COVID-19 subject UPHS-0268

2021-05-05

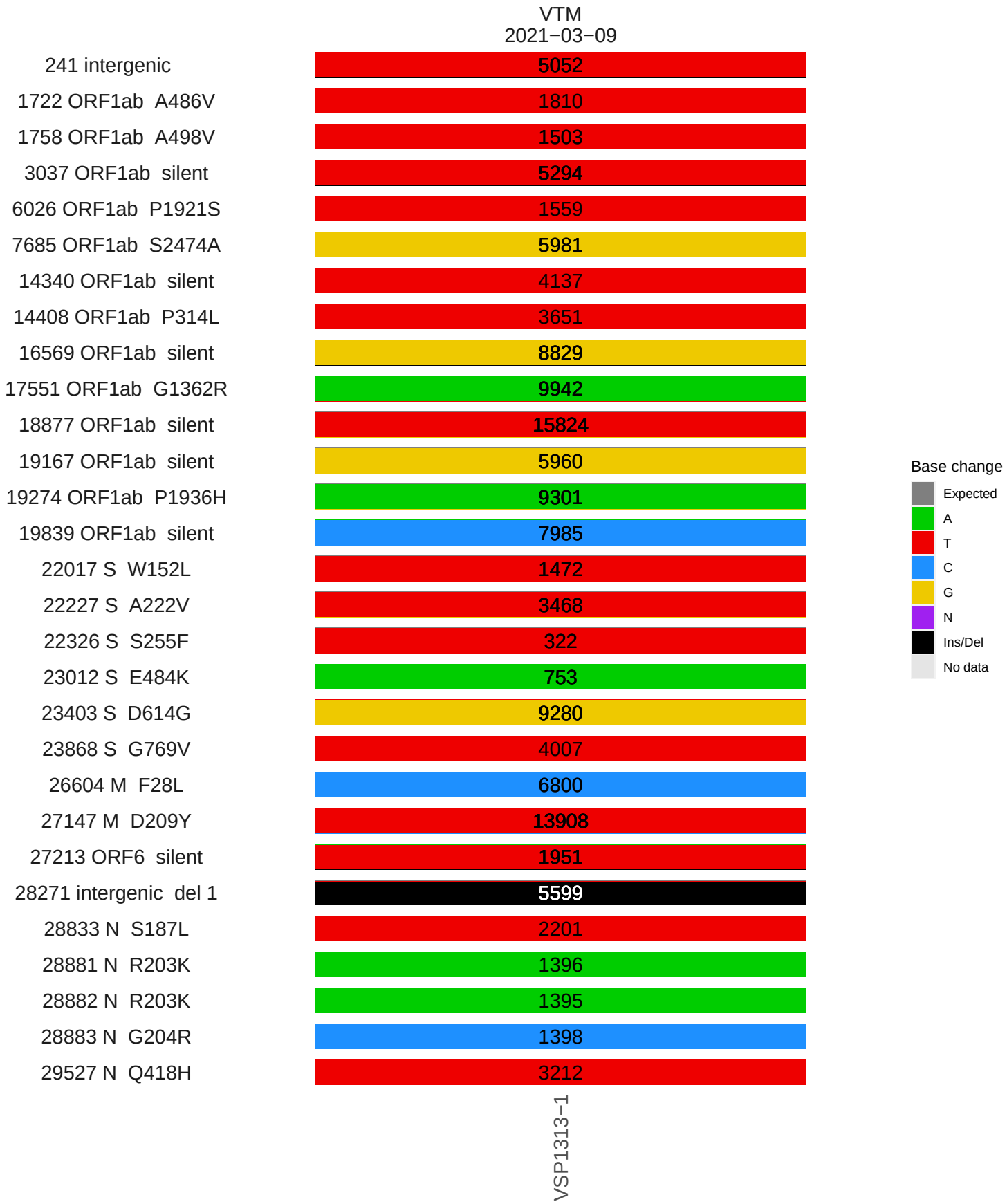
The table below provides a summary of subject samples for which sequencing data is available.
The experiments column shows the number of sequencing experiments performed for each specimen.
Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP1313-1	single experiment	NA	VTM	2021-03-09	29.84	R.1	99.8%	99.7%

