

Template Alignment: 465293901_pfl_M13R_G09 (465293901_pfl_M1...

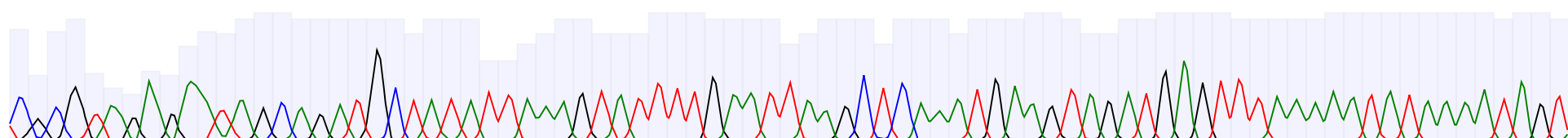
CGCGTAgagaatagcagatgctatattaaagtatTTTgaattaagctcaaatgaagtagatgagTTTaaaaatataaaatagt

6046 pTh1

intpTh1_F

AB 054

template sequence pMTL82151_fdh_pflA_pflB_gibson



CGCGTAGAGAATAGCAGATGCTATATTAAAGTATTTTGAATTAAGCTCAAATGAAGTAGATGAGTTTAAAAATATAAAATAGT

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

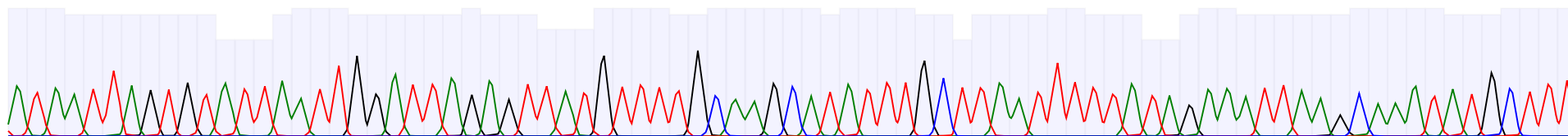
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

ataattagtgtattaattggattagagttatgTTTTGCAAGCATATTTGCTTAATTTTATAGAAATTAAGCAAATATGCTTT

6046 pTh1

template sequence pMTL82151_fdh_pflA_pflB_gibson



ATAATTAGTGTATTAATTGGATTAGAGTTATGTTTTGCAAGCATATTTGCTTAATTTTATAGAAATTAAGCAAATATGCTTT

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

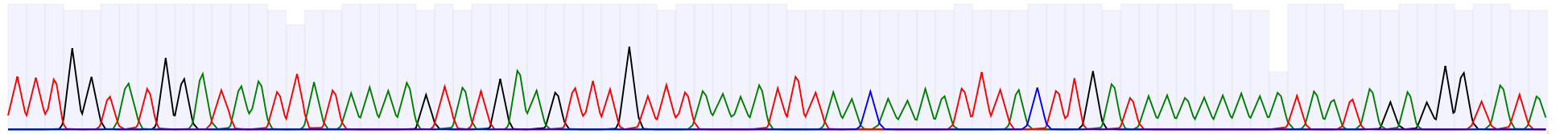
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

tttggatggataattataaaagtatgaagtttgtttaaatttaacaaaatttacttgataaaaaaataatagagggtata

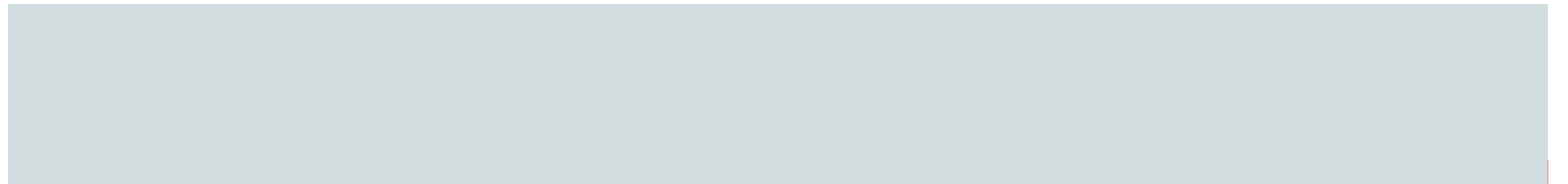
>> 6046 pTh1 >>

template sequence pMTL82151_fdh_pflA_pflB_gibson

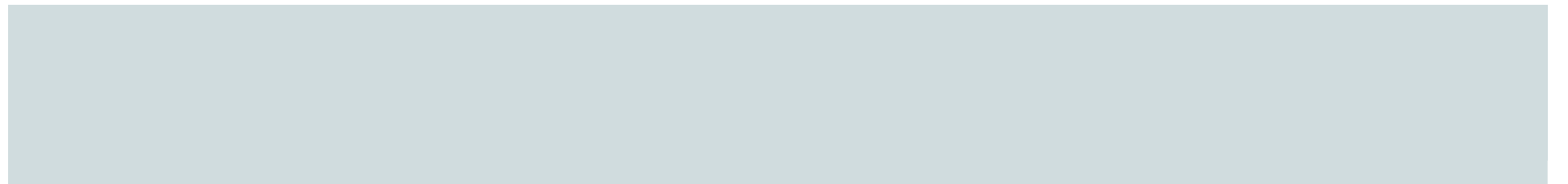


TTTGGTATGGATAATTATAAAAAGTATGAAGTTTGTTTAAATTTAACAAAATTTACTTGATAAAAAAATAATAGAGGGTATA

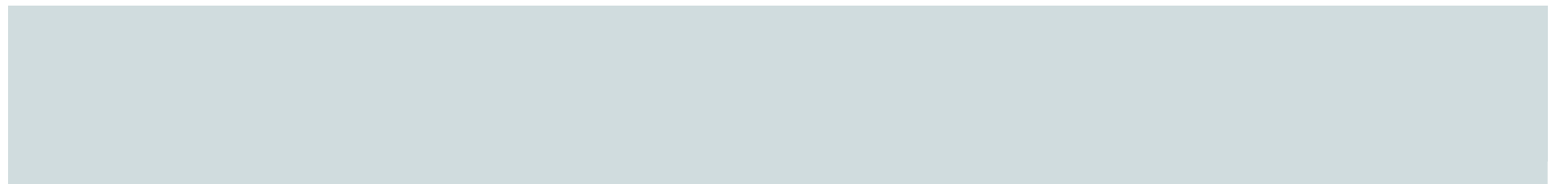
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

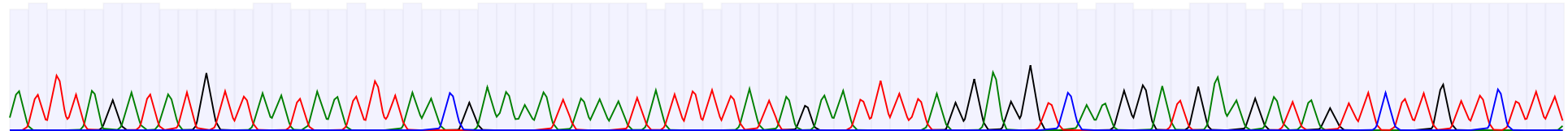
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

atttagatatgttaataatttaacgaaaataaatatTTTTATAGAATTTtaggaggtcaAGGATGAAGATAGTTCTTGTTCTTT

6046 pTh1

fdh1 C boidinii ...sed for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson



ATTTAGATATGTTAATAATTTAACGAAAATAAATATTTTTATAGAATTTTAGGAGGTCAAGGATGAAGATAGTTCTTGTTCTTT

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

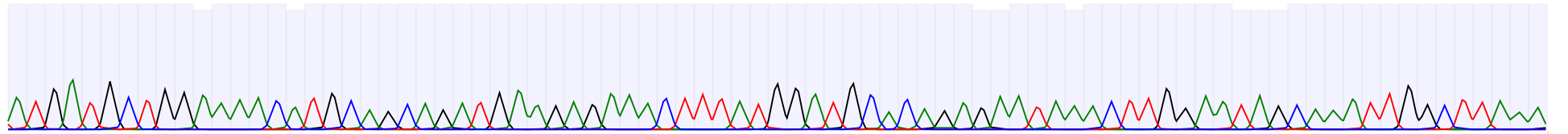
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

ATGATGCTGGAAAACATGCAGCAGATGAAGAGAACTTTATGGATGCACAGAGAATAAACTTGAATAGCAAATTGGCTTAA

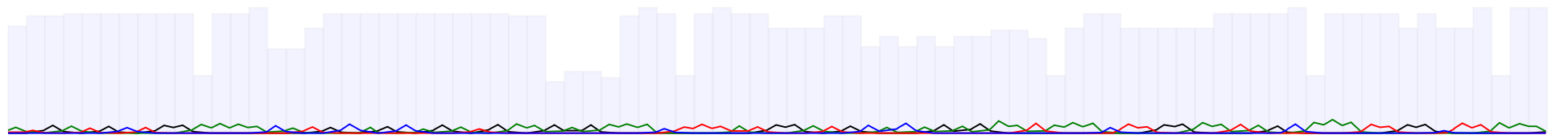
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson



ATGATGCTGGAAAACATGCAGCAGATGAAGAGAACTTTATGGATGCACAGAGAATAAACTTGAATAGCAAATTGGCTTAA

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



ATGATGCTGGAAAACATGCAGCAGATGAAGAGAACTTTATGGATGCACAGAGAATAAACTTGAATAGCAAATTGGCTTAA

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

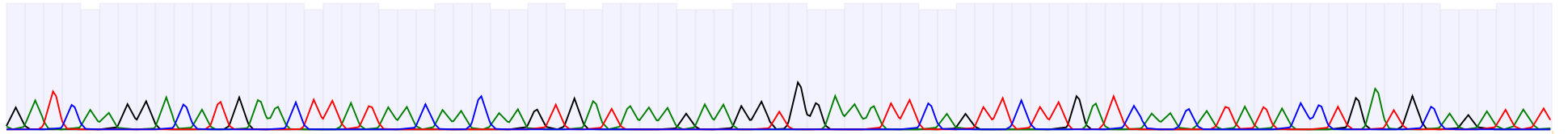
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

GATCAAGGACATGAACTTATAACAACAAGTGATAAAGAAGGTGGAAATTCAGTTCTTGATCAACATATACTGATGCAGATAT

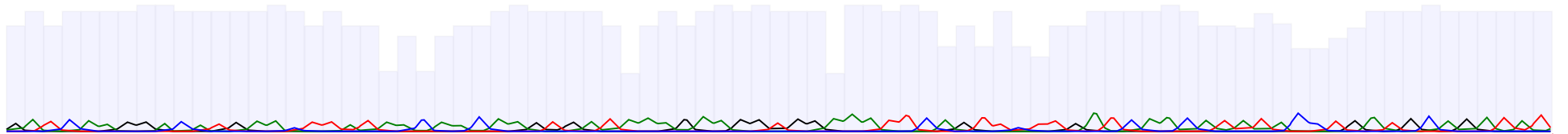
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



GATCAAGGACATGAACTTATAACAACAAGTGATAAAGAAGGTGGAAATTCAGTTCTTGATCAACATATACTGATGCAGATAT

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

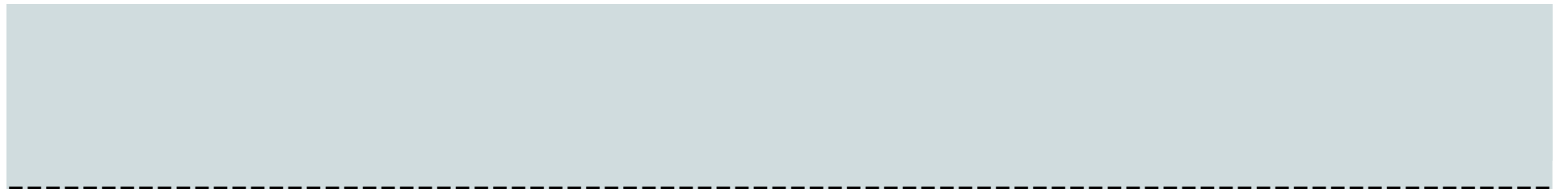


GATCAAGGACATGAACTTATAACAACAAGTGATAAAGAAGGTGGAAATTCAGTTCTTGATCAACATATACTGATGCAGATAT

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

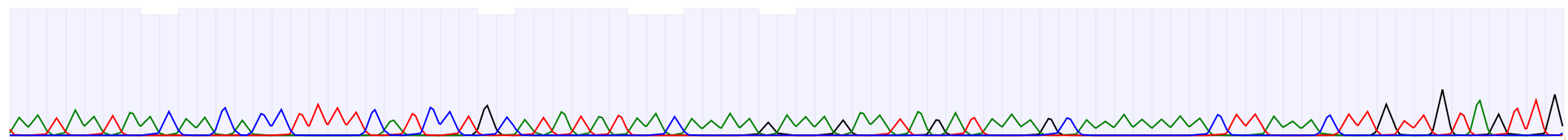
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

AATAATAACAACACCTTTTCATCCTGCATATATAACAAAAGAAAGAATAGATAAAGCAAAAAAACTTAAACTTGTTGTAGTTG

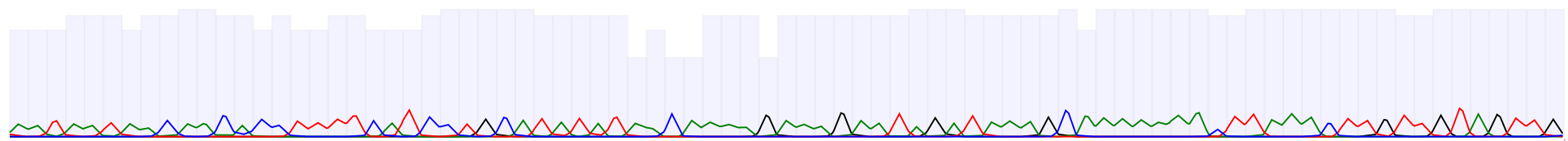
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



AATAATAACAACACCTTTTCATCCTGCATATATAACAAAAGAAAGAATAGATAAAGCAAAAAAACTTAAACTTGTTGTAGTTG

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



AATAATAACAACACCTTTTCATCCTGCATATATAACAAAAGAAAGAATAGATAAAGCAAAAAAACTTAAACTTGTTGTAGTTG

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

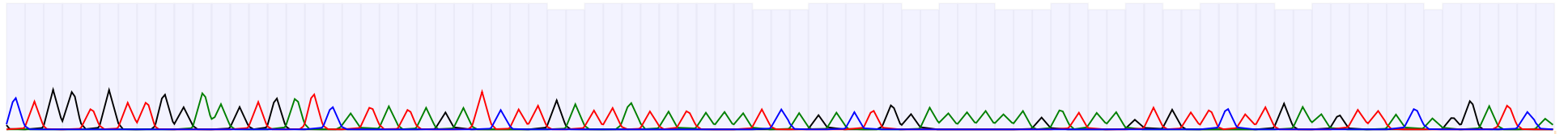
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

CTGGTGTGGGAAGTGATCATATAGATCTTGATTATATAAATCAGACTGGAAAAAAGATAAGTGTTCTTGAAGTTACAGGATCA

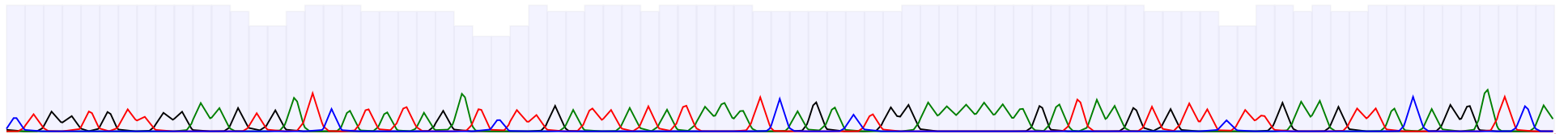
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



CTGGTGTGGGAAGTGATCATATAGATCTTGATTATATAAATCAGACTGGAAAAAAGATAAGTGTTCTTGAAGTTACAGGATCA

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



CTGGTGTGGGAAGTGATCATATAGATCTTGATTATATAAATCAGACTGGAAAAAAGATAAGTGTTCTTGAAGTTACAGGATCA

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

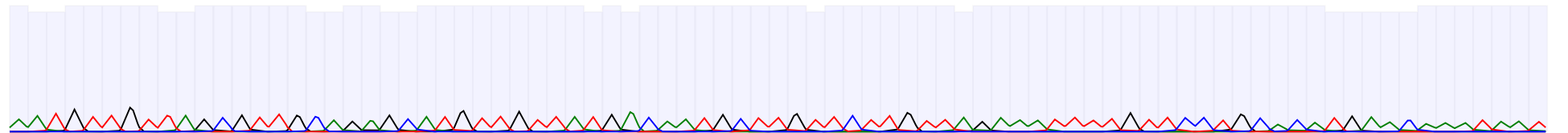
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

AATGTTGTTAGCGTTGCAGAGCATGTTGTTATGACAATGCTTGTTCTTGTTAGAAATTTTGTTCCCTGCACATGAACAAATAAT

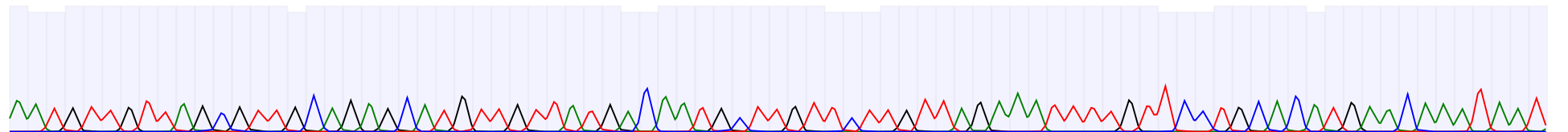
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson



AATGTTGTTAGCGTTGCAGAGCATGTTGTTATGACAATGCTTGTTCTTGTTAGAAATTTTGTTCCCTGCACATGAACAAATAAT

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



AATGTTGTTAGCGTTGCAGAGCATGTTGTTATGACAATGCTTGTTCTTGTTAGAAATTTTGTTCCCTGCACATGAACAAATAAT

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

AAATCATGATTGGGAAGTTGCAGCAATAGCAAAAAGATGCATATGATATAGAAGGTAAAACAATAGCAACAATTGGAGCTGGAA

fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson

AAATCATGATTGGGAAGTTGCAGCAATAGCAAAAAGATGCATATGATATAGAAGGTAAAACAATAGCAACAATTGGAGCTGGAA

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

AAATCATGATTGGGAAGTTGCAGCAATAGCAAAAAGATGCATATGATATAGAAGGTAAAACAATAGCAACAATTGGAGCTGGAA

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

GAATAGGATATAGAGTTCTTGAAAGACTTGTTCCTTTTAATCCTAAAGAATTACTTTATTATGATTATCAAGCACTTCCTAAA

fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson

GAATAGGATATAGAGTTCTTGAAAGACTTGTTCCTTTTAATCCTAAAGAATTACTTTATTATGATTATCAAGCACTTCCTAAA

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

GAATAGGATATAGAGTTCTTGAAAGACTTGTTCCTTTTAATCCTAAAGAATTACTTTATTATGATTATCAAGCACTTCCTAAA

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

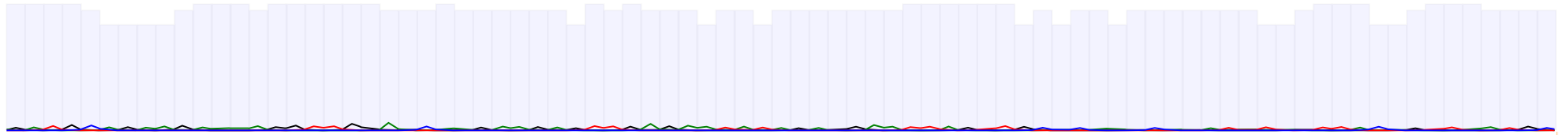
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

GATGCAGAAGAAAAGGTTGGAGCAAGAAGAGTTGAGAATATAGAGGAATTAGTTGCACAAGCAGATATAGTTACAGTTAATGC

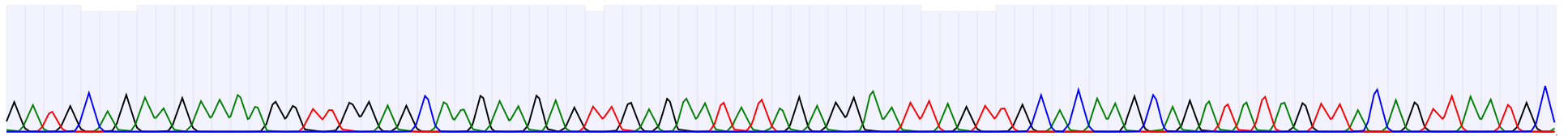
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



