Supplementary material for:

A clinically important, plasmid-borne antibiotic resistance gene (β-Lactamase TEM-116) present in desert soils.

Yashini Naidoo[1], Angel Valverde Portal[2], Errol D Cason[3], Rian E Pierneef[4], Don A Cowan[1]

[1] Department of Biochemistry, Genetics and Microbiology, University of Pretoria, Lynnwood Road, Pretoria 0002, South Africa
[2]Department of Microbial, Biochemical and Food Technology, University of the Free State, Nelson Mandela Drive, Bloemfontein 9300, South Africa
[3]Department of Animal, Wildlife and Grassland Science, University of the Free State, Nelson Mandela Drive, Bloemfontein 9300, South Africa
[4]Biotechnology Platform, Agricultural Research Council, Soutpan Road, Onderstepoort Campus, Pretoria 0110, South Africa

This file contains:

Table S1: TEM-116 and total ARG frequencies and relative abundances found across samples

Table S2. BLAST output values for antibiotic resistance gene TEM-116 (accession no: AY425988.1), metal resistance gene arsC (accession no: BAA24824.1) and plasmid replicon ColRNAI.

Figure S1: a) Graphical representation of the contig alignment generated by progressiveMauve (http://darlinglab.org/mauve/user-guide/progressivemauve.html). The areas shaded in green indicate 100 % alignment and the areas shaded in red indicate mismatches/gaps in the alignment. The corresponding labels for figure one in the manuscript are as follows: 1018 – Contig 1, 1418 – Contig 2, 1818 – Contig 3 and 2018 – Contig 4. **b)**The actual alignment of the contigs generated by ESPript 3.0 (Robert and Gouet, 2014).

Appendix 1: Qualimap Analysis Results

Table S1. TEM-116 and total ARG frequencies and relative abundances found across samples

Sample	Predicted genes*	*bla*TEM-116	Total ARGs	Relative abundance TEM-116[a]	Relative abundance ARGs[b]
S102018	653 463	7	121	0.057	1.85e-04
S142018	655 042	5	159	0.031	2.42e-04
S182018	758 240	22	172	0.127	2.26e-04
S202018	749 007	9	135	0.067	1.80e-04

*Genes were predicted using Prodigal v2.6.3.

[a]Relative abundance is calculated as the total number of blaTEM-116 divided by the total number of ARGs per sample.

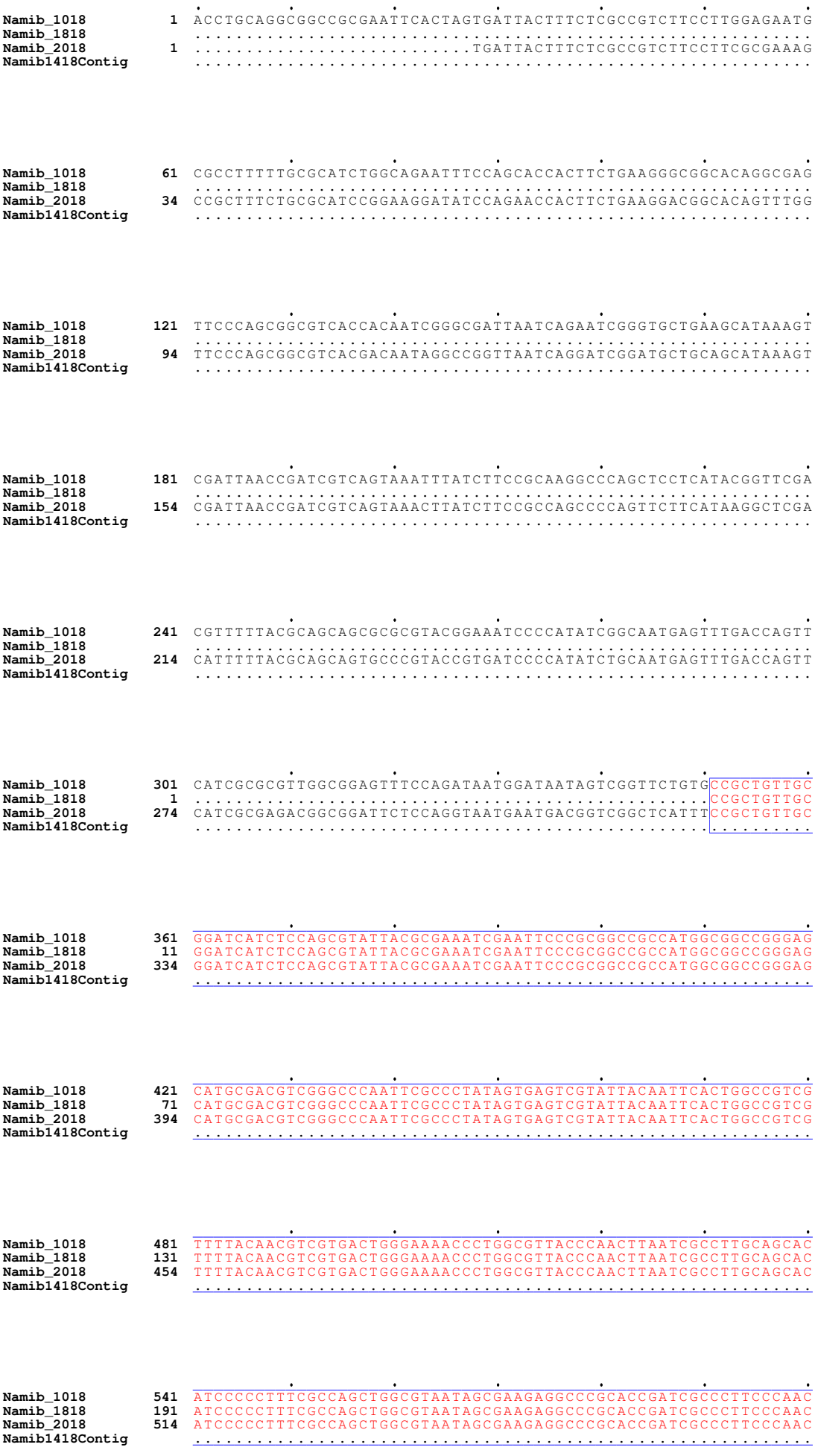
[b]Relative abundance is calculated as the total number of ARGs divided by the total number of genes predicted per sample.

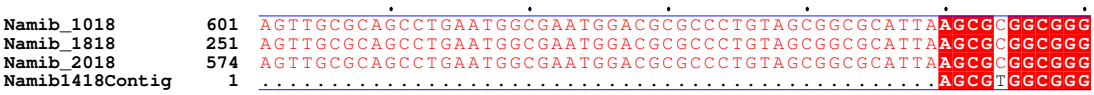
Table S2. BLAST output values for antibiotic resistance gene TEM-116 (accession no: AY425988.1), metal resistance gene arsC (accession no: BAA24824.1) and plasmid replicon ColRNAI.

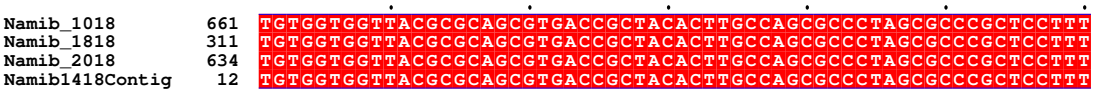
Sample	Query (contig)	Subject	% Identity	Alignment length (bp)	Mismatches	Query length (bp)	Subject Length (bp)	% Query aligned	% Subject aligned	E-value
S102018	Contig 1	*bla*TEM-116	100	861	0	3425	861	25	100	0
	Contig 1	arsC	93.8	339[a]	7[b]	3425	339	9.8	86	5.12e-59
	Contig 1	ColRNAI	90	131	11	3425	131	4	100	4.34e-35
S142018	Contig 2	*bla*TEM-116	100	861	0	3374	861	25	100	0
	Contig 2	arsC	93.8	339[a]	7	3374	339	10	86	5.4e-59
	Contig 2	ColRNAI	90	131	11	3374	131	3.83	100	4.27e-35
S182018	Contig 3	*bla*TEM-116	100	861	0	3072	861	25	100	0
	Contig 3	arsC	93.8	339[a]	7	3072	339	11	86	5.27e-59
	Contig 3	ColRNAI	90	131	11	3072	131	4.26	100	3.89e-35
S202018	Contig 4	*bla*TEM-116	100	861	0	3425	861	25	100	0
	Contig 4	arsC	93.8	339[a]	7	3425	339	9.8	86	5.12e-59
	Contig 4	ColRNAI	90	131	11	3425	131	3.82	100	4.34e-35

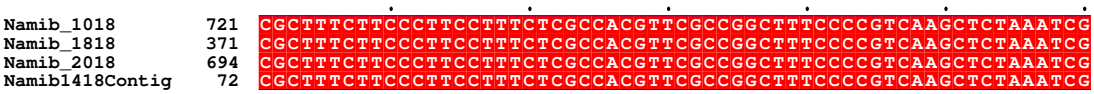
[a] Metal resistance genes were compared against a protein database, however the blast output for arsC was converted into nucleotides for the purpose of this table.
[b] Amino acids


200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
1018
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000
1818
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200 3400
2018
200 400 600 800 1000 1200 1400 1600 1800 2000 2200 2400 2600 2800 3000 3200
1418

