

COVID-19 subject 437

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.

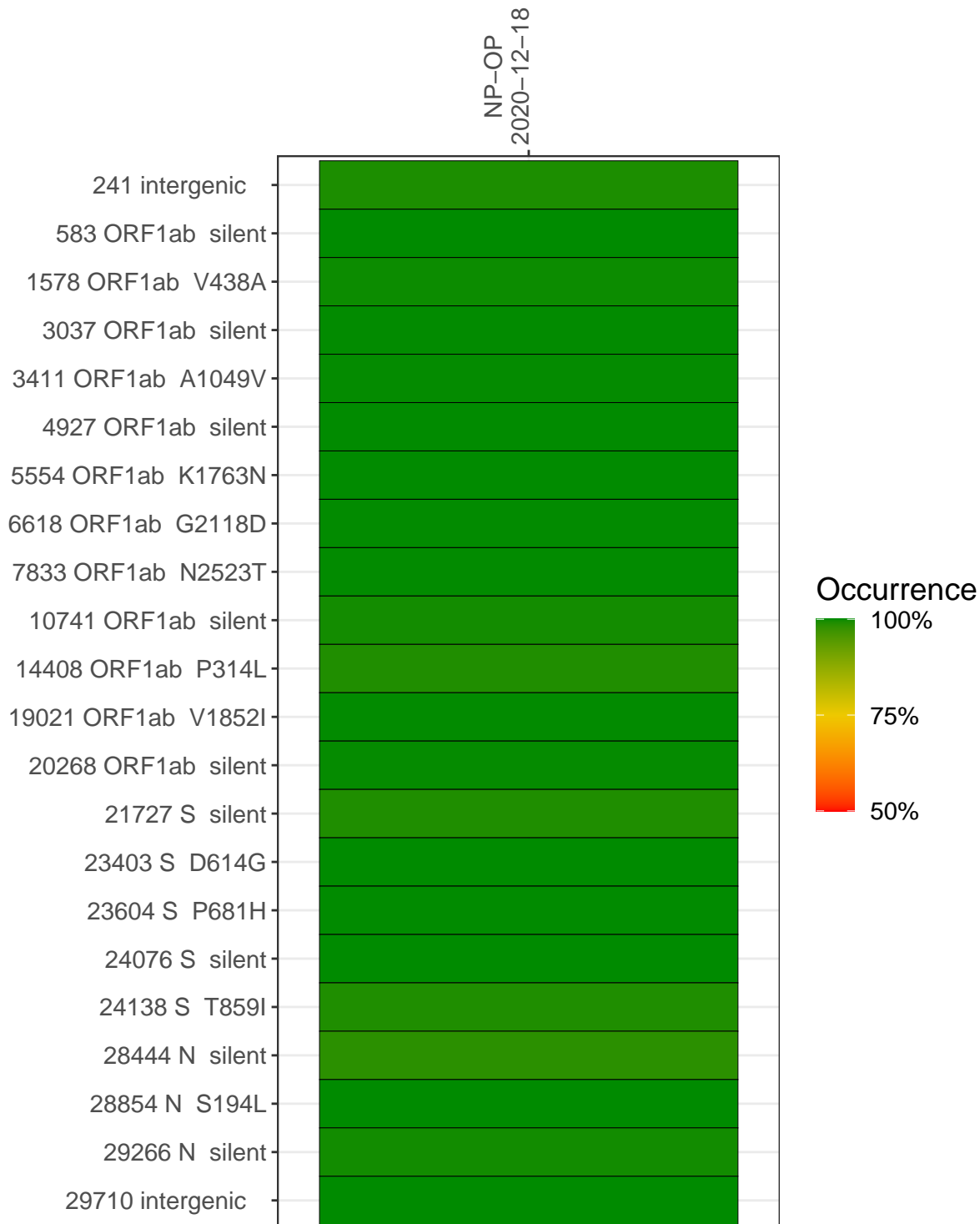
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software tool (Rambaut et al 2020) for genomes with > 90% sequence coverage.

Table 1. Sample summary.

