

COVID-19 subject 203

2021-06-23

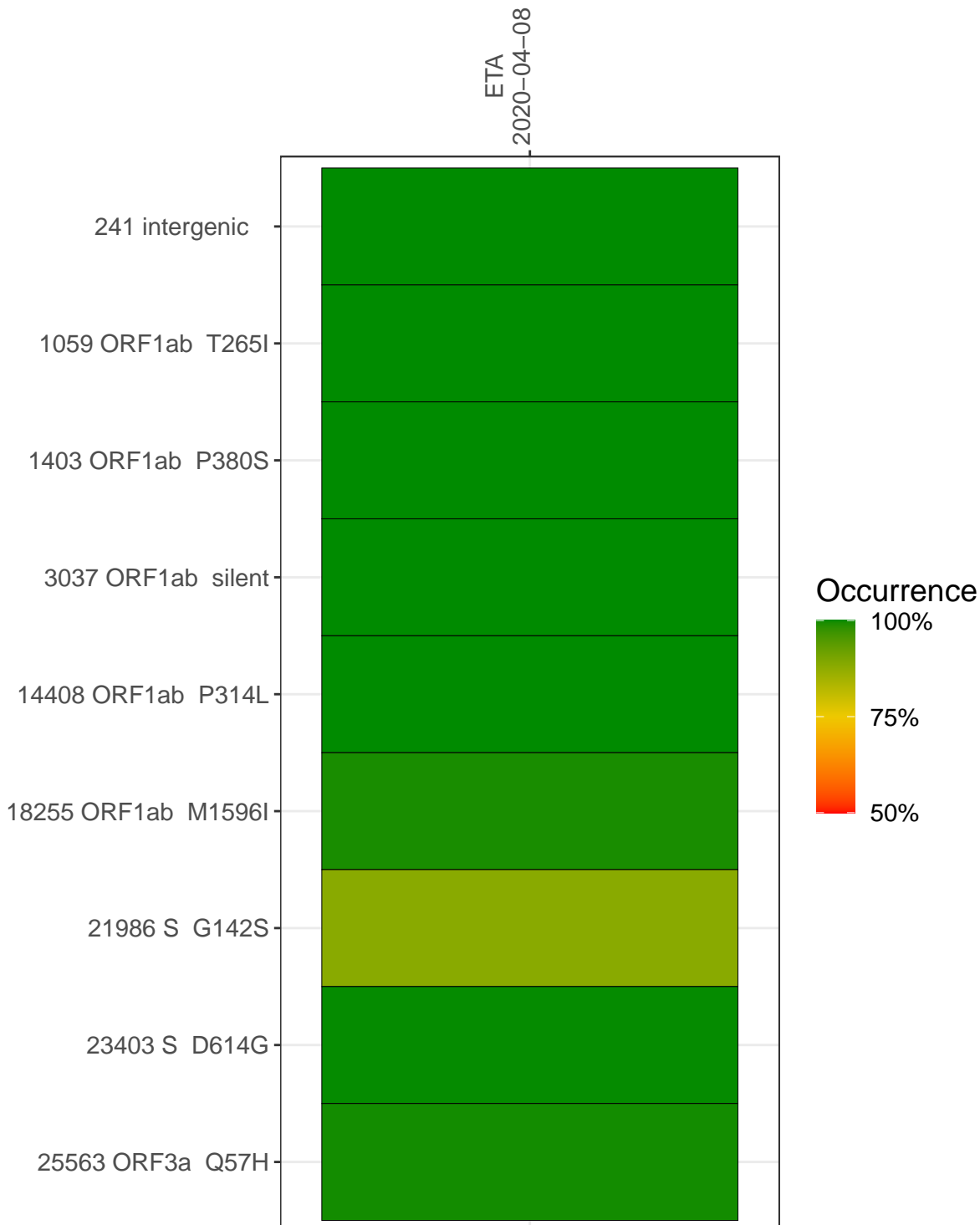
The table below provides a summary of subject samples for which sequencing data is available. The experiments column shows the number of sequencing experiments performed for each specimen. Experiment specific analyses are shown at the end of this report. Lineages are called with the Pangolin software 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)
VSP0010	composite	NA	ETA	2020-04-08	29.84	B.1	99.8%	99.7%
VSP0010-1m	single experiment	NA	ETA	2020-04-08	4.43	NA	93.2%	83.1%
VSP0010-2	single experiment	14750	ETA	2020-04-08	0.60	NA	39.9%	11.8%
VSP0010-3	single experiment	2950	ETA	2020-04-08	9.76	NA	97.0%	93.7%
VSP0010-4	single experiment	2950	ETA	2020-04-08	10.36	B.1	97.5%	95.5%
VSP0010-5	single experiment	2950	ETA	2020-04-08	17.66	B.1.36.10	98.7%	96.2%

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.



