COVID-19 subject UPHS-0838

2021-05-21

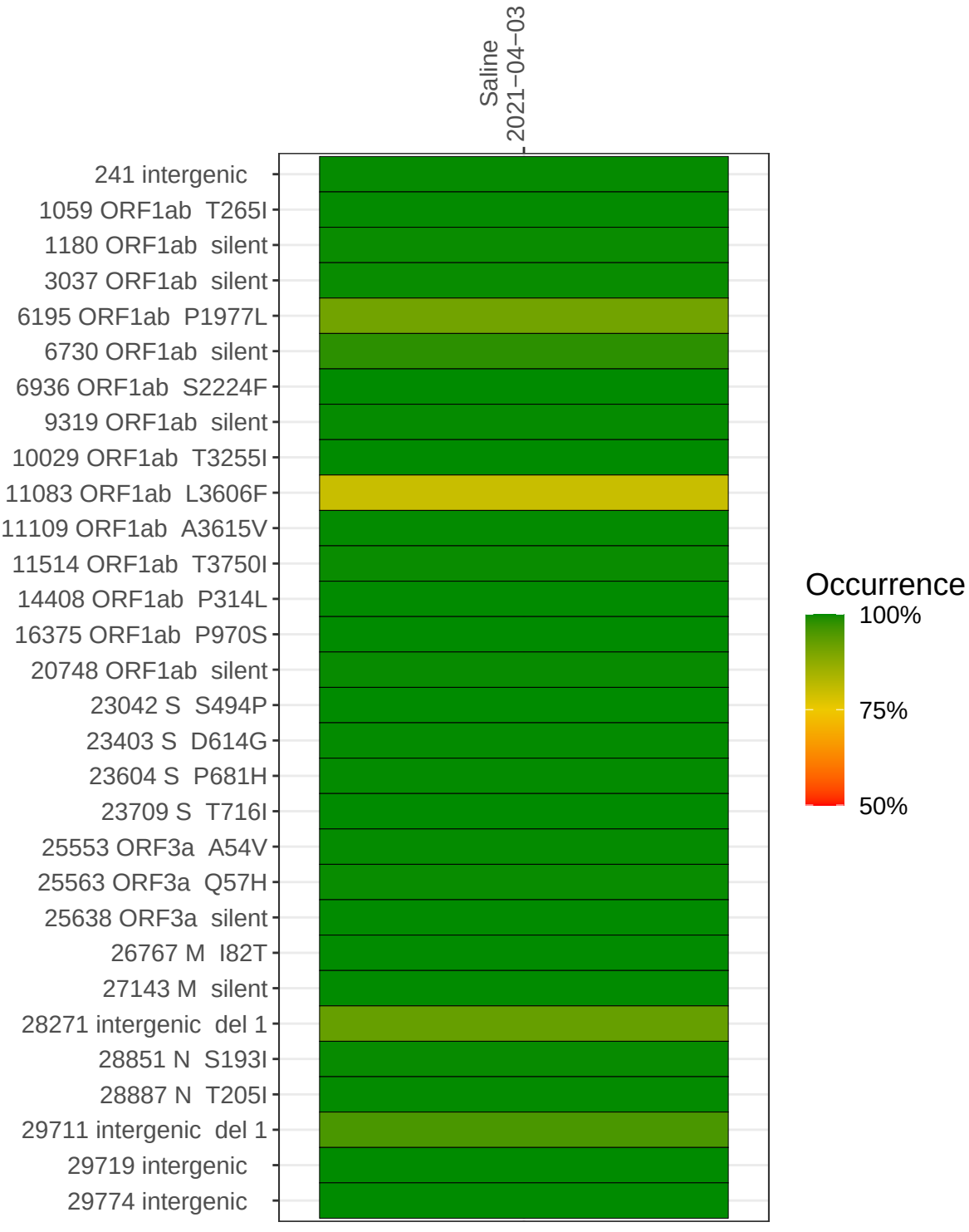
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

