COVID-19 subject UPHS-1350

2021-06-23

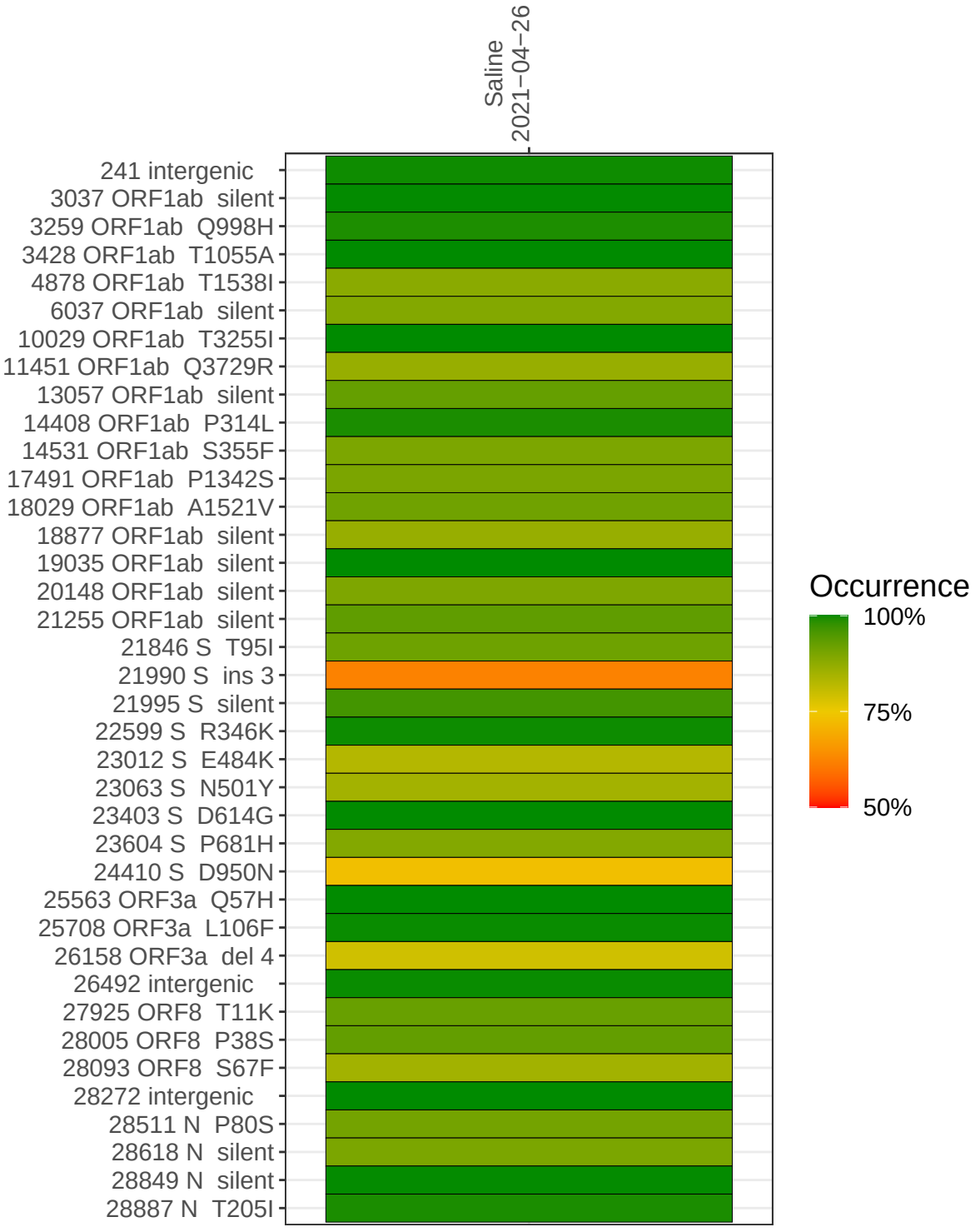
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

