COVID-19 subject UPHS-1376

2021-05-21

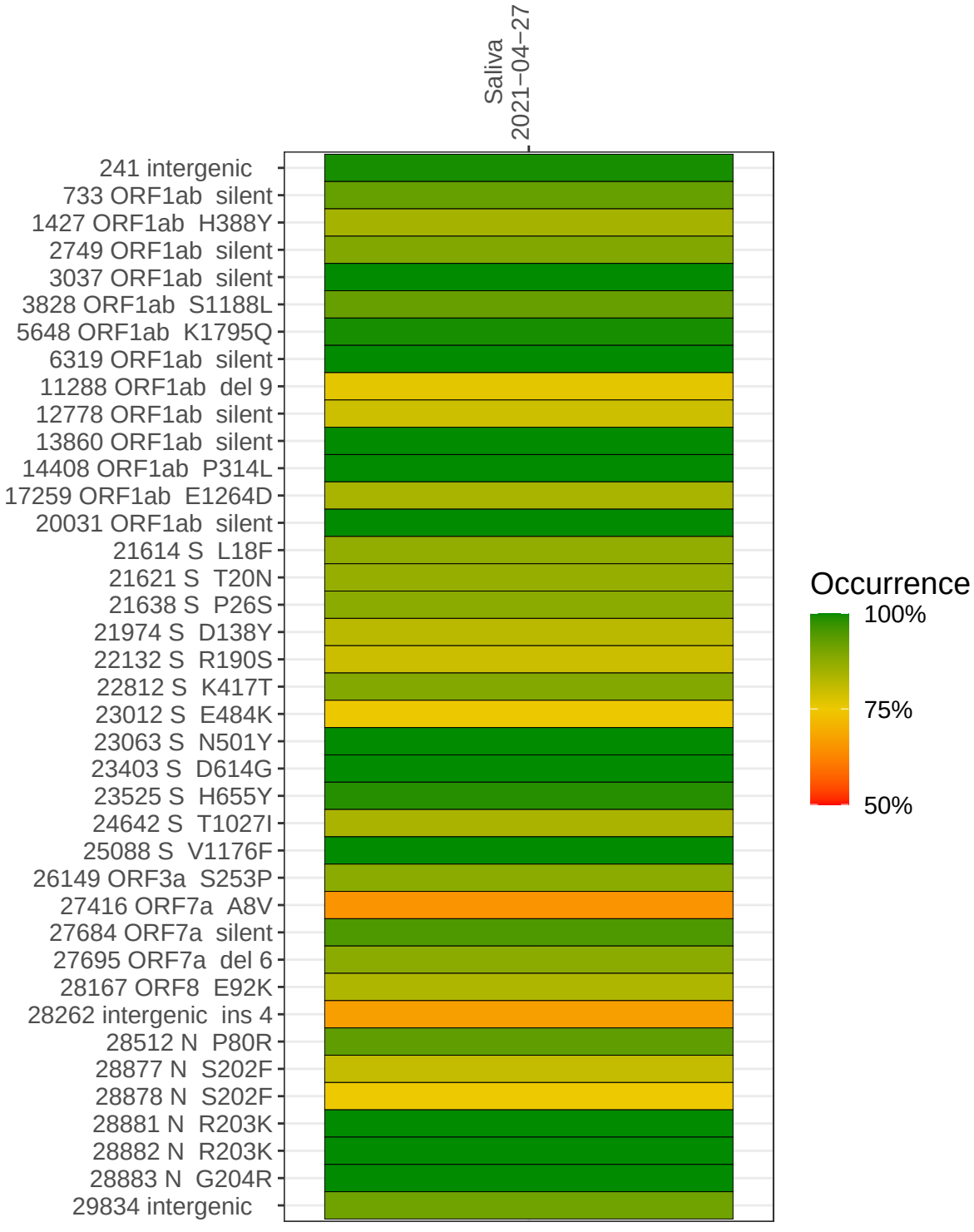
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software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