Variants shared across samples

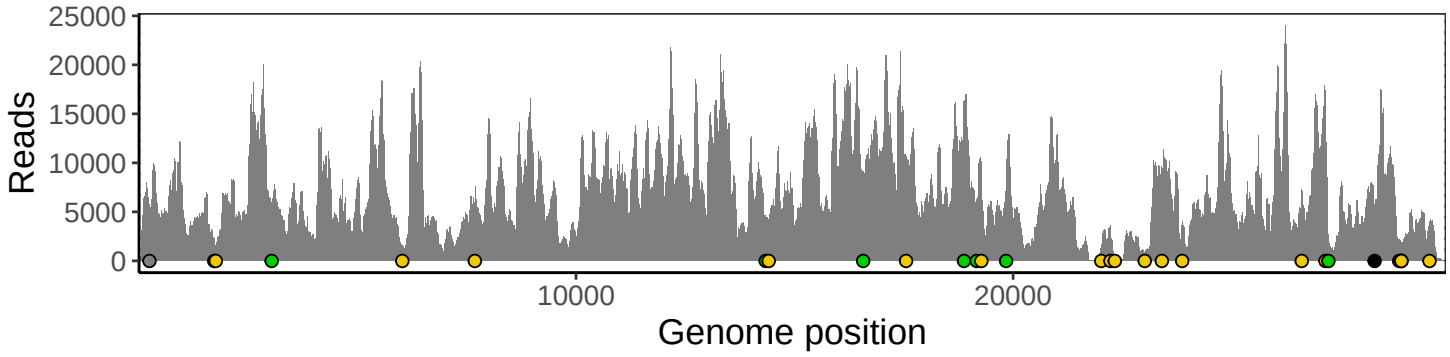
The heat map below shows how variants (reference genome /home/everett/projects/SARS-CoV-2-Philadelphia/Wuhan-Hu-1) are shared across subject samples where the percent variance is colored. Variants are called if a variant position is covered by 5 or more reads, the alternative base is found in > 50% of 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
2021−03−09
241 intergenic
5052
1722 ORF1ab A486V
1810
1758 ORF1ab A498V
1503
3037 ORF1ab silent
5294
6026 ORF1ab P1921S
1559
7685 ORF1ab S2474A
5981
14340 ORF1ab silent
4137
14408 ORF1ab P314L
3651
16569 ORF1ab silent
8829
17551 ORF1ab G1362R
9942
18877 ORF1ab silent
15824
19167 ORF1ab silent
5960
19274 ORF1ab P1936H
9301
19839 ORF1ab silent
7985
22017 S W152L
1472
22227 S A222V
3468
22326 S S255F
322
23012 S E484K
753
23403 S D614G
9280
23868 S G769V
4007
26604 M F28L
6800
27147 M D209Y
13908
27213 ORF6 silent
1951
28271 intergenic del 1
5599
28833 N S187L
2201
28881 N R203K
1396
28882 N R203K
1395
28883 N G204R
1398
29527 N Q418H
3212
VSP1313−1
Base change
Expected
A
T
C
G
N
Ins/Del
No data

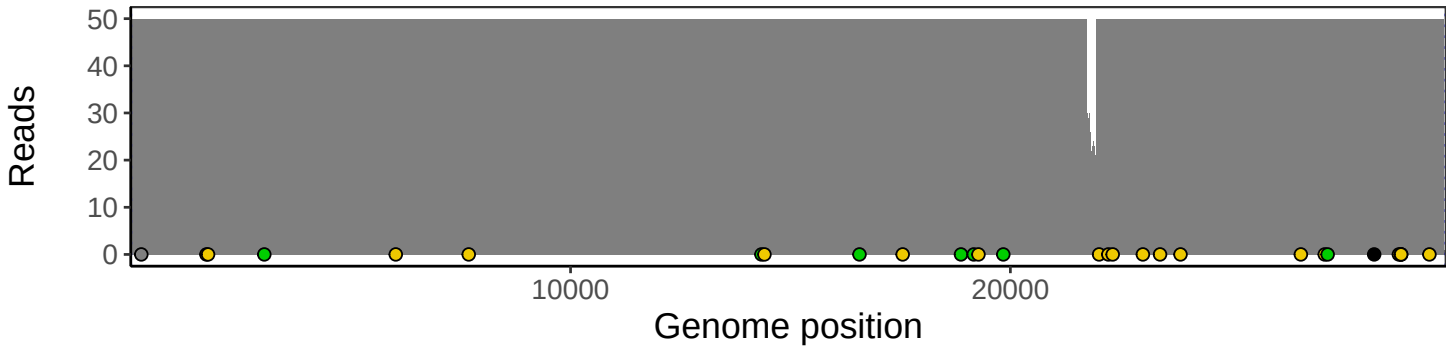
Analyses of individual experiments and composite results

VSP1313-1 | 2021-03-09 | VTM | UPHS-0268 | genomes | single experiment

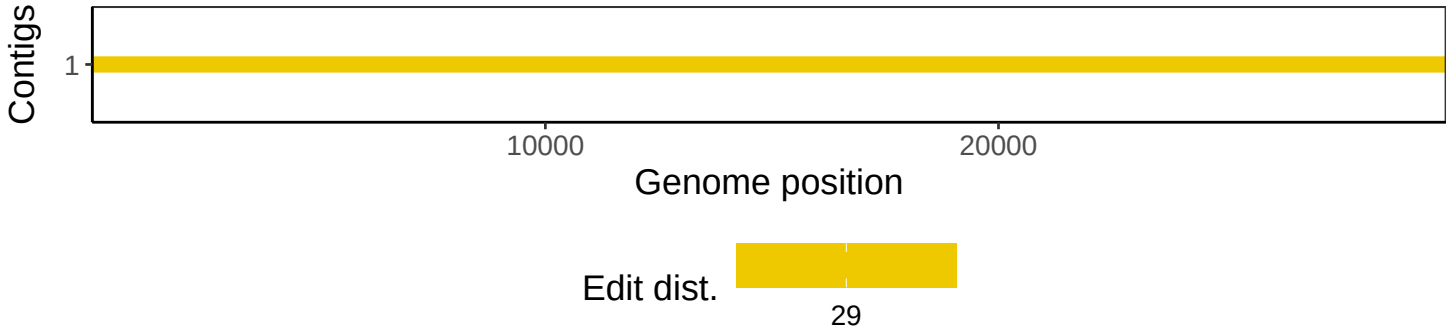
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according by variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



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 htslib 1.10
bcftools	1.10.2-34-g1a12af0-dirty Using htslib 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