

COVID-19 subject UPHS-0082

2021-03-25

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)
VSP1014-1	single experiment	NA	Saline	2021-03-08	29.85	B.1.110.3	99.9%	99.8%

Variants shared across samples

The heat map below shows how variants (reference genome 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.



Saline
2021-03-08

241 intergenic	3851
601 orf1ab silent	2357
1471 orf1ab silent	5434
1777 orf1ab silent	2466
2106 orf1ab T614I	6753
3037 orf1ab silent	4055
8389 orf1ab silent	5263
8782 orf1ab silent	12137
9891 orf1ab A3209V	3314
11085 orf1ab Y3607F	8143
12832 orf1ab Q4189H	13464
14055 orf1ab silent	12109
14408 orf1ab P314L	5566
18060 orf1ab silent	5932
18684 orf1ab silent	10645
19542 orf1ab M2025I	3277
23403 S D614G	11595
25292 S L1244F	1735
25563 orf3a Q57H	362
25939 orf3a D183N	4566
27915 orf8 G8R	4227
28144 orf8 S84L	4006
28254 orf8 del 1	4948
28606 N silent	3673
28877 N S202C	990
29402 N D377Y	2865

Base change

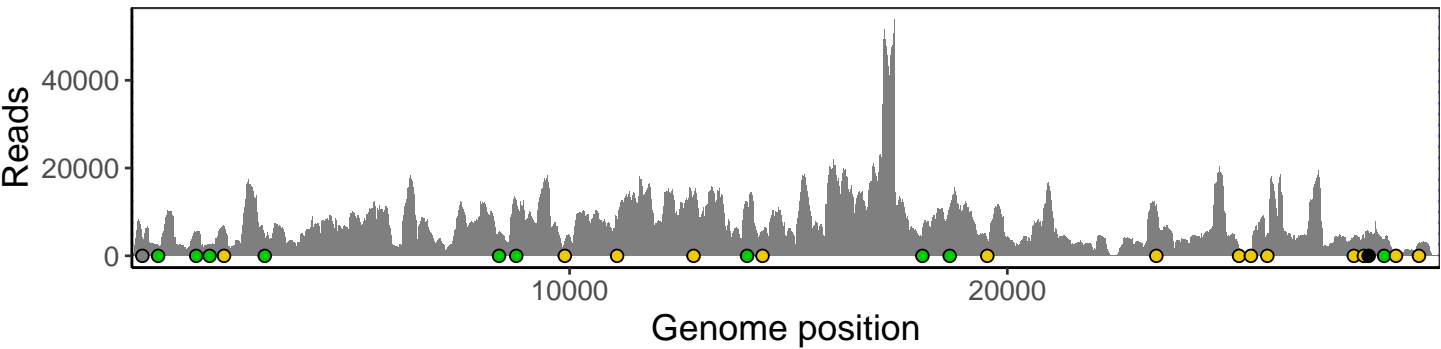
- Expected
- A
- T
- C
- G
- N
- Ins/Del
- No data

VSP1014-1

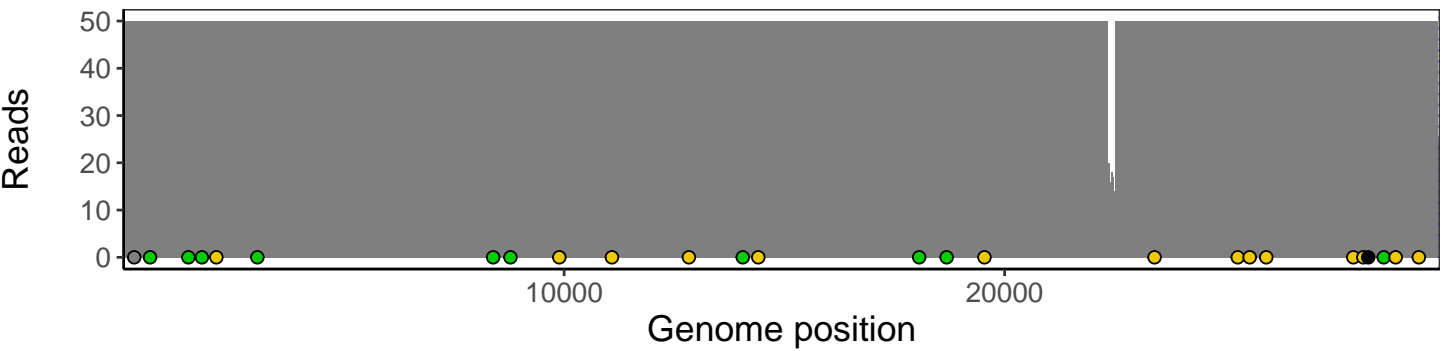
Analyses of individual experiments and composite results

VSP1014-1 | 2021-03-08 | Saline | UPHS-0082 | genomes | single experiment

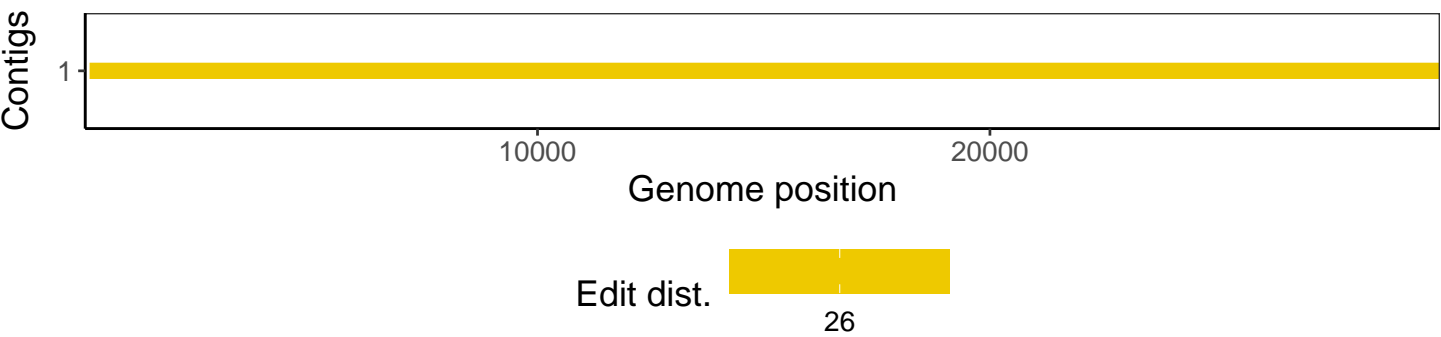
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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.



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	2.3.3
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	3.0.0
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