

COVID-19 subject PQ-Seq15

2021-04-17

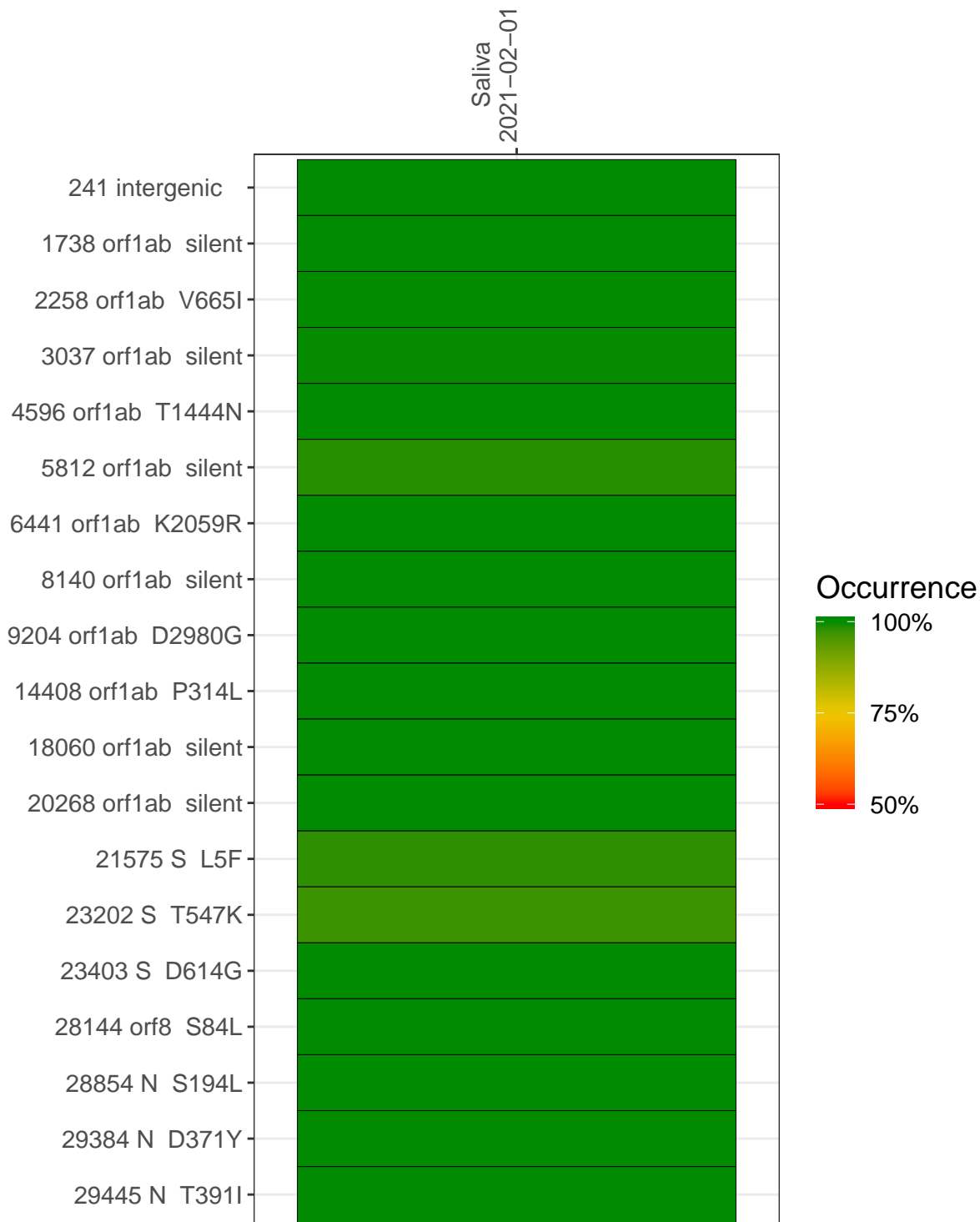
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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 (≥ 5 reads)
VSP0784	composite	NA	Saliva	2021-02-01	15.05	B.1.234	99.8%	98.6%
VSP0784-1	single experiment	NA	Saliva	2021-02-01	2.28	NA	94.7%	80.4%
VSP0784-2	single experiment	NA	Saliva	2021-02-01	12.86	NA	98.0%	91.3%