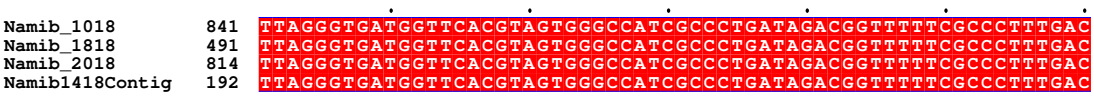

Namib_1018 1 ACCTGCAGGCGGCCGCGAATTCACTAGTGATTACTTTCTCGCCGTCTTCCTTGGAGAATG
Namib_1818 .....
Namib_2018 1 .....TGATTACTTTCTCGCCGTCTTCCTTCGCGAAAG
Namib1418Contig .....
Namib_1018 61 CGCCTTTTTGCGCATCTGGCAGAATTTCCAGCACCACTTCTGAAGGGCGGCACAGGCGAG
Namib_1818 .....
Namib_2018 34 CCGCTTTCTGCGCATCCGGAAGGATATCCAGAACCACTTCTGAAGGACGGCACAGTTTGG
Namib1418Contig .....
Namib_1018 121 TTCCCAGCGGCGTCACCACAATCGGGCGATTAATCAGAATCGGGTGCTGAAGCATAAAGT
Namib_1818 .....
Namib_2018 94 TTCCCAGCGGCGTCACGACAATAGGCCGGTTAATCAGGATCGGATGCTGCAGCATAAAGT
Namib1418Contig .....
Namib_1018 181 CGATTAACCGATCGTCAGTAAATTTATCTTCCGCAAGGCCCAGCTCCTCATACGGTTCGA
Namib_1818 .....
Namib_2018 154 CGATTAACCGATCGTCAGTAAACTTATCTTCCGCCAGCCCCAGTTCTTCATAAGGCTCGA
Namib1418Contig .....
Namib_1018 241 CGTTTTTACGCAGCAGCGCGCGTACGGAAATCCCCATATCGGCAATGAGTTTGACCAGTT
Namib_1818 .....
Namib_2018 214 CATTTTTACGCAGCAGTGCCCGTACCGTGATCCCCATATCTGCAATGAGTTTGACCAGTT
Namib1418Contig .....
Namib_1018 301 CATCGCGCGTTGGCGGAGTTTCCAGATAATGGATAATAGTCGGTTCTGTGCCGCTGTTGC
Namib_1818 1 .....CCGCTGTTGC
Namib_2018 274 CATCGCGAGACGGCGGATTCTCCAGGTAATGAATGACGGTCGGCTCATTTCCGCTGTTGC
Namib1418Contig .....
Namib_1018 361 GGATCATCTCCAGCGTATTACGCGAAATCGAATTCCCGCGGCCGCCATGGCGGCCGGGAG
Namib_1818 11 GGATCATCTCCAGCGTATTACGCGAAATCGAATTCCCGCGGCCGCCATGGCGGCCGGGAG
Namib_2018 334 GGATCATCTCCAGCGTATTACGCGAAATCGAATTCCCGCGGCCGCCATGGCGGCCGGGAG
Namib1418Contig .....
Namib_1018 421 CATGCGACGTCGGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAATTCACTGGCCGTCG
Namib_1818 71 CATGCGACGTCGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAATTCACTGGCCGTCG
Namib_2018 394 CATGCGACGTCGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAATTCACTGGCCGTCG
Namib1418Contig .....
Namib_1018 481 TTTTACAACGTCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCAC
Namib_1818 131 TTTTACAACGTCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCAC
Namib_2018 454 TTTTACAACGTCGTGACTGGGAAAACCCTGGCGTTACCCAACTTAATCGCCTTGCAGCAC
Namib1418Contig .....
Namib_1018 541 ATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAAC
Namib_1818 191 ATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAAC
Namib_2018 514 ATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGCCCTTCCCAAC
Namib1418Contig .....

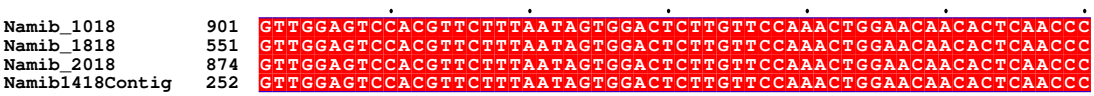

Namib_1018 601 AGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGG
Namib_1818 251 AGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGG
Namib_2018 574 AGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGTAGCGGCGCATTAAGCGCGGCGGG
Namib1418Contig 1 AGCGTGGCGGG


Namib_1018 661 TGTGGTGGTTACGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCTTT
Namib_1818 311 TGTGGTGGTTACGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCTTT
Namib_2018 634 TGTGGTGGTTACGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCTTT
Namib1418Contig 12 TGTGGTGGTTACGCGCAGCGTGACCGCTACACTTGCCAGCGCCCTAGCGCCCGCTCCTTT

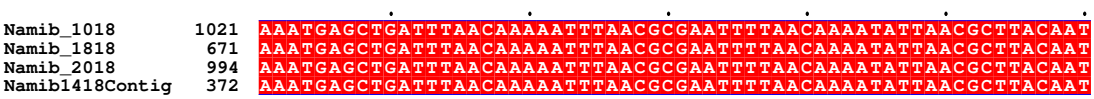

Namib_1018 721 CGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCG
Namib_1818 371 CGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCG
Namib_2018 694 CGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCG
Namib1418Contig 72 CGCTTTCTTCCCTTCCTTTCTCGCCACGTTCGCCGGCTTTCCCCGTCAAGCTCTAAATCG

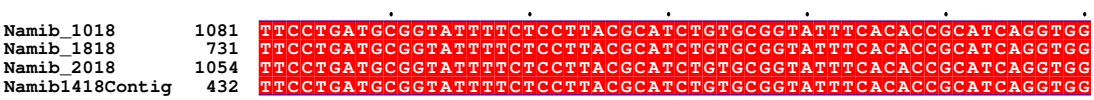

Namib_1018 781 GGGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGA
Namib_1818 431 GGGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGA
Namib_2018 754 GGGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGA
Namib1418Contig 132 GGGGCTCCCTTTAGGGTTCCGATTTAGTGCTTTACGGCACCTCGACCCCAAAAAACTTGA

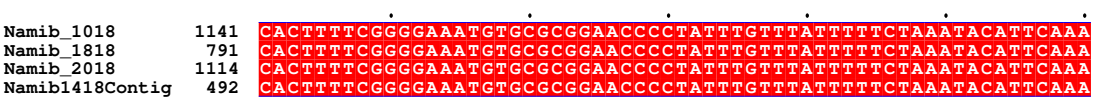

Namib_1018 841 TTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGAC
Namib_1818 491 TTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGAC
Namib_2018 814 TTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGAC
Namib1418Contig 192 TTAGGGTGATGGTTCACGTAGTGGGCCATCGCCCTGATAGACGGTTTTTCGCCCTTTGAC


Namib_1018 901 GTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACCC
Namib_1818 551 GTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACCC
Namib_2018 874 GTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACCC
Namib1418Contig 252 GTTGGAGTCCACGTTCTTTAATAGTGGACTCTTGTTCCAAACTGGAACAACACTCAACCC


Namib_1018 961 TATCTCGGTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAA
Namib_1818 611 TATCTCGGTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAA
Namib_2018 934 TATCTCGGTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAA
Namib1418Contig 312 TATCTCGGTCTATTCTTTTGATTTATAAGGGATTTTGCCGATTTCGGCCTATTGGTTAAA

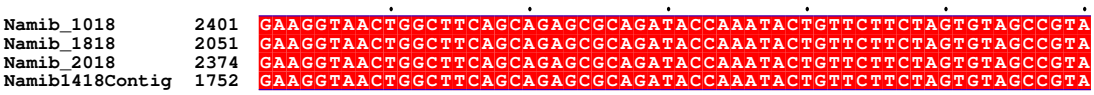

Namib_1018 1021 AAATGAGCTGATTTAACAAAAATTTAACGCGAATTTTAACAAAATATTAACGCTTACAAT
Namib_1818 671 AAATGAGCTGATTTAACAAAAATTTAACGCGAATTTTAACAAAATATTAACGCTTACAAT
Namib_2018 994 AAATGAGCTGATTTAACAAAAATTTAACGCGAATTTTAACAAAATATTAACGCTTACAAT
Namib1418Contig 372 AAATGAGCTGATTTAACAAAAATTTAACGCGAATTTTAACAAAATATTAACGCTTACAAT

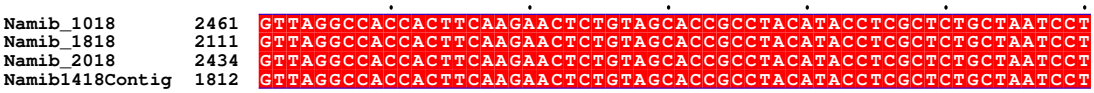

Namib_1018 1081 TTCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCACACCGCATCAGGTGG
Namib_1818 731 TTCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCACACCGCATCAGGTGG
Namib_2018 1054 TTCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCACACCGCATCAGGTGG
Namib1418Contig 432 TTCCTGATGCGGTATTTTCTCCTTACGCATCTGTGCGGTATTTCACACCGCATCAGGTGG

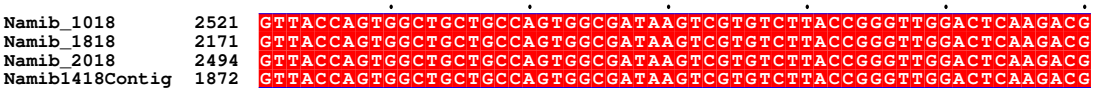

Namib_1018 1141 CACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAA
Namib_1818 791 CACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAA
Namib_2018 1114 CACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAA
Namib1418Contig 492 CACTTTTCGGGGAAATGTGCGCGGAACCCCTATTTGTTTATTTTTCTAAATACATTCAAA