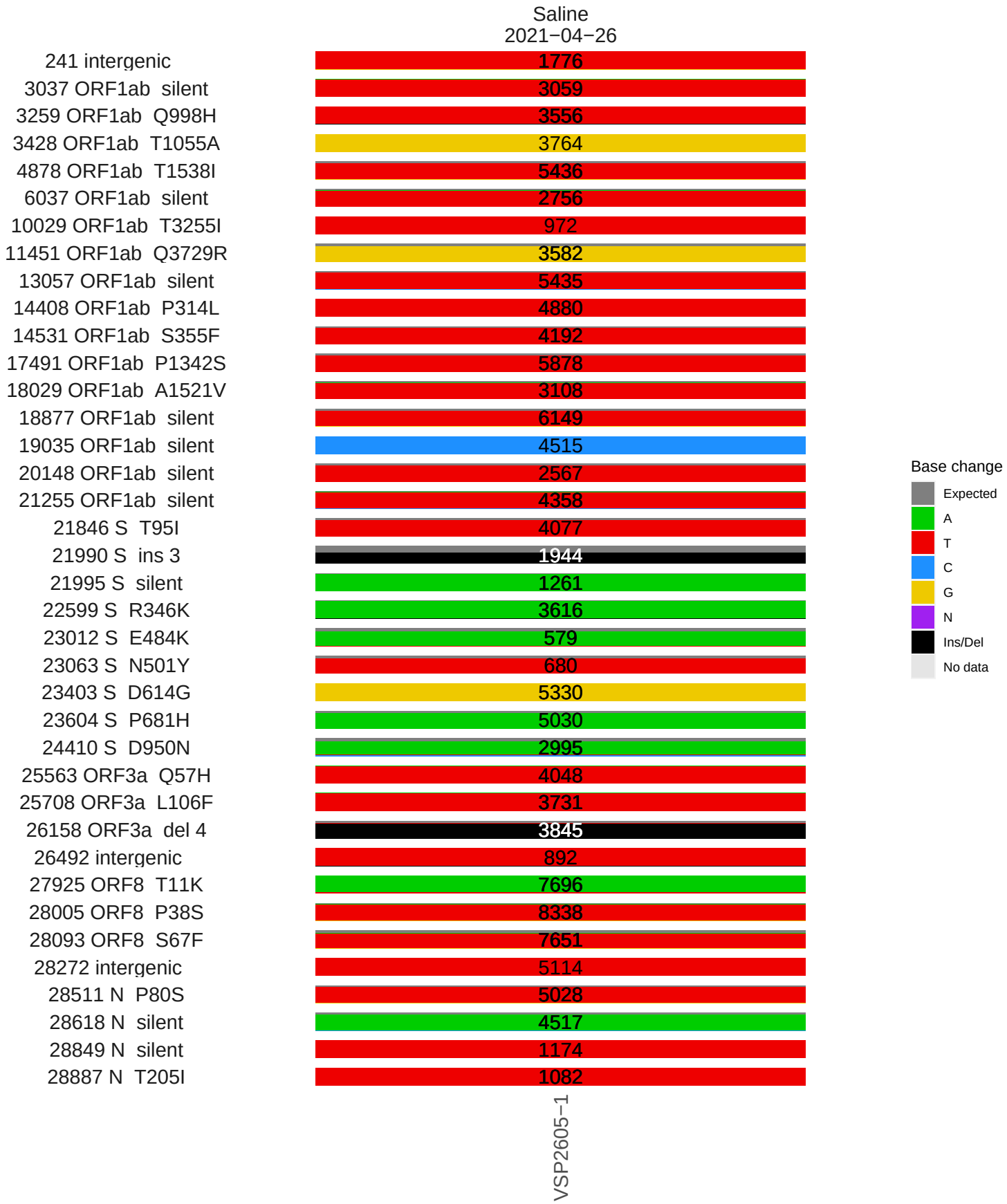
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2605-1	single experiment	NA	Saline	2021-04-26	29.87	B.1.621	99.9%	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.

