COVID-19 subject UPHS-1528

2021-06-23

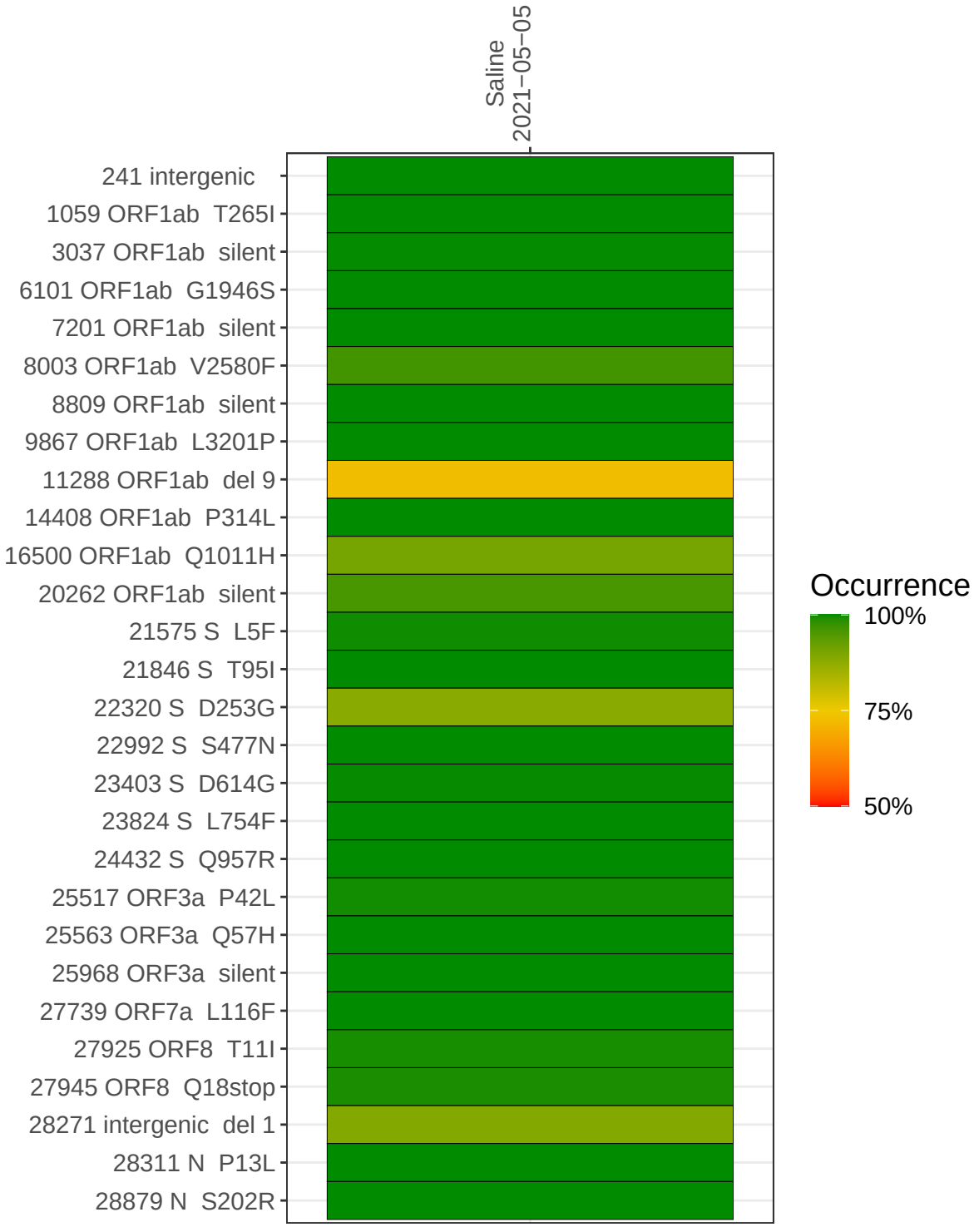
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

