

COVID-19 subject H2102240764

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)
VSP0684	composite	NA	VTM	2021-03-01	29.94	B.1.243	99.9%	99.8%
VSP0684-1	single experiment	NA	VTM	2021-03-01	29.94	B.1.243	99.9%	99.8%
VSP0684-2	single experiment	NA	VTM	2021-03-01	22.32	B.1.243	99.4%	99.1%

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.



VTM
2021-03-01

241 intergenic	4305	87
1578 ORF1ab V438A	3914	60
3037 ORF1ab silent	7337	132
6525 ORF1ab T2087I	7037	179
6618 ORF1ab G2118D	16893	588
7393 ORF1ab silent	13013	286
7833 ORF1ab N2523T	15018	218
7860 ORF1ab T2532I	13931	140
10741 ORF1ab silent	7274	143
12153 ORF1ab A3963V	12749	215
14408 ORF1ab P314L	13142	161
20055 ORF1ab silent	8316	160
20268 ORF1ab silent	2620	81
23403 S D614G	13101	394
23604 S P681H	11809	246
24076 S silent	3834	157
27923 ORF8 silent	14802	214
28854 N S194L	1133	21
29266 N silent	6227	101
29710 intergenic	15332	347

Base change

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

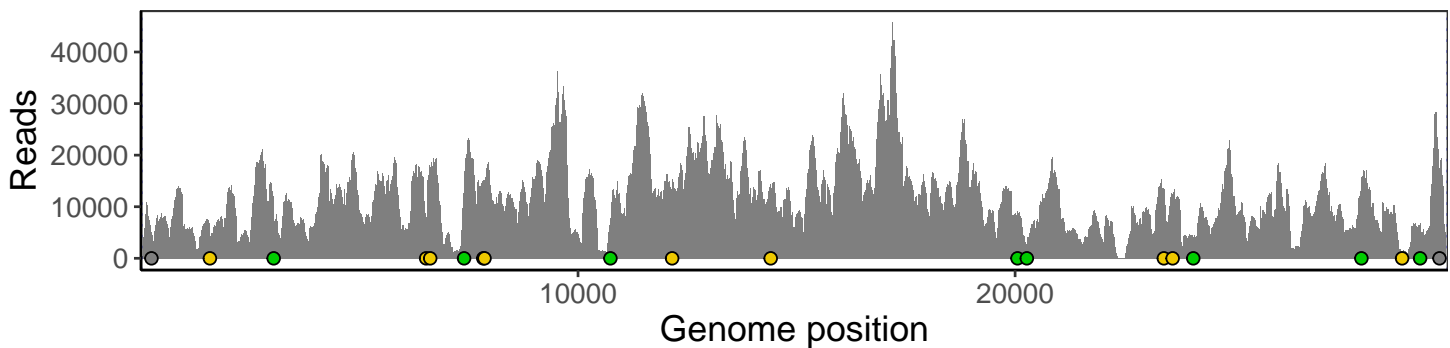
VSP0684-1

VSP0684-2

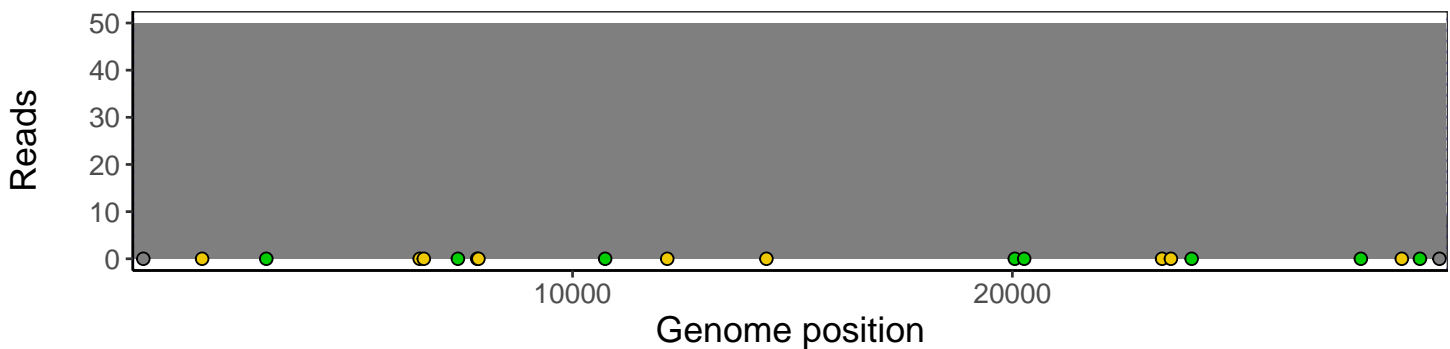
Analyses of individual experiments and composite results