ETA
2020-04-08

241 intergenic	100	0	89	99	39
1059 ORF1ab T265I	172	0	33	60	19
1403 ORF1ab P380S	10	0	38	34	13
3037 ORF1ab silent	136	0	67	54	54
14408 ORF1ab P314L	240	0	63	93	44
18255 ORF1ab M1596I	95	0	56	48	66
21986 S G142S	95	0	14	8	2
23403 S D614G	101	15	236	258	245
25563 ORF3a Q57H	268	3	88	121	126
	VSP0010-1m	VSP0010-2	VSP0010-3	VSP0010-4	VSP0010-5

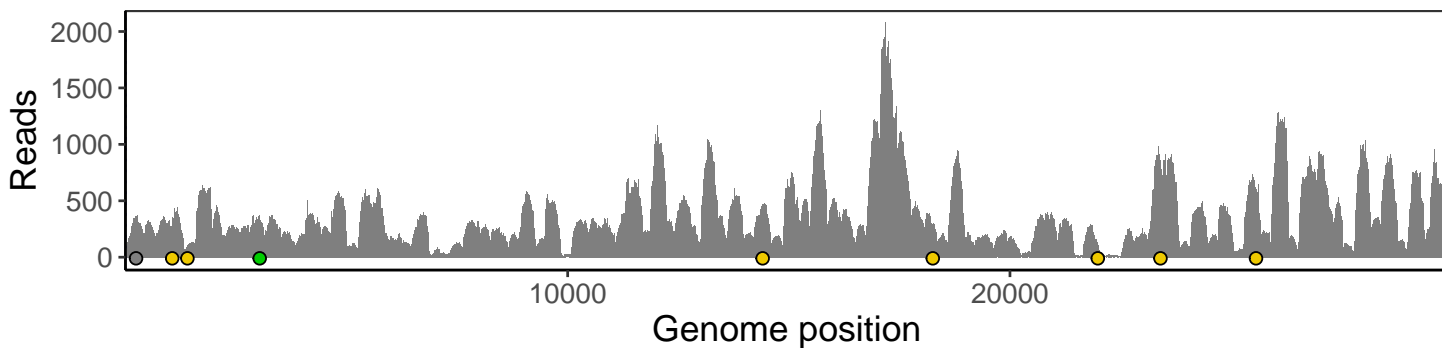
Base change



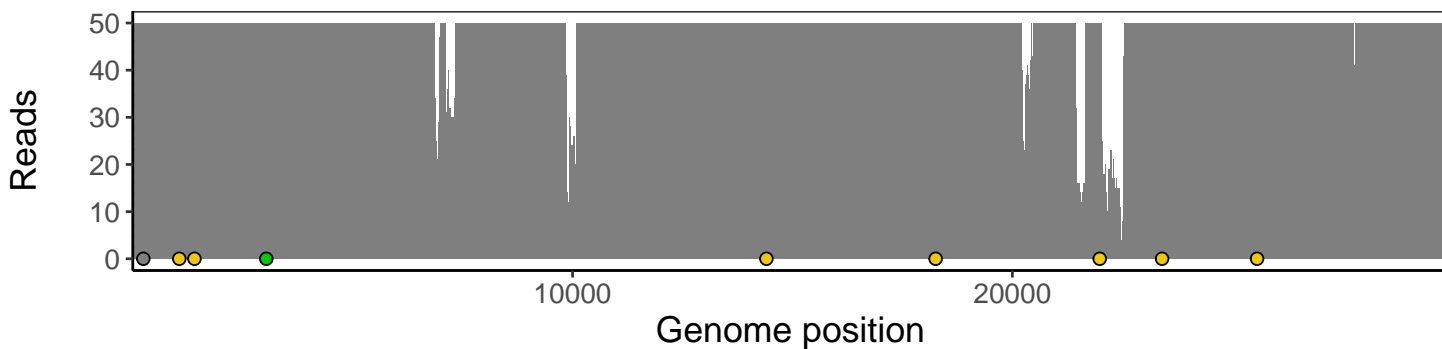
Analyses of individual experiments and composite results