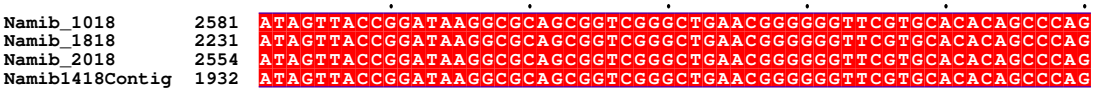
```
Namib_1018          1201  TATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAA
Namib_1818           851  TATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAA
Namib_2018          1174  TATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAA
Namib1418Contig      552  TATGTATCCGCTCATGAGACAATAACCCTGATAAATGCTTCAATAATATTGAAAAAGGAA

Namib_1018          1261  GAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
Namib_1818           911  GAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
Namib_2018          1234  GAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT
Namib1418Contig      612  GAGTATGAGTATTCAACATTTCCGTGTCGCCCTTATTCCCTTTTTTGCGGCATTTTGCCT

Namib_1018          1321  TCCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGG
Namib_1818           971  TCCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGG
Namib_2018          1294  TCCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGG
Namib1418Contig      672  TCCTGTTTTTTGCTCACCCAGAAACGCTGGTGAAAGTAAAAGATGCTGAAGATCAGTTGGG

Namib_1018          1381  TGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCG
Namib_1818          1031  TGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCG
Namib_2018          1354  TGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCG
Namib1418Contig      732  TGCACGAGTGGGTTACATCGAACTGGATCTCAACAGCGGTAAGATCCTTGAGAGTTTTCG

Namib_1018          1441  CCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATT
Namib_1818          1091  CCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATT
Namib_2018          1414  CCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATT
Namib1418Contig      792  CCCCGAAGAACGTTTTCCAATGATGAGCACTTTTAAAGTTCTGCTATGTGGCGCGGTATT

Namib_1018          1501  ATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
Namib_1818          1151  ATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
Namib_2018          1474  ATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA
Namib1418Contig      852  ATCCCGTATTGACGCCGGGCAAGAGCAACTCGGTCGCCGCATACACTATTCTCAGAATGA

Namib_1018          1561  CTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGA
Namib_1818          1211  CTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGA
Namib_2018          1534  CTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGA
Namib1418Contig      912  CTTGGTTGAGTACTCACCAGTCACAGAAAAGCATCTTACGGATGGCATGACAGTAAGAGA

Namib_1018          1621  ATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAAC
Namib_1818          1271  ATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAAC
Namib_2018          1594  ATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAAC
Namib1418Contig      972  ATTATGCAGTGCTGCCATAACCATGAGTGATAACACTGCGGCCAACTTACTTCTGACAAC

Namib_1018          1681  GATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCG
Namib_1818          1331  GATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCG
Namib_2018          1654  GATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCG
Namib1418Contig     1032  GATCGGAGGACCGAAGGAGCTAACCGCTTTTTTGCACAACATGGGGGATCATGTAACTCG

Namib_1018          1741  CCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAC
Namib_1818          1391  CCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAC
Namib_2018          1714  CCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAC
Namib1418Contig     1092  CCTTGATCGTTGGGAACCGGAGCTGAATGAAGCCATACCAAACGACGAGCGTGACACCAC
```

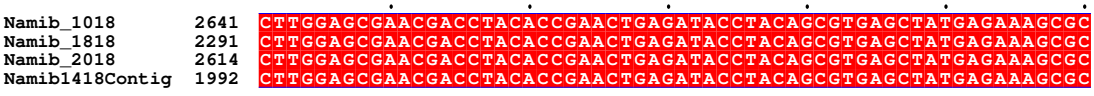
```
Namib_1018          1801  GATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCT
Namib_1818          1451  GATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCT
Namib_2018          1774  GATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCT
Namib1418Contig     1152  GATGCCTGTAGCAATGGCAACAACGTTGCGCAAACTATTAACTGGCGAACTACTTACTCT

Namib_1018          1861  AGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCT
Namib_1818          1511  AGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCT
Namib_2018          1834  AGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCT
Namib1418Contig     1212  AGCTTCCCGGCAACAATTAATAGACTGGATGGAGGCGGATAAAGTTGCAGGACCACTTCT

Namib_1018          1921  GCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGG
Namib_1818          1571  GCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGG
Namib_2018          1894  GCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGG
Namib1418Contig     1272  GCGCTCGGCCCTTCCGGCTGGCTGGTTTATTGCTGATAAATCTGGAGCCGGTGAGCGTGG

Namib_1018          1981  GTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT
Namib_1818          1631  GTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT
Namib_2018          1954  GTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT
Namib1418Contig     1332  GTCTCGCGGTATCATTGCAGCACTGGGGCCAGATGGTAAGCCCTCCCGTATCGTAGTTAT

Namib_1018          2041  CTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGG
Namib_1818          1691  CTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGG
Namib_2018          2014  CTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGG
Namib1418Contig     1392  CTACACGACGGGGAGTCAGGCAACTATGGATGAACGAAATAGACAGATCGCTGAGATAGG

Namib_1018          2101  TGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGAT
Namib_1818          1751  TGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGAT
Namib_2018          2074  TGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGAT
Namib1418Contig     1452  TGCCTCACTGATTAAGCATTGGTAACTGTCAGACCAAGTTTACTCATATATACTTTAGAT

Namib_1018          2161  TGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCT
Namib_1818          1811  TGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCT
Namib_2018          2134  TGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCT
Namib1418Contig     1512  TGATTTAAAACTTCATTTTTAATTTAAAAGGATCTAGGTGAAGATCCTTTTTGATAATCT

Namib_1018          2221  CATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA
Namib_1818          1871  CATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA
Namib_2018          2194  CATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA
Namib1418Contig     1572  CATGACCAAAATCCCTTAACGTGAGTTTTCGTTCCACTGAGCGTCAGACCCCGTAGAAAA

Namib_1018          2281  GATCAAAGGATCTTCTTGAGATCCTTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAA
Namib_1818          1931  GATCAAAGGATCTTCTTGAGATCCTTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAA
Namib_2018          2254  GATCAAAGGATCTTCTTGAGATCCTTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAA
Namib1418Contig     1632  GATCAAAGGATCTTCTTGAGATCCTTTTTTTTCTGCGCGTAATCTGCTGCTTGCAAACAAA

Namib_1018          2341  AAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCC
Namib_1818          1991  AAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCC
Namib_2018          2314  AAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCC
Namib1418Contig     1692  AAAACCACCGCTACCAGCGGTGGTTTGTTTGCCGGATCAAGAGCTACCAACTCTTTTTCC
```

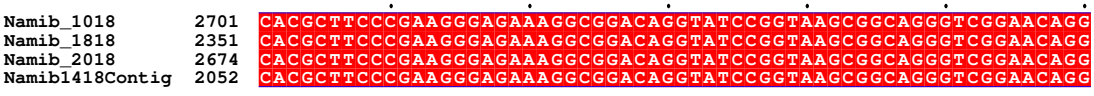

Namib_1018 2401 GAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTA
Namib_1818 2051 GAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTA
Namib_2018 2374 GAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTA
Namib1418Contig 1752 GAAGGTAACTGGCTTCAGCAGAGCGCAGATACCAAATACTGTTCTTCTAGTGTAGCCGTA

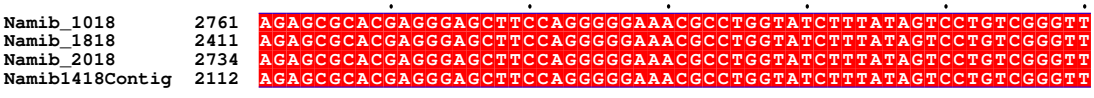

Namib_1018 2461 GTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
Namib_1818 2111 GTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
Namib_2018 2434 GTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT
Namib1418Contig 1812 GTTAGGCCACCACTTCAAGAACTCTGTAGCACCGCCTACATACCTCGCTCTGCTAATCCT

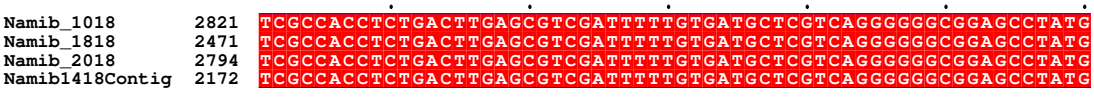

Namib_1018 2521 GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACG
Namib_1818 2171 GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACG
Namib_2018 2494 GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACG
Namib1418Contig 1872 GTTACCAGTGGCTGCTGCCAGTGGCGATAAGTCGTGTCTTACCGGGTTGGACTCAAGACG

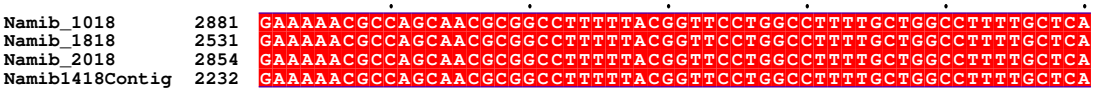

Namib_1018 2581 ATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAG
Namib_1818 2231 ATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAG
Namib_2018 2554 ATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAG
Namib1418Contig 1932 ATAGTTACCGGATAAGGCGCAGCGGTCGGGCTGAACGGGGGGTTCGTGCACACAGCCCAG