VSP0684 | 2021-03-01 | VTM | H2102240764 | composite result

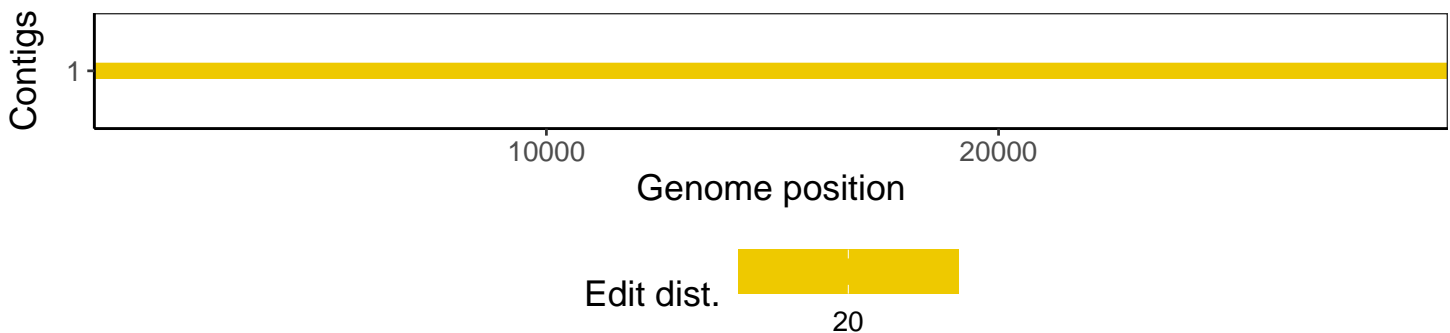
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



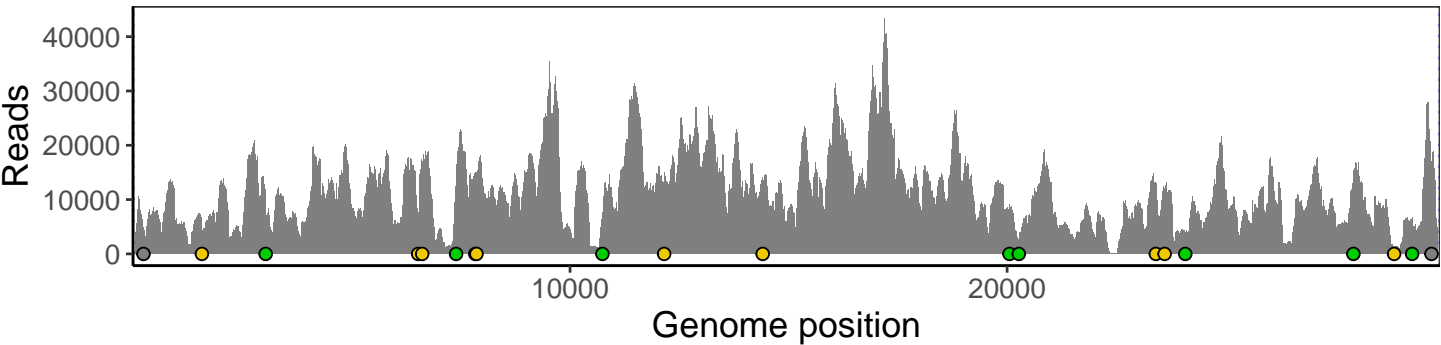
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