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
2021-02-01

241 intergenic	6	36
1738 orf1ab silent	13391	108
2258 orf1ab V665I	3724	15
3037 orf1ab silent	9128	7
4596 orf1ab T1444N	3	89
5812 orf1ab silent	4	65
6441 orf1ab K2059R	16	82
8140 orf1ab silent	6	46
9204 orf1ab D2980G	11448	49
14408 orf1ab P314L	17845	42
18060 orf1ab silent	9382	67
20268 orf1ab silent	4	53
21575 S L5F	6	145
23202 S T547K	63	363
23403 S D614G	61	177
28144 orf8 S84L	1311	263
28854 N S194L	2	120
29384 N D371Y	0	50
29445 N T391I	0	22

VSP0784-1

VSP0784-2

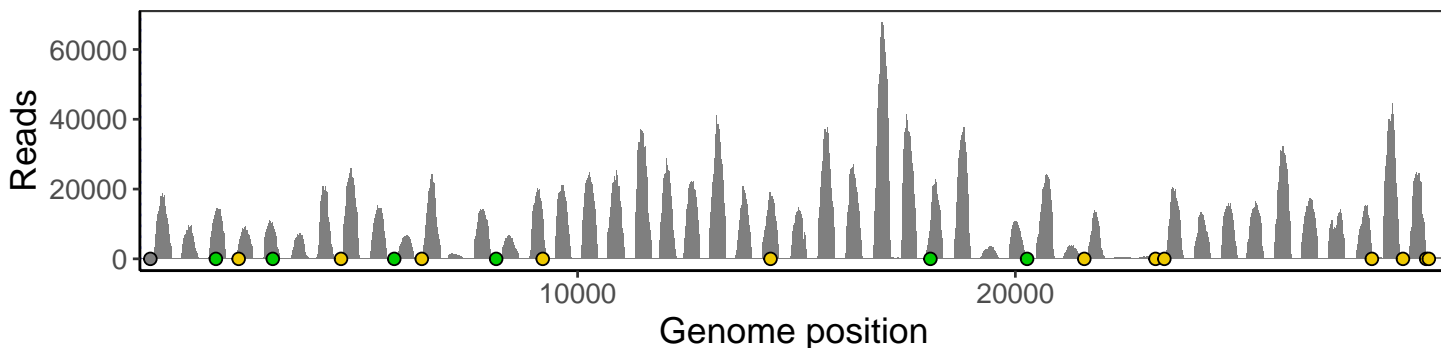
Base change

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

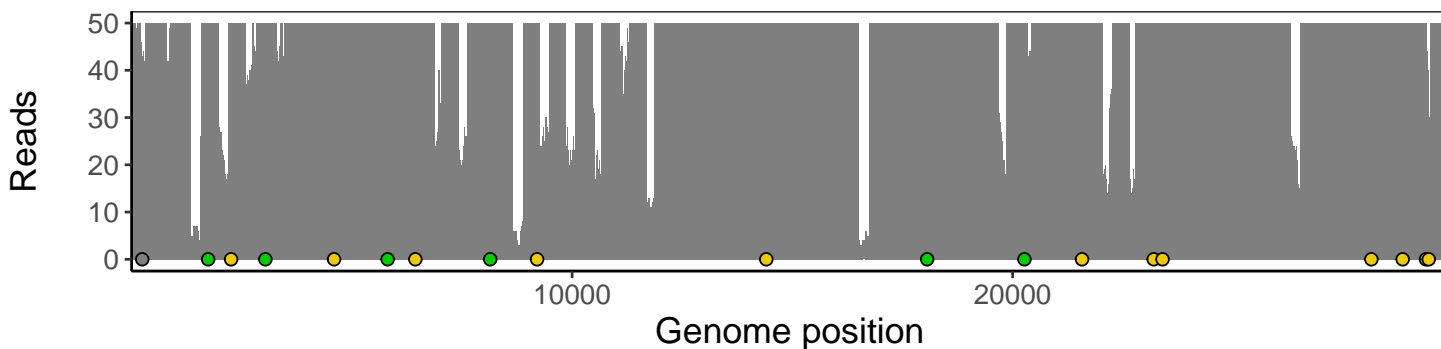
Analyses of individual experiments and composite results