Namib_1018 2641 CTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGC
Namib_1818 2291 CTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGC
Namib_2018 2614 CTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGC
Namib1418Contig 1992 CTTGGAGCGAACGACCTACACCGAACTGAGATACCTACAGCGTGAGCTATGAGAAAGCGC

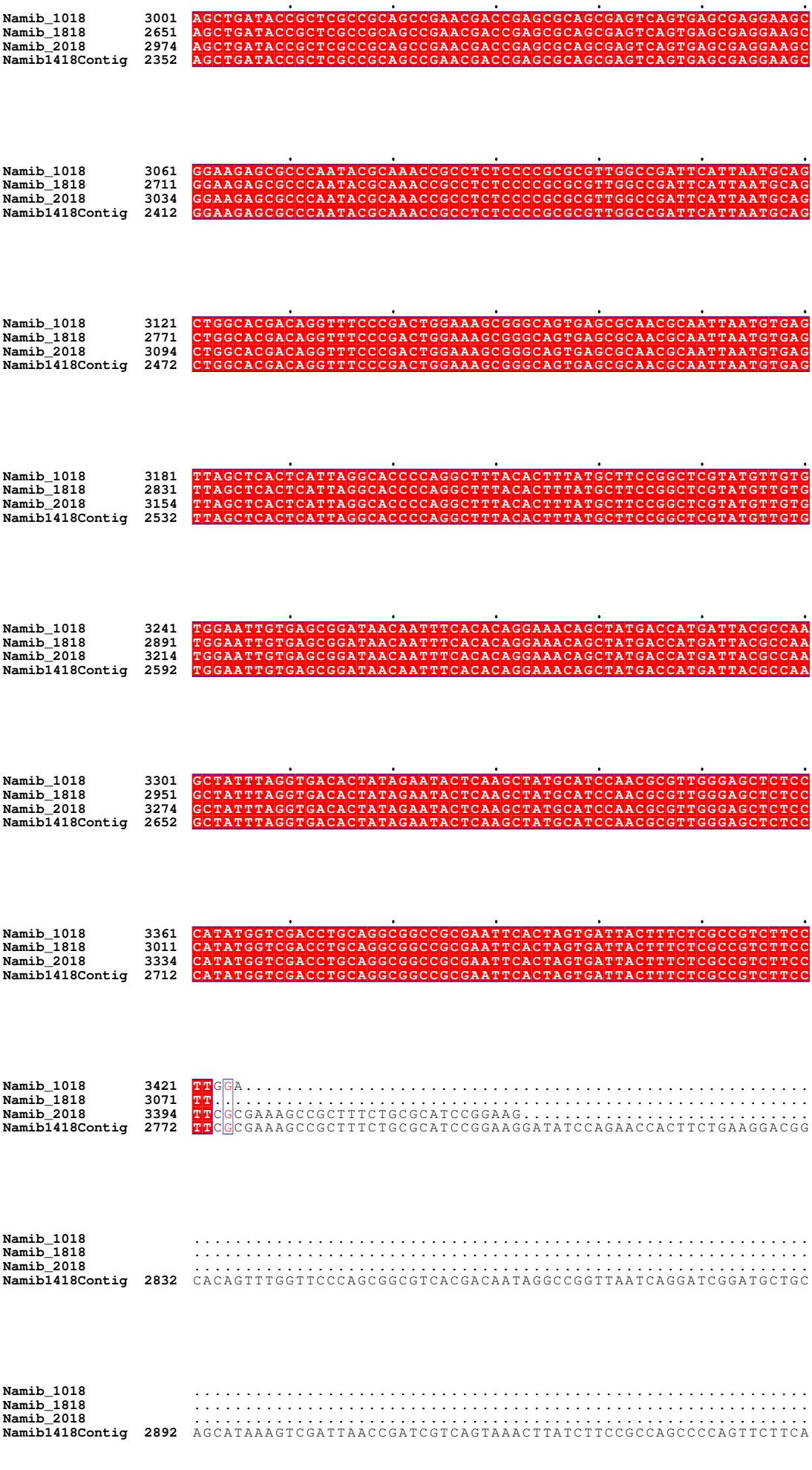

Namib_1018 2701 CACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG
Namib_1818 2351 CACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG
Namib_2018 2674 CACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG
Namib1418Contig 2052 CACGCTTCCCGAAGGGAGAAAGGCGGACAGGTATCCGGTAAGCGGCAGGGTCGGAACAGG


Namib_1018 2761 AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTT
Namib_1818 2411 AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTT
Namib_2018 2734 AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTT
Namib1418Contig 2112 AGAGCGCACGAGGGAGCTTCCAGGGGGAAACGCCTGGTATCTTTATAGTCCTGTCGGGTT


Namib_1018 2821 TCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATG
Namib_1818 2471 TCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATG
Namib_2018 2794 TCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATG
Namib1418Contig 2172 TCGCCACCTCTGACTTGAGCGTCGATTTTTGTGATGCTCGTCAGGGGGGCGGAGCCTATG


Namib_1018 2881 GAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCA
Namib_1818 2531 GAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCA
Namib_2018 2854 GAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCA
Namib1418Contig 2232 GAAAAACGCCAGCAACGCGGCCTTTTTACGGTTCCTGGCCTTTTGCTGGCCTTTTGCTCA


Namib_1018 2941 CATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTG
Namib_1818 2591 CATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTG
Namib_2018 2914 CATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTG
Namib1418Contig 2292 CATGTTCTTTCCTGCGTTATCCCCTGATTCTGTGGATAACCGTATTACCGCCTTTGAGTG


Namib_1018 3001 AGCTGATACCGCTCGCCGCAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGC
Namib_1818 2651 AGCTGATACCGCTCGCCGCAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGC
Namib_2018 2974 AGCTGATACCGCTCGCCGCAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGC
Namib1418Contig 2352 AGCTGATACCGCTCGCCGCAGCCGAACGACCGAGCGCAGCGAGTCAGTGAGCGAGGAAGC
Namib_1018 3061 GGAAGAGCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAG
Namib_1818 2711 GGAAGAGCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAG
Namib_2018 3034 GGAAGAGCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAG
Namib1418Contig 2412 GGAAGAGCGCCCAATACGCAAACCGCCTCTCCCCGCGCGTTGGCCGATTCATTAATGCAG
Namib_1018 3121 CTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAG
Namib_1818 2771 CTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAG
Namib_2018 3094 CTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAG
Namib1418Contig 2472 CTGGCACGACAGGTTTCCCGACTGGAAAGCGGGCAGTGAGCGCAACGCAATTAATGTGAG
Namib_1018 3181 TTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
Namib_1818 2831 TTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
Namib_2018 3154 TTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
Namib1418Contig 2532 TTAGCTCACTCATTAGGCACCCCAGGCTTTACACTTTATGCTTCCGGCTCGTATGTTGTG
Namib_1018 3241 TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCTATGACCATGATTACGCCAA
Namib_1818 2891 TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCTATGACCATGATTACGCCAA
Namib_2018 3214 TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCTATGACCATGATTACGCCAA
Namib1418Contig 2592 TGGAATTGTGAGCGGATAACAATTTCACACAGGAAACAGCTATGACCATGATTACGCCAA
Namib_1018 3301 GCTATTTAGGTGACACTATAGAATACTCAAGCTATGCATCCAACGCGTTGGGAGCTCTCC
Namib_1818 2951 GCTATTTAGGTGACACTATAGAATACTCAAGCTATGCATCCAACGCGTTGGGAGCTCTCC
Namib_2018 3274 GCTATTTAGGTGACACTATAGAATACTCAAGCTATGCATCCAACGCGTTGGGAGCTCTCC
Namib1418Contig 2652 GCTATTTAGGTGACACTATAGAATACTCAAGCTATGCATCCAACGCGTTGGGAGCTCTCC
Namib_1018 3361 CATATGGTCGACCTGCAGGCGGCCGCGAATTCACTAGTGATTACTTTCTCGCCGTCTTCC
Namib_1818 3011 CATATGGTCGACCTGCAGGCGGCCGCGAATTCACTAGTGATTACTTTCTCGCCGTCTTCC
Namib_2018 3334 CATATGGTCGACCTGCAGGCGGCCGCGAATTCACTAGTGATTACTTTCTCGCCGTCTTCC
Namib1418Contig 2712 CATATGGTCGACCTGCAGGCGGCCGCGAATTCACTAGTGATTACTTTCTCGCCGTCTTCC
Namib_1018 3421 TTGGA
Namib_1818 3071 TT
Namib_2018 3394 TTCGCGAAAGCCGCTTTCTGCGCATCCGGAAG
Namib1418Contig 2772 TTCGCGAAAGCCGCTTTCTGCGCATCCGGAAGGATATCCAGAACCACTTCTGAAGGACGG
Namib_1018
Namib_1818
Namib_2018
Namib1418Contig 2832 CACAGTTTGGTTCCCAGCGGCGTCACGACAATAGGCCGGTTAATCAGGATCGGATGCTGC
Namib_1018
Namib_1818
Namib_2018
Namib1418Contig 2892 AGCATAAAGTCGATTAACCGATCGTCAGTAAACTTATCTTCCGCCAGCCCCAGTTCTTCA

```
Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  2952     TAAGGCTCGACATTTTTACGCAGCAGTGCCCGTACCGTGATCCCCATATCTGCAATGAGT

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3012     TTGACCAGTTCATCGCGCGTTGGCGGATTCTCCAGGTAATGAATGACGGTCGGCTCATTT

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3072     CCGCTGTTGCGGATCATCTCCAGCGTATTACGCGAAATCGAATTCCCGCGGCCGCCATGG

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3132     CGGCCGGGAGCATGCGACGTCGGGCCCAATTCGCCCTATAGTGAGTCGTATTACAATTCA

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3192     CTGGCCGTCGTTTTACAACGTCGTCACTGGGAAAACCCTGGCGTTACCCAACTTAATCGC

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3252     CTTGCAGCACATCCCCCTTTCGCCAGCTGGCGTAATAGCGAAGAGGCCCGCACCGATCGC

Namib_1018                .....................................................................
Namib_1818                .....................................................................
Namib_2018                .....................................................................
Namib1418Contig  3312     CCTTCCCAACAGTTGCGCAGCCTGAATGGCGAATGGACGCGCCCTGGAGCGGGCGCTAGG

Namib_1018                ...
Namib_1818                ...
Namib_2018                ...
Namib1418Contig  3372     GCG
```

Figure S1. b)The actual alignment of the contigs generated by ESPript 3.0 (Robert and Gouet, 2014).