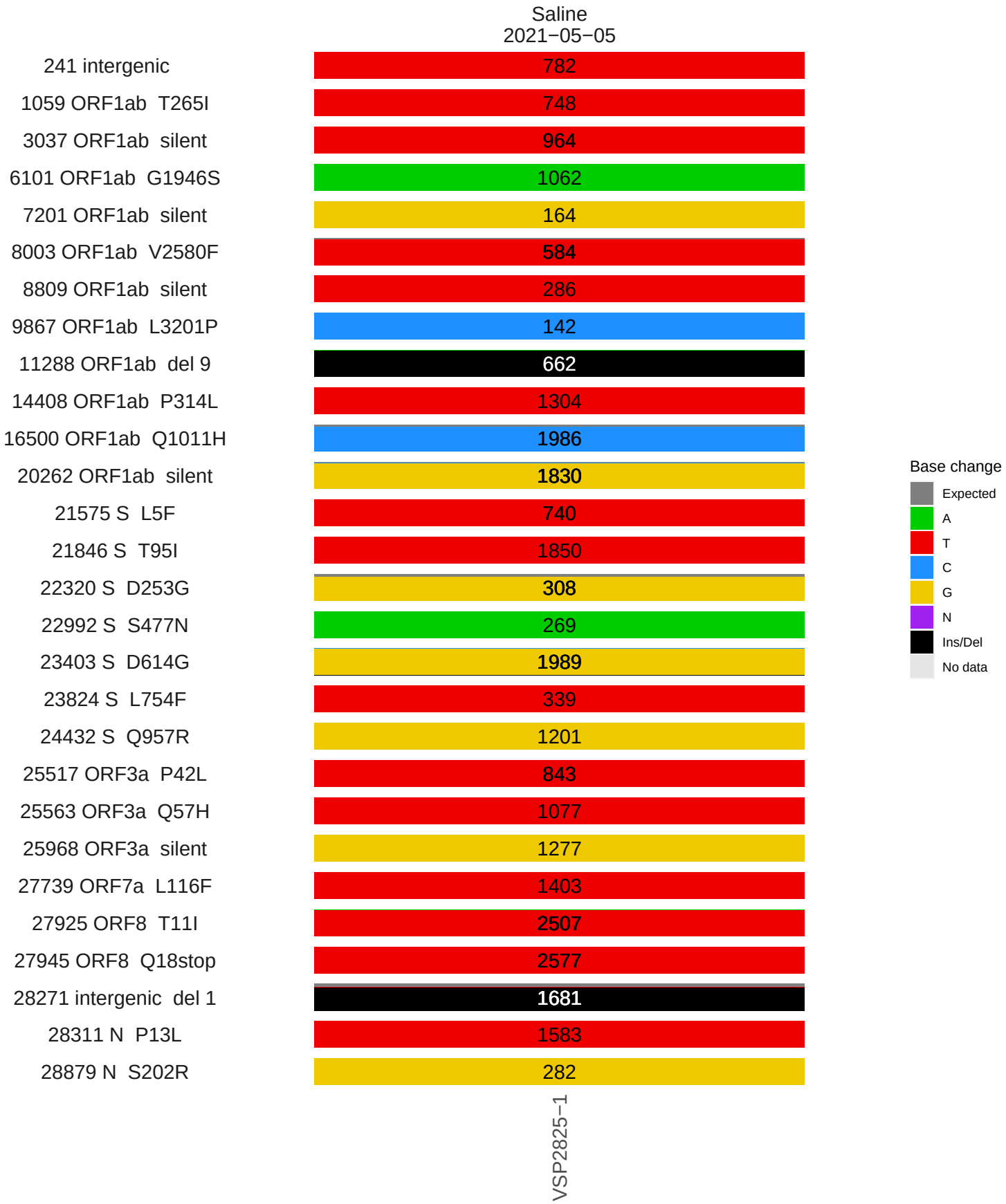
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2825-1	single experiment	NA	Saline	2021-05-05	29.64	B.1.526	99.3%	99.2%

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.