VSP0010 | 2020-04-08 | ETA | 203-tri | composite result

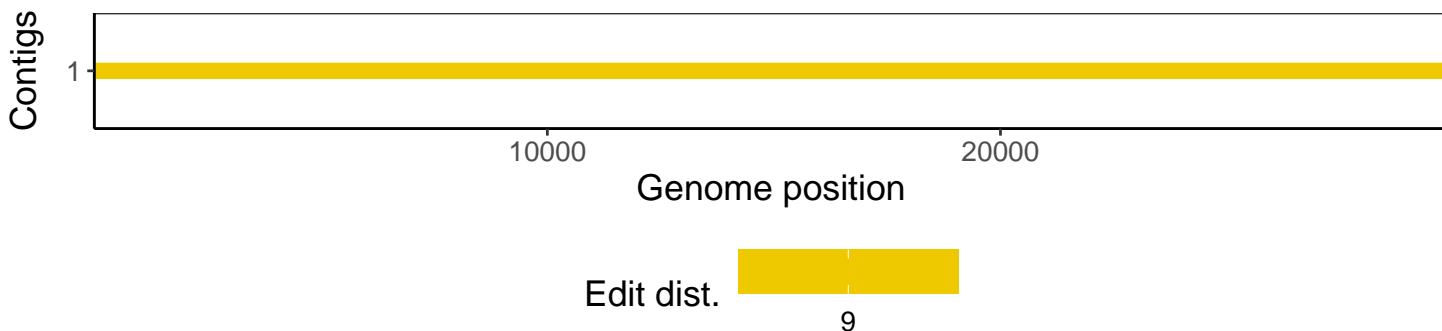
The plot below shows the number of reads covering each nucleotide position in the reference genome. Variants are shown as colored dots along the bottom of the plot and are color coded according to variant types: gray - transgenic, green - silent, gold - missense, red - nonsense, black - indel.



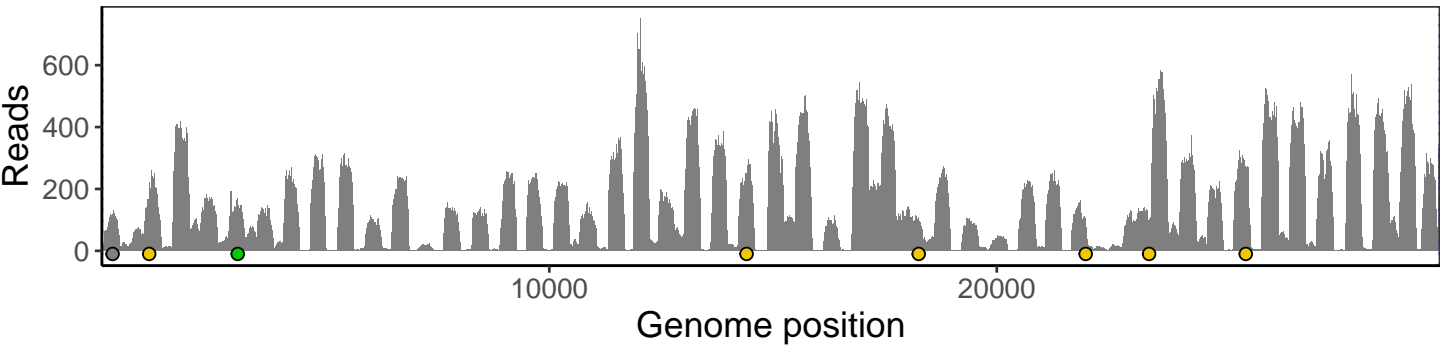
Excerpt from plot above focusing on reads coverage from 0 to 50 NT.