Qualimap Analysis Results

BAM QC analysis

Generated by Qualimap v.2.2.1

2019/11/12 13:57:11

1. Input data & parameters

1.1. QualiMap command line

```
qualimap bamqc -bam /Users/rian/yash/reviewer_comments/aln/Sample-102018.sorted.bam -nw 400 -hm 3
```

1.2. Alignment

Command line:	"/apps/bowtie2-2.3.4.1/bowtie2-align-s --wrapper basic-0 -x tem_cov/ref/TEM --passthrough -1 Sample102018/Sample-102018_1.fastq -2 Sample102018/Sample-102018_2.fastq"
Draw chromosome limits:	no
Analyze overlapping paired-end reads:	no
Program:	bowtie2 (2.3.4.1)
Analysis date:	Tue Nov 12 13:55:12 SAST 2019
Size of a homopolymer:	3
Skip duplicate alignments:	no
Number of windows:	400
BAM file:	/Users/rian/yash/reviewer_comments/aln/Sample-102018.sorted.bam

2. Summary

2.1. Globals

Reference size	866
Number of reads	53
Mapped reads	53 / 100%
Unmapped reads	0 / 0%
Mapped paired reads	53 / 100%
Mapped reads, first in pair	25 / 47,17%
Mapped reads, second in pair	28 / 52,83%
Mapped reads, both in pair	50 / 94,34%
Mapped reads, singletons	3 / 5,66%
Read min/max/mean length	53 / 251 / 164,72
Duplicated reads (estimated)	20 / 37,74%
Duplication rate	48,48%
Clipped reads	0 / 0%

2.2. ACGT Content

Number/percentage of A's	2 245 / 25,86%
Number/percentage of C's	2 113 / 24,34%
Number/percentage of T's	2 081 / 23,97%
Number/percentage of G's	2 243 / 25,84%
Number/percentage of N's	0 / 0%
GC Percentage	50,17%

2.3. Coverage

Mean	10,0277
Standard Deviation	4,5232

2.4. Mapping Quality

Mean Mapping Quality	39,24

2.5. Insert size

Mean	327
Standard Deviation	47,67
P25/Median/P75	271 / 334 / 334

2.6. Mismatches and indels

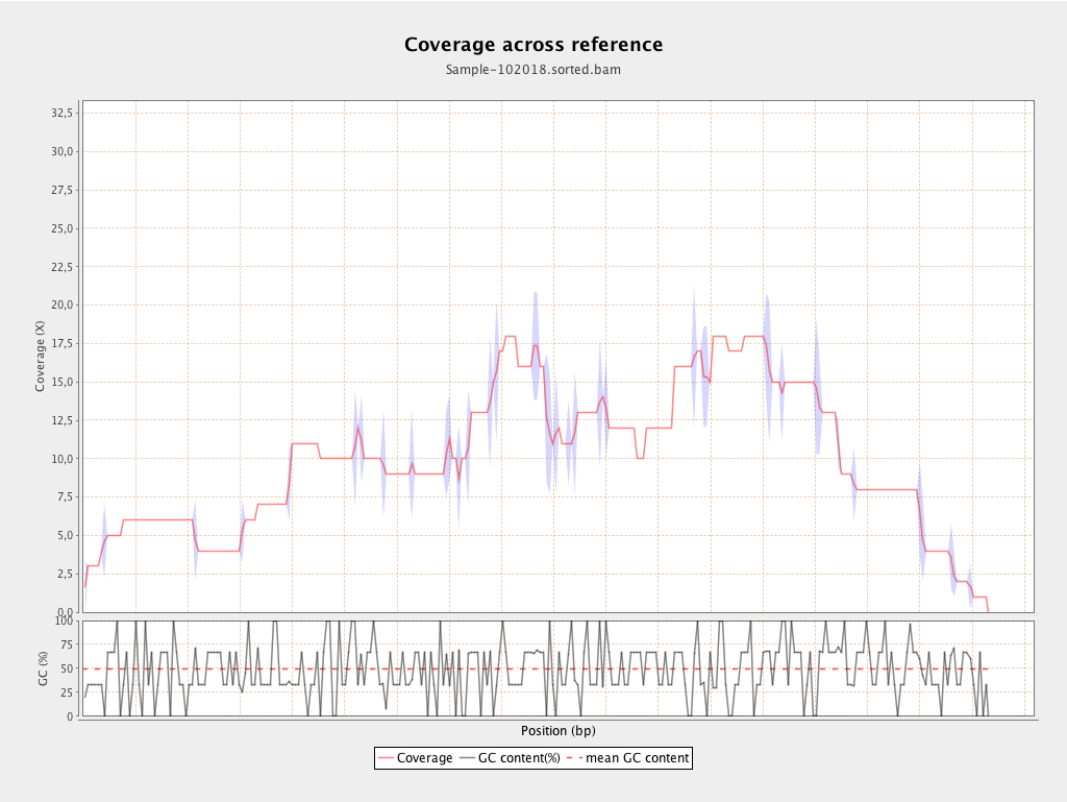
General error rate	0,9%
Mismatches	30
Insertions	10
Mapped reads with at least one insertion	11,32%
Deletions	2
Mapped reads with at least one deletion	3,77%
Homopolymer indels	25%

2.7. Chromosome stats

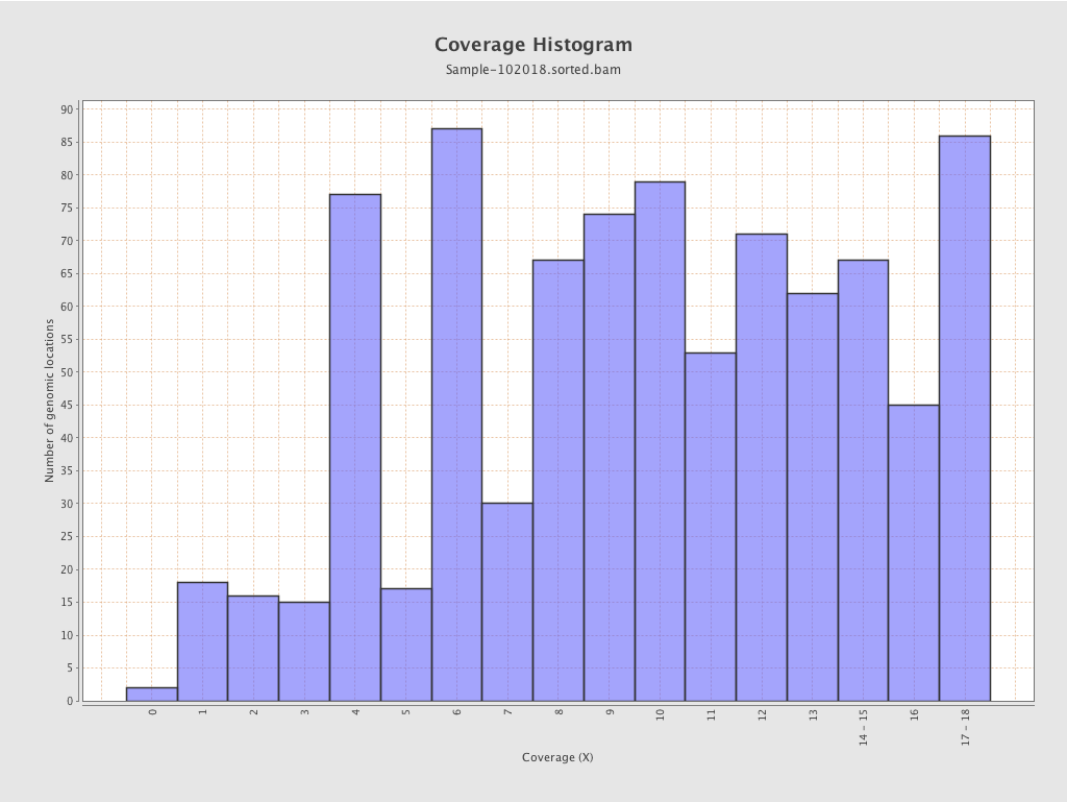
Name	Length	Mapped bases	Mean coverage	Standard deviation