GATGCAGAAGAAAAGGTTGGAGCAAGAAGAGTTGAGAATATAGAGGAATTAGTTGCACAAGCAGATATAGTTACAGTTAATGC

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



GATGCAGAAGAAAAGGTTGGAGCAAGAAGAGTTGAGAATATAGAGGAATTAGTTGCACAAGCAGATATAGTTACAGTTAATGC

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

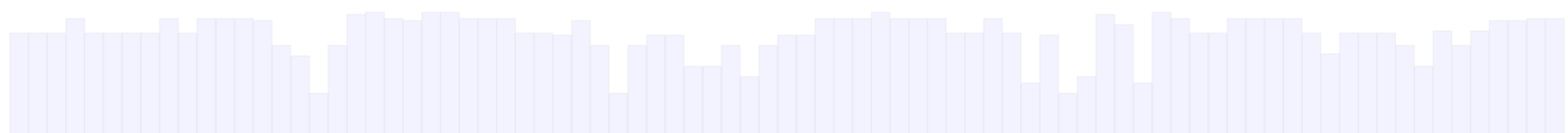
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

ACCTCTTCATGCTGGAACAAAAGGACTTATAAATAAAGAACTTCTTAGTAAGTTTAAGAAAGGTGCATGGCTTGTTAATACAG

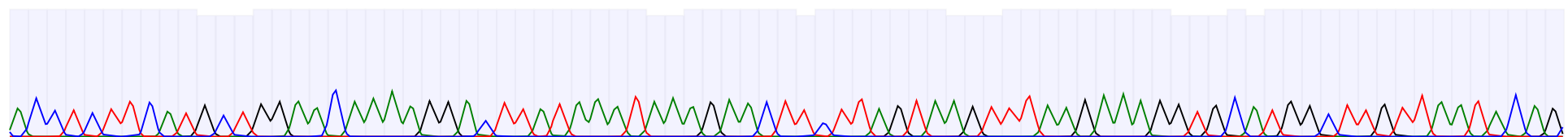
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson



ACCTCTTCATGCTGGAACAAAAGGACTTATAAATAAAGAACTTCTTAGTAAGTTTAAGAAAGGTGCATGGCTTGTTAATACAG

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



ACCTCTTCATGCTGGAACAAAAGGACTTATAAATAAAGAACTTCTTAGTAAGTTTAAGAAAGGTGCATGGCTTGTTAATACAG

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

CAAGAGGTGCTATATGTGTTGCAGAAGATGTTGCAGCAGCATTAGAAAGTGGACAATTAAGAGGATATGGTGGTGGATGTTTGG

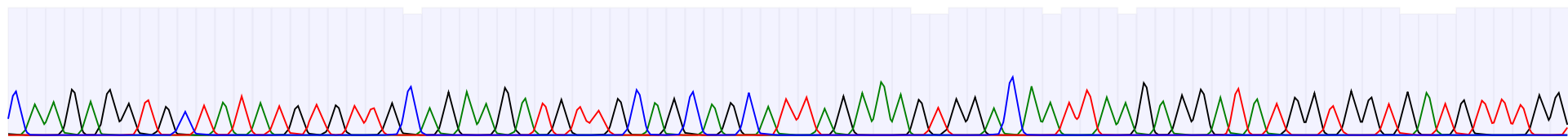
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



CAAGAGGTGCTATATGTGTTGCANAAGATGTTGCAGCAGCATTAGAAAGTGGACAATTAANAGGATATGGTGGTGGATGTTTGG

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



CAAGAGGTGCTATATGTGTTGCAGAAGATGTTGCAGCAGCATTAGAAAGTGGACAATTAAGAGGATATGGTGGTGGATGTTTGG

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

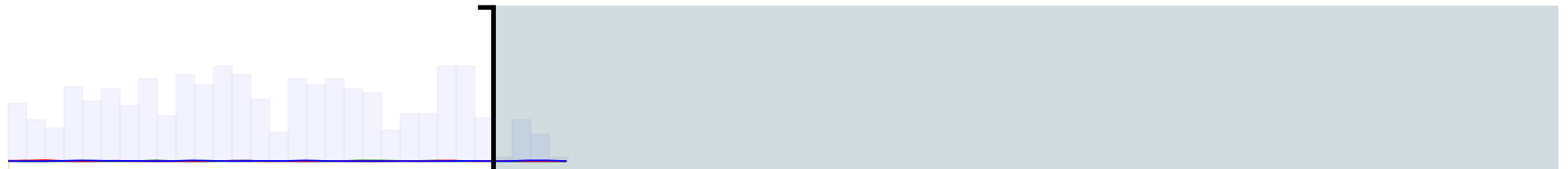
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

TTTCCTCAACCTGCACCTAAAGATCATCCTTGGAGAGATATGAGAAATAAGTATGGTGCAGGTAATGCAATGACACCTCATTA

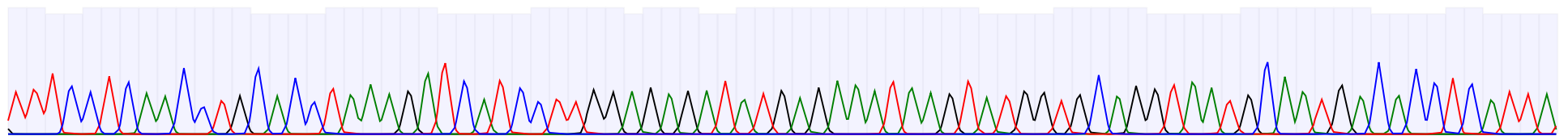
fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pf1A_pf1B_gibson



TTTCCTCAACCTGCACCTAAAGATCANCCN

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



TTTCCTCAACCTGCACCTAAAGATCATCCTTGGAGAGATATGAGAAATAAGTATGGTGCAGGTAATGCAATGACACCTCATTA

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

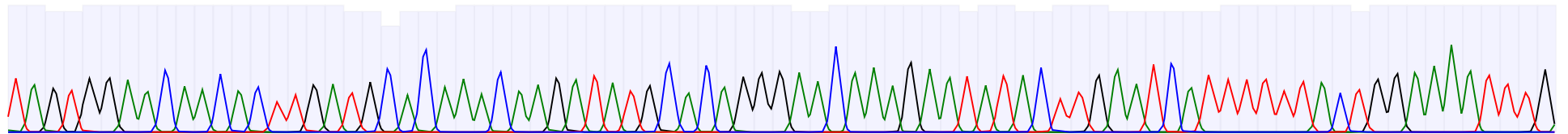
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

TAGTGAACAACACTTGATGCACAAACAAGATATGCACAGGGAACAAAGAATATACTTGAATCATT TTTTACTGGAAAATTTG

fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



TAGTGAACAACACTTGATGCACAAACAAGATATGCACAGGGAACAAAGAATATACTTGAATCATT TTTTACTGGAAAATTTG

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

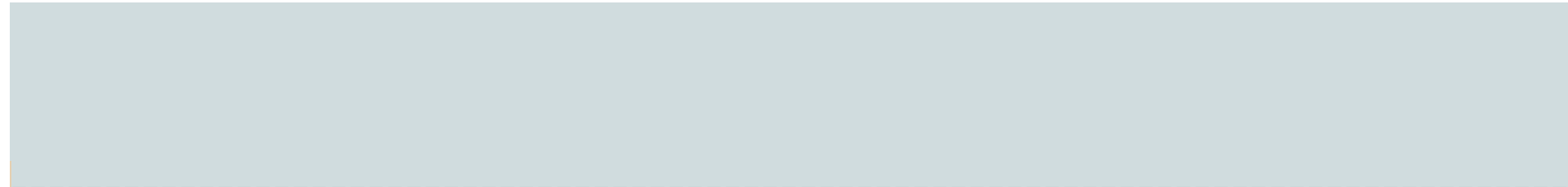
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

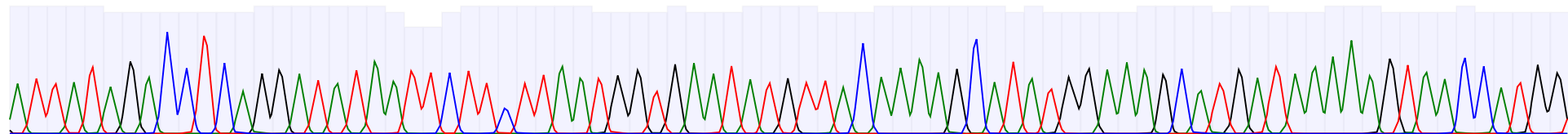
ATTATAGACCTCAGGATATAATTCTTCTTAATGGTGAATATGTTACAAAAGCATATGGAAAGCATGATAAAAAGTAACCATGG

fdh1 C boidinii codon optimised for C aceto

template sequence pMTL82151_fdh_pflA_pflB_gibson

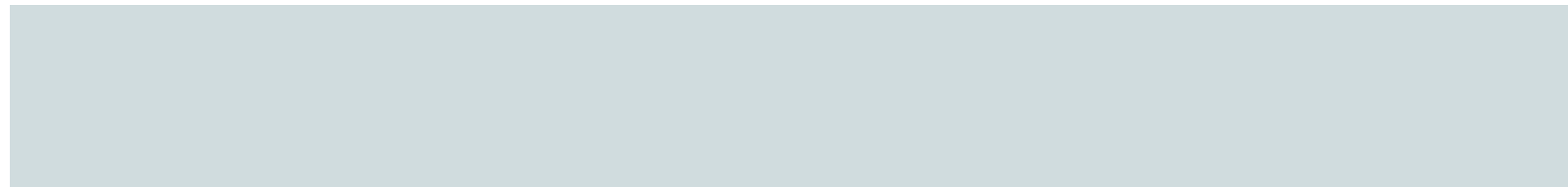


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

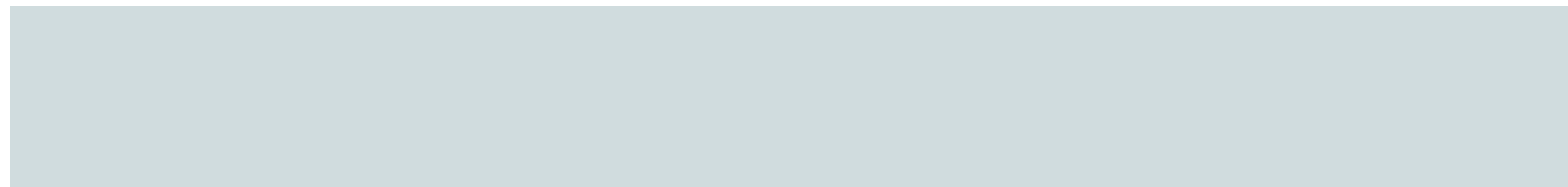


ATTATAGACCTCAGGATATAATTCTTCTTAATGGTGAATATGTTACAAAAGCATATGGAAAGCATGATAAAAAGTAACCATGG

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

TGGACCTTCAAATCCATGGgtaaactgtgaactgaaaaagactataggaacataatatttatgttcctatagtctttctcttt

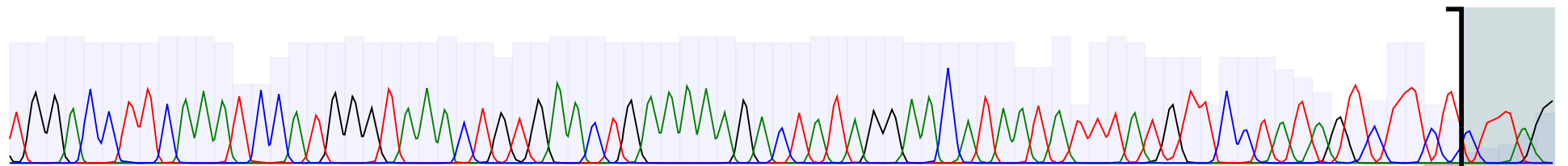
5'tail

terminator? stem-loop

3'tail

template sequence pMTL82151_fdh_pflA_pflB_gibson

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



TGGACCTTCAAATCCATGGGTA
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

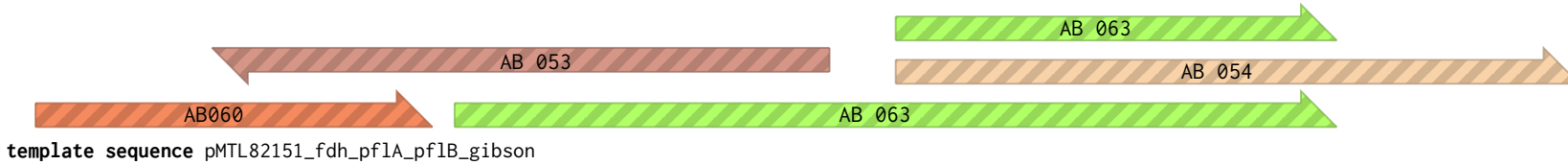
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

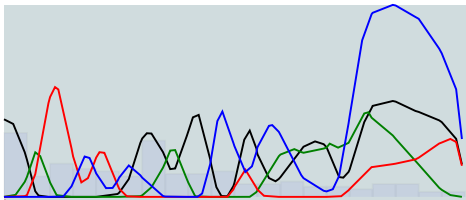
aggattCTCGAGatccttcgcgagtacgatttacgaattcgaggctcggtaccAACGCGTaagaagaatagcagatgctatatt

in...2
3'...1

6046 pTh1
intpTh1_F

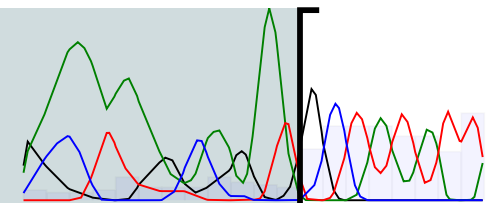


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



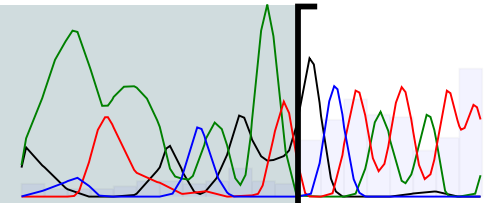
GNTCNGNNNNNNNNNNNNNNNN

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



NNNNNNNNNNNNNNNNGCTATATT

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



-----NNNNNNNNNGNNGCTATATT

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

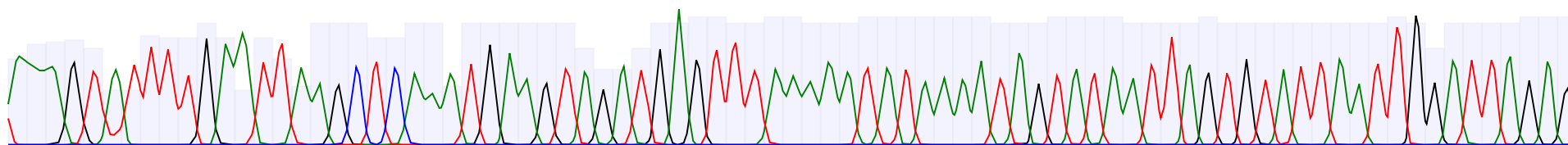
aaagtat tttgaattaagctcaaatgaagtagatgagtttaaaaatataaaaatagtataattagtg tattaattggattagag

6046 pTh1

template sequence pMTL82151_fdh_pflA_pflB_gibson

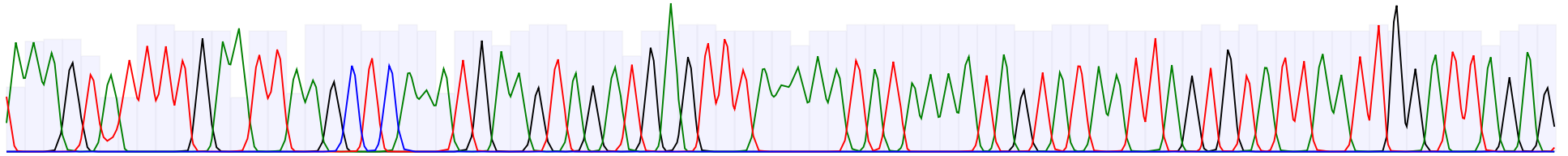
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



AAAGTATTTTGAATTAAGCTCAAATGAAGTAGATGAGTTTAAAAATATAAAAATAGTATAATTAGTGTATTAATTGGATTAGAG

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



AAAGTATTTTGAATTAAGCTCAAATGAAGTAGATGAGTTTAAAAATATAAAATAGTATAATTAGTGTATTAATTGGATTAGAG

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

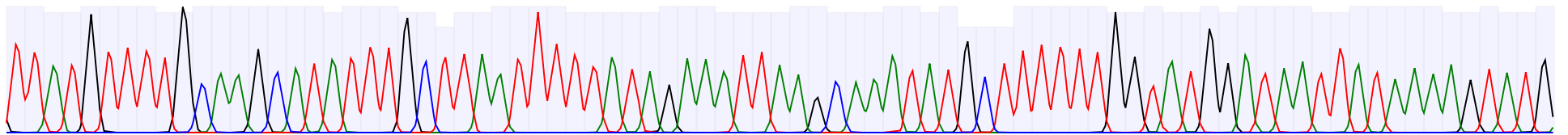
ttatgTTTTGCAAGCATATTTGCTTAATTTTTATAGAAATTAAGCAAATATGCTTTTTTGGTATGGATAATTATAAAAGTATG

6046 pTh1

template sequence pMTL82151_fdh_pflA_pflB_gibson

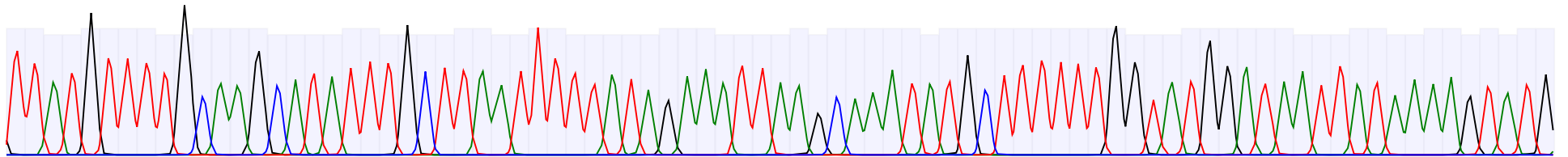
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



TTATGTTTTGCAAGCATATTTGCTTAATTTTTATAGAAATTAAGCAAATATGCTTTTTTGGTATGGATAATTATAAAAGTATG

aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)



TTATGTTTTGCAAGCATATTTGCTTAATTTTTATAGAAATTAAGCAAATATGCTTTTTTGGTATGGATAATTATAAAAGTATG

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

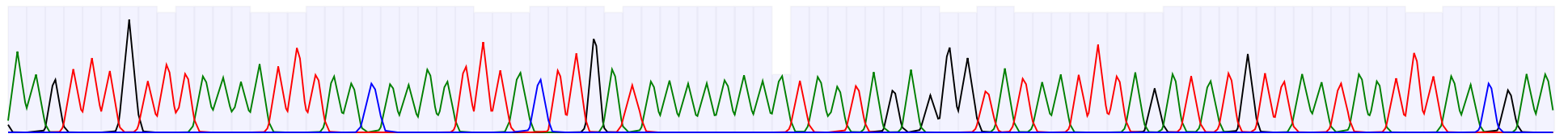
aagtttgtttaaatttaacaaaatttacttgataaaaaaaataatagagggtataatttagatatgttaataatttaacgaa

6046 pTh1

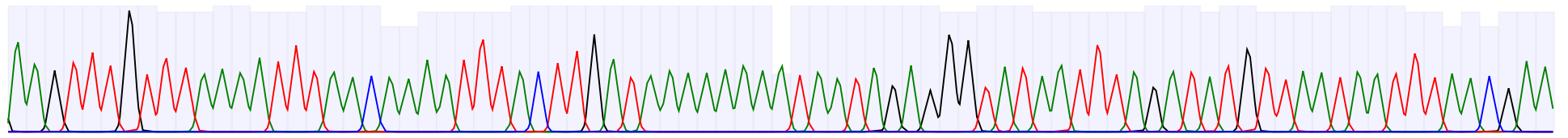
template sequence pMTL82151_fdh_pflA_pflB_gibson

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



AAGTTTGTTTAAAATTTAACAAAATTTACTTGATAAAAAAAATAATAGAGGGTATAATTTAGATATGTTAATAATTTAACGAA
aligned sequence 463614401_pf13_AB063_E11 (463614401_pf13_AB063_E11.ab1)

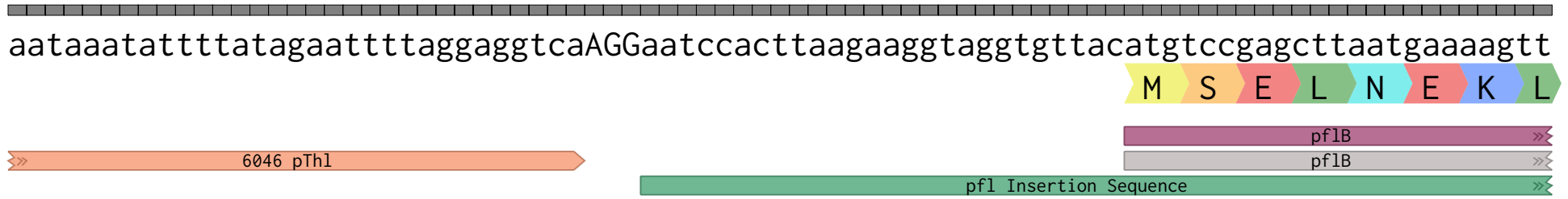


AAGTTTGTTTAAAATTTAACAAAATTTACTTGATAAAAAAAATAATAGAGGGTATAATTTAGATATGTTAATAATTTAACGAA
aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

