

# COVID-19 subject 436

*2021-04-17*

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.

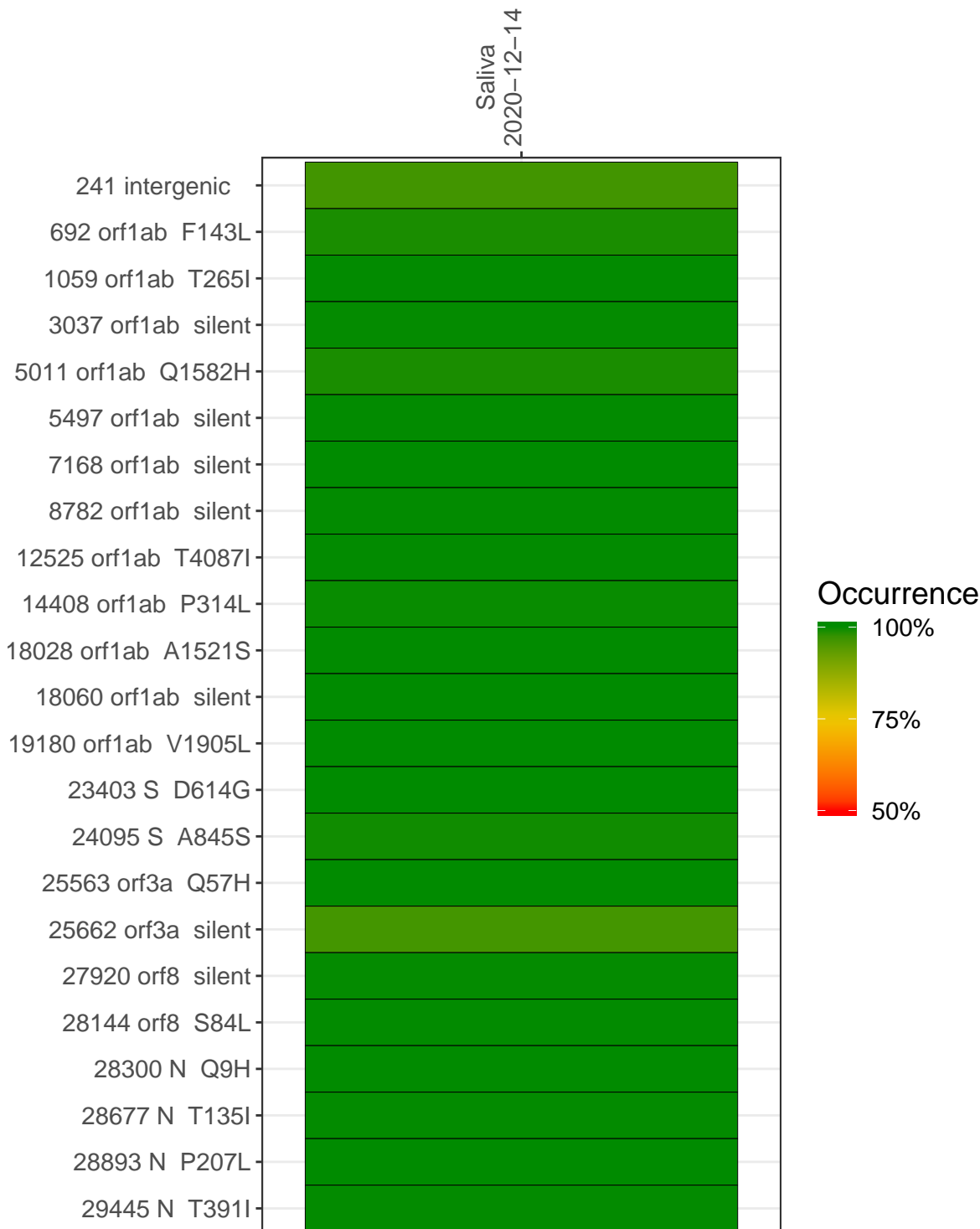
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with  $> 90\%$  sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage ( $\geq 5$ reads)
VSP0554	composite	NA	Saliva	2020-12-14	29.84	B.1.311	99.8%	99.8%
VSP0554-1	single experiment	NA	Saliva	2020-12-14	29.84	B.1.311	99.8%	99.8%
VSP0554-2	single experiment	NA	Saliva	2020-12-14	19.58	B.1.311	99.8%	99.7%