AY425988.1	866	8684	10,0277	4,5232

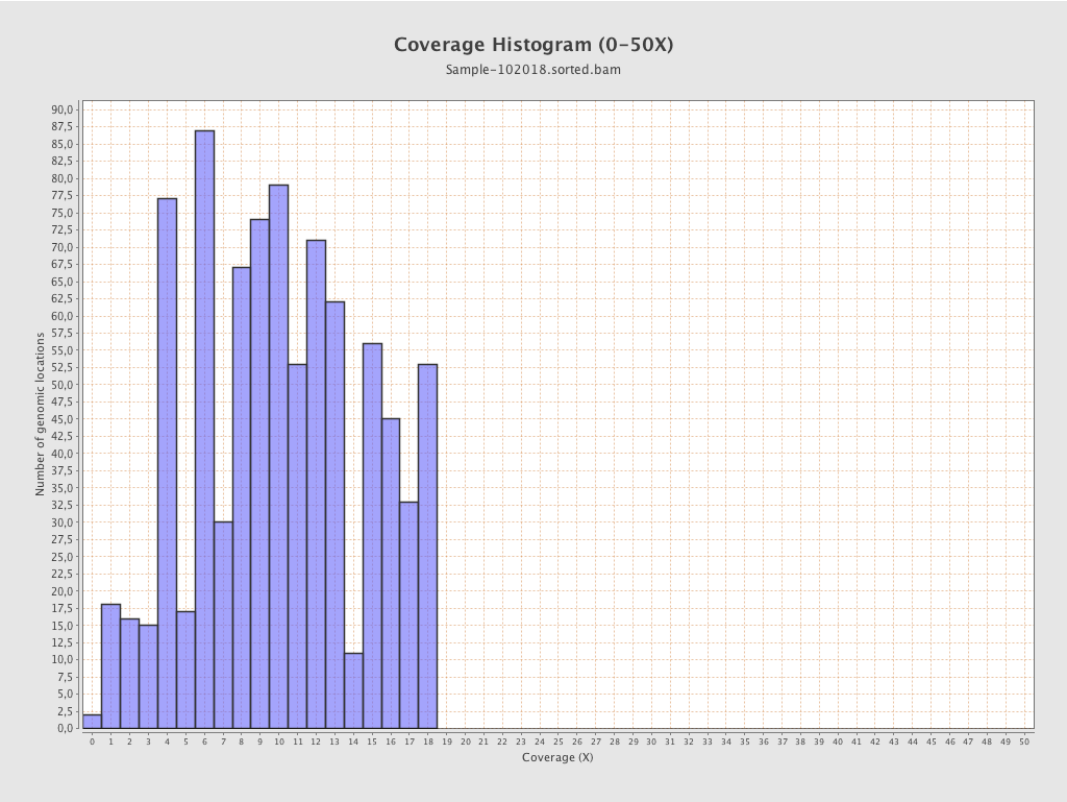
3. Results : Coverage across reference



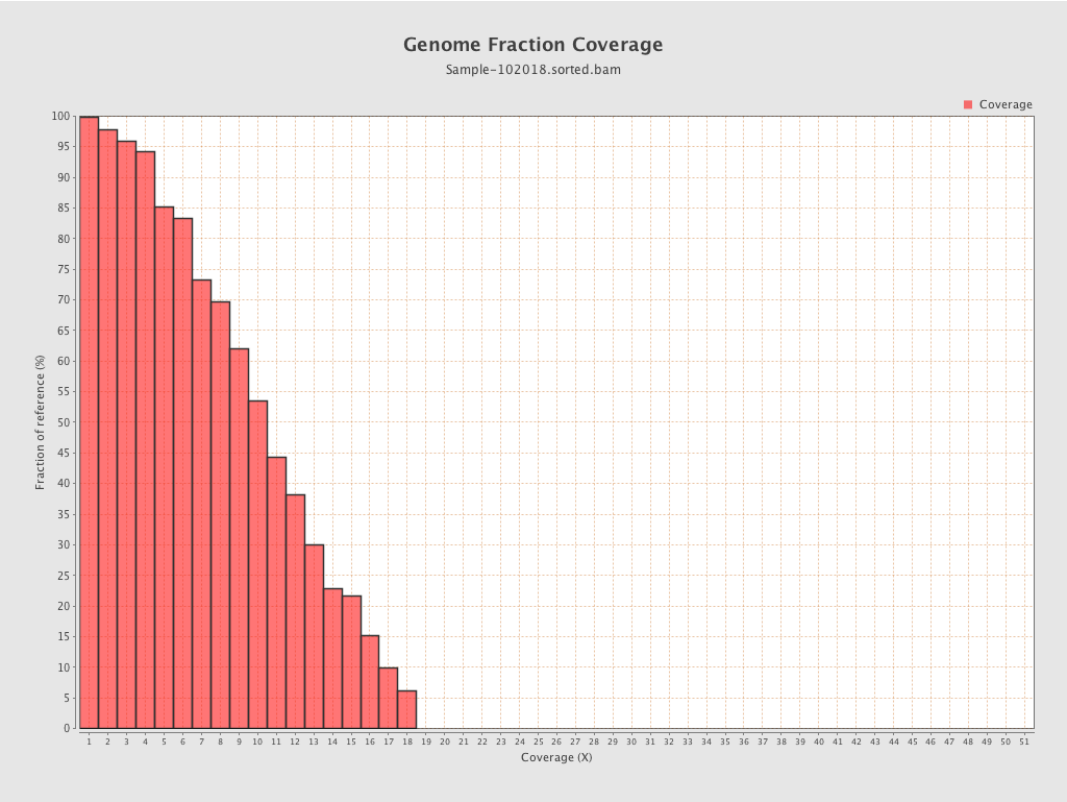
4. Results : Coverage Histogram



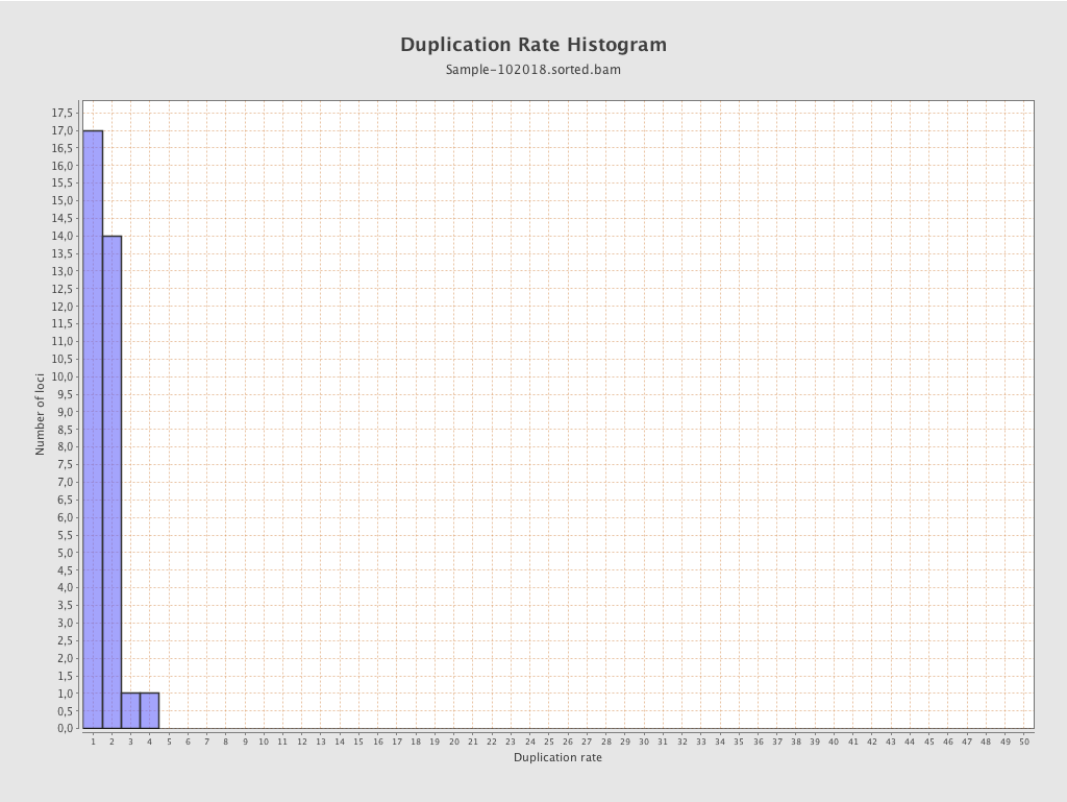
5. Results : Coverage Histogram (0-50X)