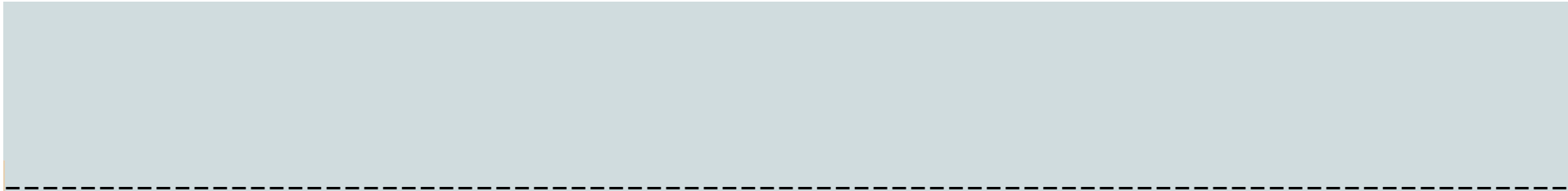
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

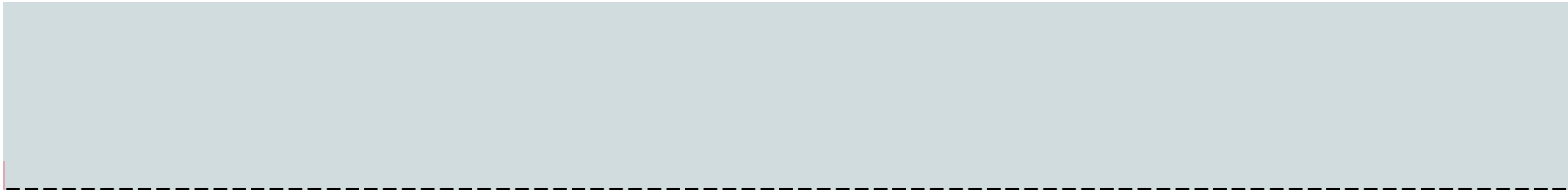
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



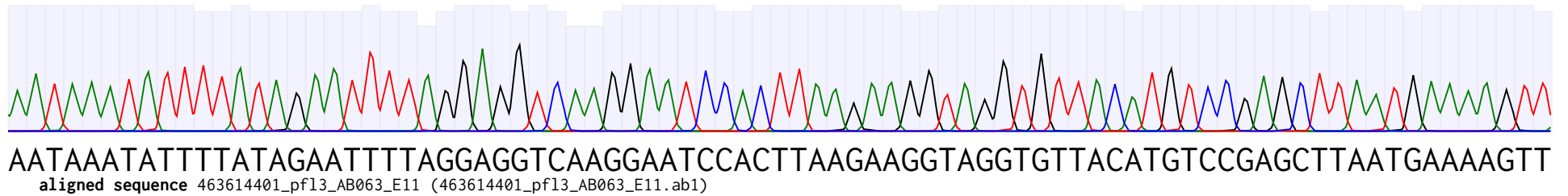
template sequence pMTL82151_fdh_pflA_pflB_gibson

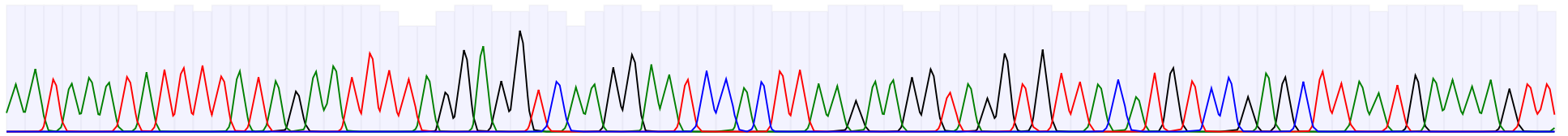


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

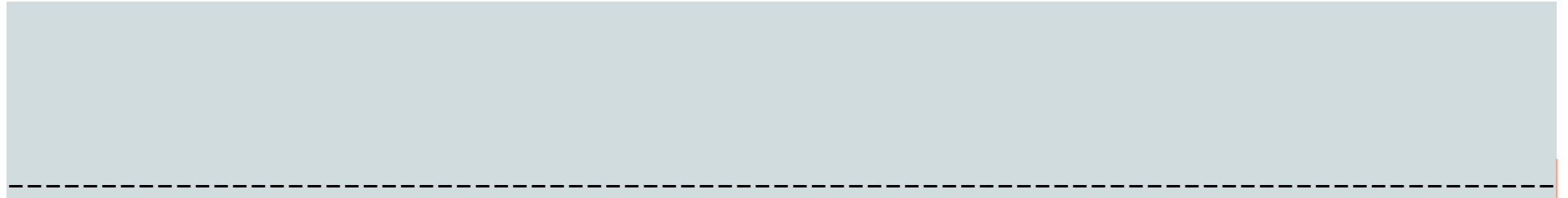


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)





AATAAATATTTTATAGAATTTTAGGAGGTCAAGGAATCCACTTAAGAAGGTAGGTGTTACATGTCCGAGCTTAATGAAAAGTT
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



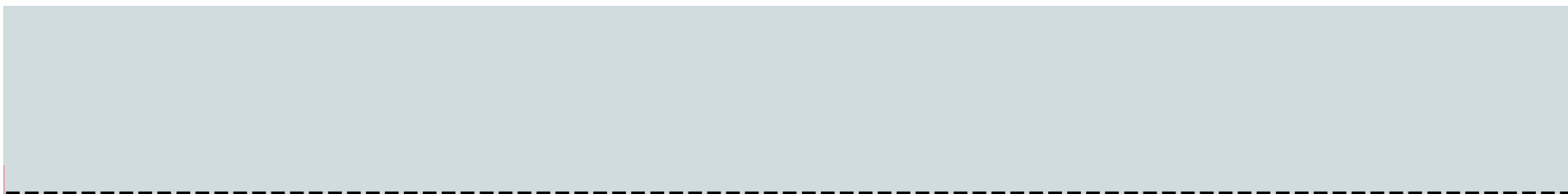
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



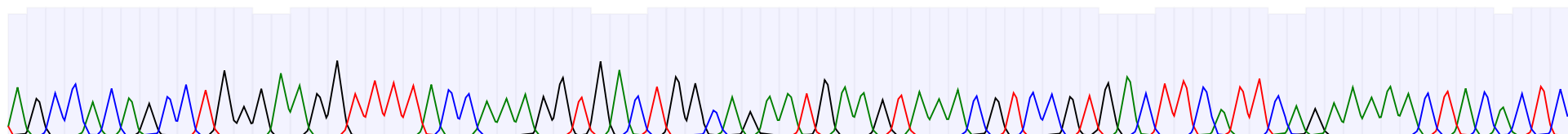
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

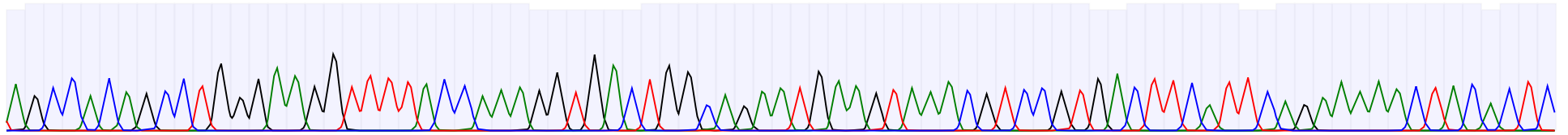


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



AGCCACAGCCTGGGAAGGTTTTACCAAAGGTGACTGGCAGAATGAAGTAAACGTCCGTGACTTCATTTCAGAAAACTACACTC

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



AGCCACAGCCTGGGAAGGTTTTACCAAAGGTGACTGGCAGAATGAAGTAAACGTCCGTGACTTCATTTCAGAAAAACTACACTC

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

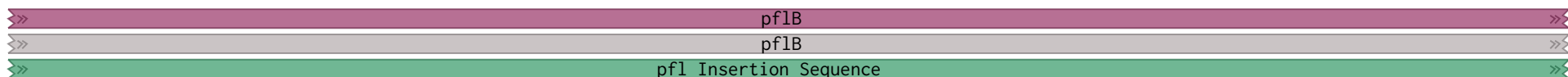


aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

cgtagagggtgacgagtccttcctggctggcgctactgaagcgaccaccaccctgtgggacaaagtaatggaaggcgttaa
P Y E G D E S F L A G A T E A T T T L W D K V M E G V K



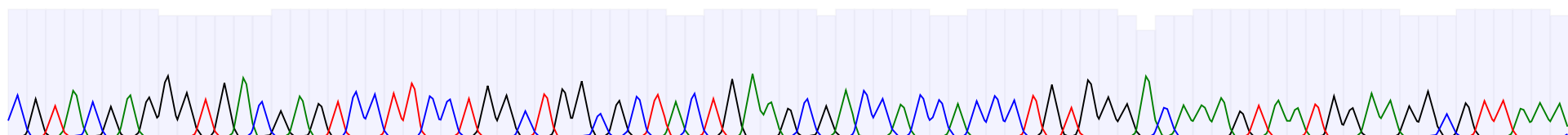
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

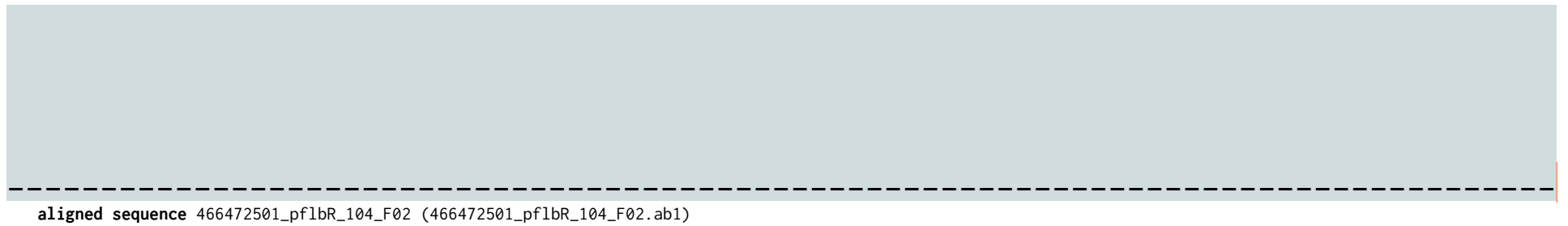
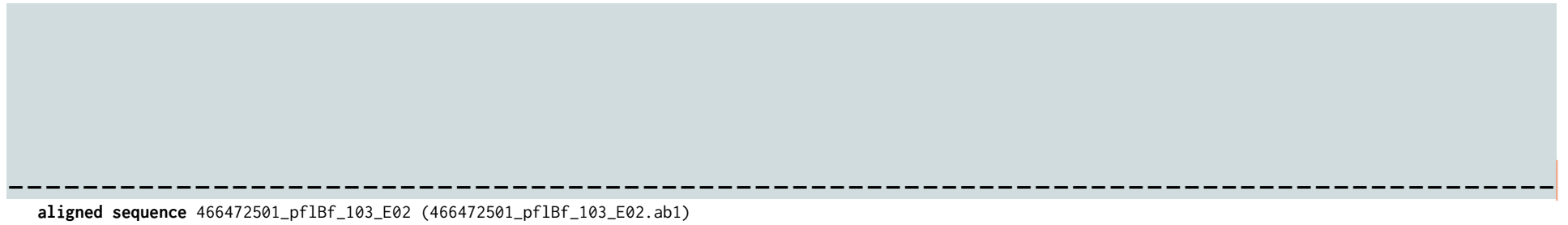
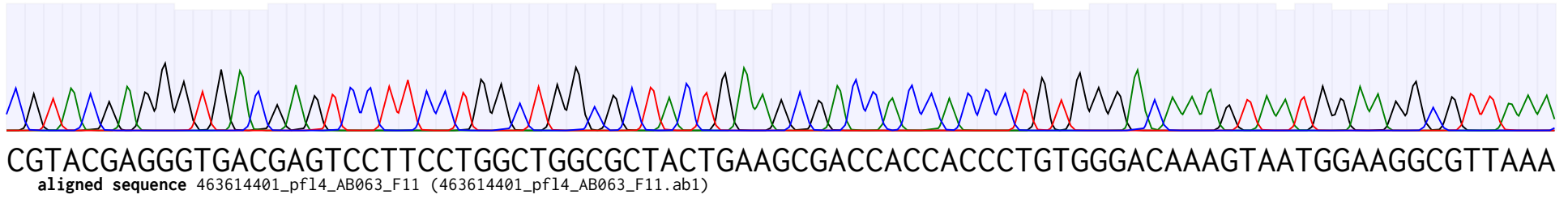


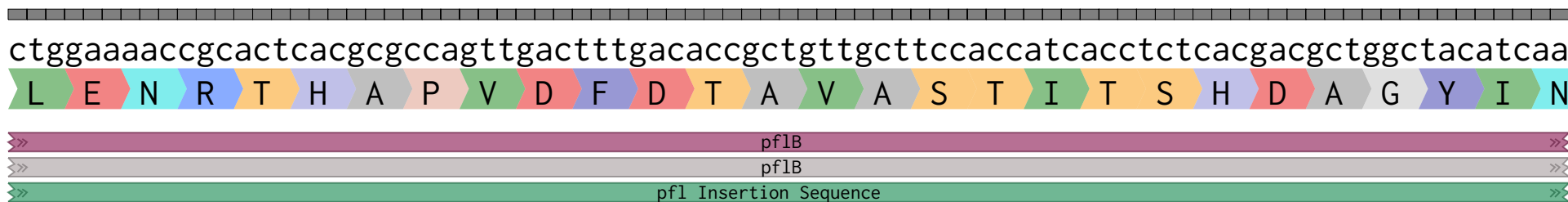
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



CGTACGAGGGTGACGAGTCCTTCCTGGCTGGCGCTACTGAAGCGACCACCACCCTGTGGGACAAAGTAATGGAAGGCGTTAAA

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

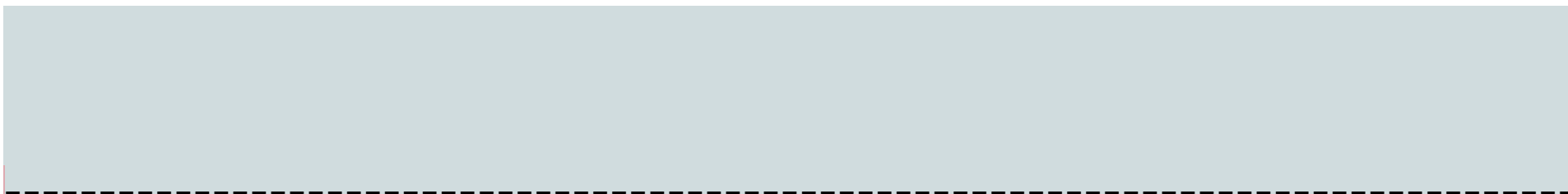




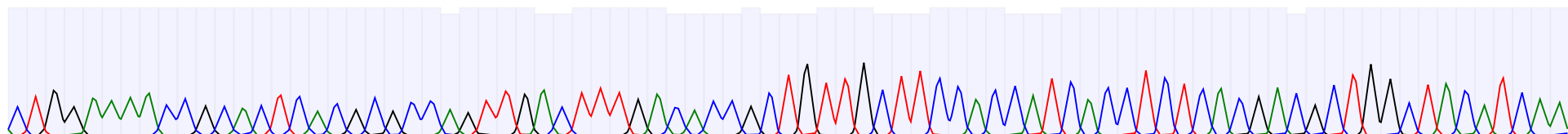
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

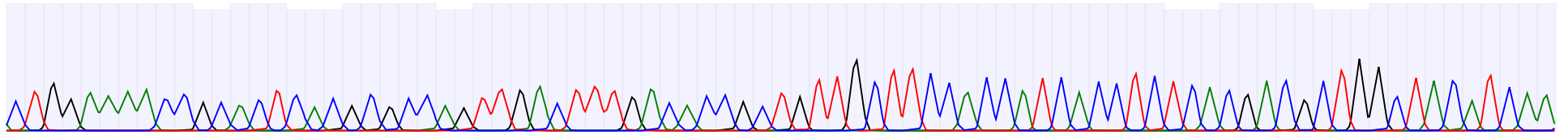


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



CTGGA AAACCGCACTCACGC GCCAGTTGACTTTGACACCGCTGTTGCTTCCACCATCACCTCTCACGACGCTGGCTACATCAA

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



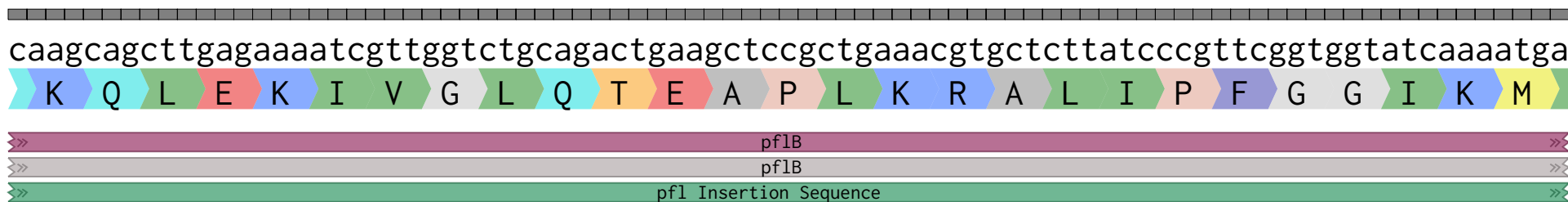
CTGGAAAACCGCACTCACGCGCCAGTTGACTTTGACACCGCTGTTGCTTCCACCATCACCTCTCACGACGCTGGCTACATCAA

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

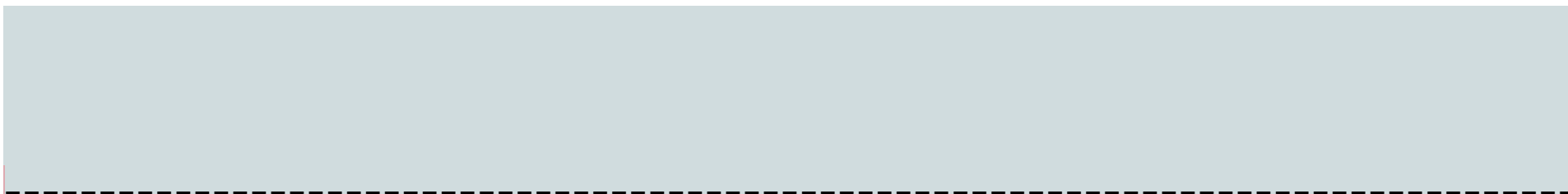
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



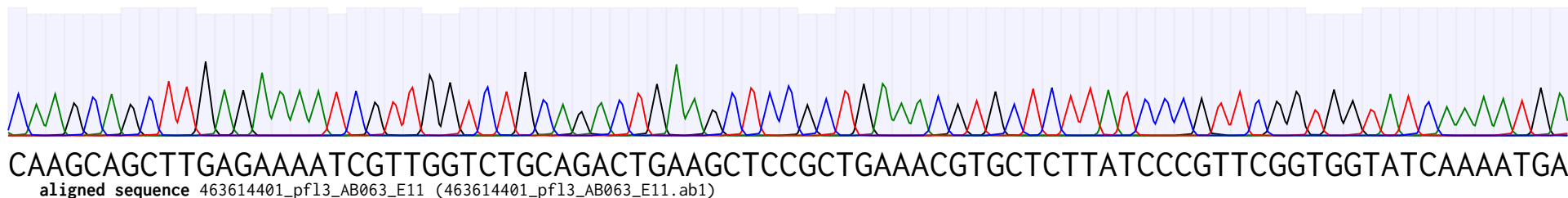
template sequence pMTL82151_fdh_pflA_pflB_gibson

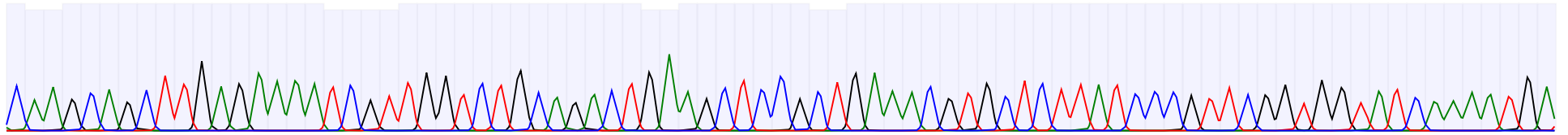


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



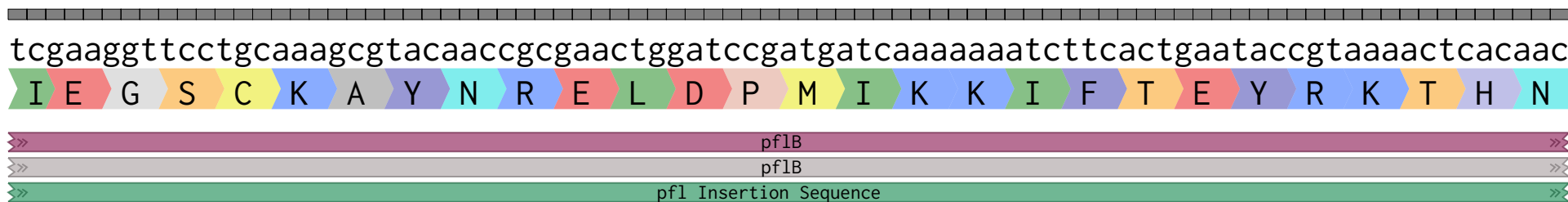


CAAGCAGCTTGAGAAAATCGTTGGTCTGCAGACTGAAGCTCCGCTGAAACGTGCTCTTATCCCGTTCGGTGGTATCAAAATGA
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