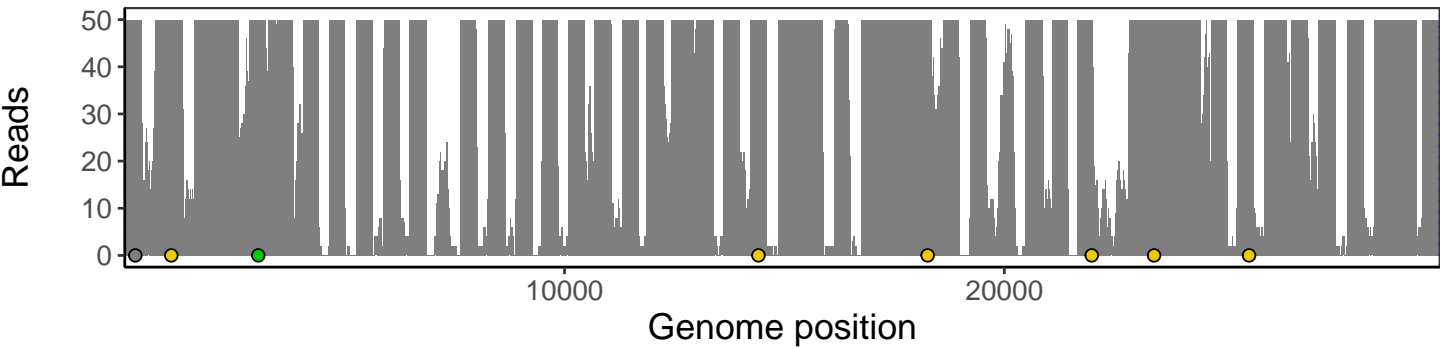
The longest five assembled contigs are shown below colored by their edit distance to the reference genome.



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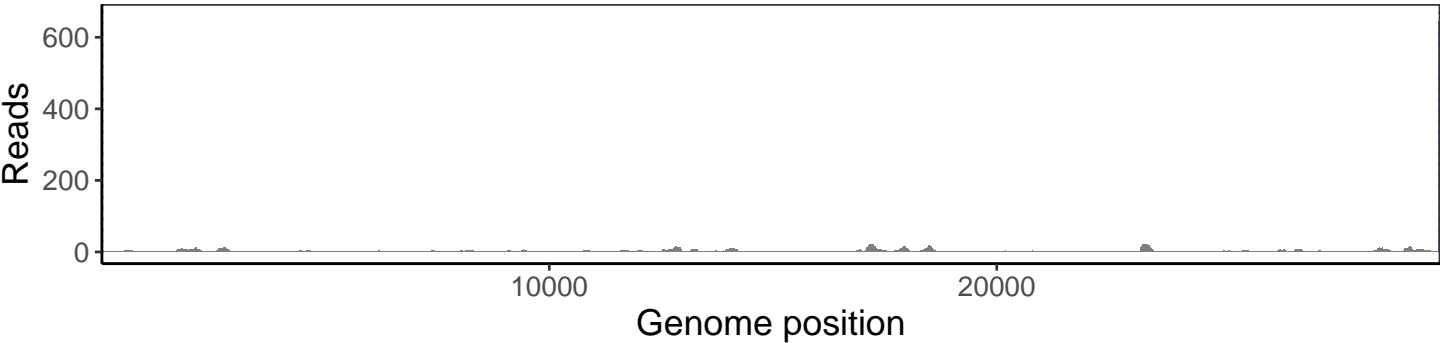
