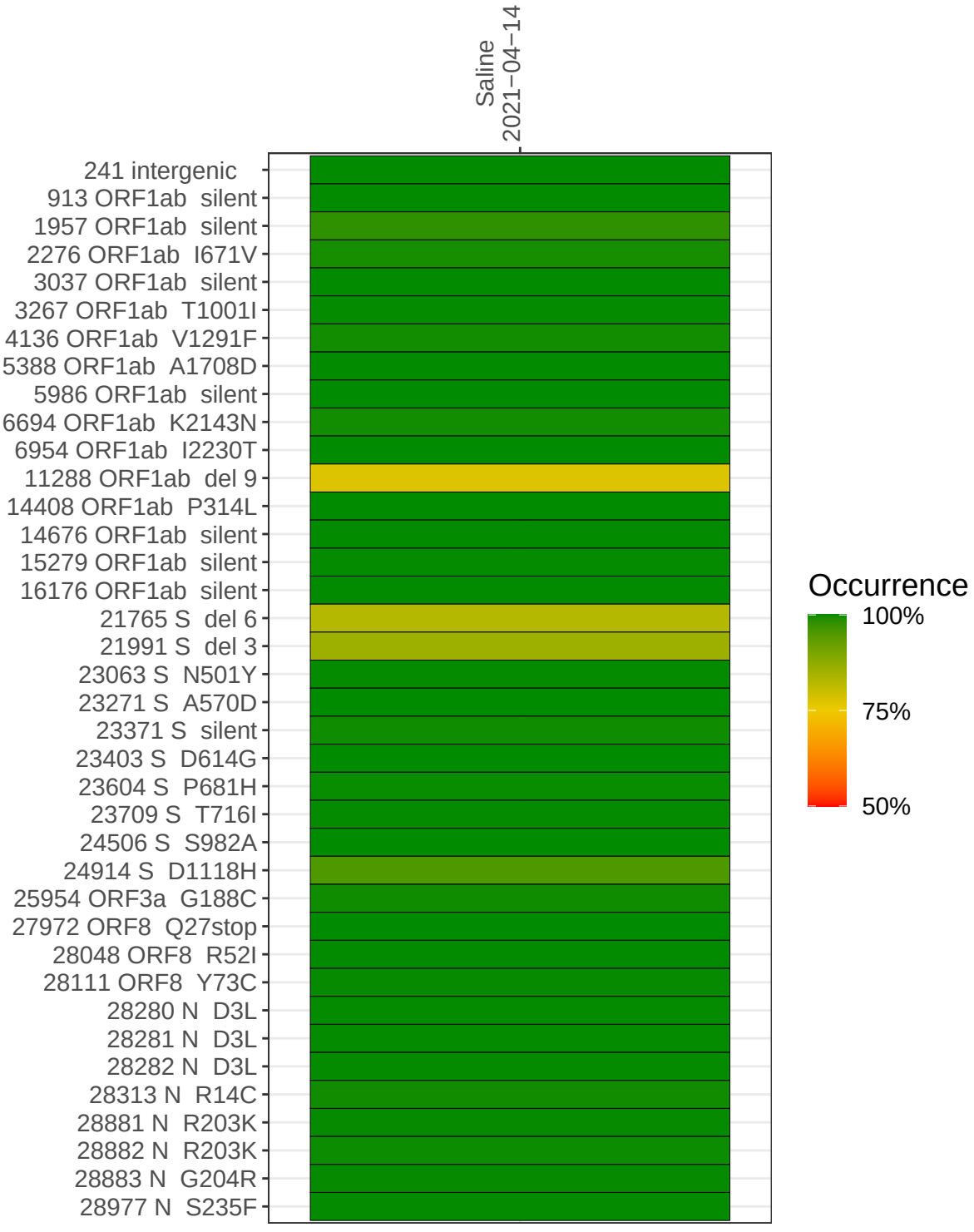
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with > 90% sequence coverage.