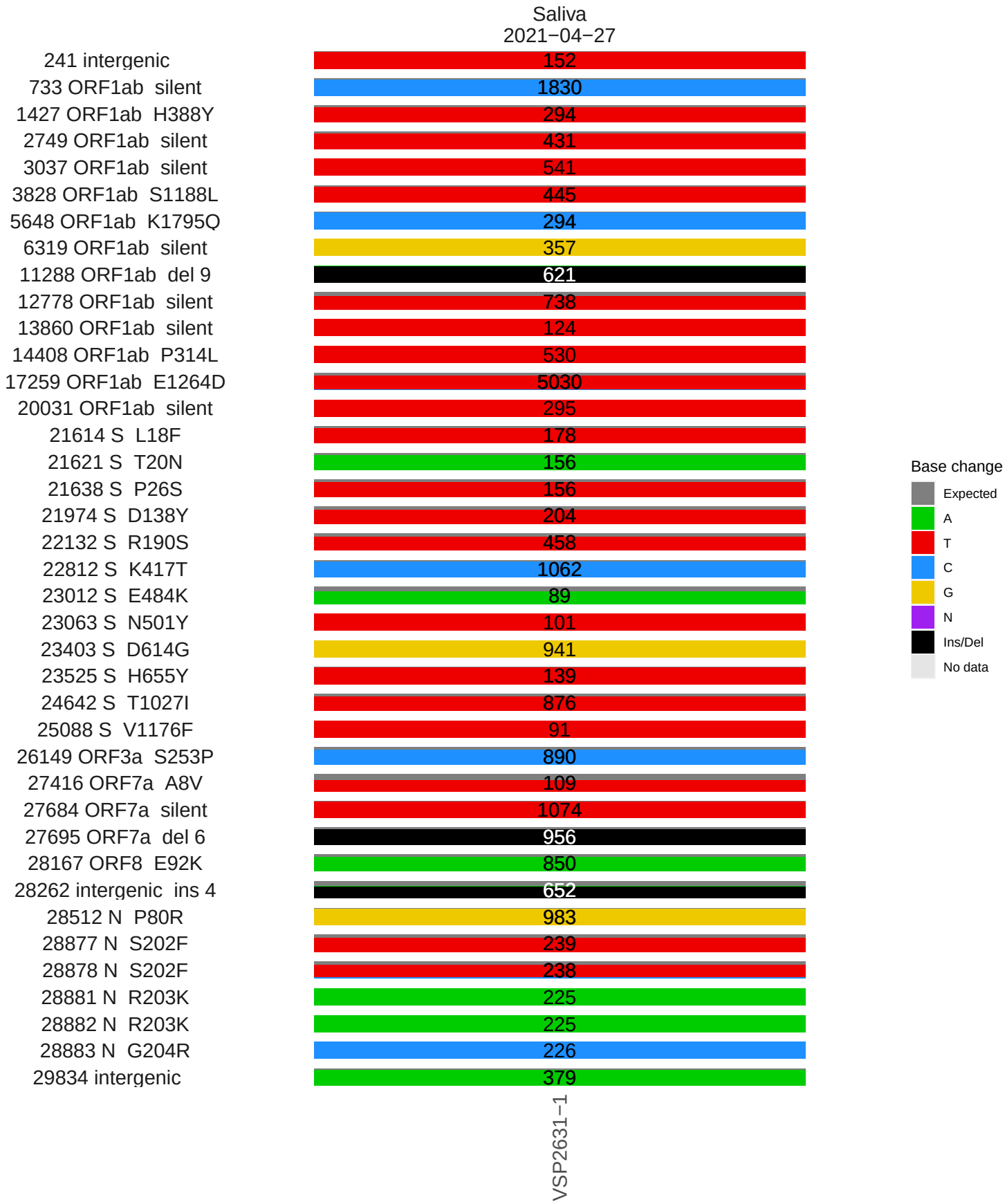
Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP2631-1	single experiment	NA	Saliva	2021-04-27	23.11	P.1	99.3%	99.2%

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.