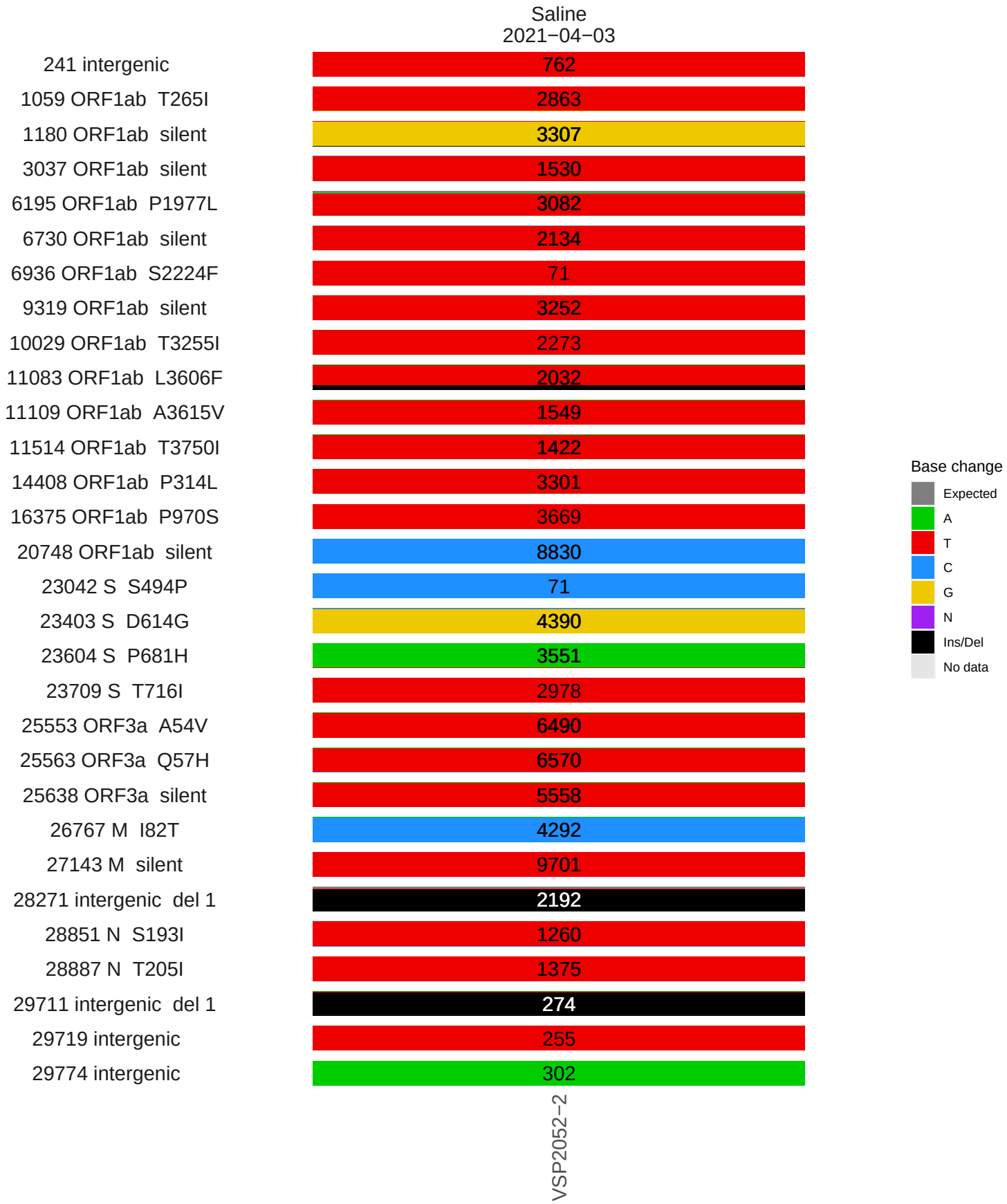
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2052-2	single experiment	NA	Saline	2021-04-03	29.85	B.1.9.5	99.7%	99.7%

Variants shared across samples

The heat map below shows how variants (reference genome /home/everett/projects/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.