Experiment	Type	Genomes	Sample type	Sample date	Largest contig (KD)	Lineage	Reference read coverage	Reference read coverage (>= 5 reads)
VSP0560	composite	NA	NP-OP	2020-12-18	28.05	B.1.243	99.9%	99.8%
VSP0560-1	single experiment	NA	NP-OP	2020-12-18	29.87	B.1.243	99.9%	99.8%
VSP0560-2	single experiment	NA	NP-OP	2020-12-18	15.09	B.1.243	99.7%	99.7%

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.



NP-OP
2020-12-18

241 intergenic	10010	4023
583 ORF1ab silent	6449	2322
1578 ORF1ab V438A	1523	517
3037 ORF1ab silent	6583	2438
3411 ORF1ab A1049V	9707	3422
4927 ORF1ab silent	12817	4833
5554 ORF1ab K1763N	6898	2330
6618 ORF1ab G2118D	8722	3589
7833 ORF1ab N2523T	12358	4416
10741 ORF1ab silent	6185	2127
14408 ORF1ab P314L	15332	5351
19021 ORF1ab V1852I	12614	4576
20268 ORF1ab silent	1885	530
21727 S silent	4778	1676
23403 S D614G	18984	6842
23604 S P681H	15563	5779
24076 S silent	3446	1165
24138 S T859I	4906	1693
28444 N silent	23936	7475
28854 N S194L	2675	931
29266 N silent	9815	3305
29710 intergenic	1010	380
	VSP0560-1	VSP0560-2

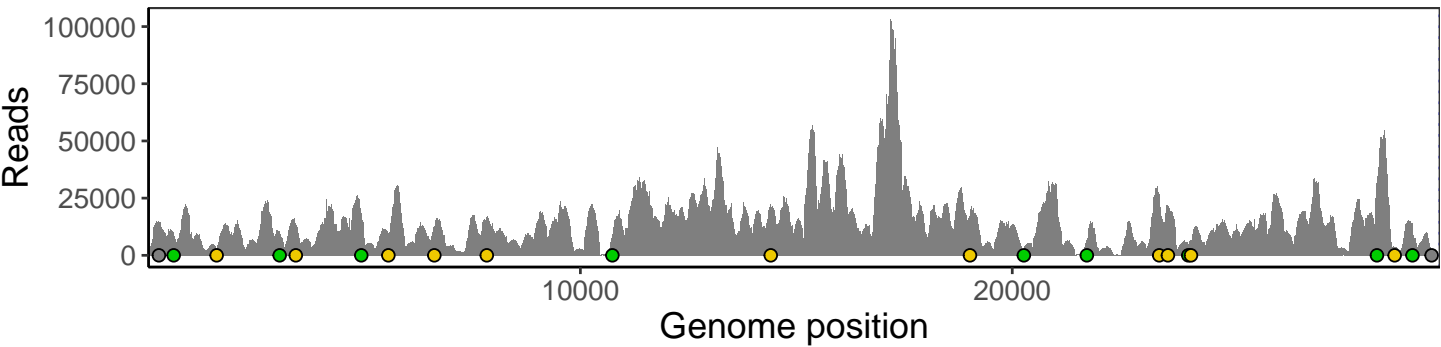
Base change

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

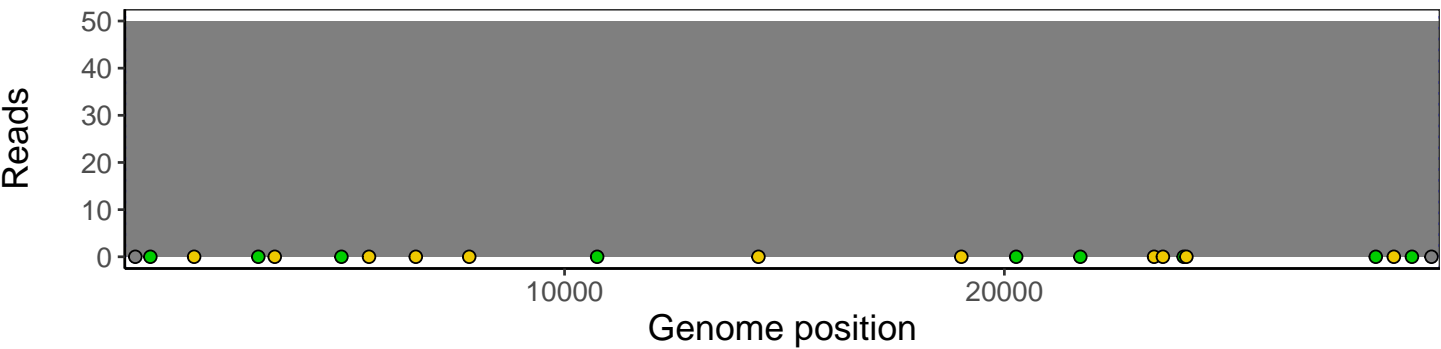
Analyses of individual experiments and composite results