## Variants shared across samples

The heat map below shows how variants (reference genome /home/everett/projects/SARS-CoV-2-Philadelphia/USA-WA1-2020) 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  
2020-12-14

241 intergenic	3540	1304
692 orf1ab F143L	2250	816
1059 orf1ab T265I	1241	471
3037 orf1ab silent	3861	1386
5011 orf1ab Q1582H	1316	435
5497 orf1ab silent	6569	2363
7168 orf1ab silent	790	302
8782 orf1ab silent	4618	1456
12525 orf1ab T4087I	7966	2577
14408 orf1ab P314L	8716	2796
18028 orf1ab A1521S	3472	1030
18060 orf1ab silent	2870	934
19180 orf1ab V1905L	7185	2458
23403 S D614G	10317	3503
24095 S A845S	1686	535
25563 orf3a Q57H	3307	1123
25662 orf3a silent	3925	1203
27920 orf8 silent	6531	2377
28144 orf8 S84L	6330	2093
28300 N Q9H	7948	2683
28677 N T135I	7083	2515
28893 N P207L	613	175
29445 N T391I	1855	534

Base change

- Expected
- A
- T
- C
- G
- N
- Ins/Del
- No data

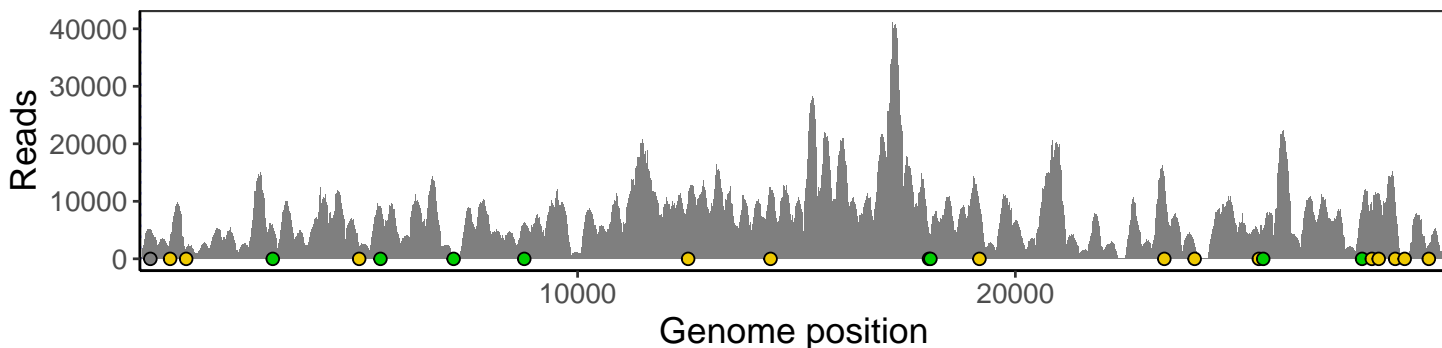
VSP0554-1

VSP0554-2

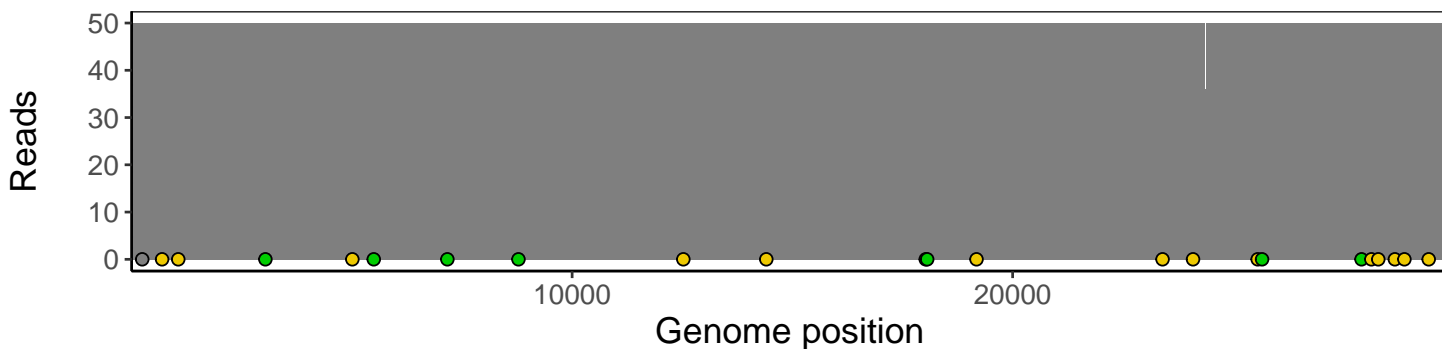
## Analyses of individual experiments and composite results