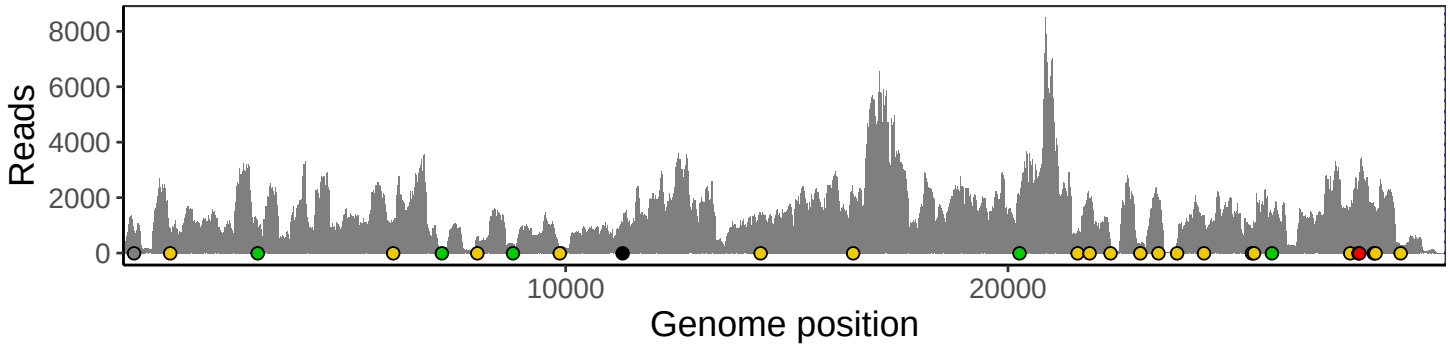



Saline
2021−05−05
241 intergenic
782
1059 ORF1ab T265I
748
3037 ORF1ab silent
964
6101 ORF1ab G1946S
1062
7201 ORF1ab silent
164
8003 ORF1ab V2580F
584
8809 ORF1ab silent
286
9867 ORF1ab L3201P
142
11288 ORF1ab del 9
662
14408 ORF1ab P314L
1304
16500 ORF1ab Q1011H
1986
20262 ORF1ab silent
1830
21575 S L5F
740
21846 S T95I
1850
22320 S D253G
308
22992 S S477N
269
23403 S D614G
1989
23824 S L754F
339
24432 S Q957R
1201
25517 ORF3a P42L
843
25563 ORF3a Q57H
1077
25968 ORF3a silent
1277
27739 ORF7a L116F
1403
27925 ORF8 T11I
2507
27945 ORF8 Q18stop
2577
28271 intergenic del 1
1681
28311 N P13L
1583
28879 N S202R
282
VSP2825−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

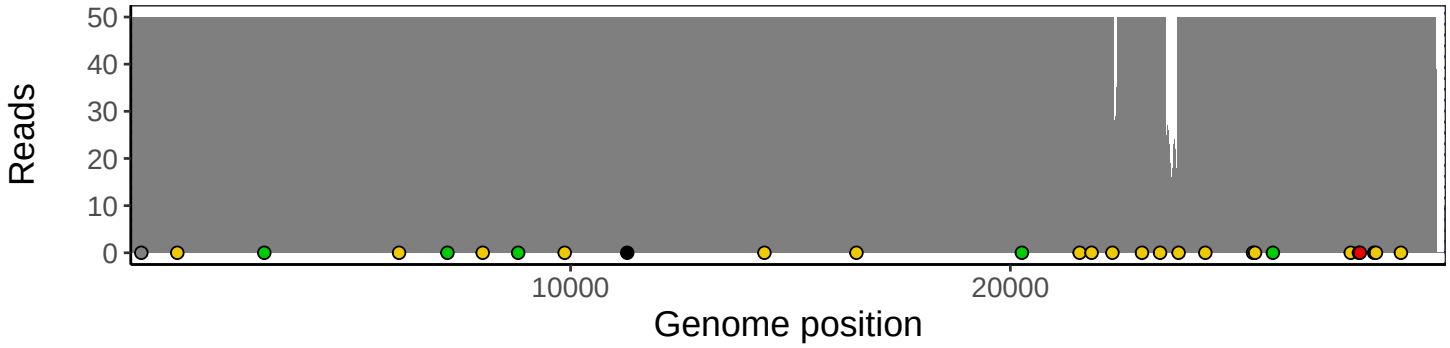
Analyses of individual experiments and composite results

VSP2825-1 | 2021-05-05 | Saline | UPHS-1528 | genomes | single experiment

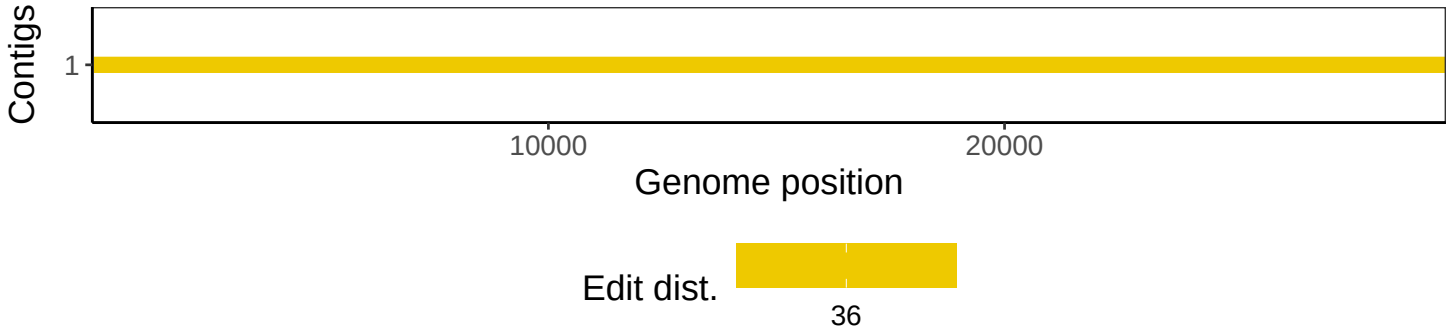
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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