VSP0784 | 2021-02-01 | Saliva | PQ-Seq15 | composite result

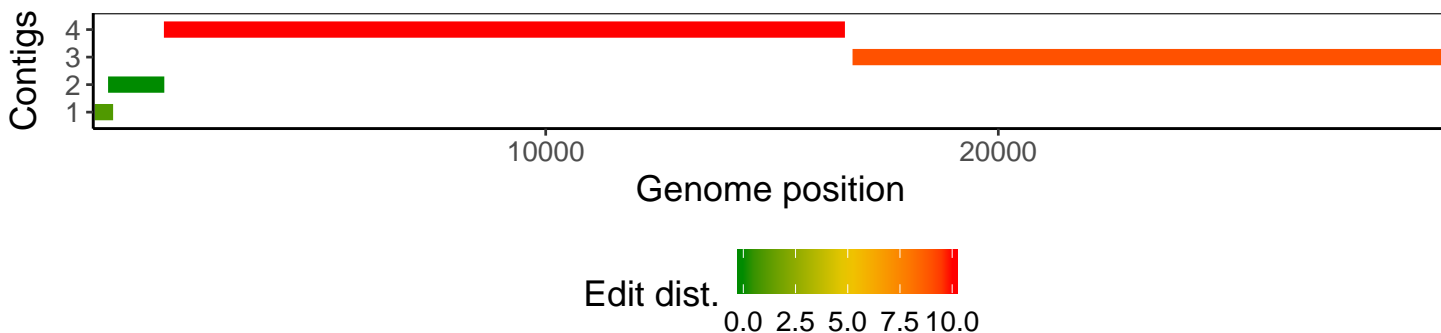
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



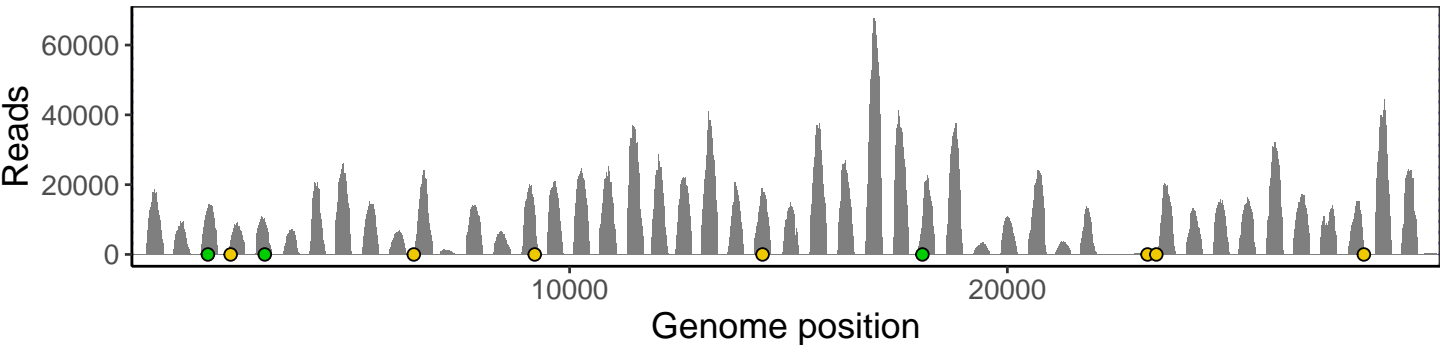
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



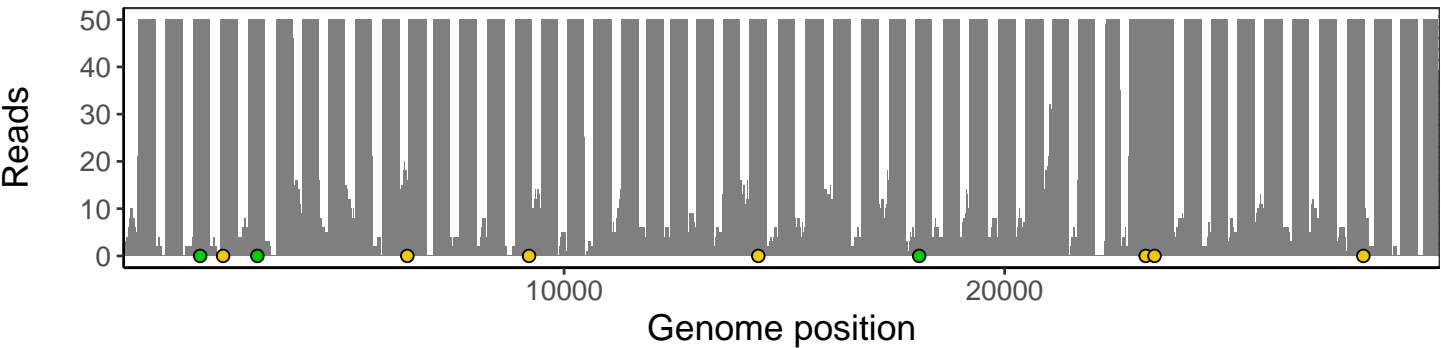
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