VSP0554 | 2020-12-14 | Saliva | 436s | composite result

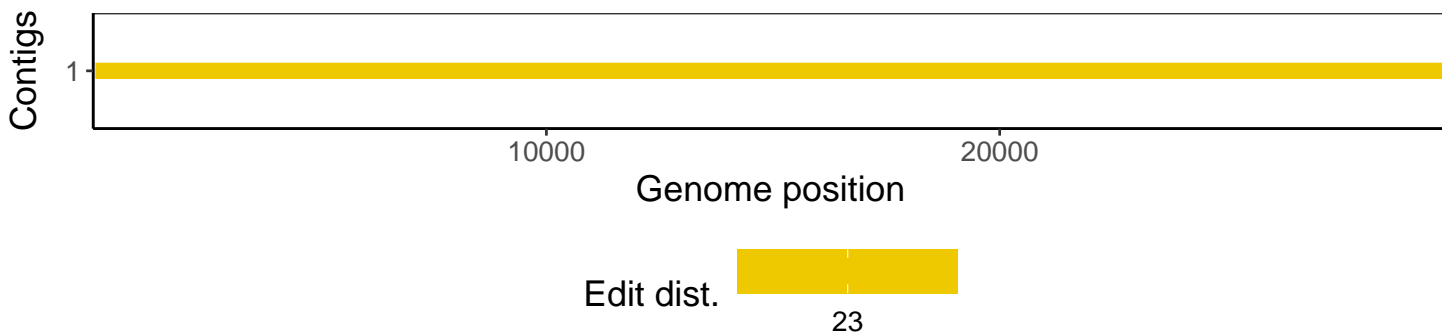
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



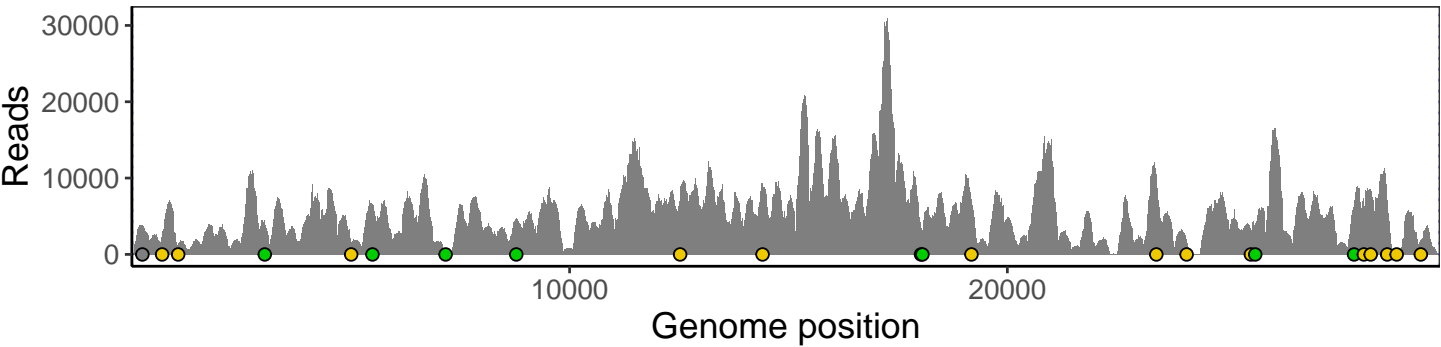
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