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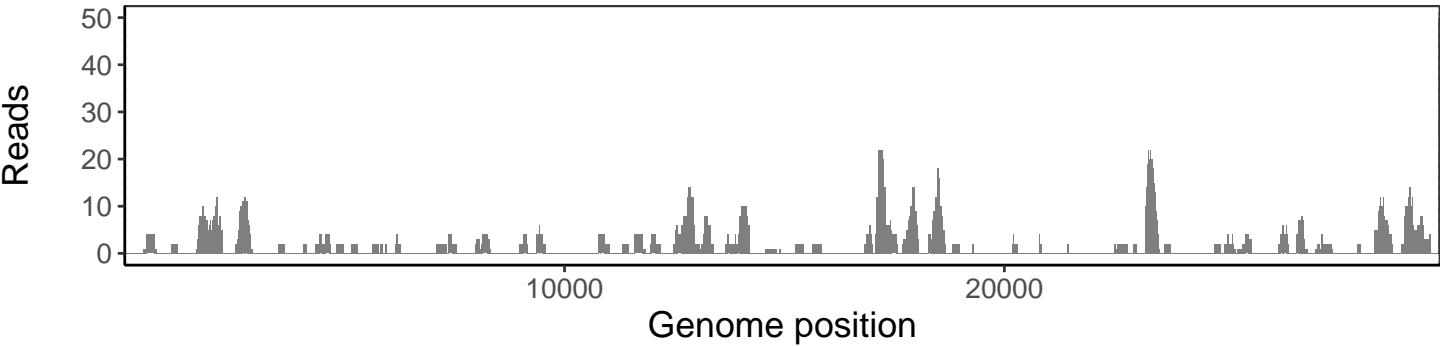
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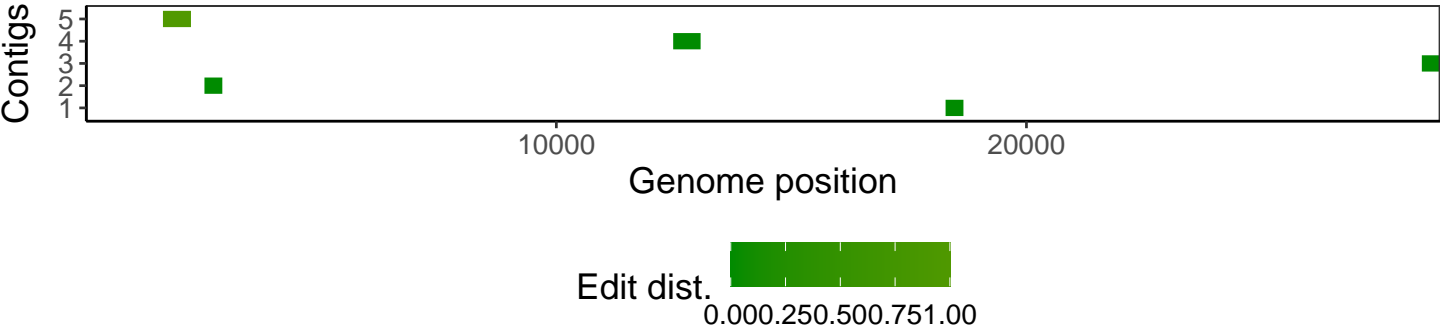
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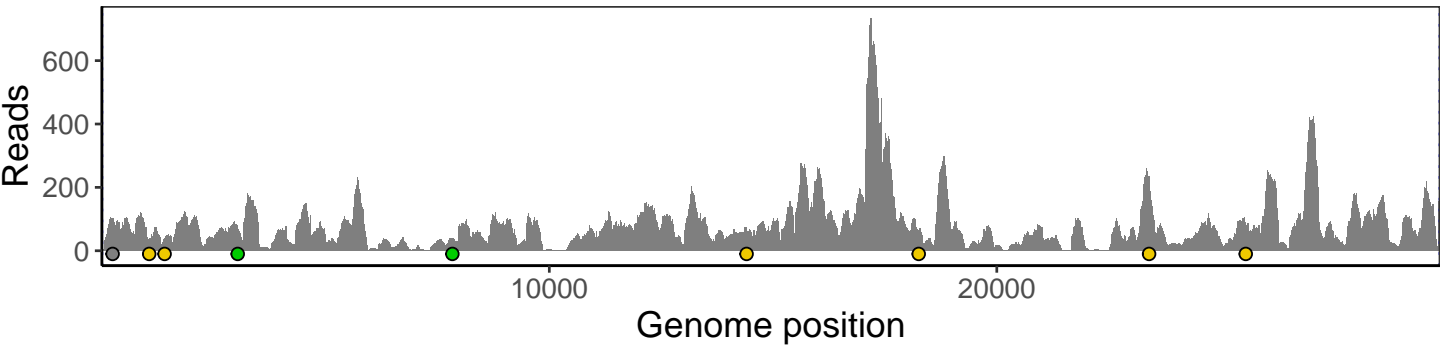