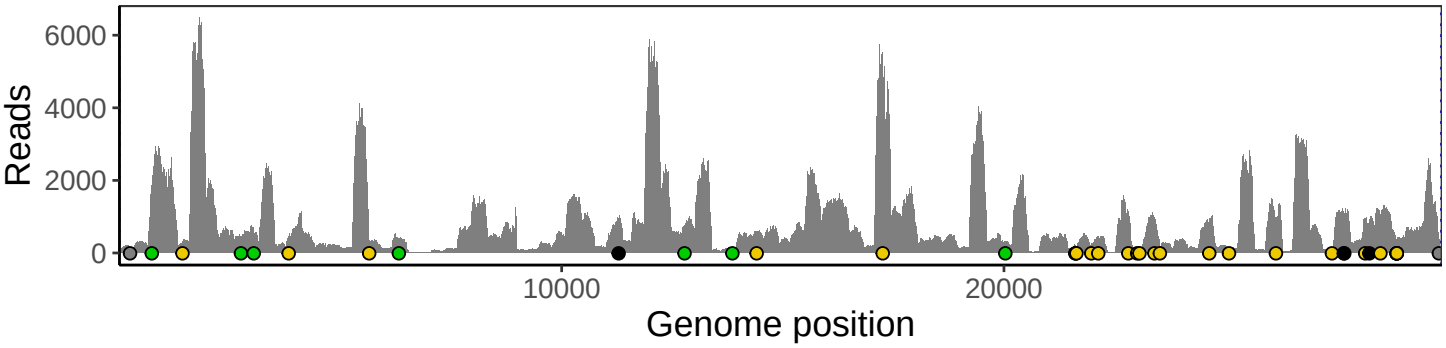



Saliva
2021−04−27
241 intergenic
733 ORF1ab silent
1427 ORF1ab H388Y
2749 ORF1ab silent
3037 ORF1ab silent
3828 ORF1ab S1188L
5648 ORF1ab K1795Q
6319 ORF1ab silent
11288 ORF1ab del 9
12778 ORF1ab silent
13860 ORF1ab silent
14408 ORF1ab P314L
17259 ORF1ab E1264D
20031 ORF1ab silent
21614 S L18F
21621 S T20N
21638 S P26S
21974 S D138Y
22132 S R190S
22812 S K417T
23012 S E484K
23063 S N501Y
23403 S D614G
23525 S H655Y
24642 S T1027I
25088 S V1176F
26149 ORF3a S253P
27416 ORF7a A8V
27684 ORF7a silent
27695 ORF7a del 6
28167 ORF8 E92K
28262 intergenic ins 4
28512 N P80R
28877 N S202F
28878 N S202F
28881 N R203K
28882 N R203K
28883 N G204R
29834 intergenic
152
1830
294
431
541
445
294
357
621
738
124
530
5030
295
178
156
156
204
458
1062
89
101
941
139
876
91
890
109
1074
956
850
652
983
239
238
225
225
226
379
VSP2631−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

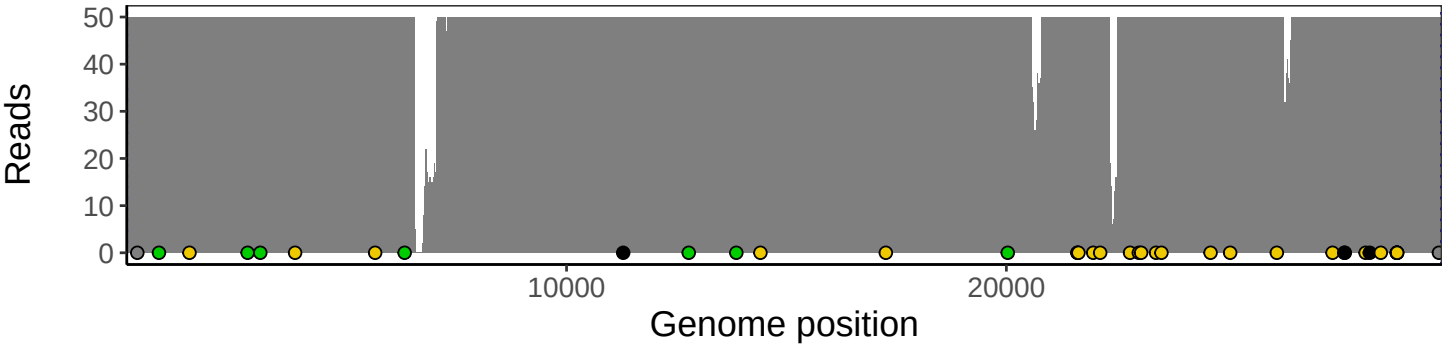
Analyses of individual experiments and composite results

VSP2631-1 | 2021-04-27 | Saliva | UPHS-1376 | genomes | single experiment

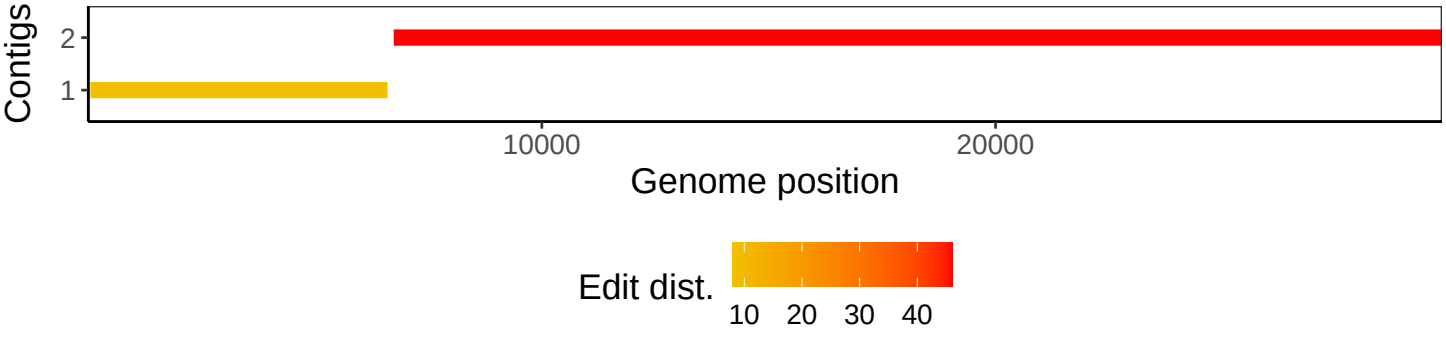
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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