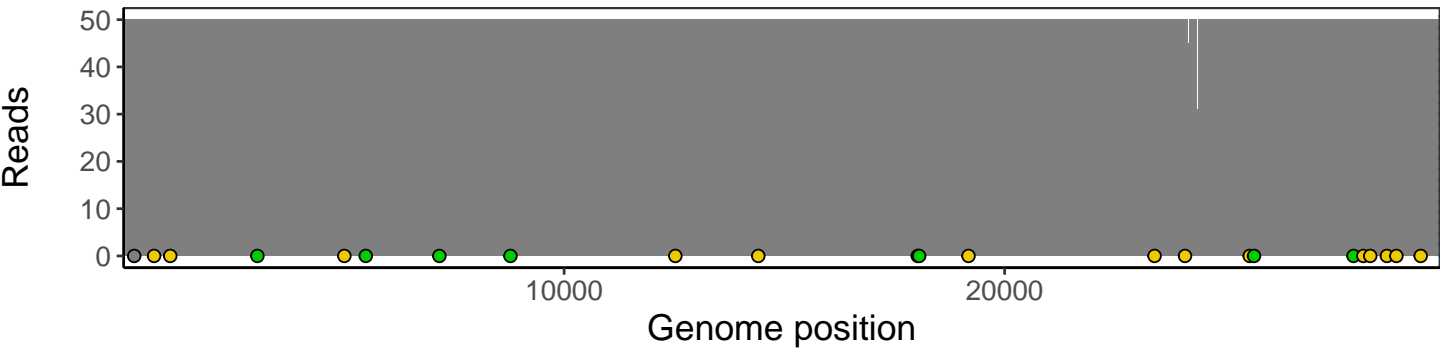
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



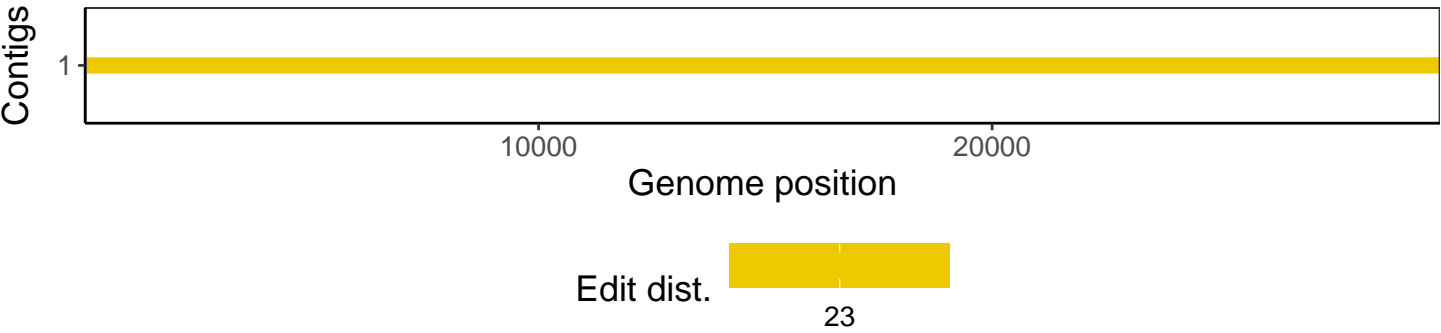
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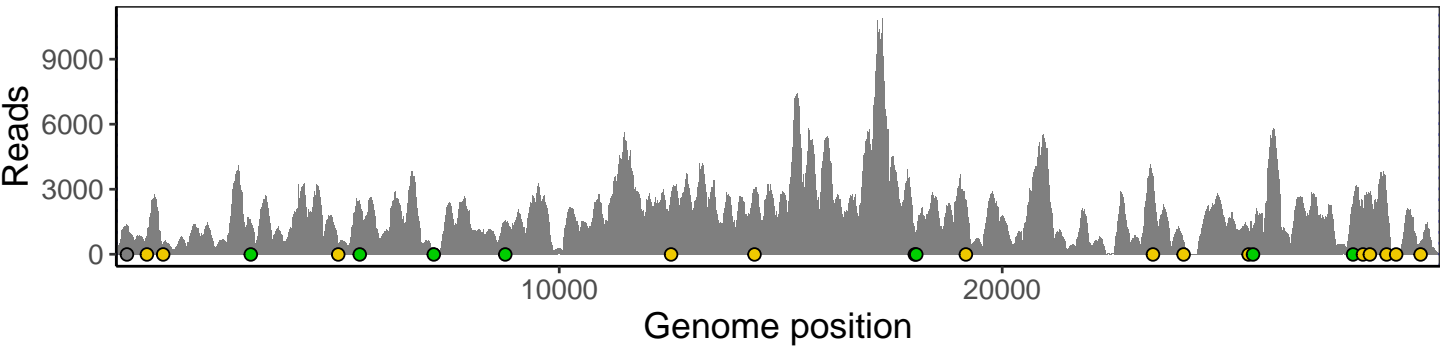
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