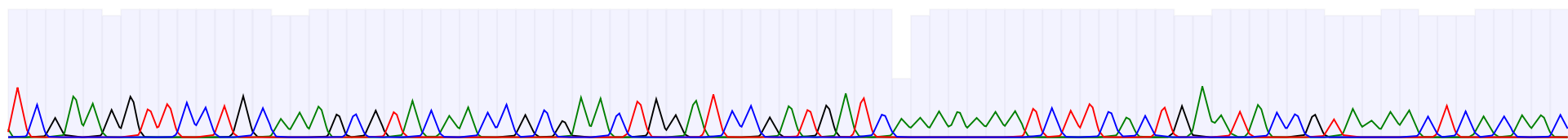
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

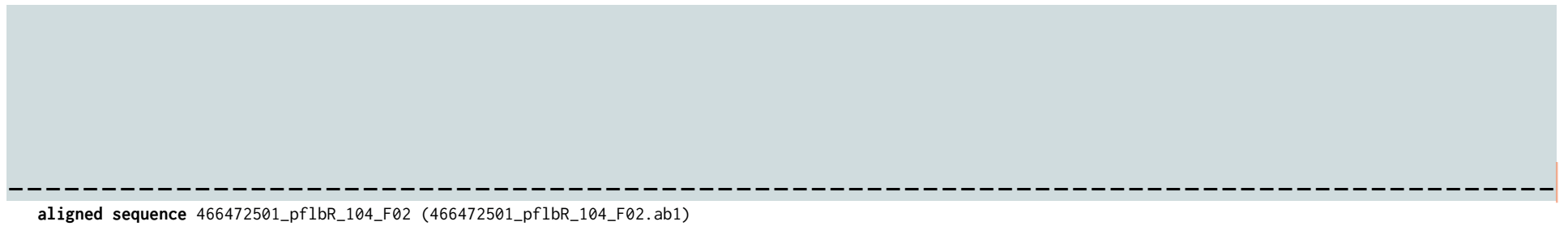
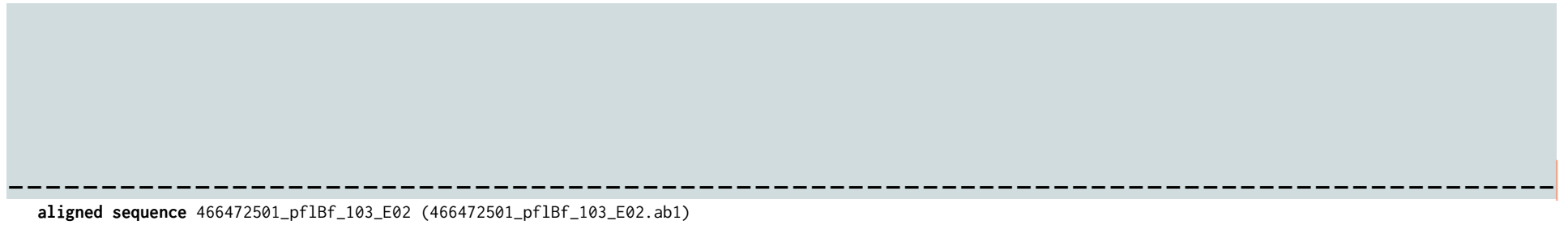
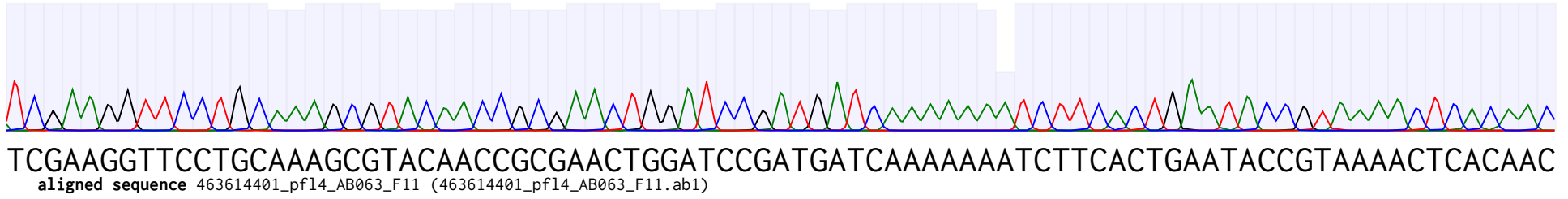


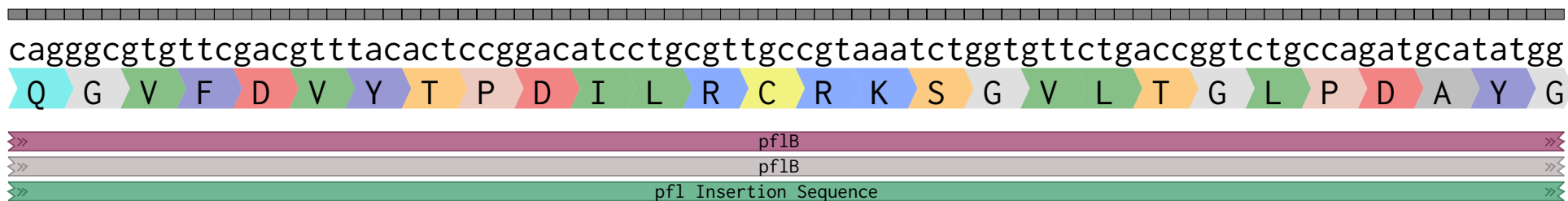
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



TCGAAGGTTCTGCAAAGCGTACAACCGCGAACTGGATCCGATGATCAAAAAAATCTTCACTGAATACCGTAAACTCACAAC

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

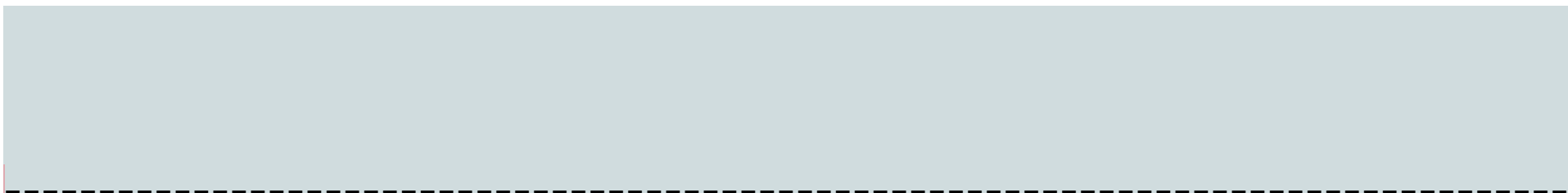




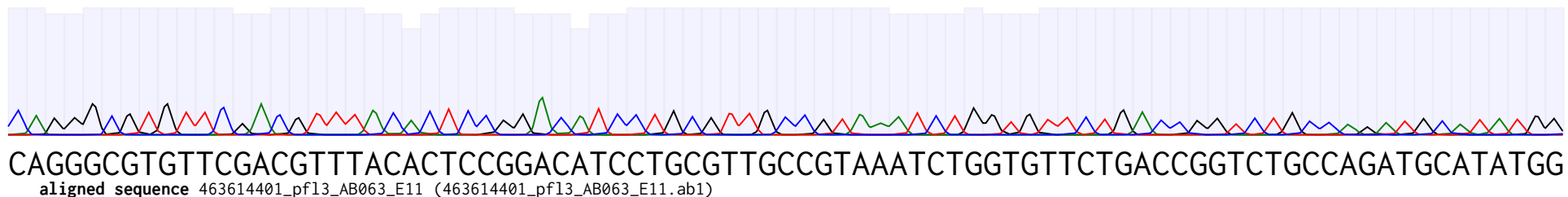
template sequence pMTL82151_fdh_pflA_pflB_gibson

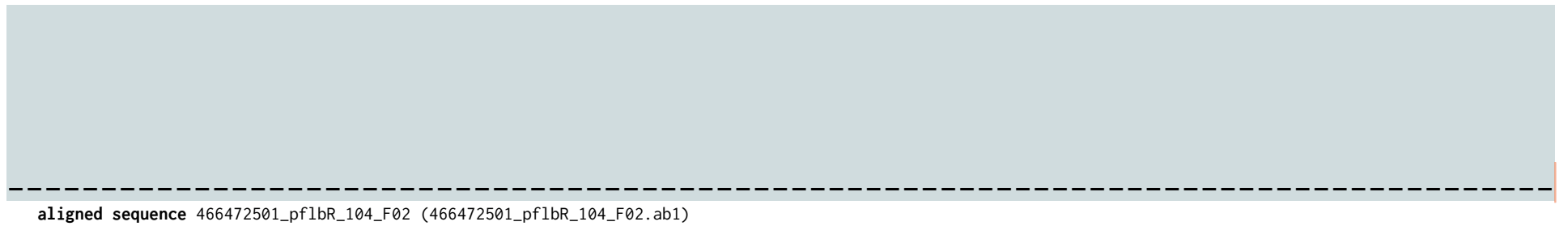
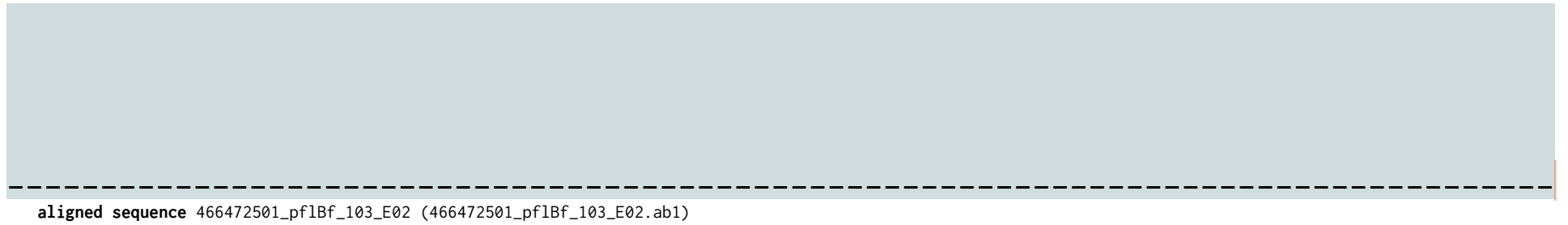
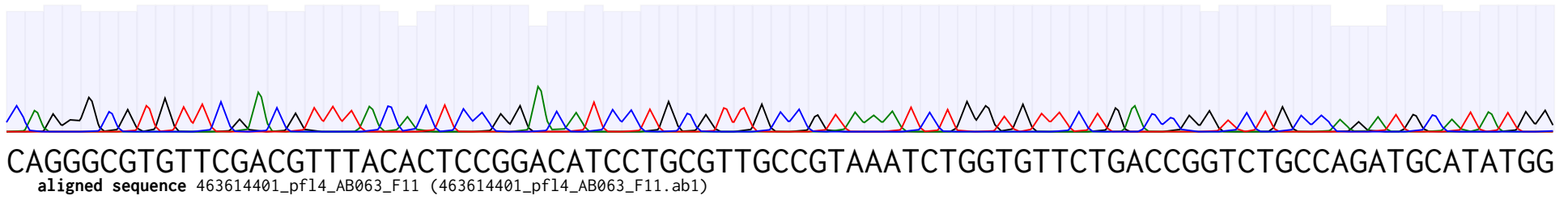


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

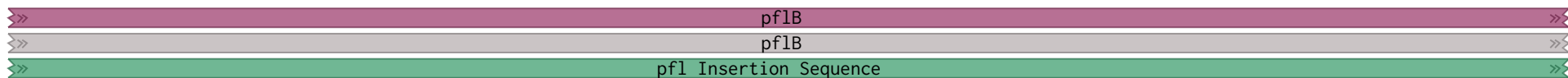


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)





ccgtggccgtatcatcgggtgactaccgtcgcggttgcgctgtacggtatcgactacctgatgaaagacaaactggcacagttca
R G R I I G D Y R R V A L Y G I D Y L M K D K L A Q F



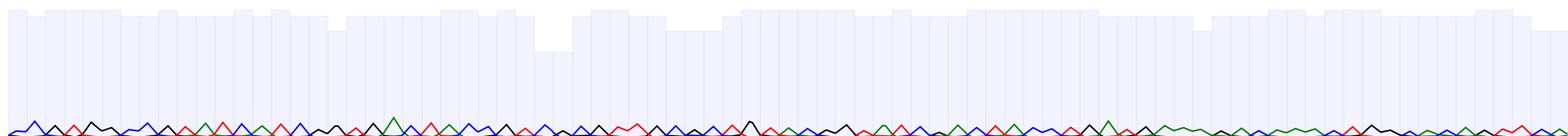
template sequence pMTL82151_fdh_pflA_pflB_gibson



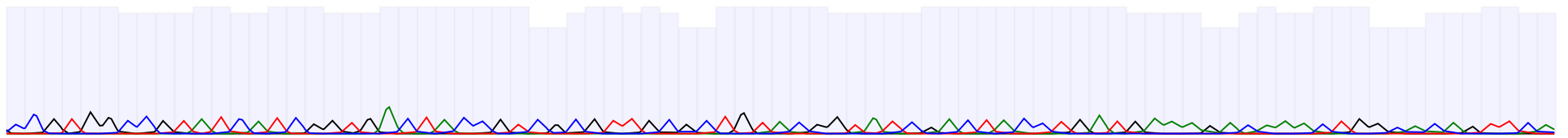
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



CCGTGGCCGTATCATCGGTGACTACCGTCGCGTTGCGCTGTACGGTATCGACTACCTGATGAAAGACAACTGGCACAGTTCA
aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



CCGTGGCCGTATCATCGGTGACTACCGTCGCGTTGCGCTGTACGGTATCGACTACCTGATGAAAGACAAACTGGCACAGTTCA
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



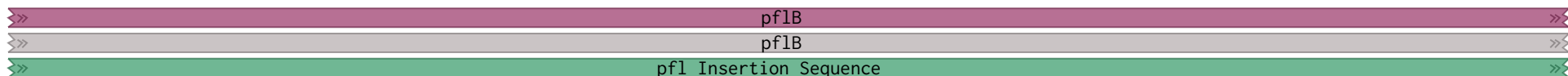
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

cttctctgcaggctgatctggaaaacggcgtaaacctggaacagactatccgtctgcgcgaagaaatcgctgaacagcaccgc

T S L Q A D L E N G V N L E Q T I R L R E E I A E Q H R



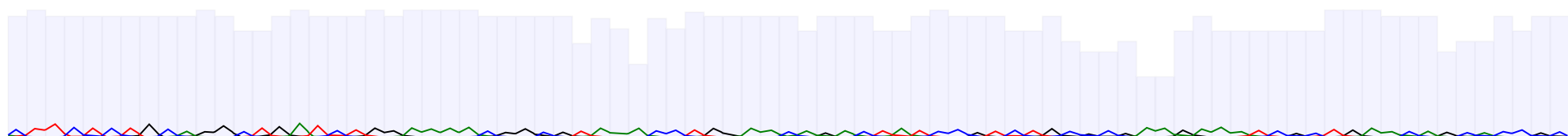
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

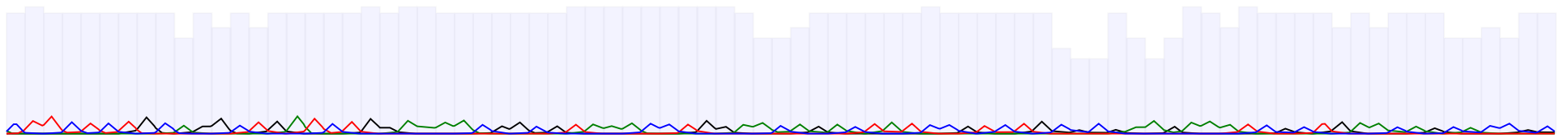


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



CTTCTCTGCAGGCTGATCTGGAAAACGGCGTAAACCTGGAACAGACTATCCGTCTGCGCGAAGAAATCGCTGAACAGCACC GC

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



CTTCTCTGCAGGCTGATCTGGAAAACGGCGTAAACCTGGAACAGACTATCCGTCTGCGCGAAGAAATCGCTGAACAGCACCGC
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

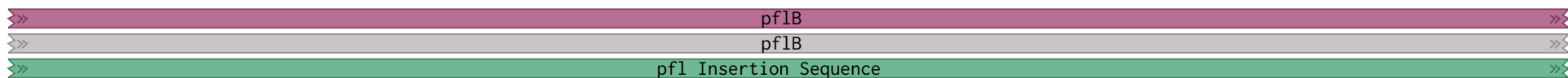


aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

gctctgggtcagatgaaagaaatggctgcgaaatacggctacgacatctctgggtccggctaccaacgctcaggaagctatcca
A L G Q M K E M A A K Y G Y D I S G P A T N A Q E A I Q



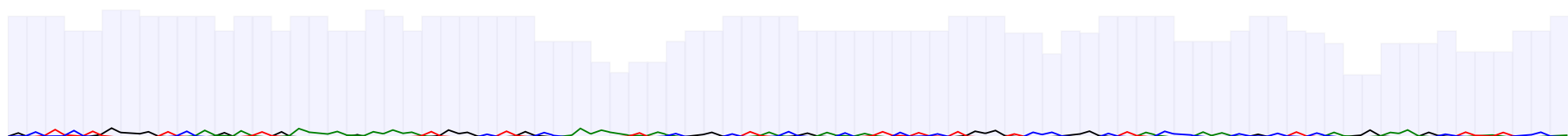
template sequence pMTL82151_fdh_pflA_pflB_gibson



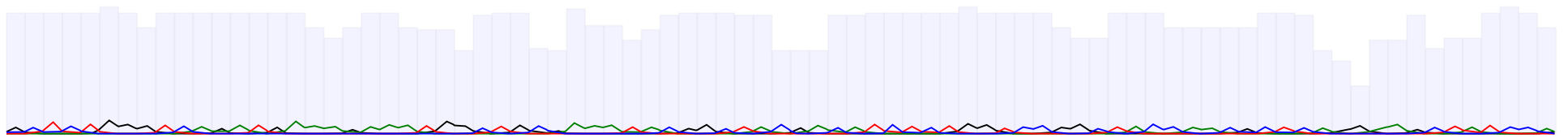
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



GCTCTGGGTCAGATGAAAGAAATGGCTGCGAAATACGGCTACGACATCTCTGGTCCGGCTACCAACGCTCAGGAAGCTATCCA
aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



GCTCTGGGTCAGATGAAAGAAATGGCTGCGAAATACGGCTACGACATCTCTGGTCCGGCTACCAACGCTCAGGAAGCTATCCA
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



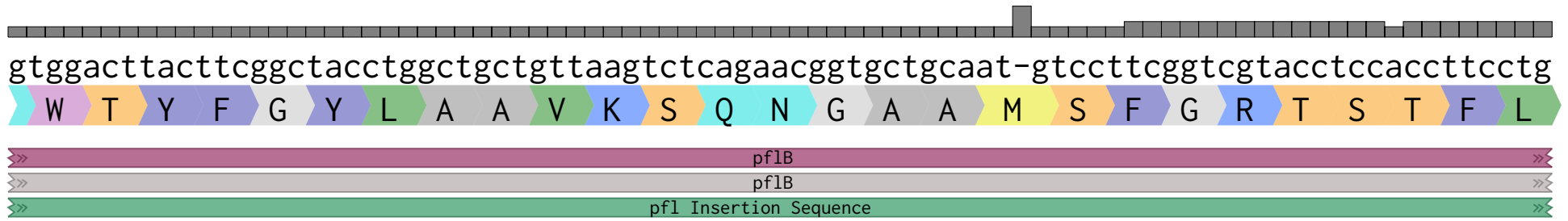
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