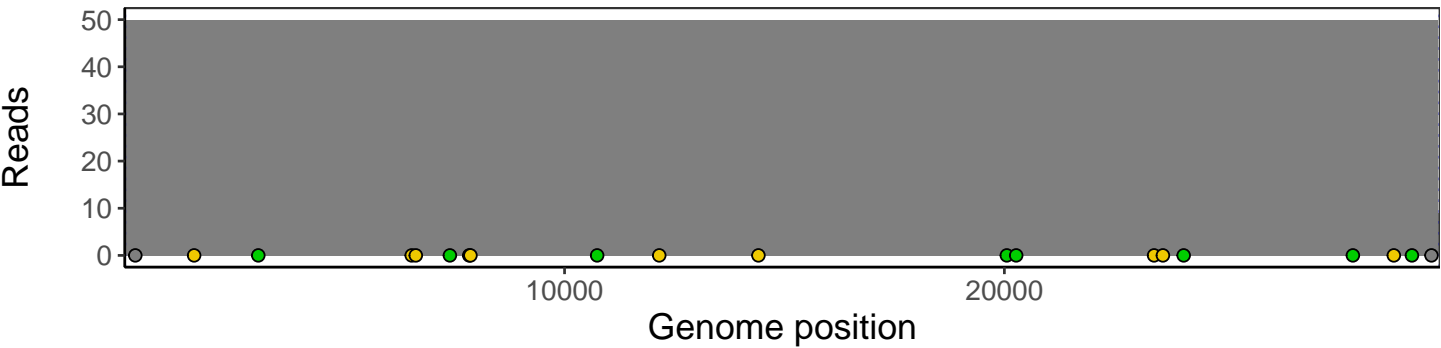
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