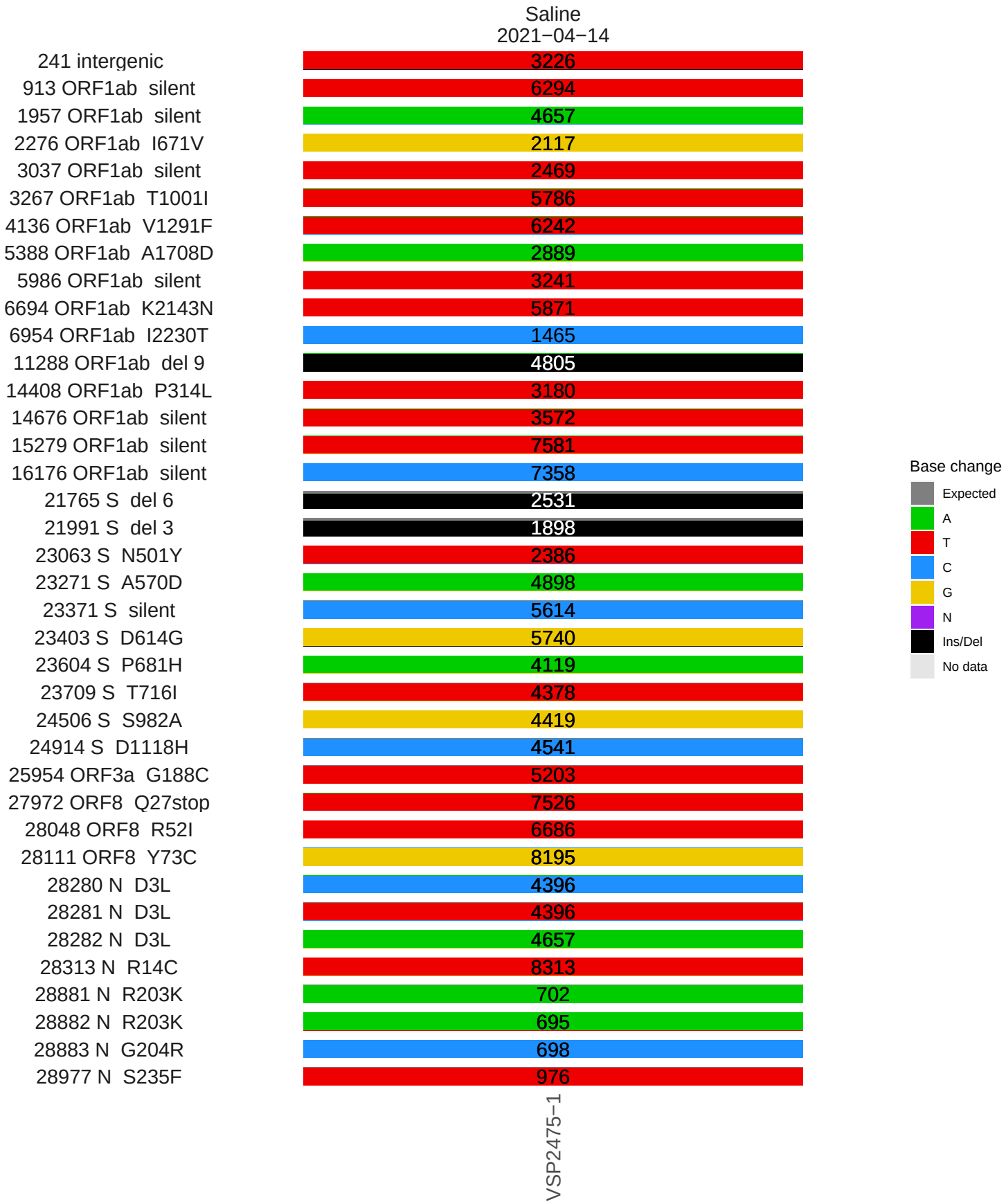
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2475-1	single experiment	NA	Saline	2021-04-14	29.86	B.1.1.7	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.