VSP0560 | 2020-12-18 | NP-OP | 437no | composite result

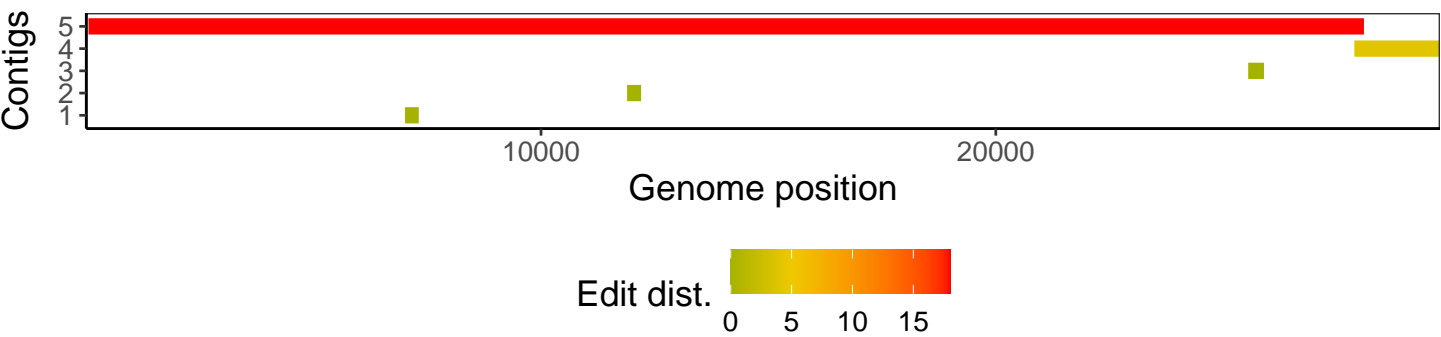
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



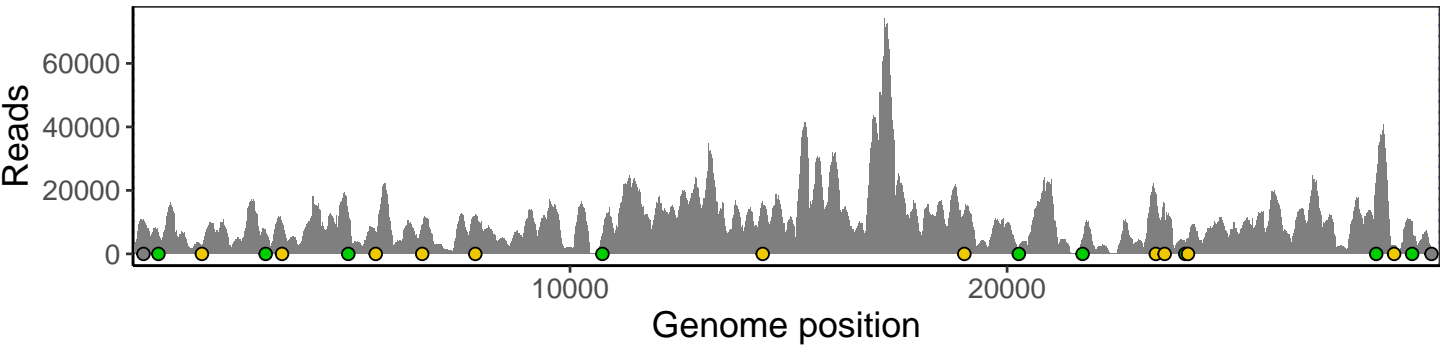
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