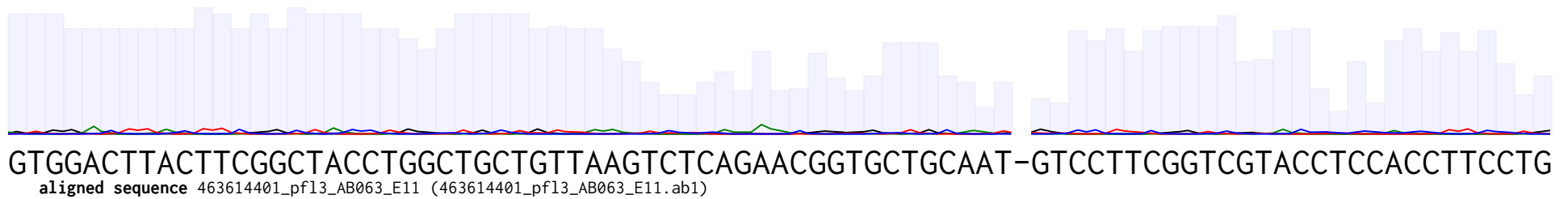
template sequence pMTL82151_fdh_pflA_pflB_gibson

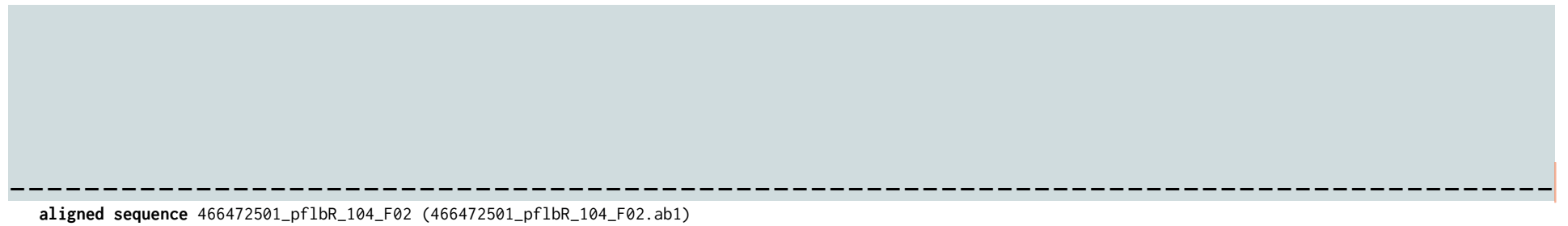
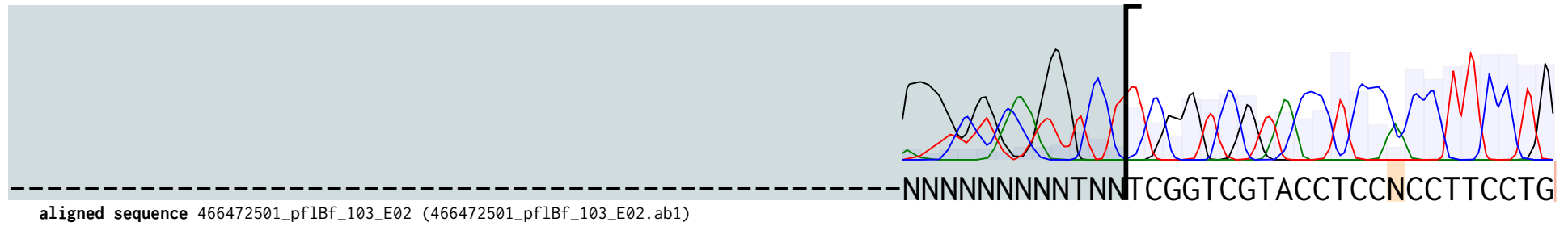
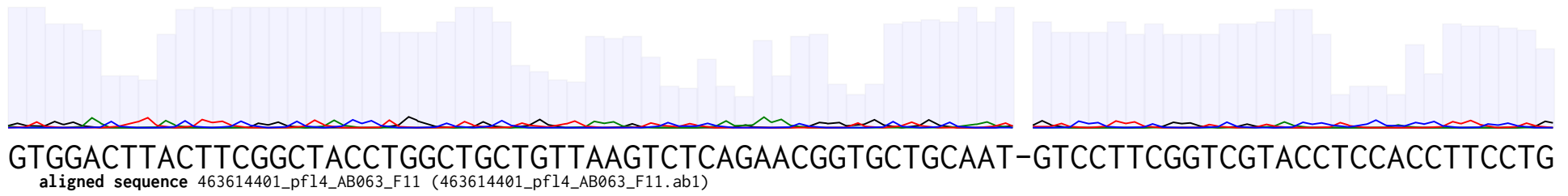


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

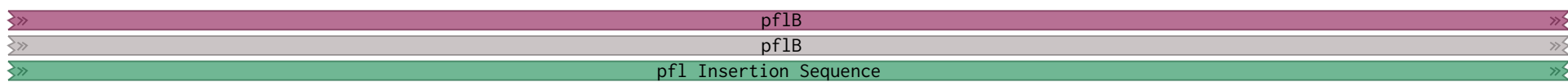


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)





gatgtgtacatcgaacgtgacctgaaagctggcaagatcacccaacaagaagcgcaggaaatggttgaccacctgggtcatgaa
D V Y I E R D L K A G K I T E Q E A Q E M V D H L V M K



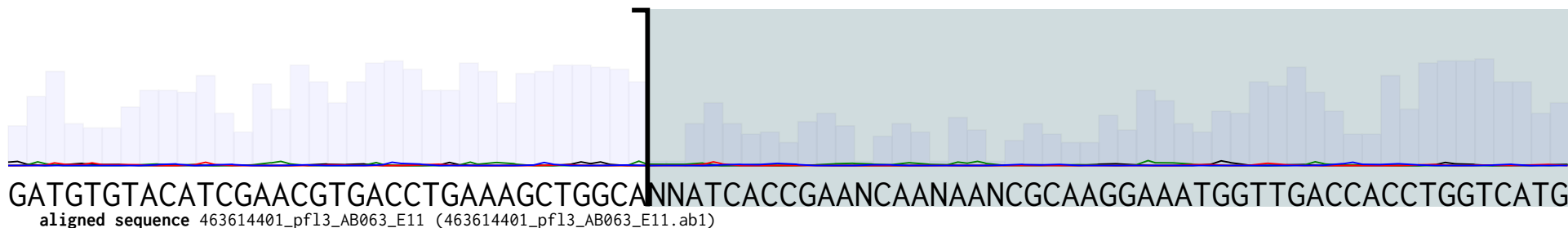
template sequence pMTL82151_fdh_pflA_pflB_gibson

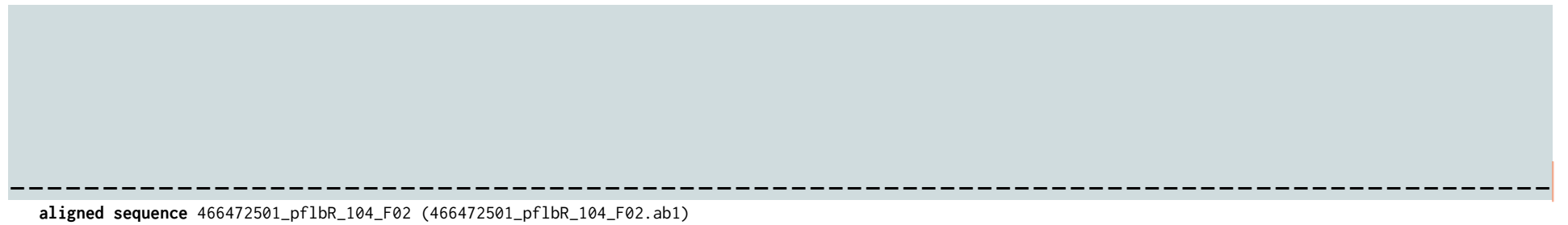
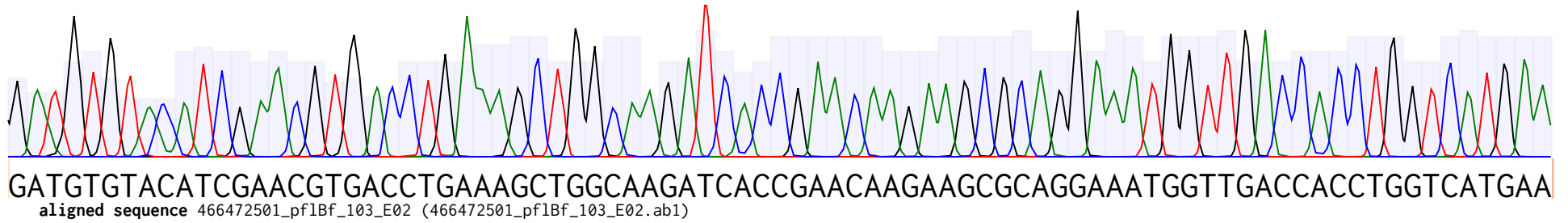
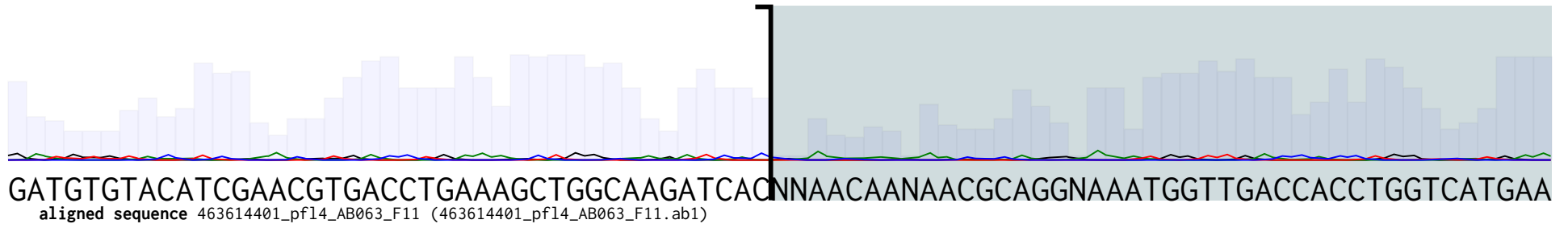


aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)







actgcgtatggttcgcttcctgcgtactccggaatacgaatgaactgttctctggcgaccgatctgggcaaccgaatctatcg

L R M V R F L R T P E Y D E L F S G D P I W A T E S I

» pflB »
» pflB »
» pfl Insertion Sequence »

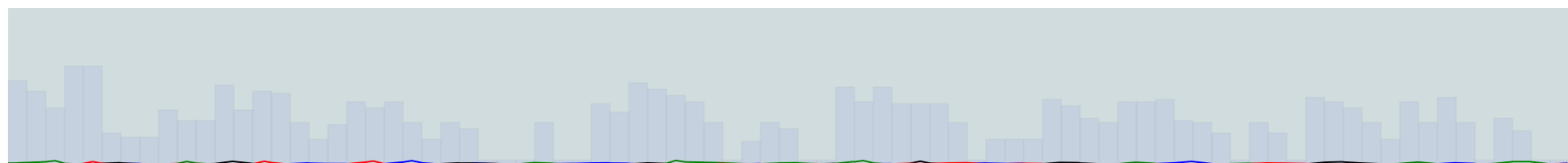
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

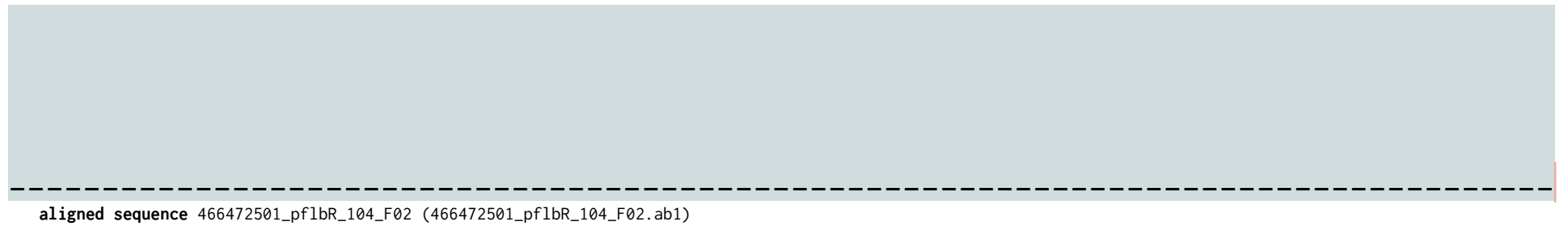
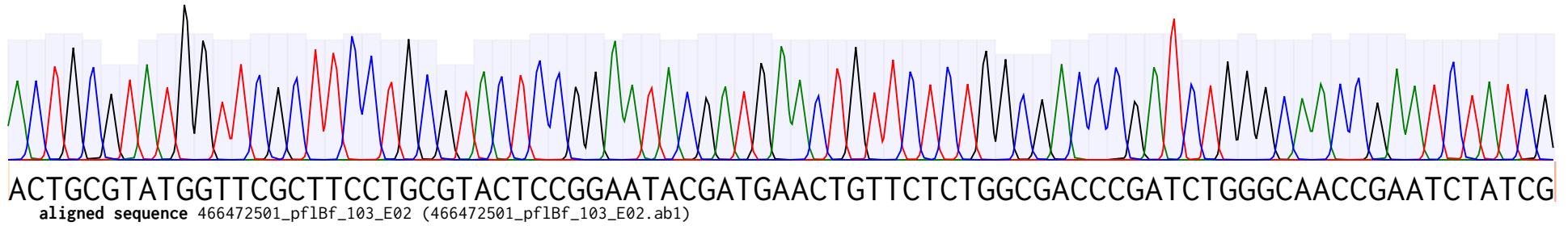
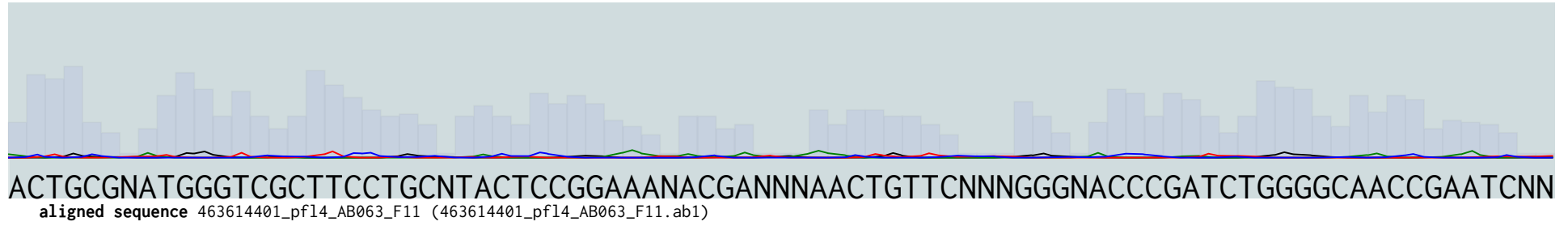


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



AAACTGCGTATGGTTCGCTTCCTGGNNANNC CGGAAANCAANNACTGTTNCTTGGGGAACCCGNTTNGGGGCAACCNAANN

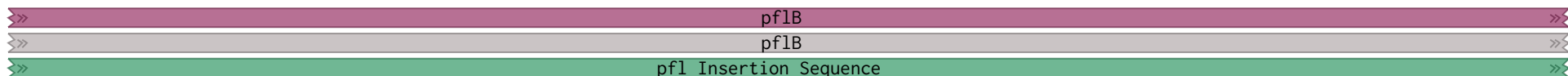
aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)





gtggatatgggcctcgacggctcgtaccctggttaccaaaaacagcttccgtttccctgaacaccctgtacaccatgggtccgtct

G G M G L D G R T L V T K N S F R F L N T L Y T M G P S



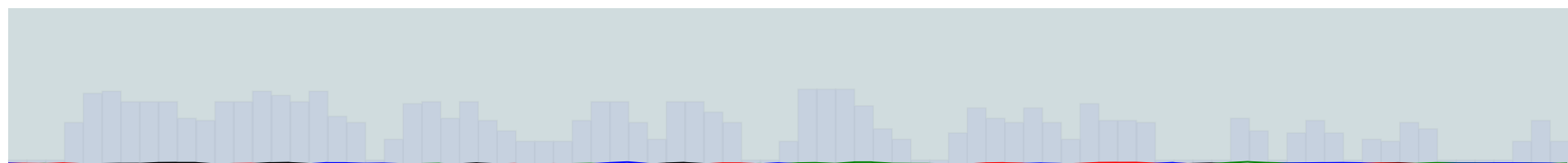
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

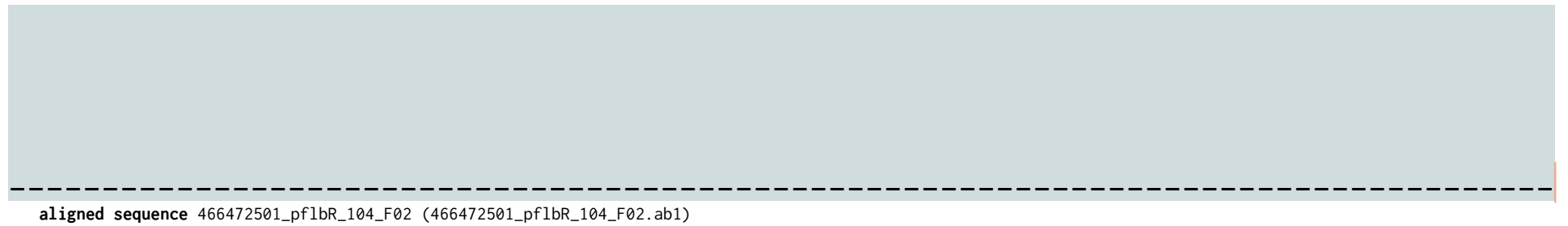
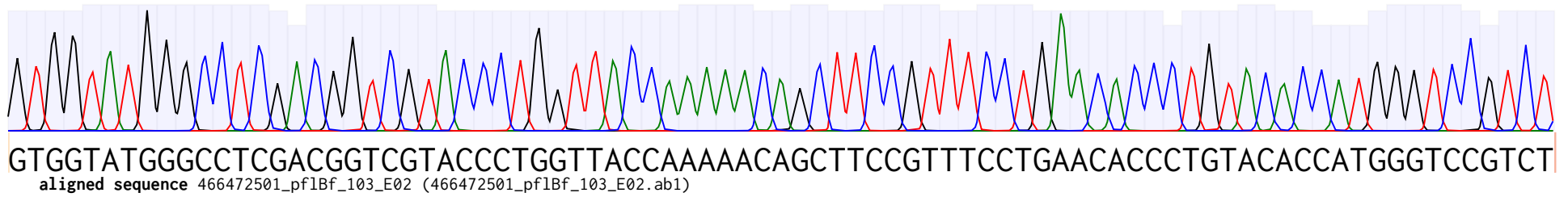
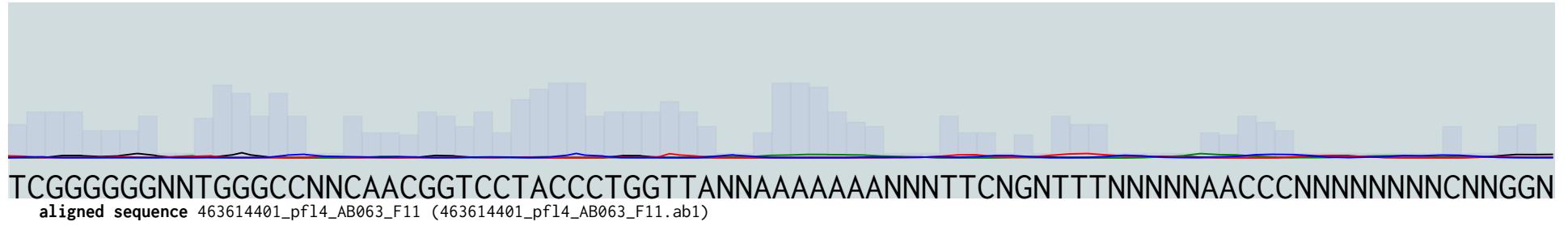


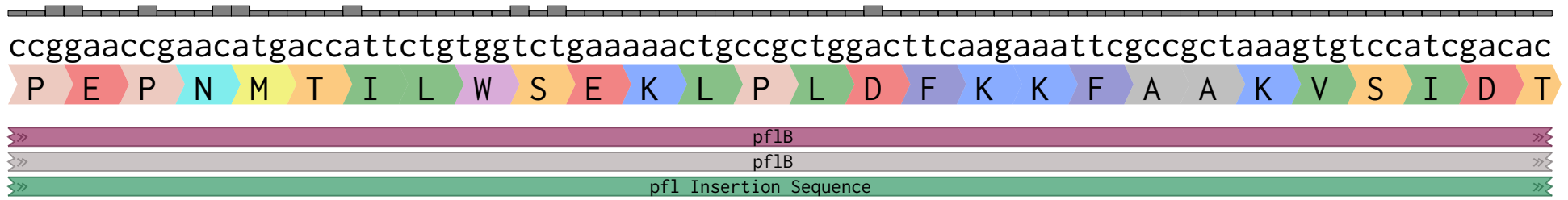
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