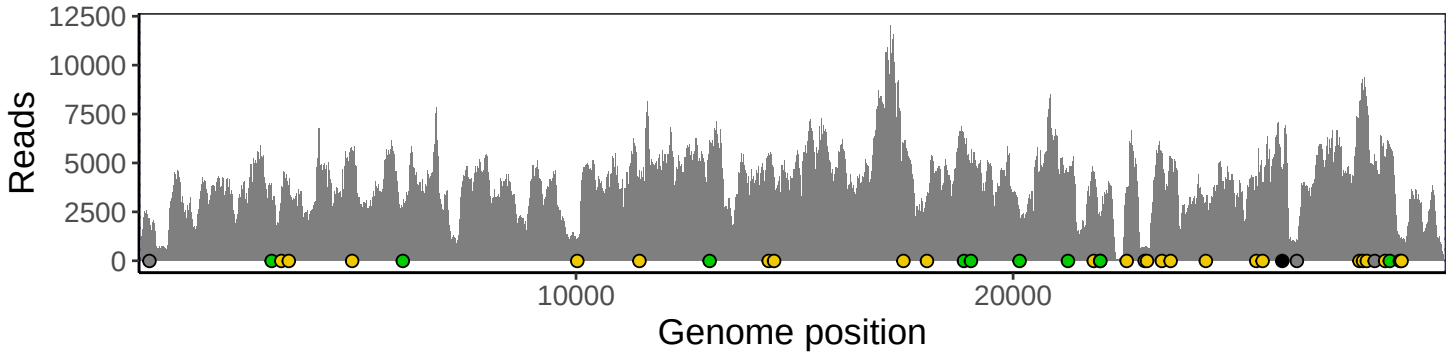



Saline
2021−04−26
241 intergenic
3037 ORF1ab silent
3259 ORF1ab Q998H
3428 ORF1ab T1055A
4878 ORF1ab T1538I
6037 ORF1ab silent
10029 ORF1ab T3255I
11451 ORF1ab Q3729R
13057 ORF1ab silent
14408 ORF1ab P314L
14531 ORF1ab S355F
17491 ORF1ab P1342S
18029 ORF1ab A1521V
18877 ORF1ab silent
19035 ORF1ab silent
20148 ORF1ab silent
21255 ORF1ab silent
21846 S T95I
21990 S ins 3
21995 S silent
22599 S R346K
23012 S E484K
23063 S N501Y
23403 S D614G
23604 S P681H
24410 S D950N
25563 ORF3a Q57H
25708 ORF3a L106F
26158 ORF3a del 4
26492 intergenic
27925 ORF8 T11K
28005 ORF8 P38S
28093 ORF8 S67F
28272 intergenic
28511 N P80S
28618 N silent
28849 N silent
28887 N T205I
1776
3059
3556
3764
5436
2756
972
3582
5435
4880
4192
5878
3108
6149
4515
2567
4358
4077
1944
1261
3616
579
680
5330
5030
2995
4048
3731
3845
892
7696
8338
7651
5114
5028
4517
1174
1082
VSP2605−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

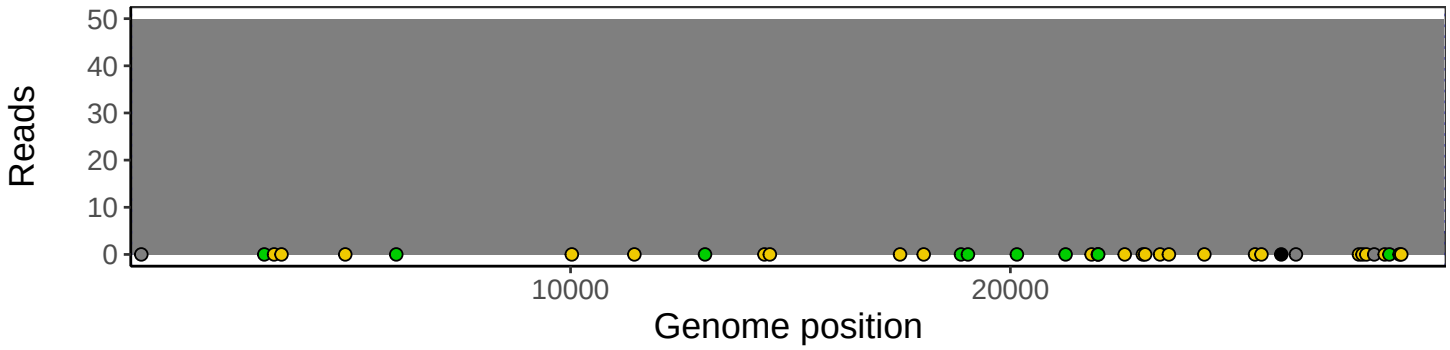
Analyses of individual experiments and composite results

VSP2605-1 | 2021-04-26 | Saline | UPHS-1350 | genomes | single experiment

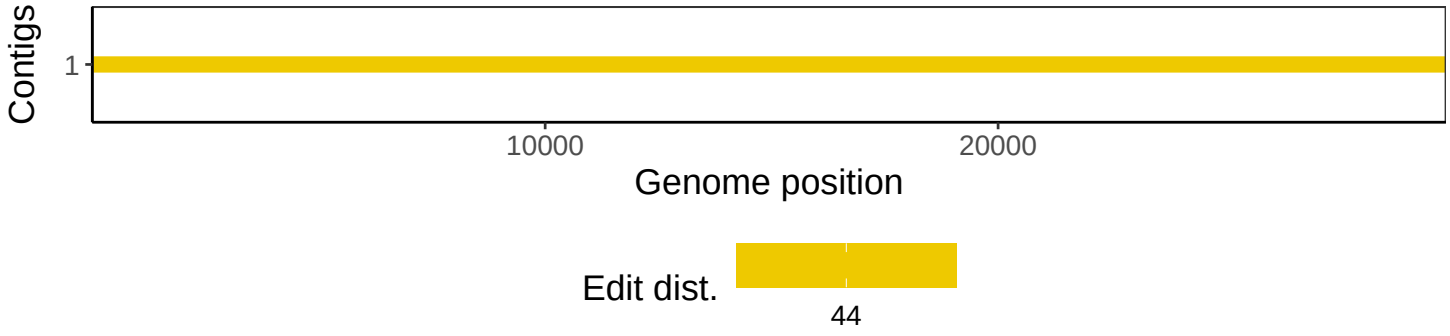
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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