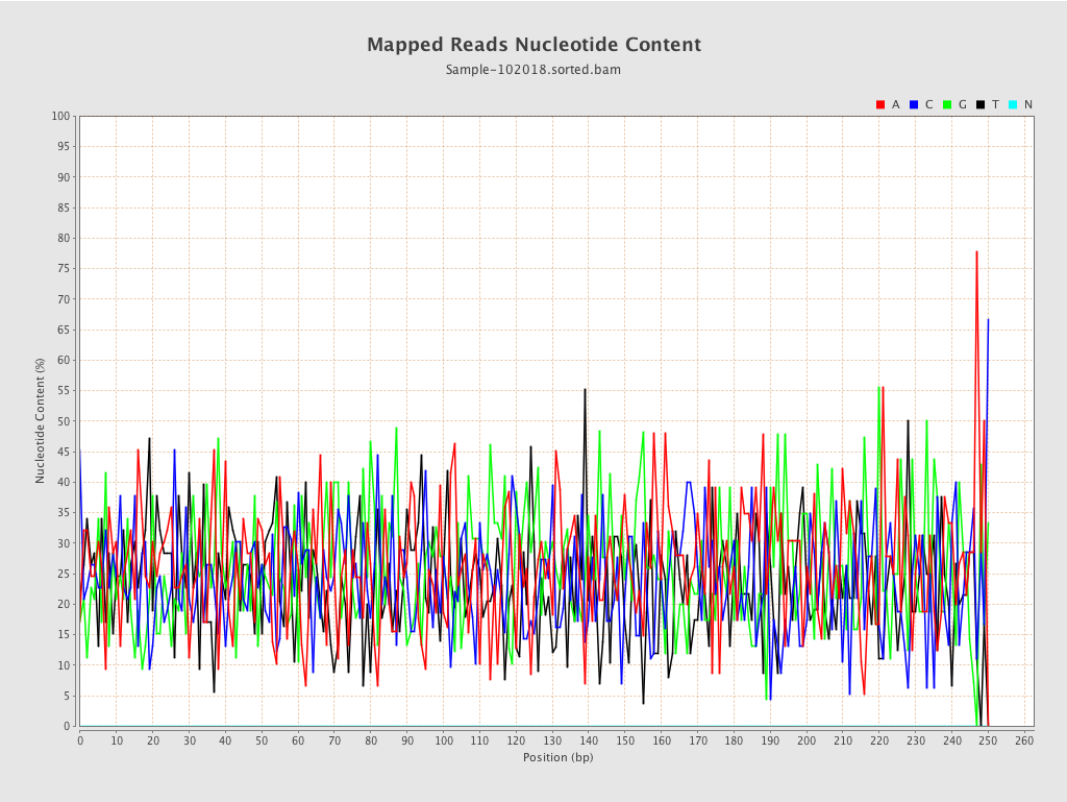
6. Results : Genome Fraction Coverage



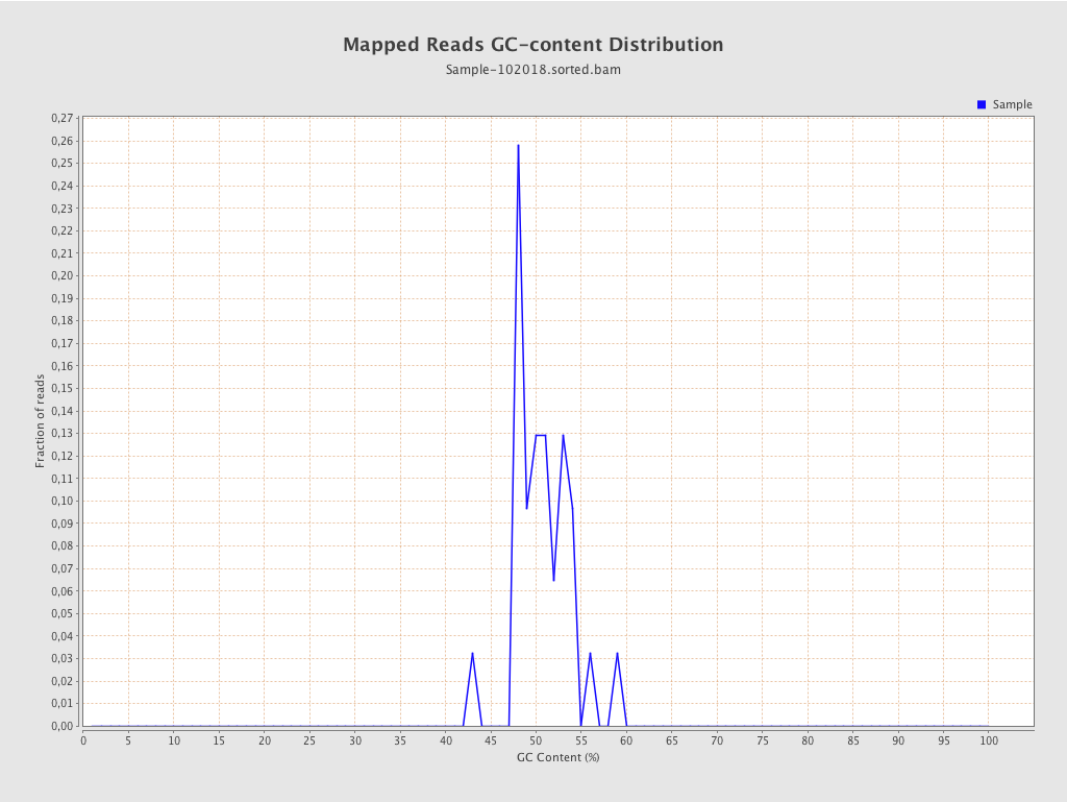
7. Results : Duplication Rate Histogram



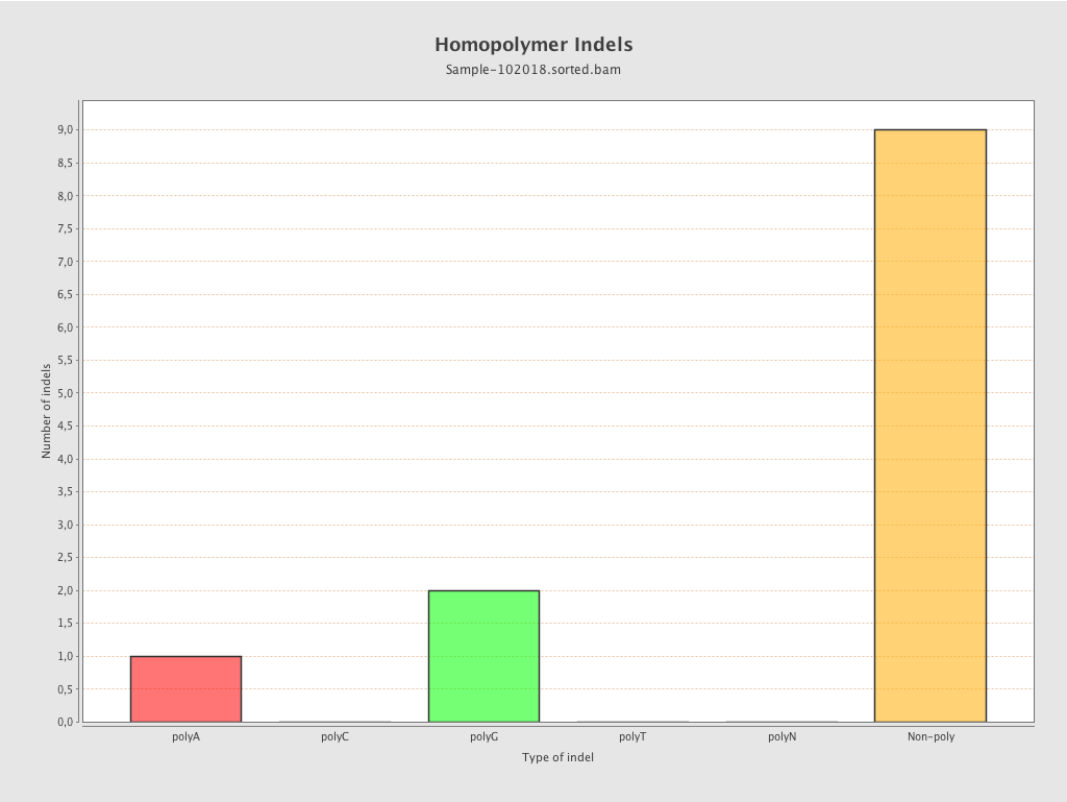
8. Results : Mapped Reads Nucleotide Content



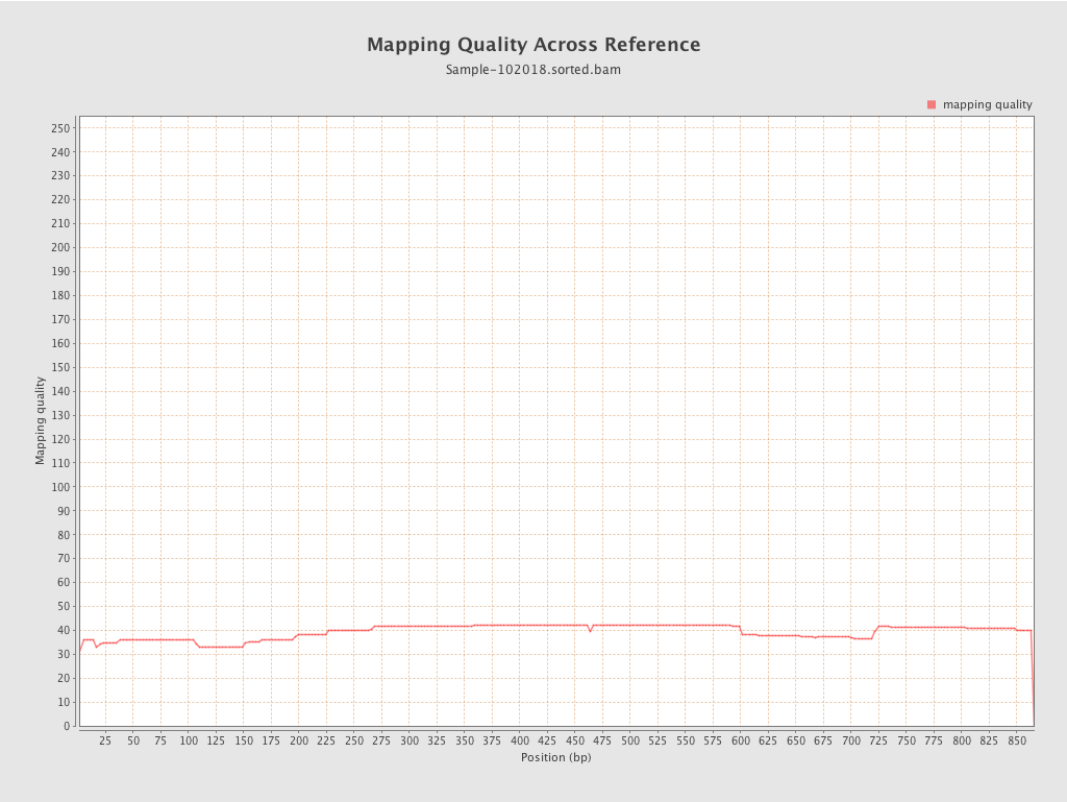
9. Results : Mapped Reads GC-content Distribution