NNNTCGGGGGGATGGGCCCNCGACGGTCTTACCCTGGTTNCAAAAAANNGTTTCCGTTTTNNNNAANCCCNTGTANNNNACA

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



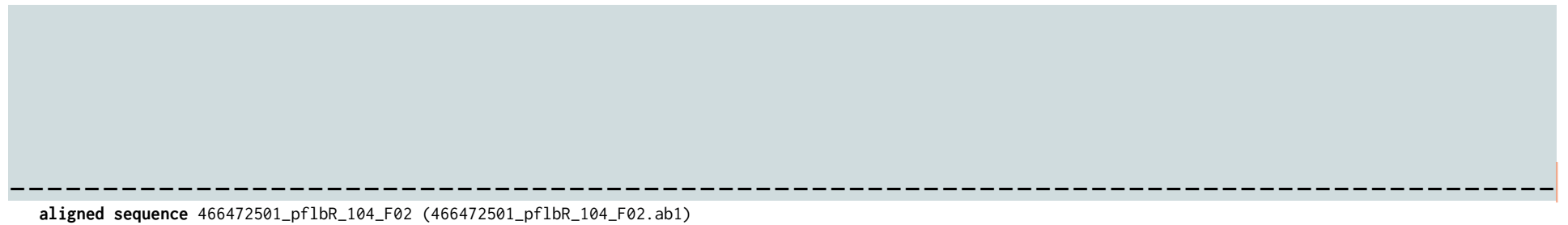
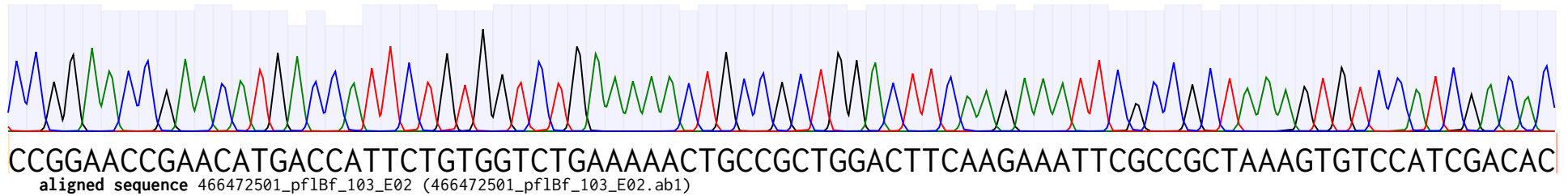
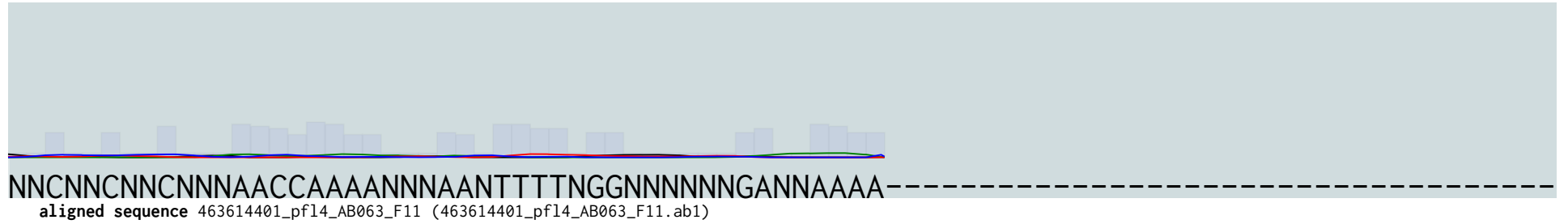


template sequence pMTL82151_fdh_pflA_pflB_gibson

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

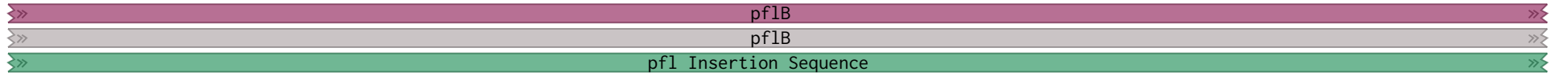
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

GGGGNNCCCNCC--
aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



ctcttctctgcagtatgagaacgatgacctgatgcgctccggacttcaacaacgatgactacgctattgcttgctgcgtaagcc

S S L Q Y E N D D L M R P D F N N D D Y A I A C C V S



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

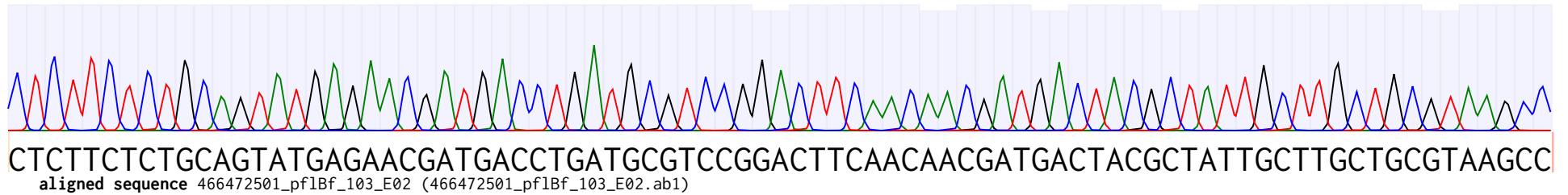


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

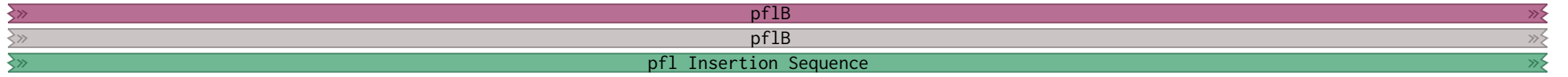


aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

cgatgatcgttggttaaacaatgcagttcttcggtgcgcggtgcaaacctggcgaaaaccatgctgtacgcaatcaacggcggc

P M I V G K Q M Q F F G A R A N L A K T M L Y A I N G G



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

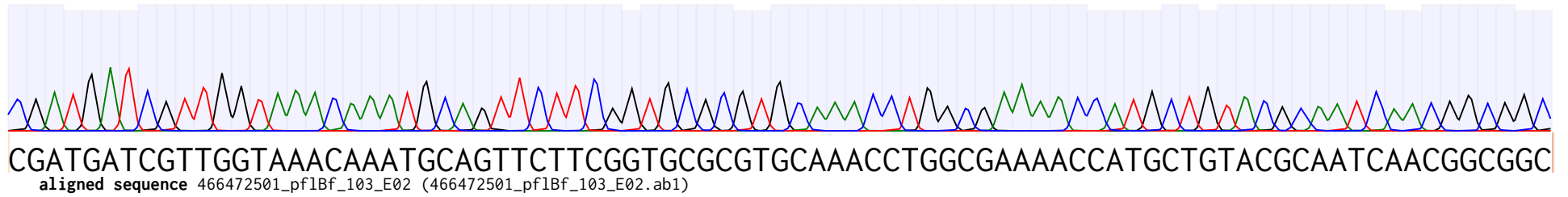


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



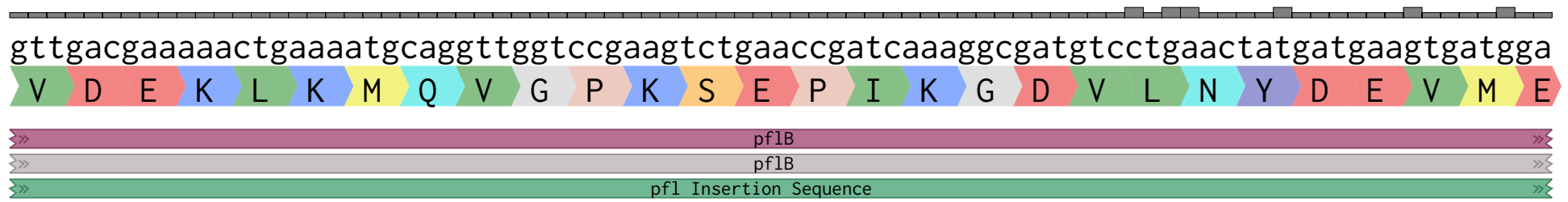
aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

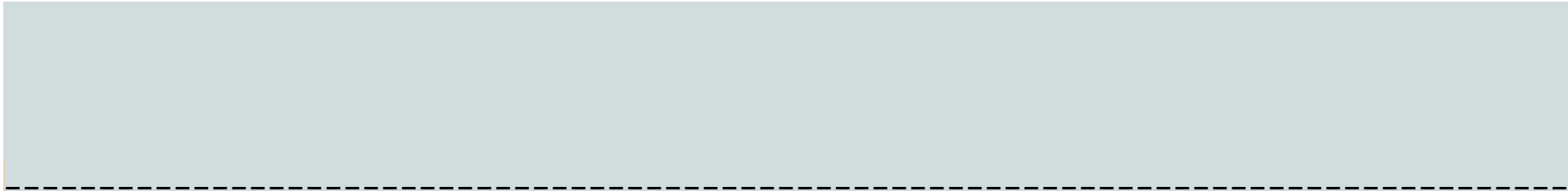


aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

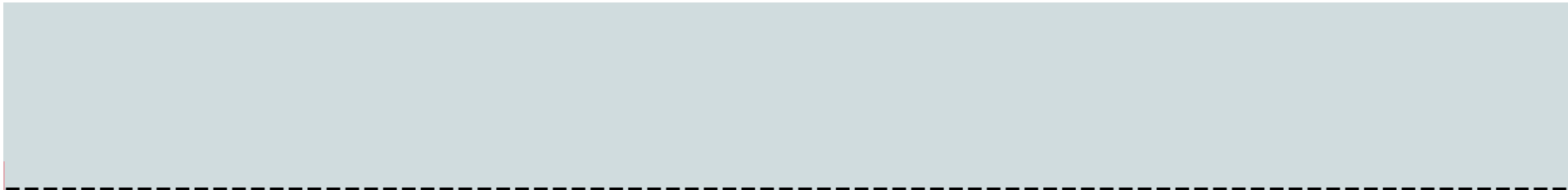
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



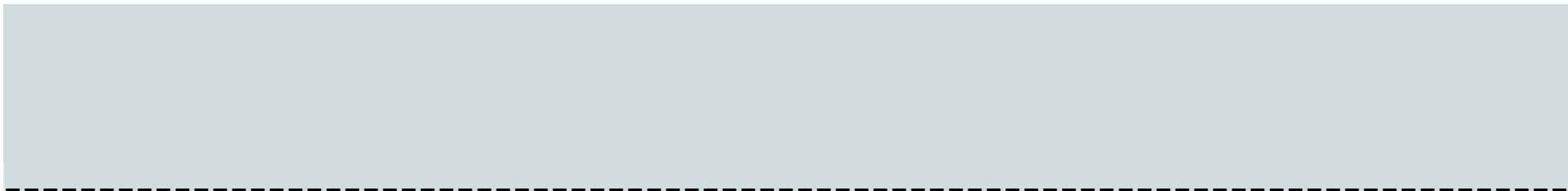
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

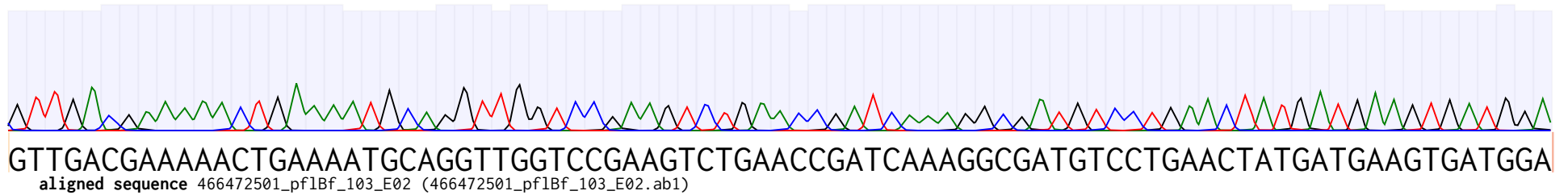


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

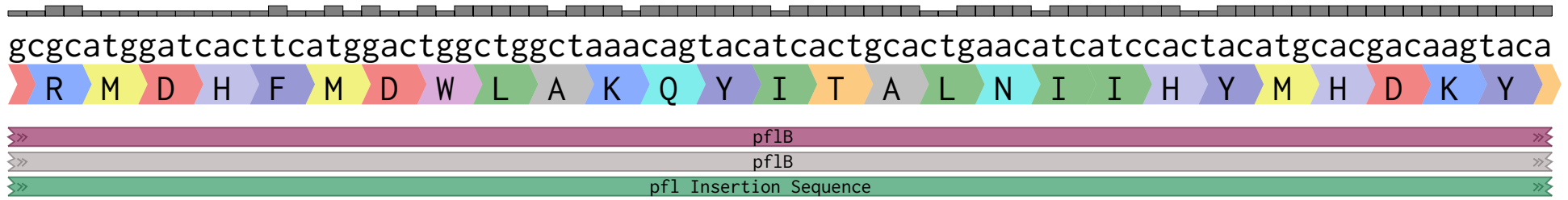
aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)



aligned sequence 466472501_pf1bR_104_F02 (466472501_pf1bR_104_F02.ab1)

-----NNGANNNTNNNNNTCAAGGCGGANTCCTNNNCTTGGNNAGNC

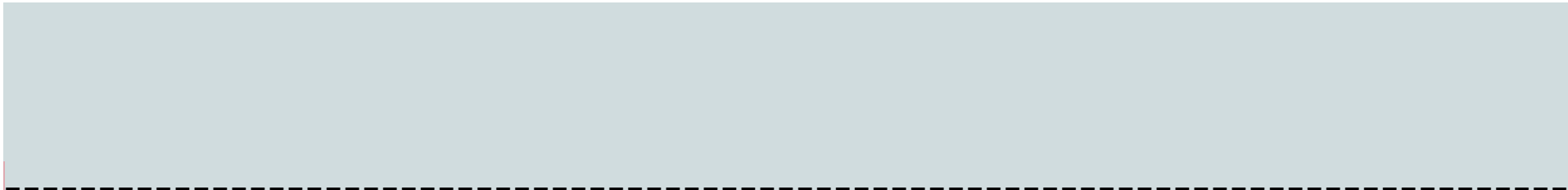
aligned sequence 466472501_pf1A_102_D02 (466472501_pf1A_102_D02.ab1)



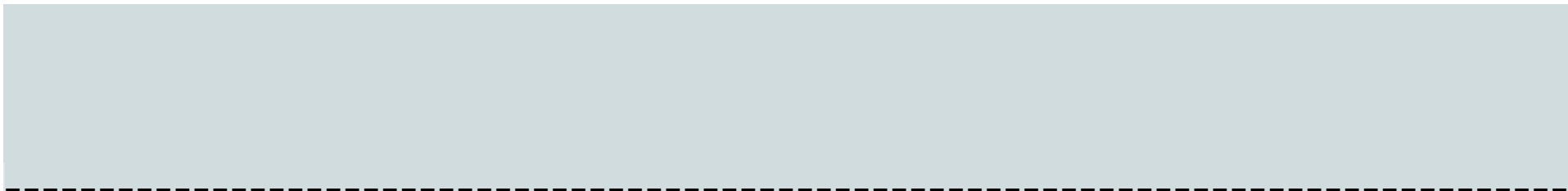
template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

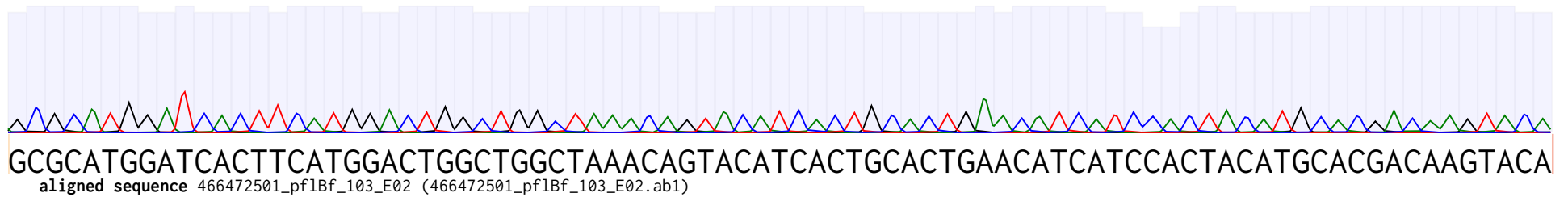


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

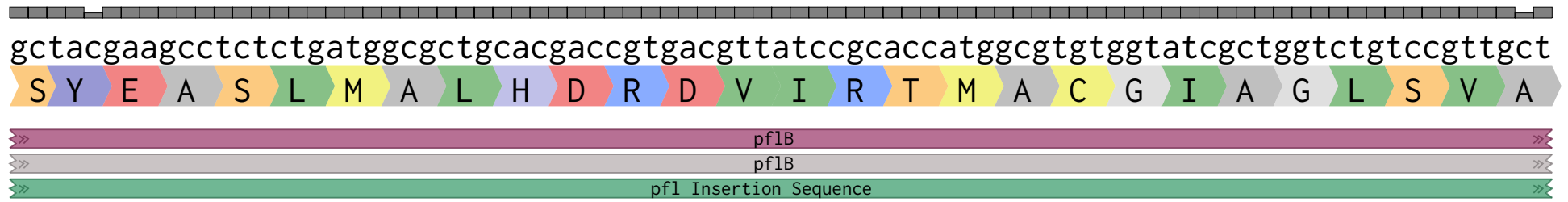


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

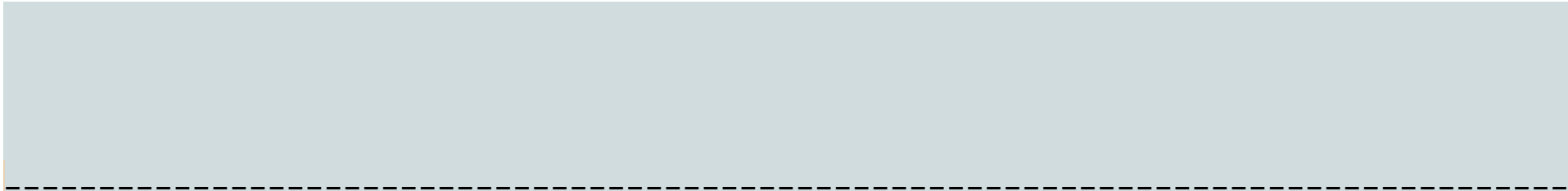
aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)



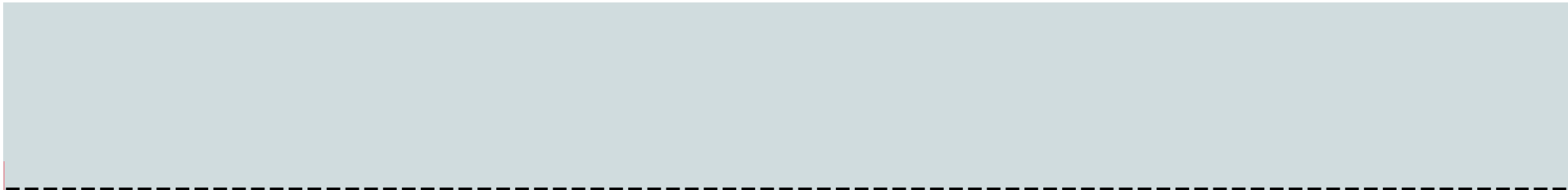
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



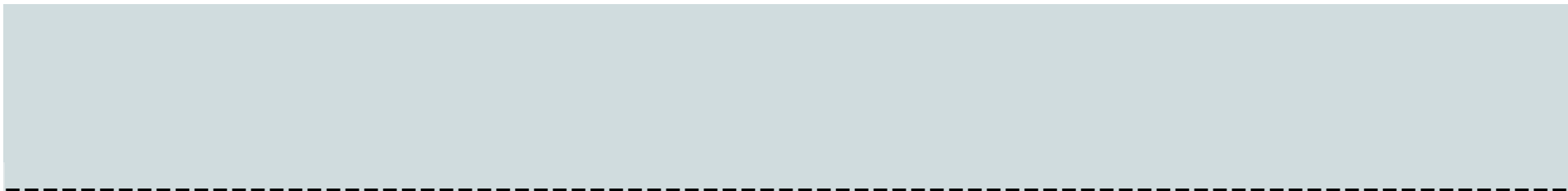
template sequence pMTL82151_fdh_pflA_pflB_gibson



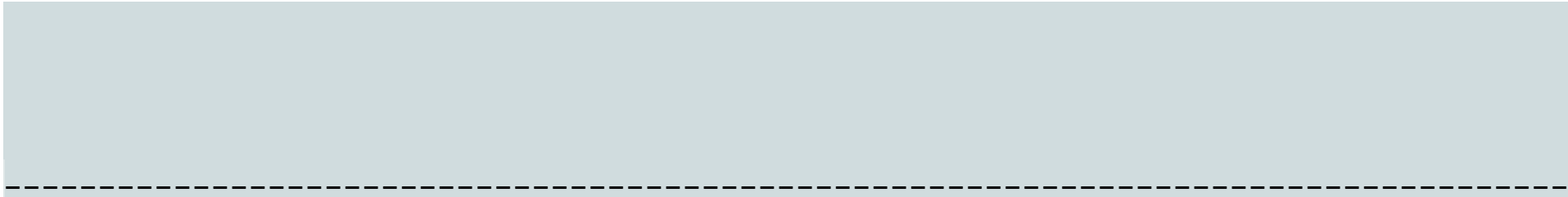
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