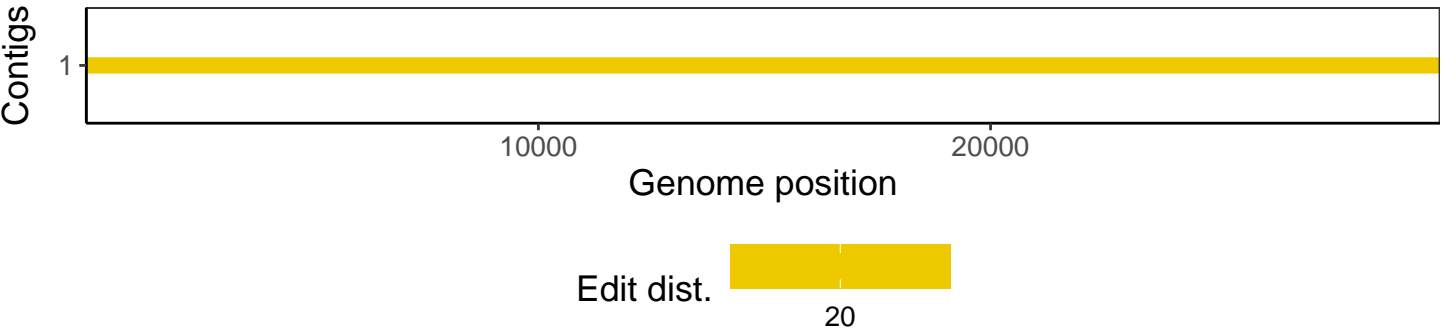
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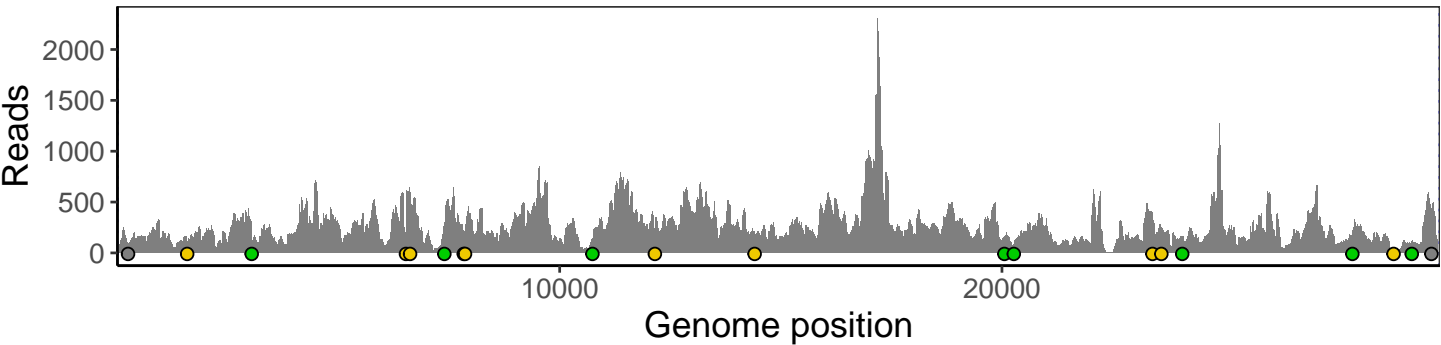
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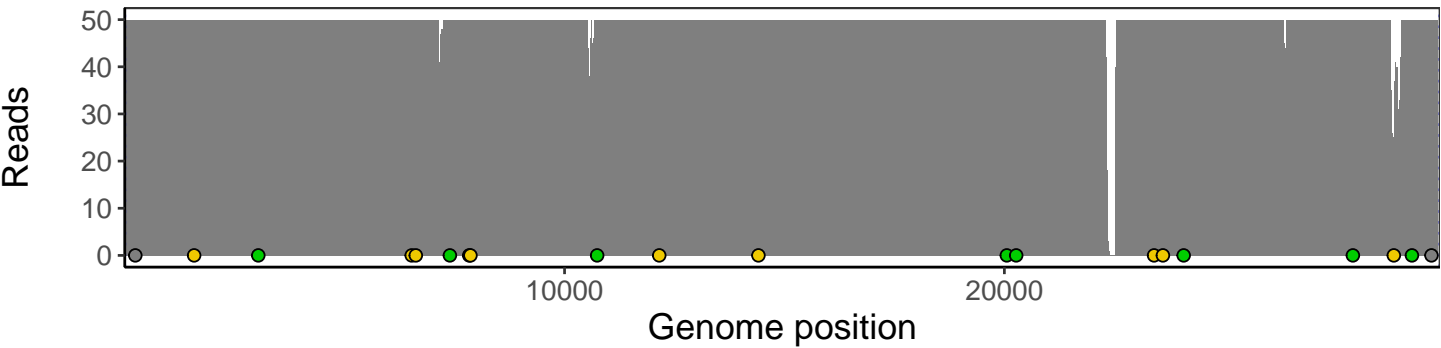
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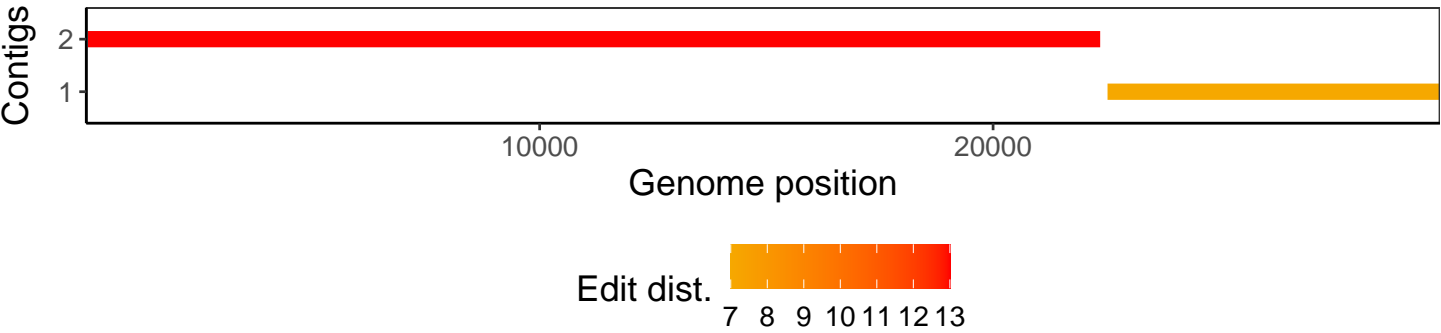
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Software environment

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