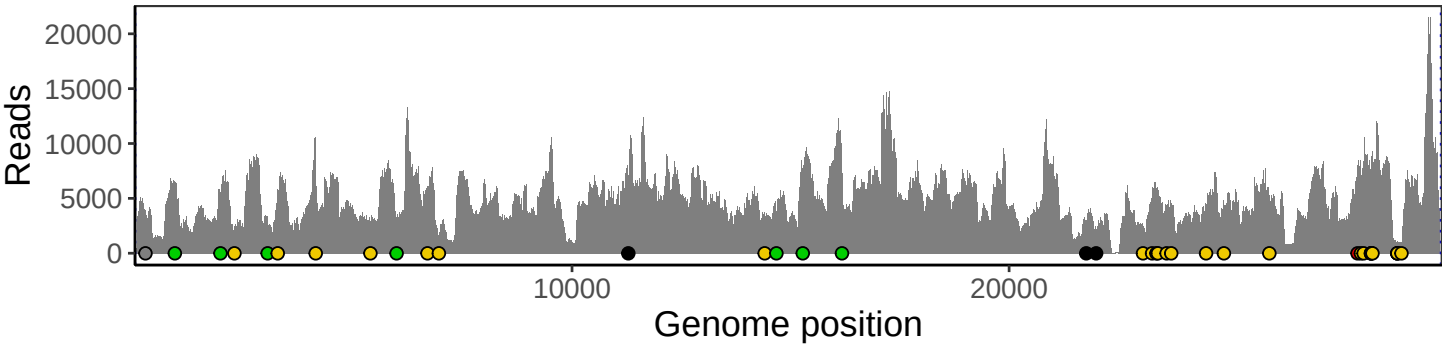



Saline
2021−04−14
241 intergenic
913 ORF1ab silent
1957 ORF1ab silent
2276 ORF1ab I671V
3037 ORF1ab silent
3267 ORF1ab T1001I
4136 ORF1ab V1291F
5388 ORF1ab A1708D
5986 ORF1ab silent
6694 ORF1ab K2143N
6954 ORF1ab I2230T
11288 ORF1ab del 9
14408 ORF1ab P314L
14676 ORF1ab silent
15279 ORF1ab silent
16176 ORF1ab silent
21765 S del 6
21991 S del 3
23063 S N501Y
23271 S A570D
23371 S silent
23403 S D614G
23604 S P681H
23709 S T716I
24506 S S982A
24914 S D1118H
25954 ORF3a G188C
27972 ORF8 Q27stop
28048 ORF8 R52I
28111 ORF8 Y73C
28280 N D3L
28281 N D3L
28282 N D3L
28313 N R14C
28881 N R203K
28882 N R203K
28883 N G204R
28977 N S235F
3226
6294
4657
2117
2469
5786
6242
2889
3241
5871
1465
4805
3180
3572
7581
7358
2531
1898
2386
4898
5614
5740
4119
4378
4419
4541
5203
7526
6686
8195
4396
4396
4657
8313
702
695
698
976
VSP2475−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

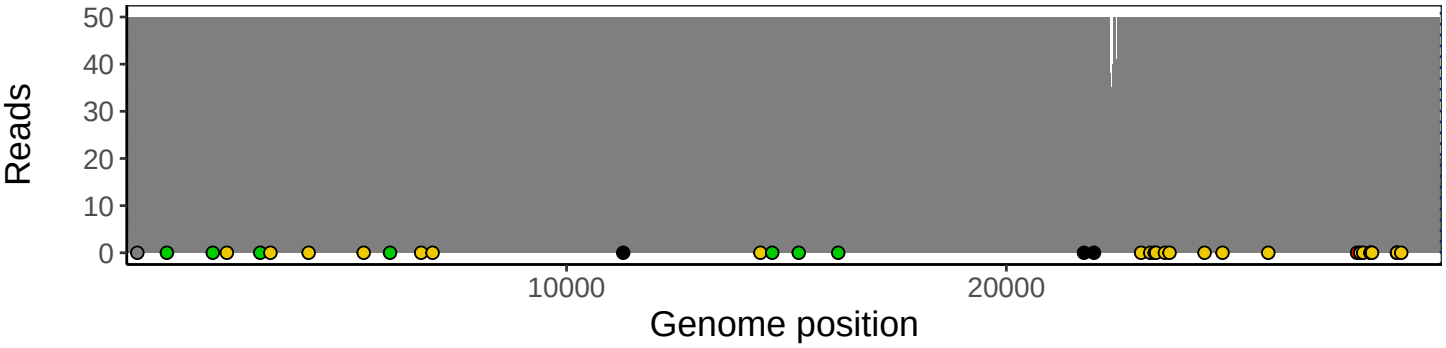
Analyses of individual experiments and composite results

VSP2475-1 | 2021-04-14 | Saline | UPHS-1221 | genomes | single experiment

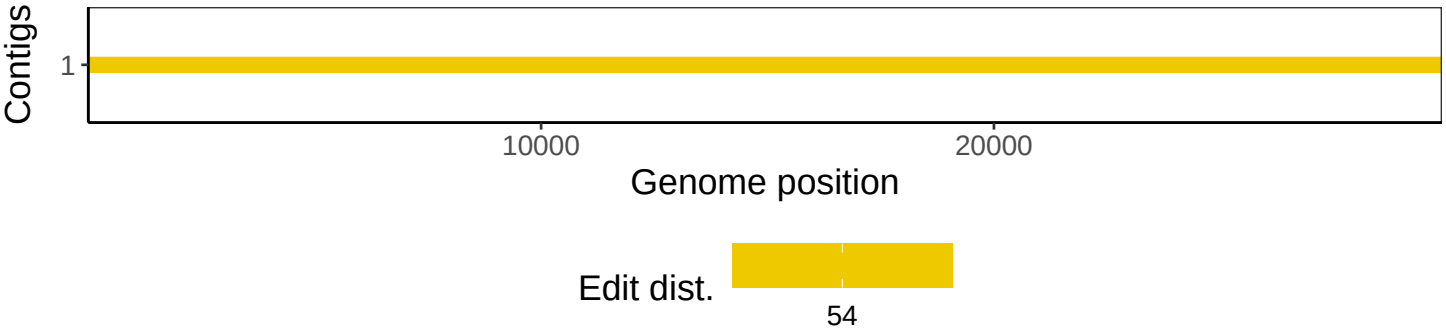
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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
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