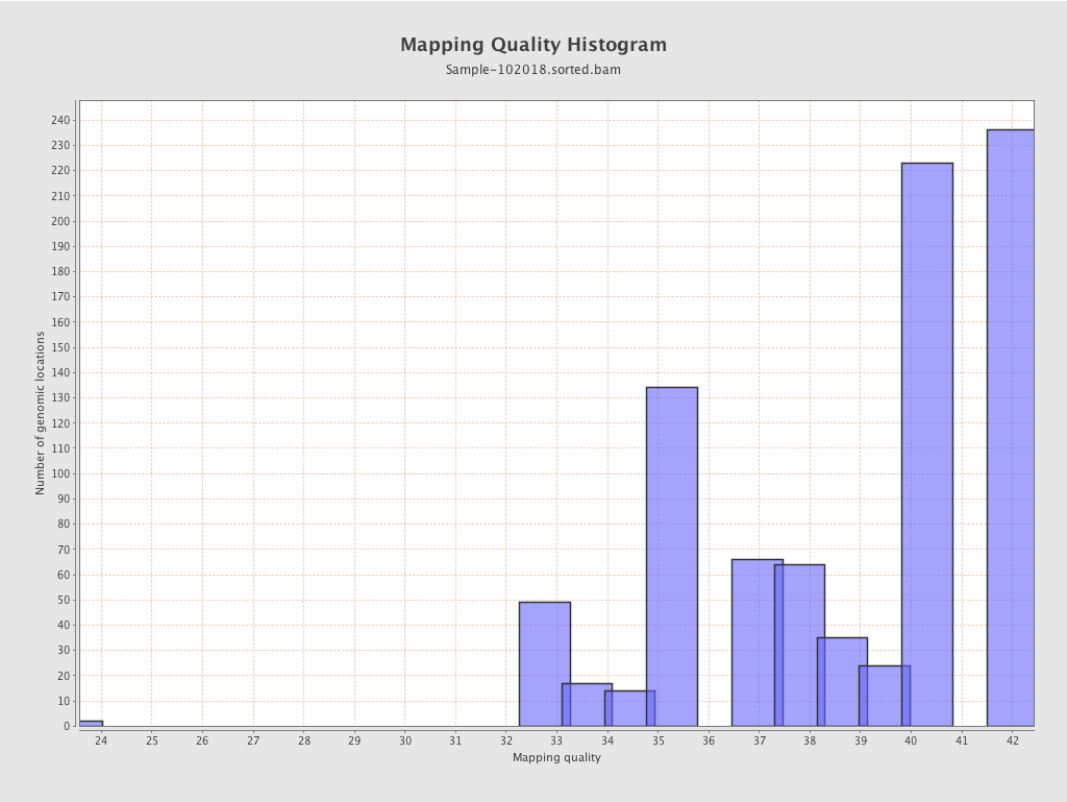
10. Results : Homopolymer Indels



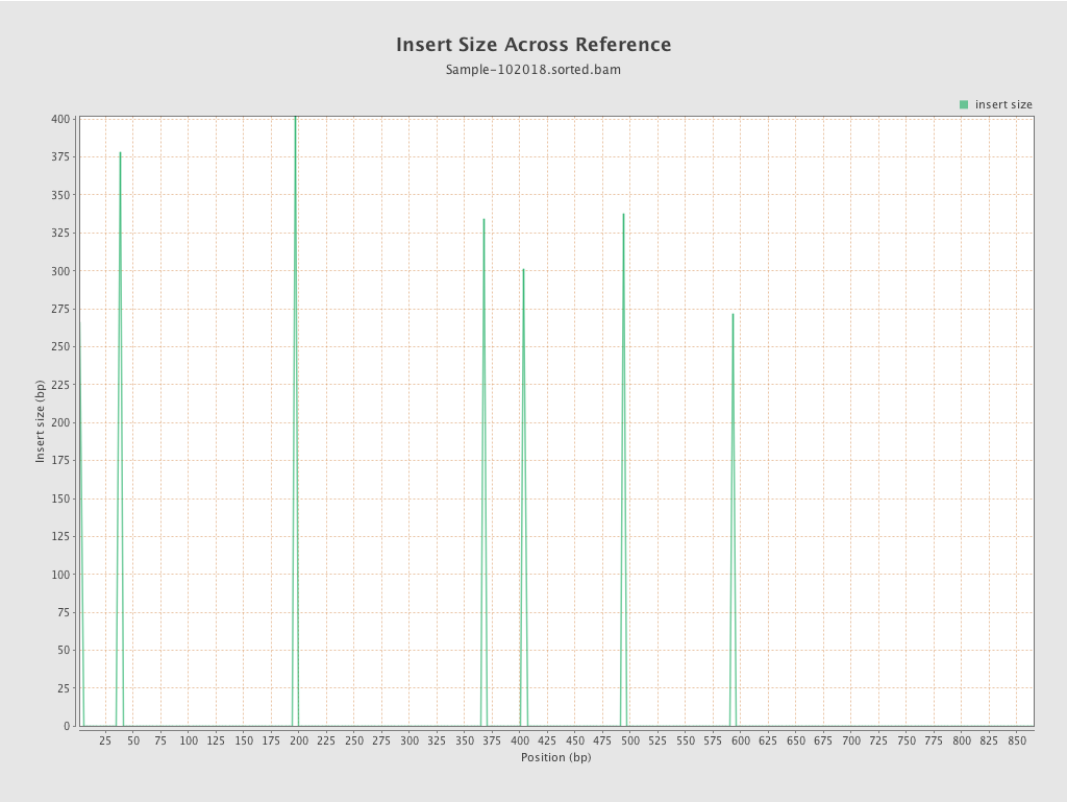
11. Results : Mapping Quality Across Reference



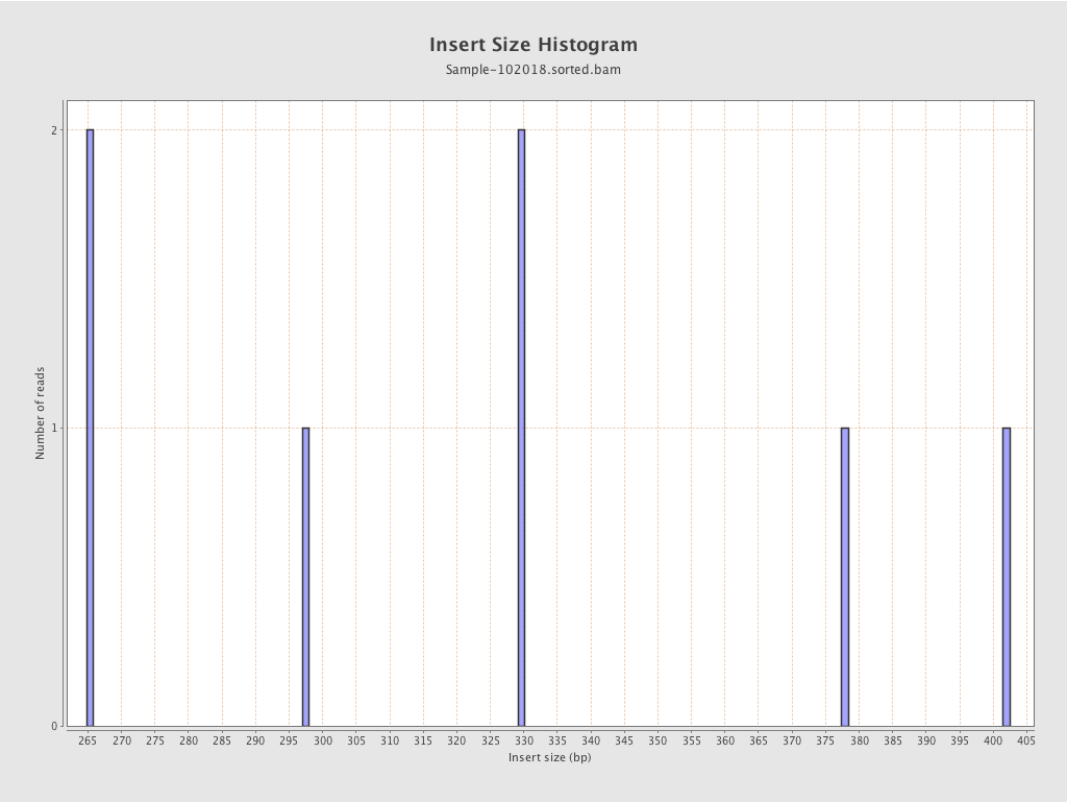
12. Results : Mapping Quality Histogram



13. Results : Insert Size Across Reference



14. Results : Insert Size Histogram



References

Robert, X., Gouet, P., 2014. Deciphering key features in protein structures with the new ENDscript server. Nucleic Acids Res. 42, 320–324. https://doi.org/10.1093/nar/gku316