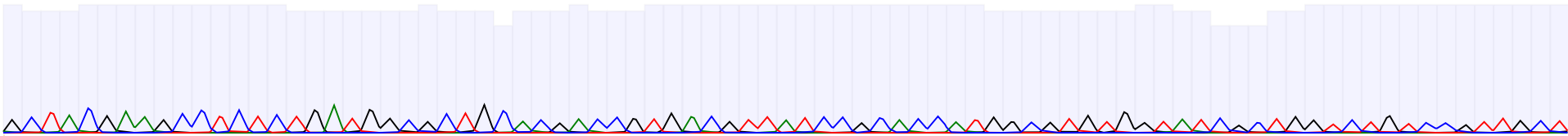
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

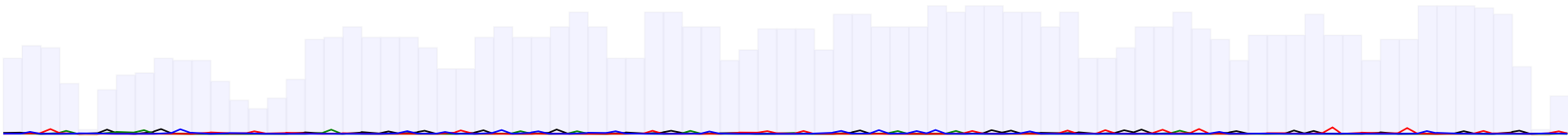


aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



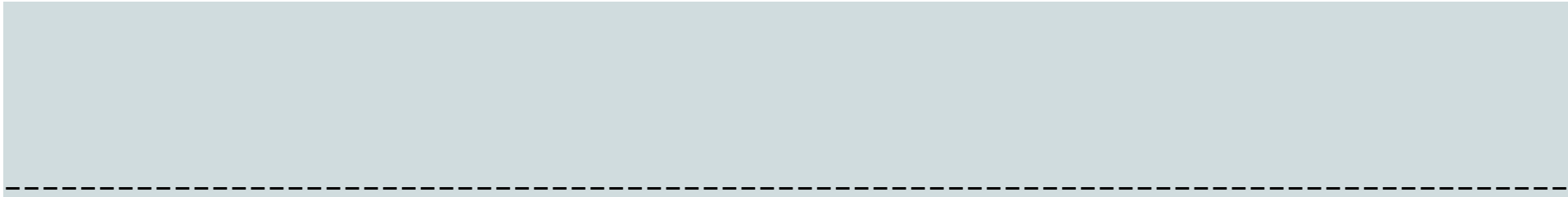
GCTACGAAGCCTCTCTGATGGCGCTGCACGACCGTGACGTTATCCGCACCATGGCGTGTGGTATCGCTGGTCTGTCCGTTGCT

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

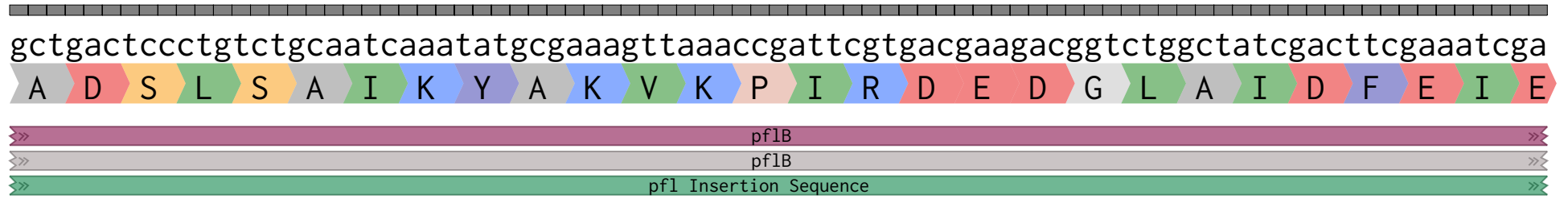


GCTANGAAGCCTCTCTGATGGCGCTGCACGACCGTGACGTTATCCGCACCATGGCGTGTGGTATCGCTGGTCTGTCCGTTGNT

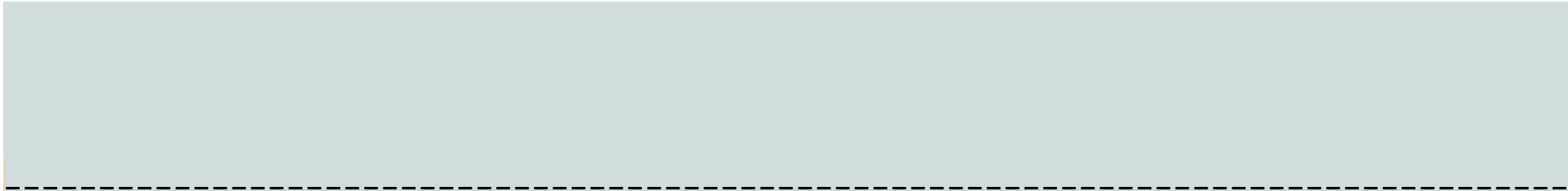
aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



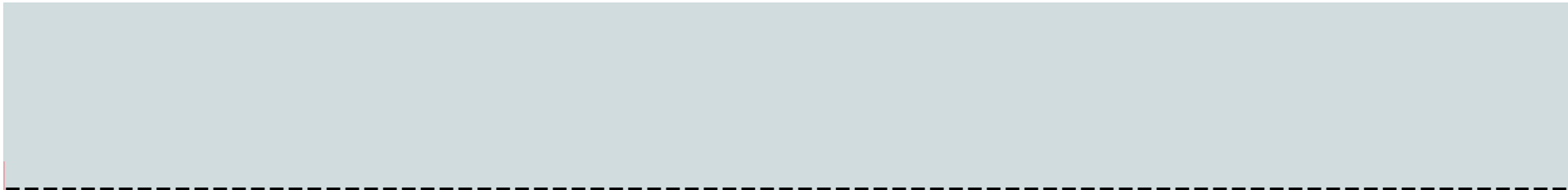
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



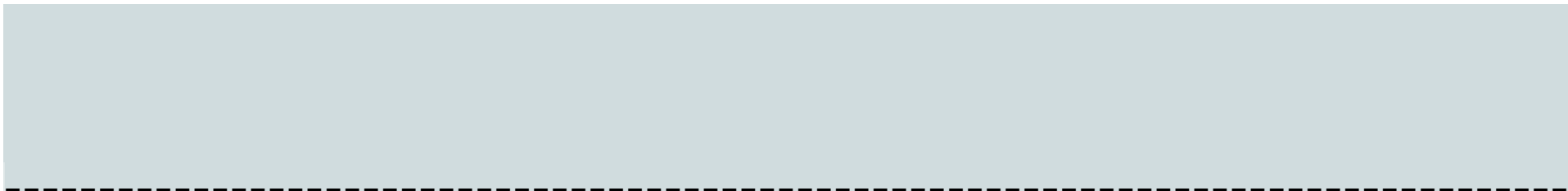
template sequence pMTL82151_fdh_pflA_pflB_gibson



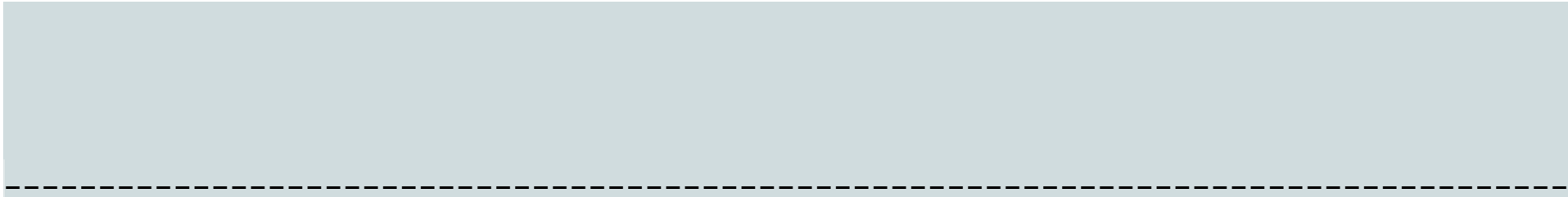
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



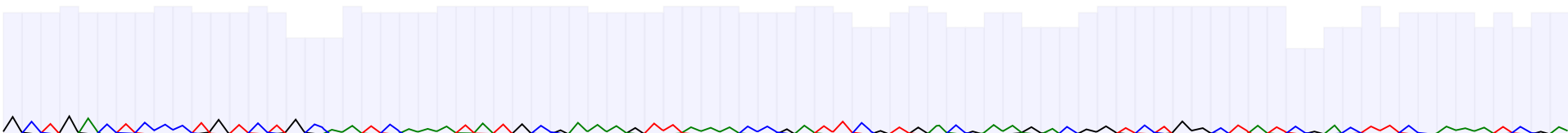
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

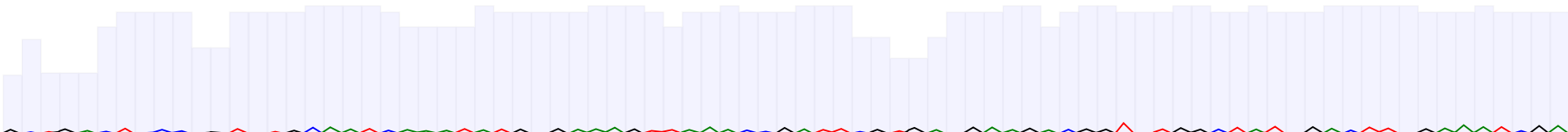


aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)



GCTGACTCCCTGTCTGCAATCAAATATGCGAAAGTTAAACCGATTTCGTGACGAAGACGGTCTGGCTATCGACTTCGAAATCGA

aligned sequence 466472501_pf1Bf_103_E02 (466472501_pf1Bf_103_E02.ab1)

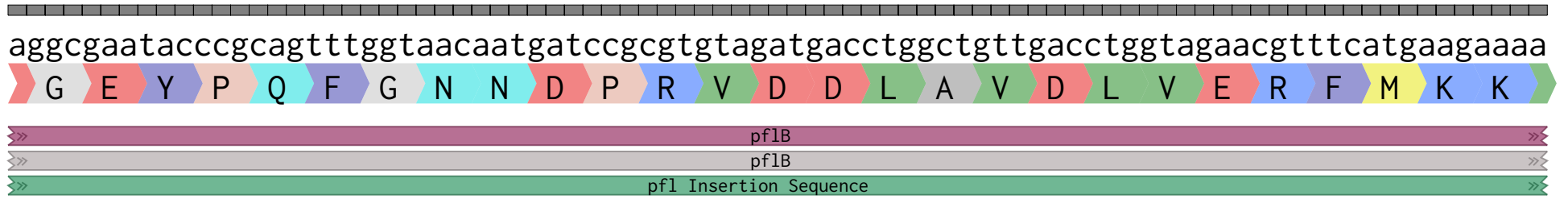


GCTGACTCCCTGTCTGCAATCAAATATGCGAAAGTTAAACCGATTTCGTGACGAAGACGGTCTGGCTATCGACTTCGAAATCGA

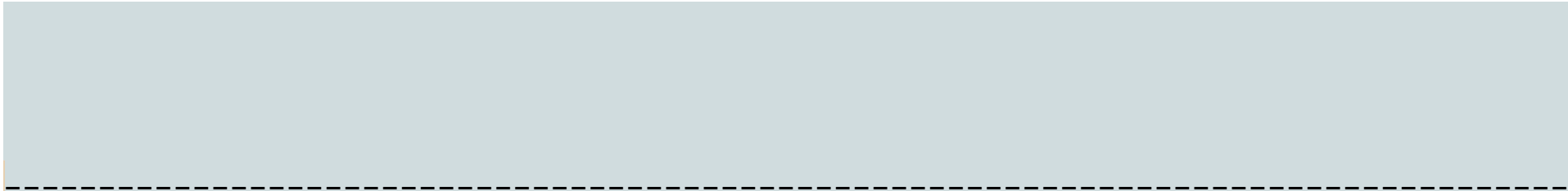
aligned sequence 466472501_pf1bR_104_F02 (466472501_pf1bR_104_F02.ab1)



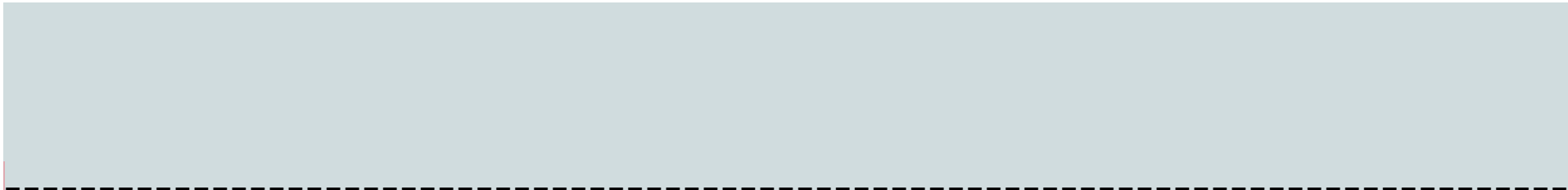
aligned sequence 466472501_pf1A_102_D02 (466472501_pf1A_102_D02.ab1)



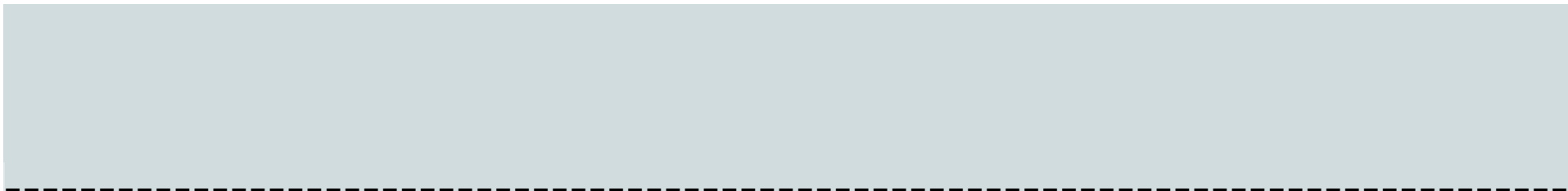
template sequence pMTL82151_fdh_pflA_pflB_gibson



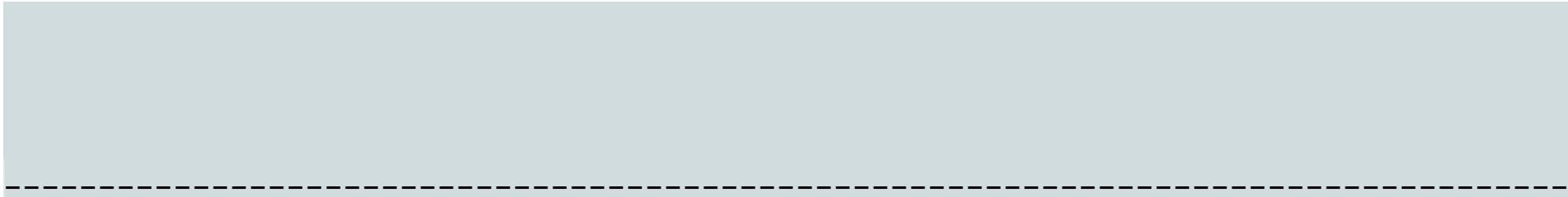
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



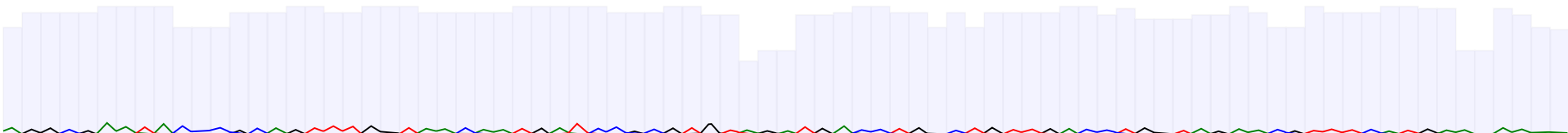
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

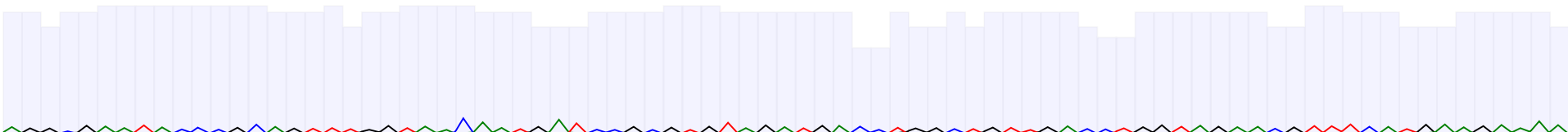


aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



AGGCGAATACCCGCAGTTTGGTAACAATGATCCGCGTGTAGATGACCTGGCTGTTGACCTGGTAGAACGTTTCATGAAGAAAA

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

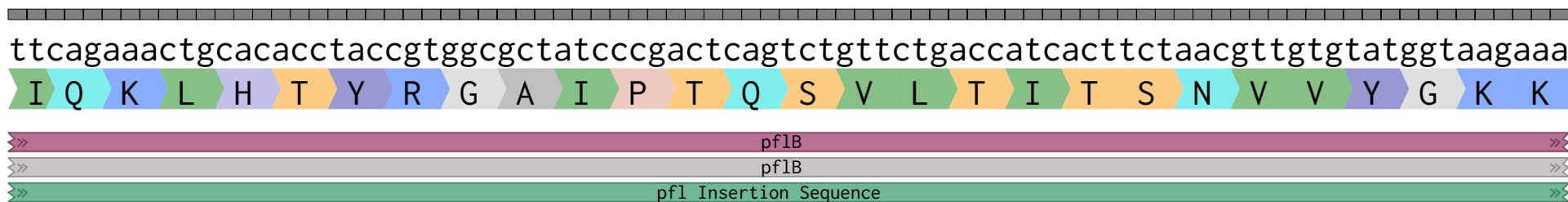


AGGCGAATACCCGCAGTTTGGTAACAATGATCCGCGTGTAGATGACCTGGCTGTTGACCTGGTAGAACGTTTCATGAAGAAAA

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



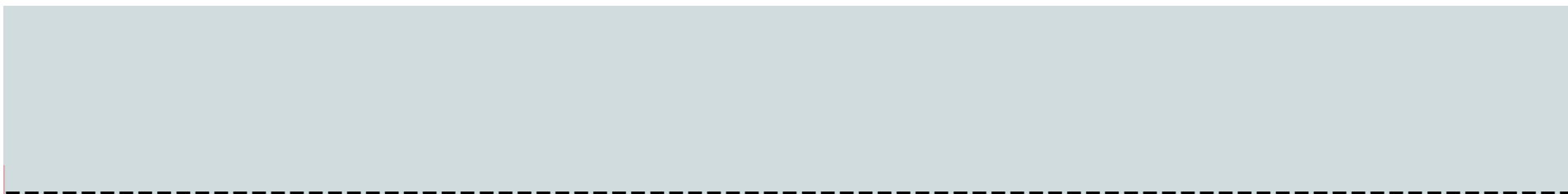
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



template sequence pMTL82151_fdh_pflA_pflB_gibson



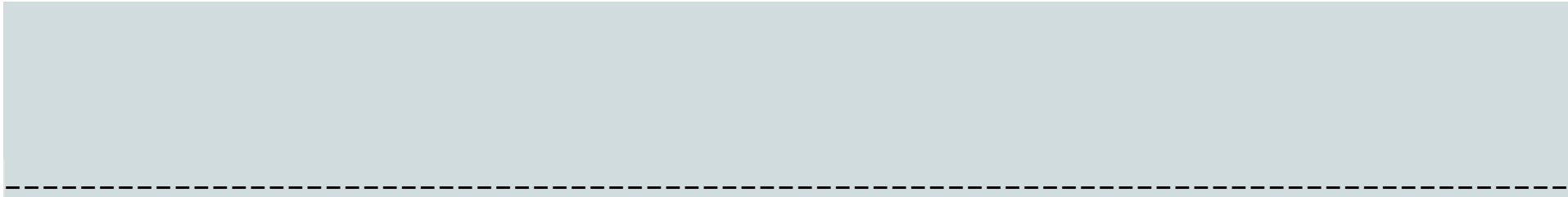
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



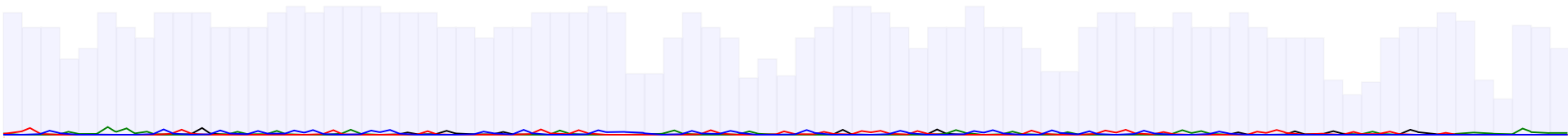
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