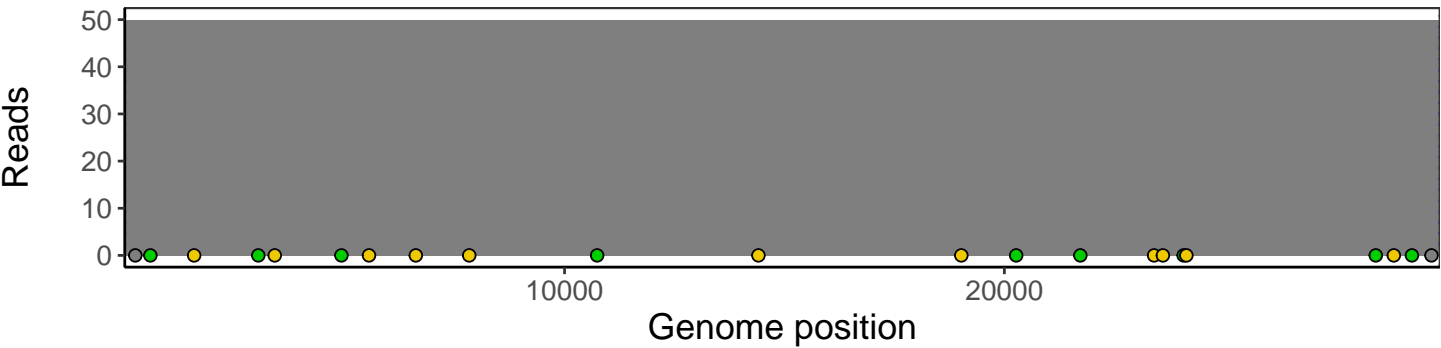
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



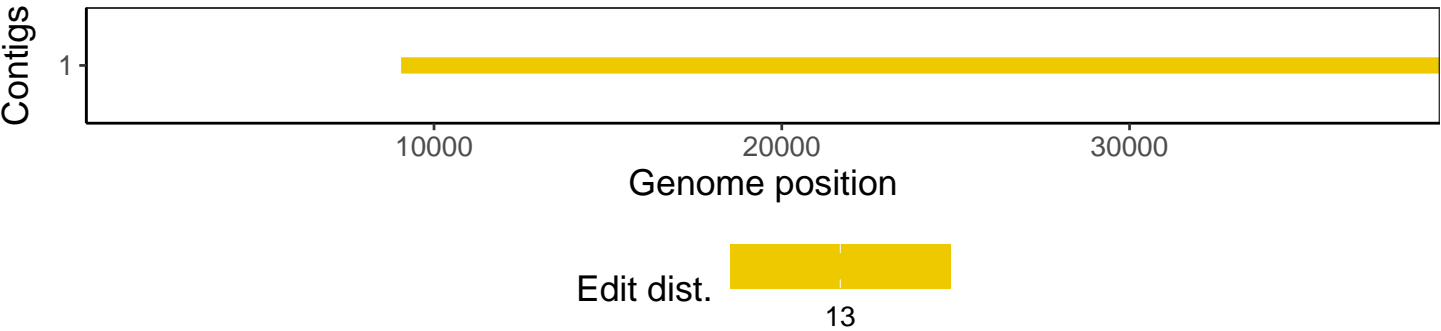
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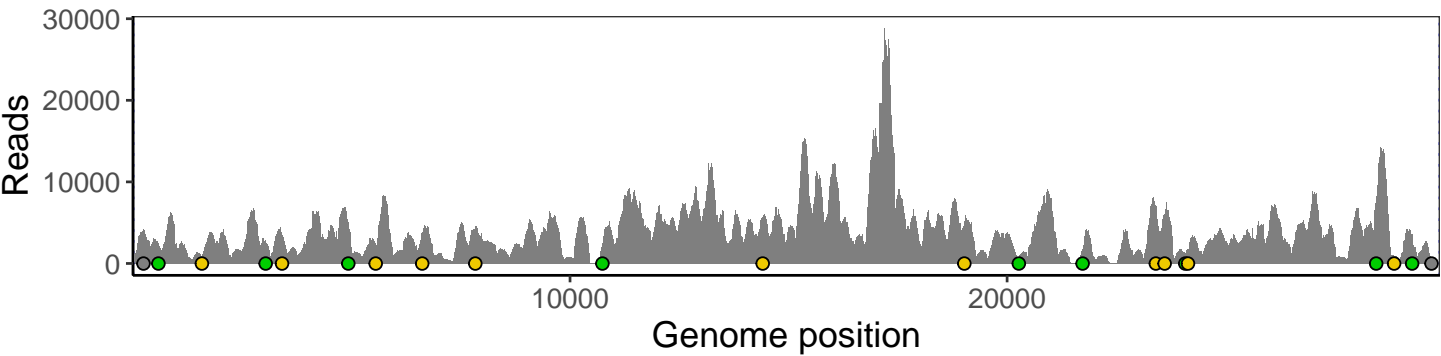
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