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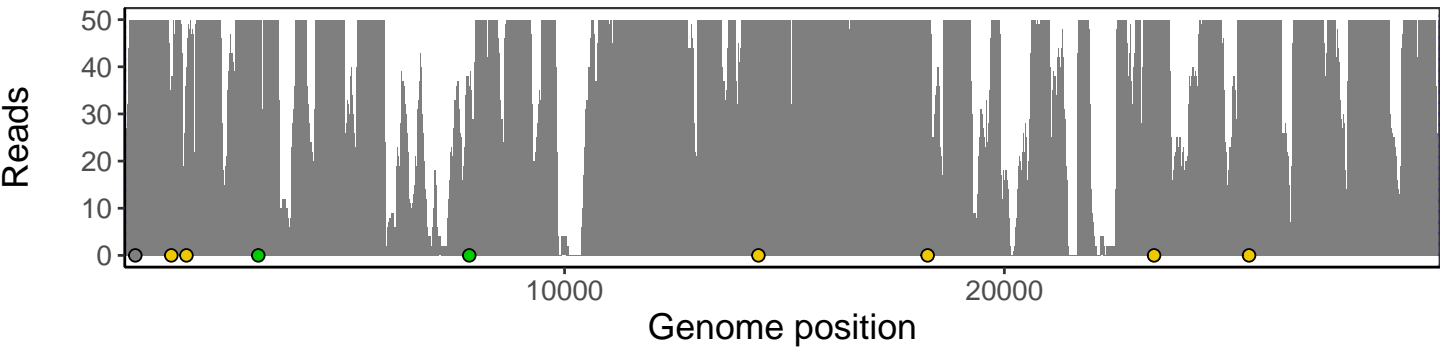
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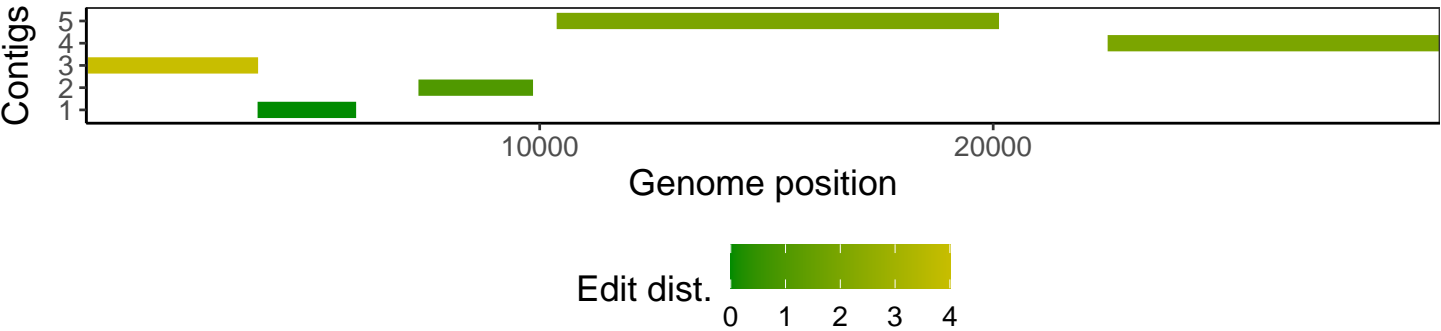
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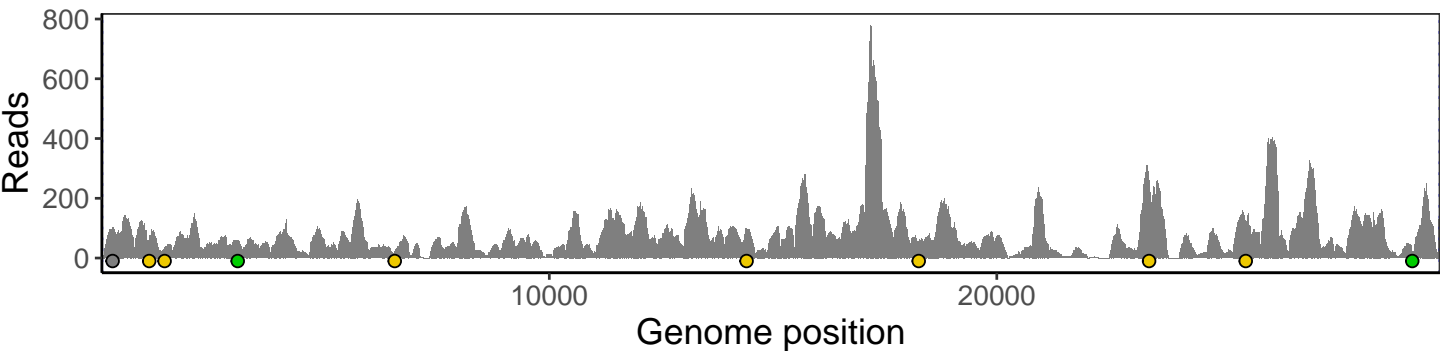