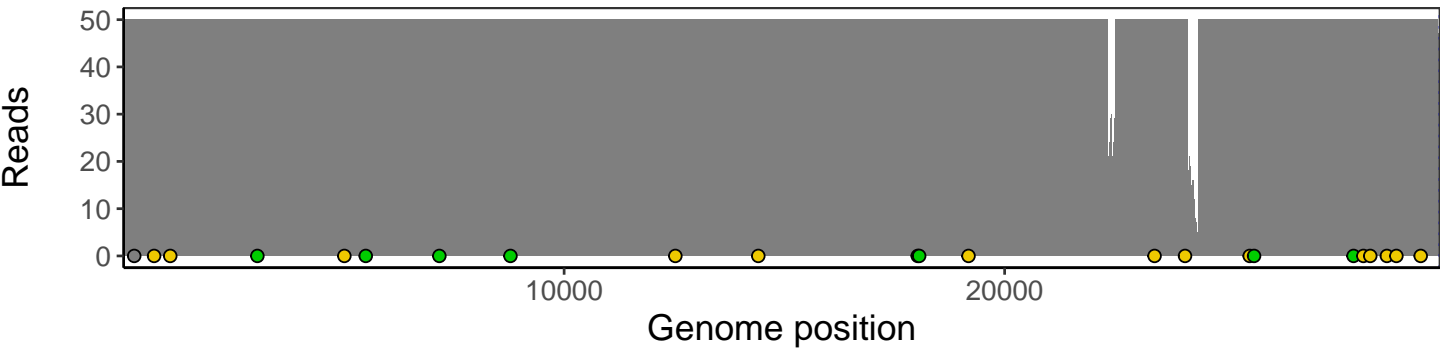
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



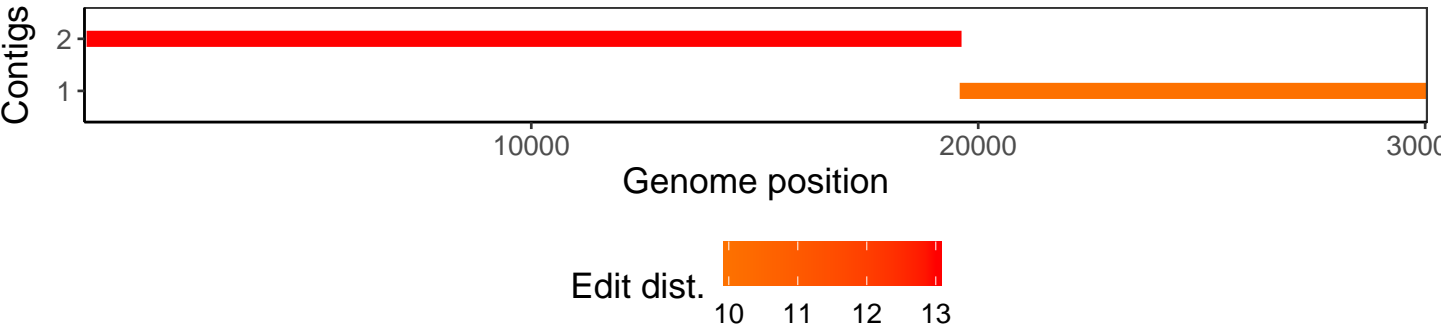
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Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



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## Software environment

Software/R package	Version
R	3.4.0
bwa	0.7.17-r1198-dirty
samtools	1.10 Using htlib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htlib 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	3.0.0
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