

COVID-19 subject UPHS-0488

2021-06-01

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)
VSP1614-1	single experiment	NA	NA	2021-03-20	22.98	B.1.575	99.9%	99.6%

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.



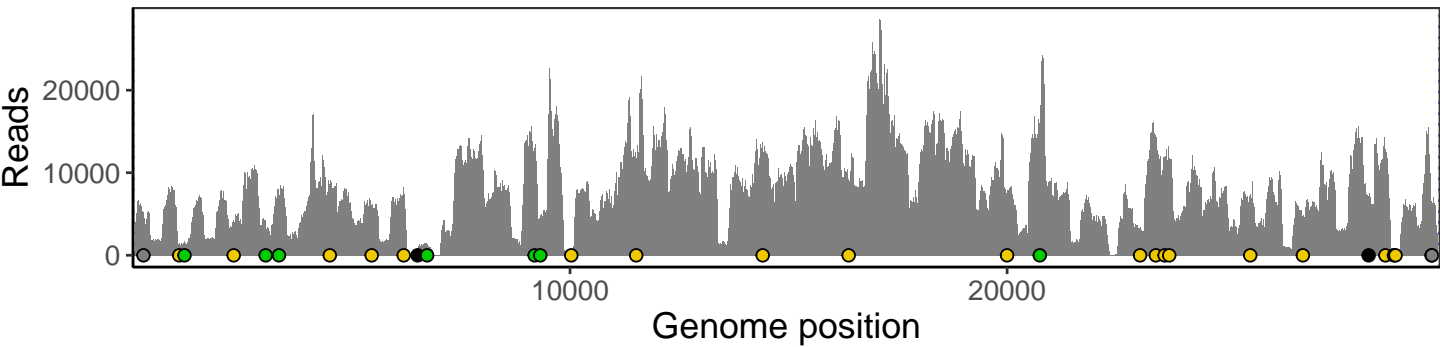
	NA 2021-03-20	
241 intergenic	4280	
1059 ORF1ab T265I	1161	
1180 ORF1ab silent	1580	
2305 ORF1ab K680N	4208	
3037 ORF1ab silent	3197	
3340 ORF1ab silent	7201	
4504 ORF1ab E1413D	8416	
5462 ORF1ab S1733G	5959	
6195 ORF1ab P1977L	7227	
6513 ORF1ab del 3	710	
6730 ORF1ab silent	1264	
9190 ORF1ab silent	11905	
9319 ORF1ab silent	4411	
10029 ORF1ab T3255I	437	
11514 ORF1ab T3750I	11680	
14408 ORF1ab P314L	11751	
16375 ORF1ab P970S	8588	
19999 ORF1ab V2178F	7169	
20748 ORF1ab silent	15574	
23042 S S494P	3384	
23403 S D614G	14191	
23604 S P681H	11178	
23709 S T716I	11388	
25563 ORF3a Q57H	7128	
26767 M I82T	4352	
28271 intergenic del 1	6825	
28655 N D128Y	11994	
28851 N S193I	728	
28887 N T205I	701	
29711 intergenic del 1	6545	
29719 intergenic	5543	
	VSP1614-1	

Base change	
	Expected
	A
	T
	C
	G
	N
	Ins/Del
	No data

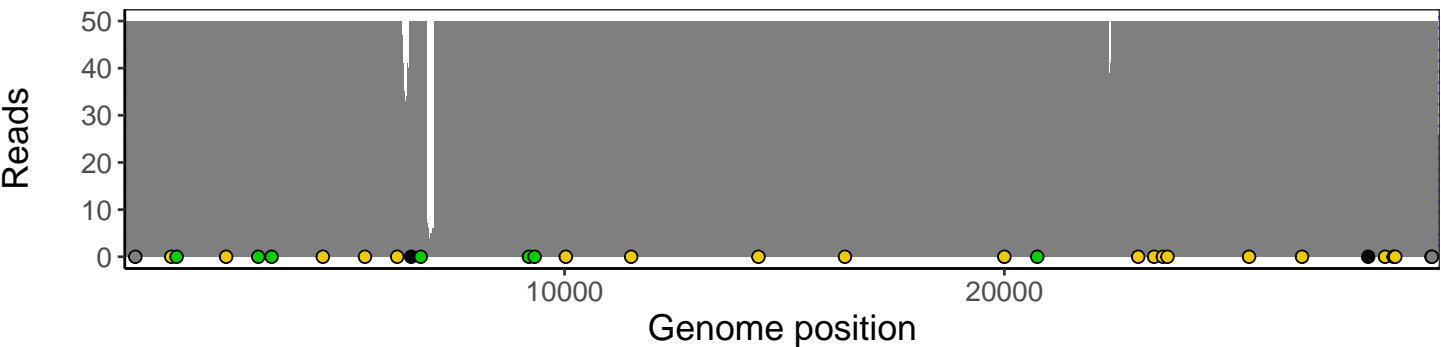
Analyses of individual experiments and composite results

VSP1614-1 | 2021-03-20 | NA | UPHS-0488 | genomes | single experiment

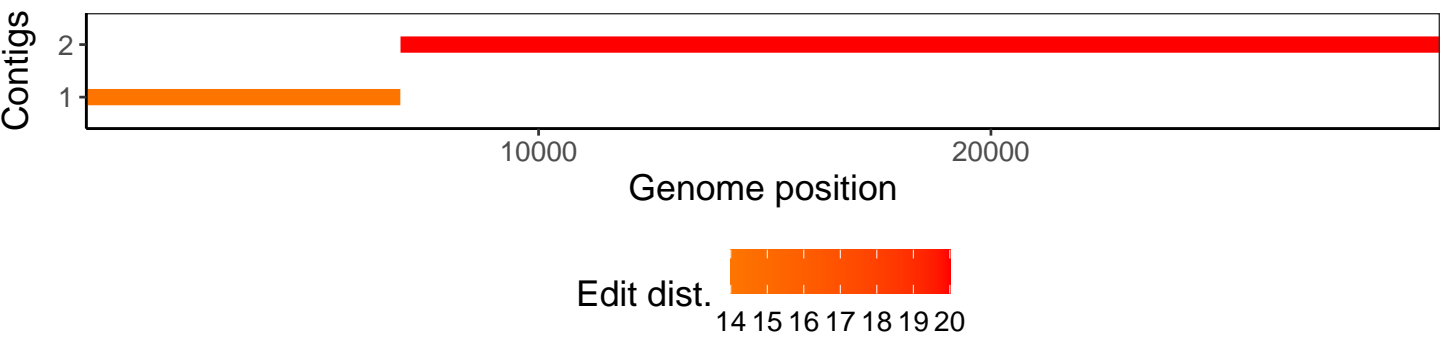
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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	2.3.8
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	3.3.3
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