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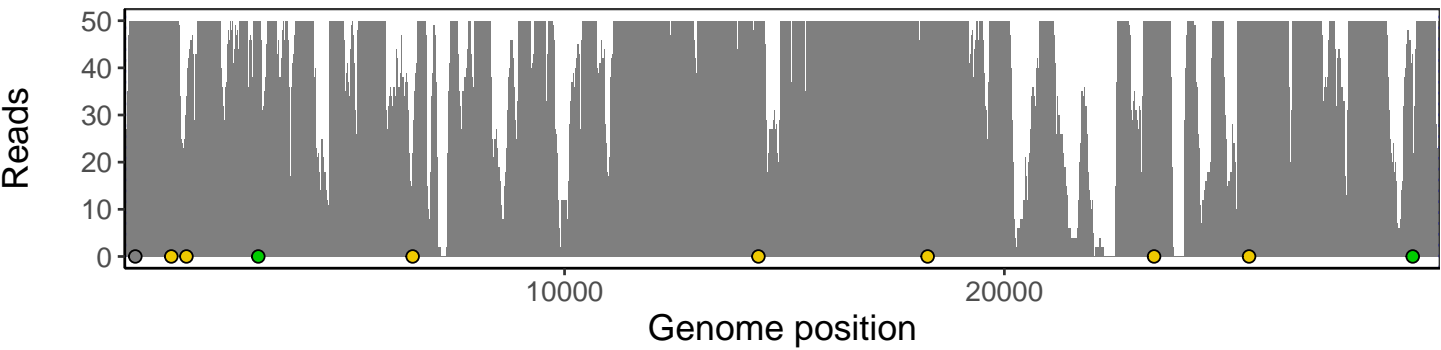
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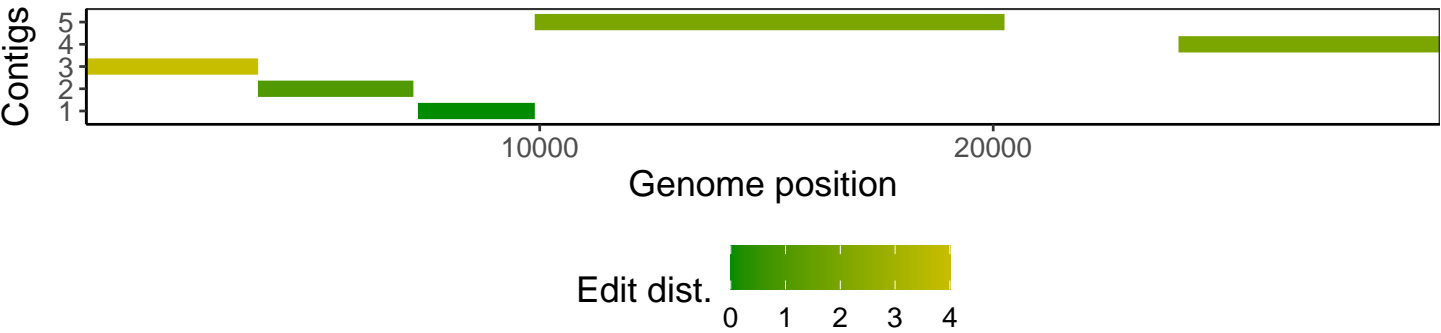
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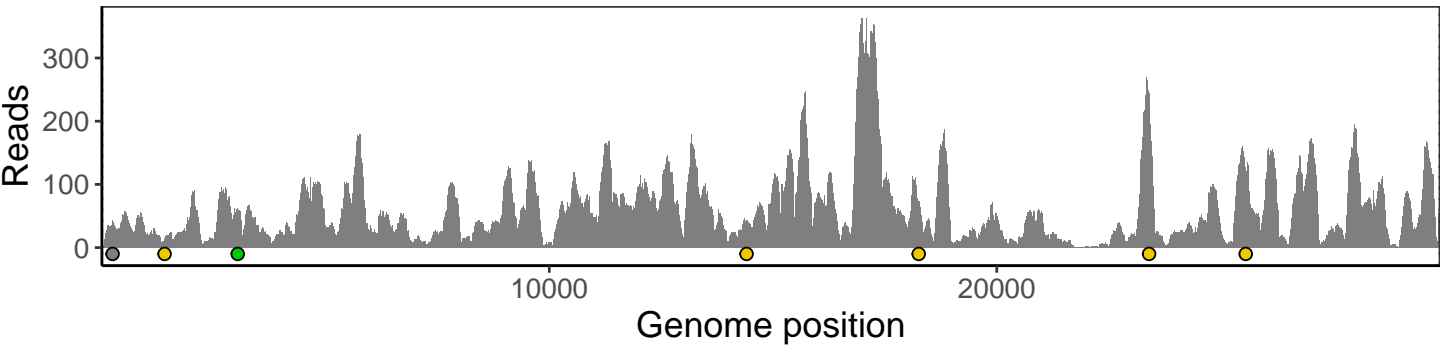