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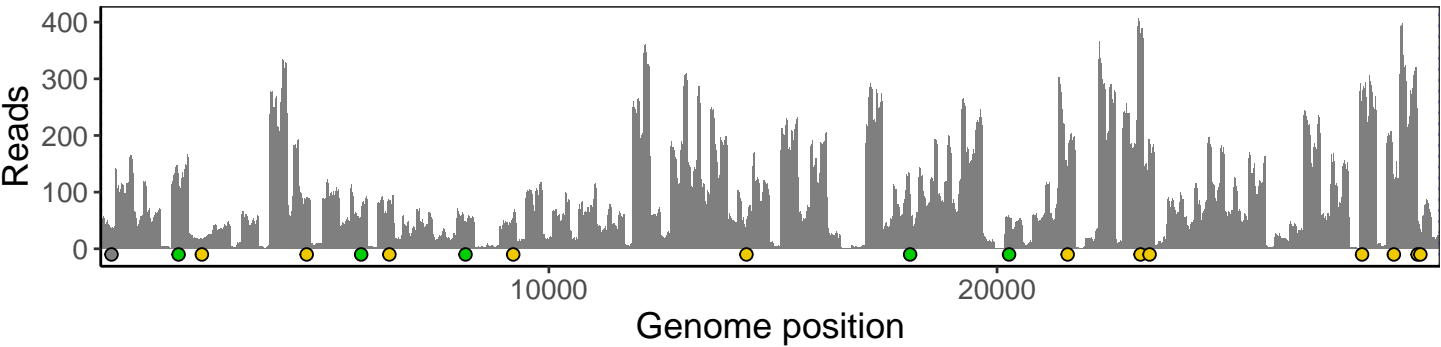
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



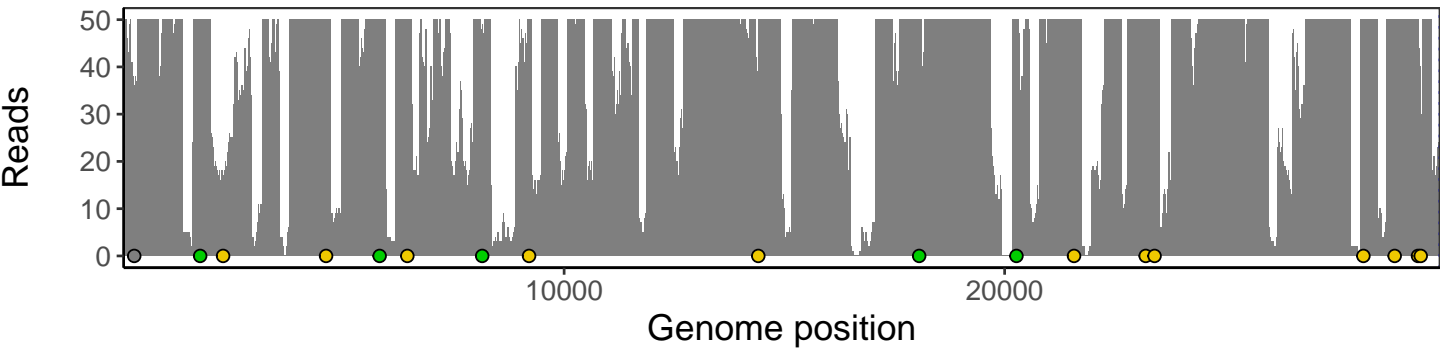
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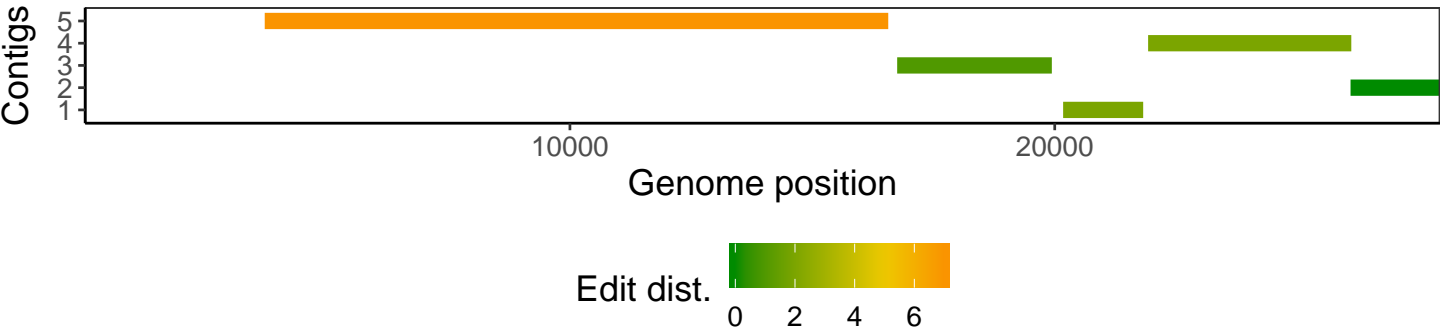
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Software environment

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	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