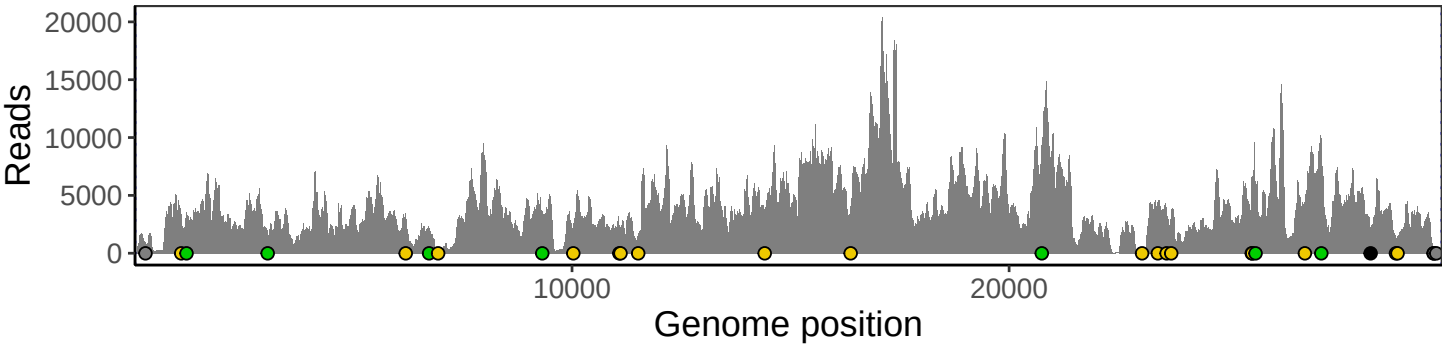



Saline
2021−04−03
241 intergenic
1059 ORF1ab T265I
1180 ORF1ab silent
3037 ORF1ab silent
6195 ORF1ab P1977L
6730 ORF1ab silent
6936 ORF1ab S2224F
9319 ORF1ab silent
10029 ORF1ab T3255I
11083 ORF1ab L3606F
11109 ORF1ab A3615V
11514 ORF1ab T3750I
14408 ORF1ab P314L
16375 ORF1ab P970S
20748 ORF1ab silent
23042 S S494P
23403 S D614G
23604 S P681H
23709 S T716I
25553 ORF3a A54V
25563 ORF3a Q57H
25638 ORF3a silent
26767 M I82T
27143 M silent
28271 intergenic del 1
28851 N S193I
28887 N T205I
29711 intergenic del 1
29719 intergenic
29774 intergenic
762
2863
3307
1530
3082
2134
71
3252
2273
2032
1549
1422
3301
3669
8830
71
4390
3551
2978
6490
6570
5558
4292
9701
2192
1260
1375
274
255
302
VSP2052−2
Base change
Expected
A
T
C
G
N
Ins/Del
No data

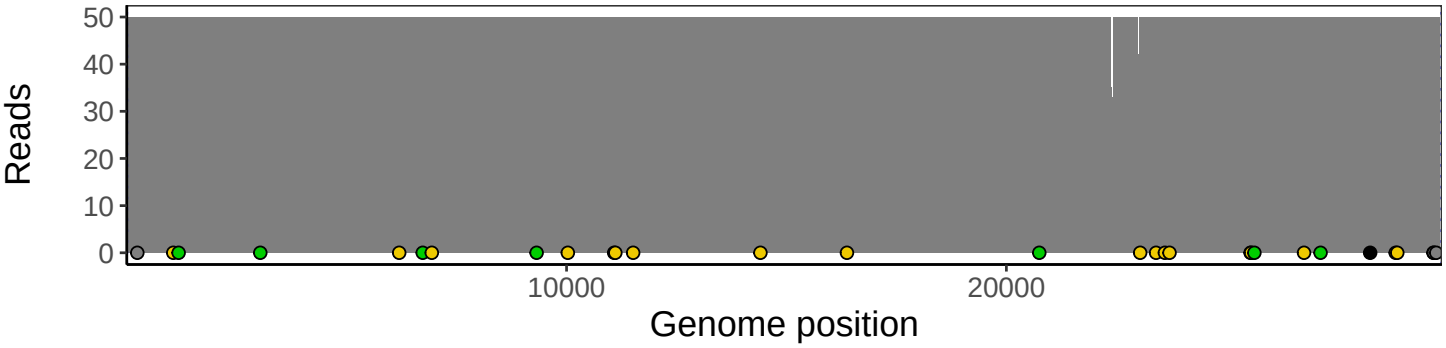
Analyses of individual experiments and composite results

VSP2052-2 | 2021-04-03 | Saline | UPHS-0838 | genomes | single experiment

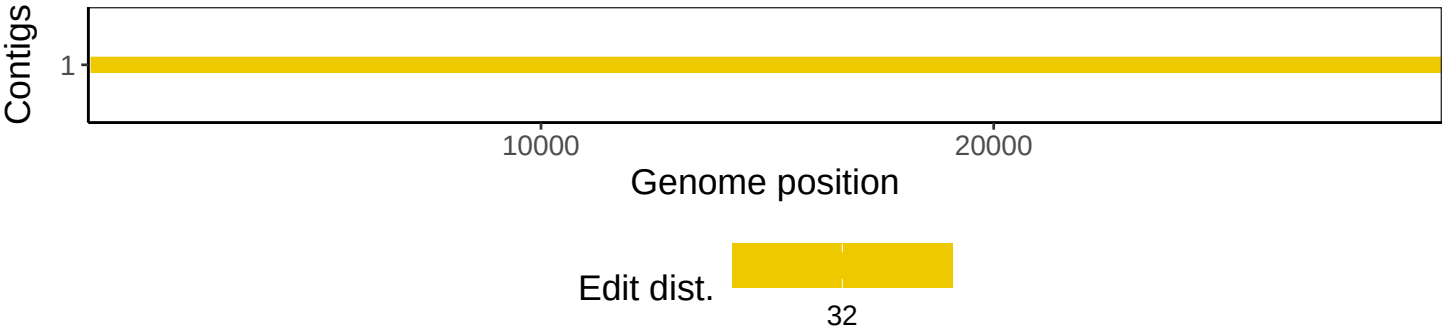
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	3.3.3
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