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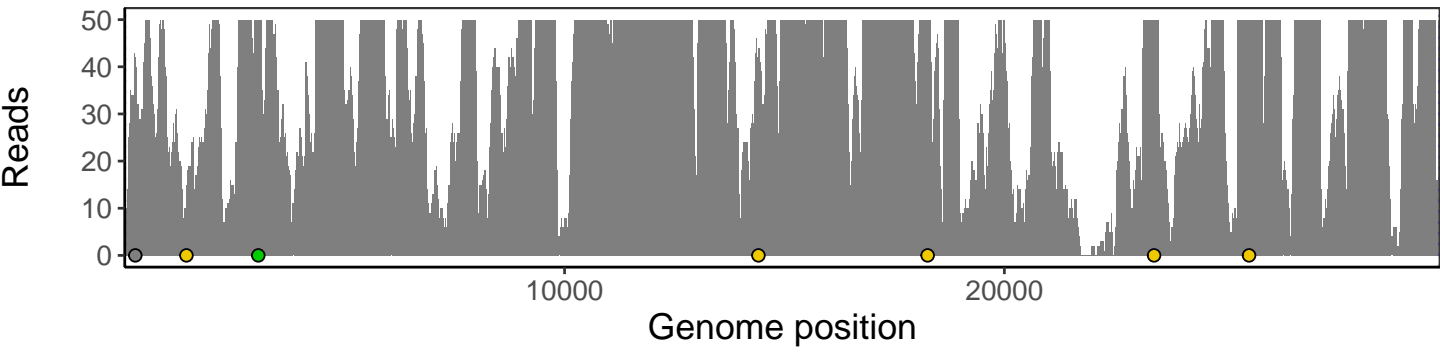
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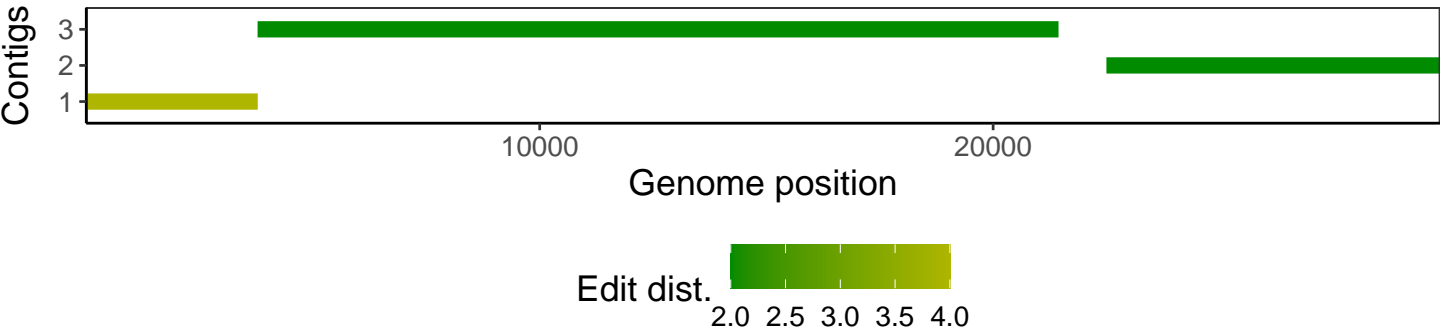
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Software environment

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