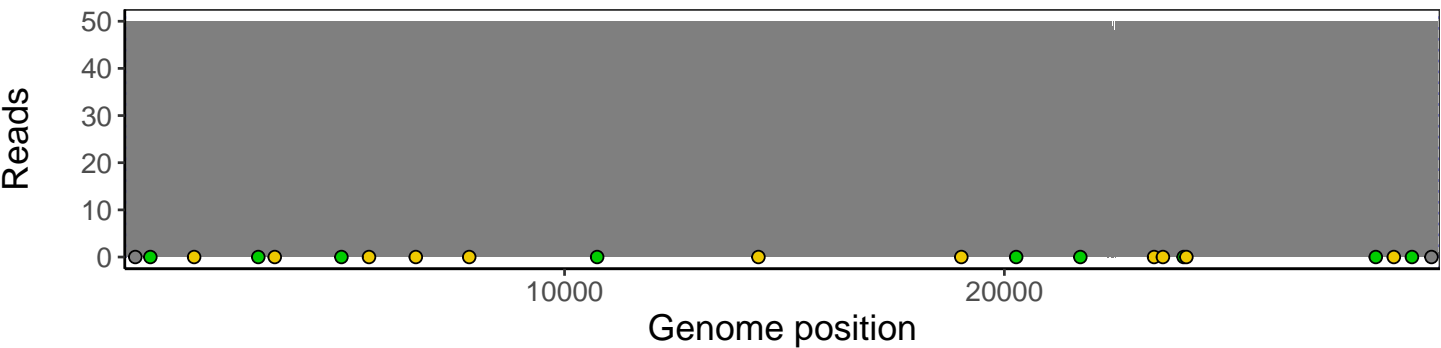
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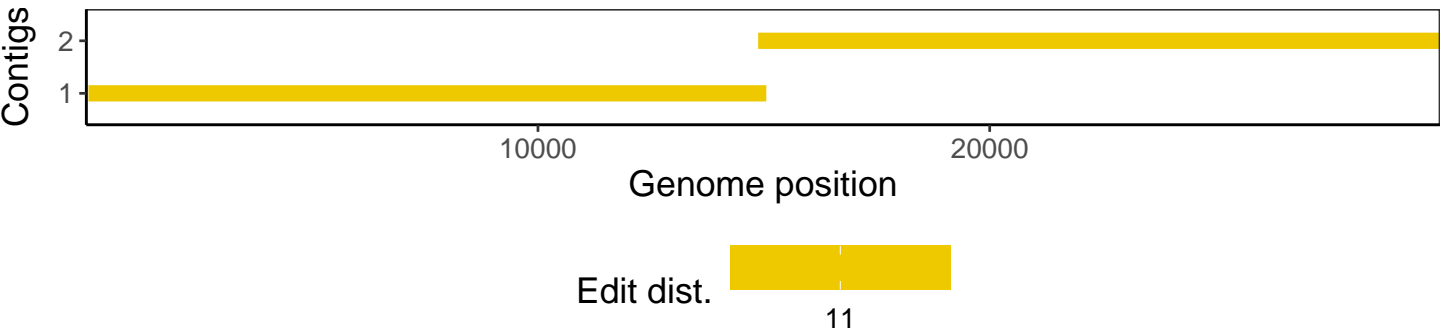
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Software environment

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	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