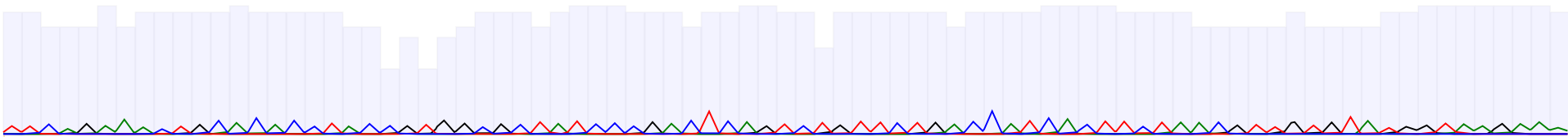


aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



TTCAGAAACTGCACACCTACCGTGGCGCTATCCCGACTCAGTCTGTTCTGACCATCACTTCTAACGTTGTGTATGGTAAGAAA

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



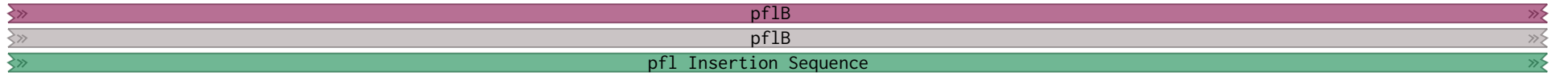
TTCAGAAACTGCACACCTACCGTGGCGCTATCCCGACTCAGTCTGTTCTGACCATCACTTCTAACGTTGTGTATGGTAAGAAA

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

acgggtaacaccccagacggtcgtcgtgctggcgcgccgttcggaccgggtgctaaccgatgcacggtcgtgacca-gaaag
T G N T P D G R R A G A P F G P G A N P M H G R D Q K



template sequence pMTL82151_fdh_pflA_pflB_gibson



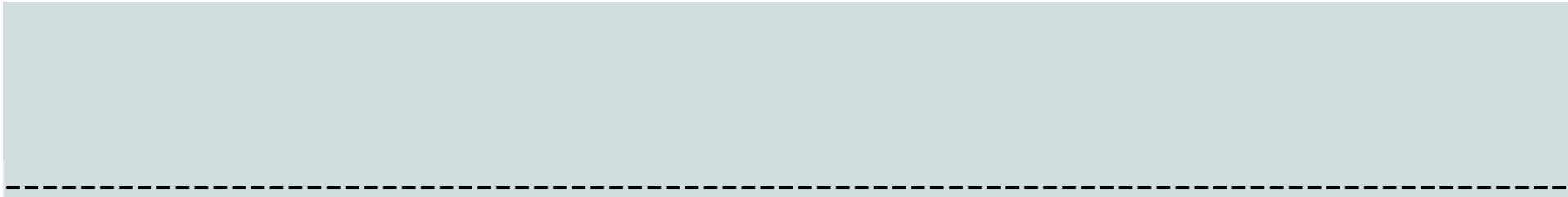
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



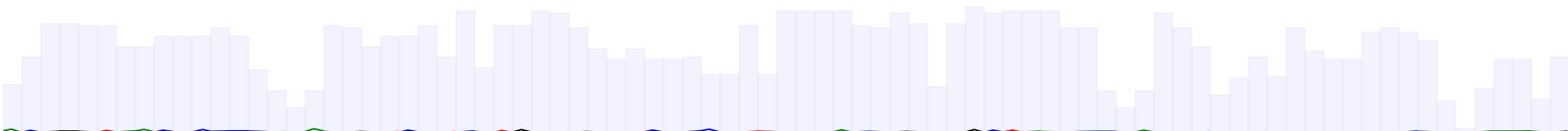
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

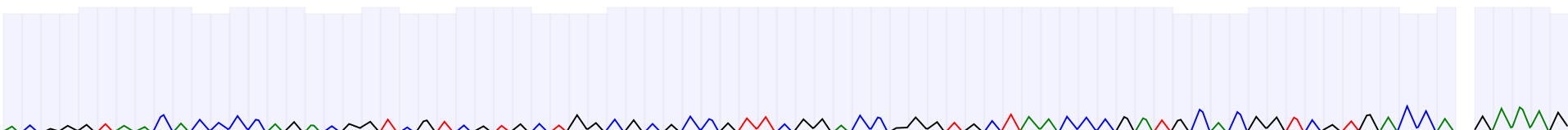


aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



ACGGGTAACACCCAGACGGTCGTCGTGCTGGCGCGCCGTTCCGACCGGGTGCTAACCCGATGCACGGTCGTGACCANAAAAG

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

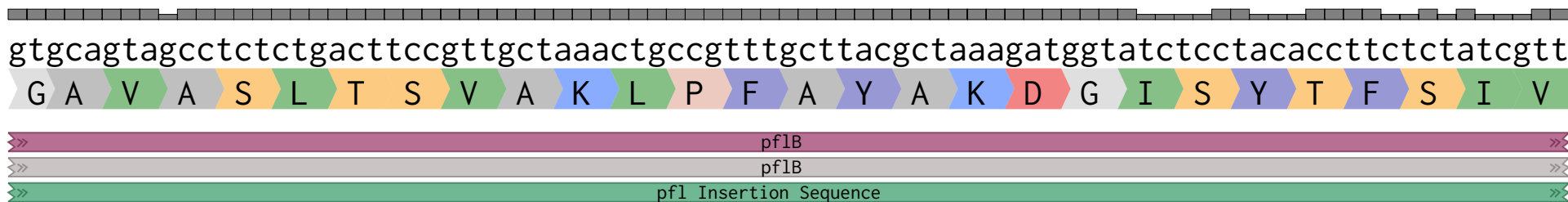


ACGGGTAACACCCAGACGGTCGTCGTGCTGGCGCGCCGTTCCGACCGGGTGCTAACCCGATGCACGGTCGTGACCA-GAAAG

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



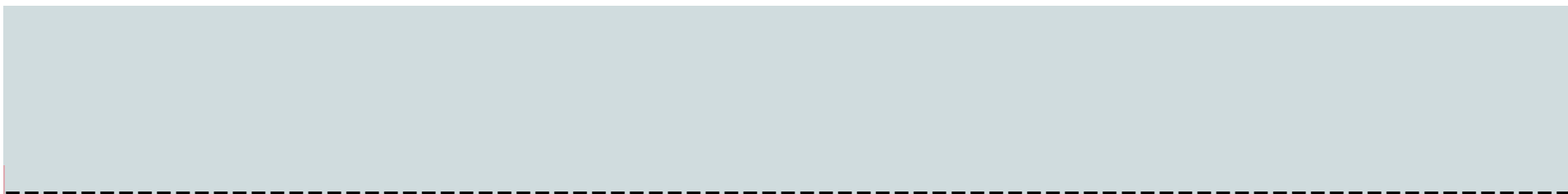
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

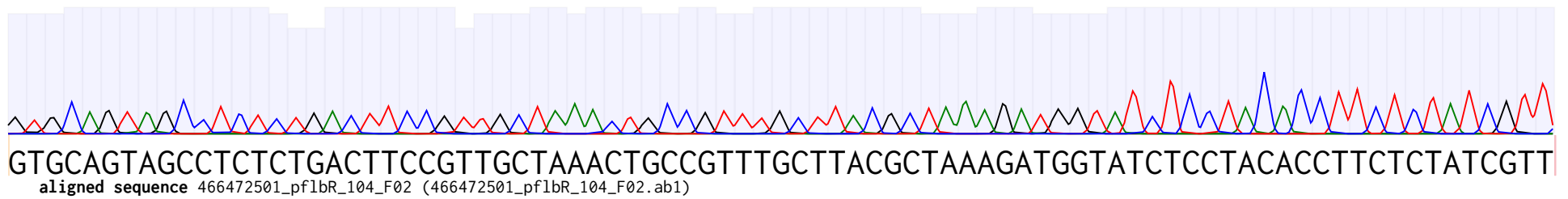
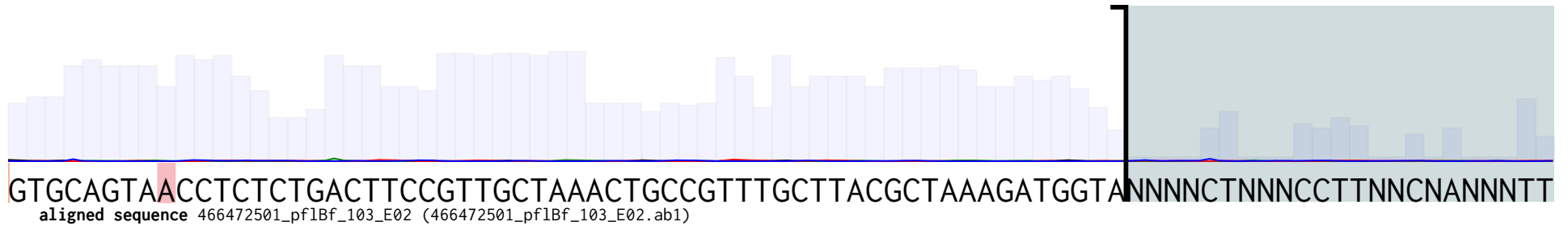


aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

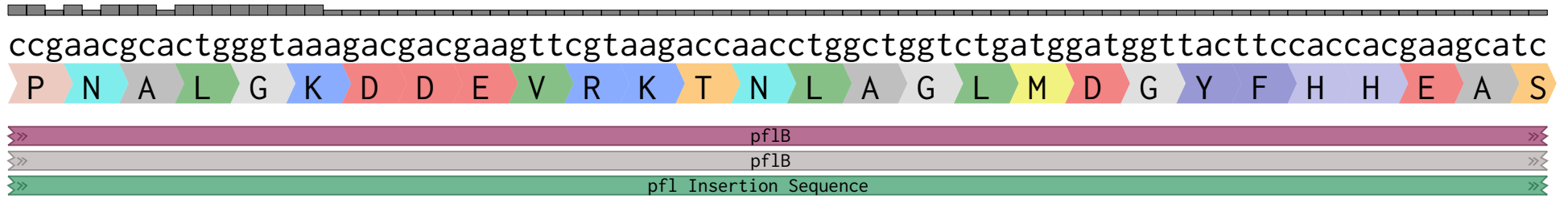


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

CCAANC GCNCTGGGTAAGACACNG

aligned sequence 466472501_pflbF_103_E02 (466472501_pflbF_103_E02.ab1)

CCGAACGCACTGGGTAAGACGACGAAGTTCGTAAGACCAACCTGGCTGGTCTGATGGATGGTTACTTCCACCACGAAGCATC

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

catcgaaggtggtcagcacctgaacgttaacgtgatgaaccgtgaaatgctgctcgacgcgatggaaaacccgggaaaatatac



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



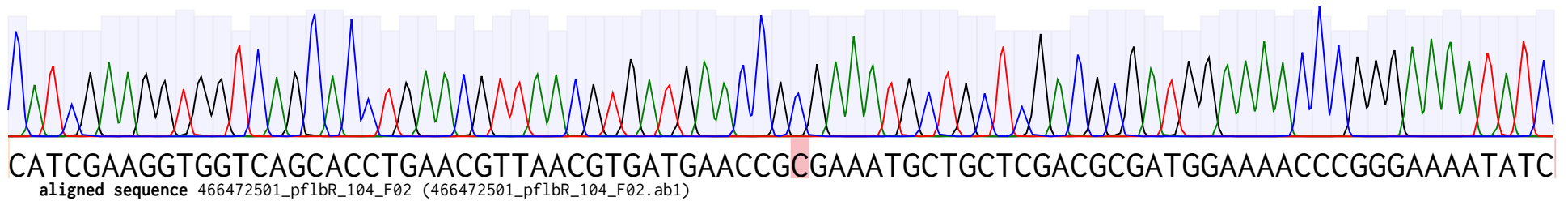
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

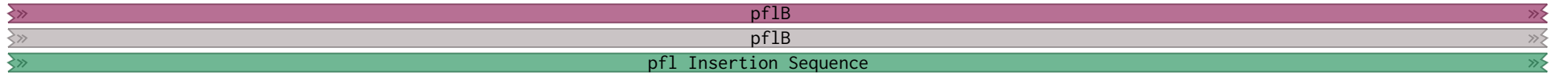
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

cgcagctgaccatccgtgtatctggctacgcagctacgtttcaactcgctgactaaagaacagcagcaggacgttattactcgt

P Q L T I R V S G Y A V R F N S L T K E Q Q Q D V I T R



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



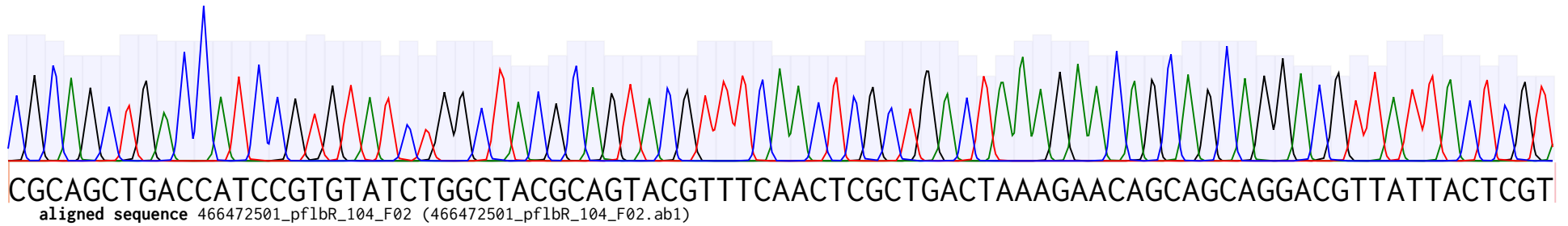
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pf14_AB063_F11 (463614401_pf14_AB063_F11.ab1)

aligned sequence 466472501_pf1bF_103_E02 (466472501_pf1bF_103_E02.ab1)



aligned sequence 466472501_pf1A_102_D02 (466472501_pf1A_102_D02.ab1)

accttcaactcaatctatgtaattagatttgactgaaatcgtacagtaaaaagcgtacaataaaggctccacgaaagtggggcc

T F T Q S M *

>> pflB

>> pflB

>> pfl Insertion Sequence >>>

template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



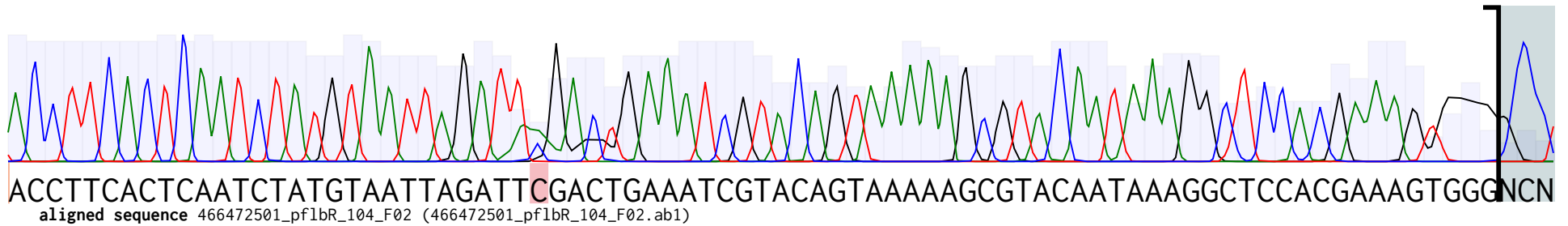
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

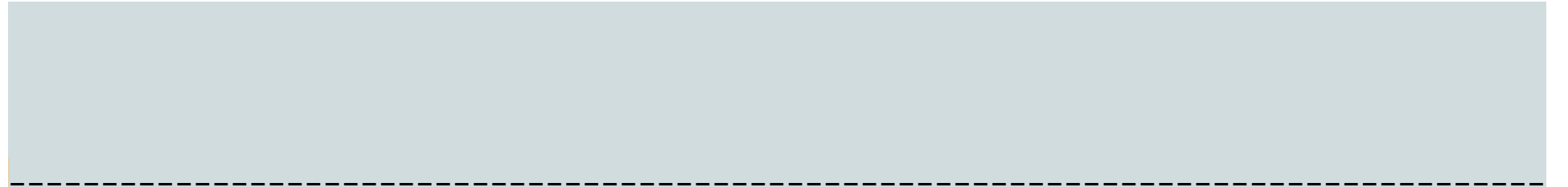


aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

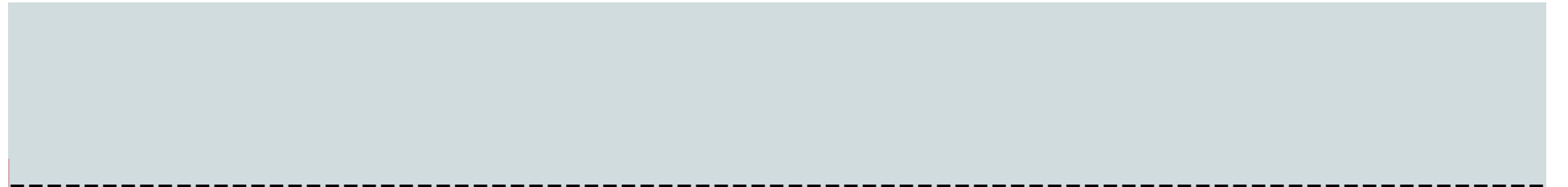
tttttagcgcgagagcctttttgtcagctatctatactttaaggtagctgccaaaacagactcgacgtagccttcgagctg

>> pfl Insertion Sequence >>

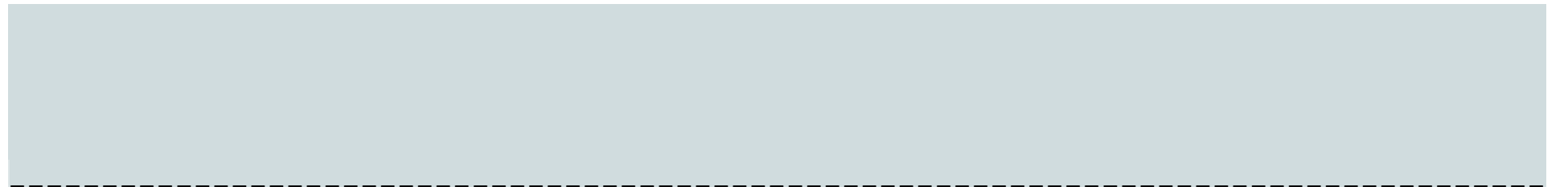
template sequence pMTL82151_fdh_pflA_pflB_gibson



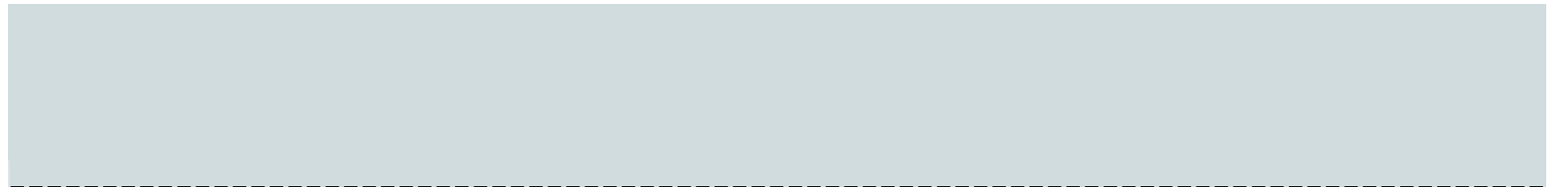
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

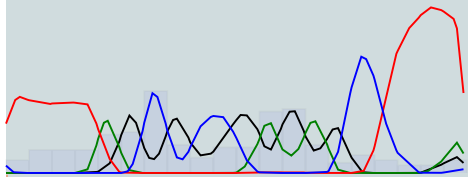


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



NNNNAGCGNNNAGANNNNNN

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

cgcaccaacacggcctcagatgggcccacatctggagaaacaccgcaatgtcagttattggtcgcattcactcctttgaatcct

M S V I G R I H S F E S

pflA
pflA

pfl Insertion Sequence

template sequence pMTL82151_fdh_pflA_pflB_gibson

aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)

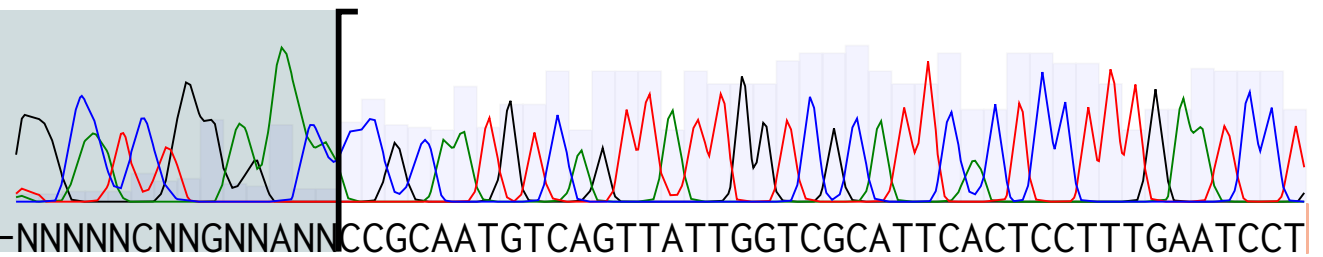
aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

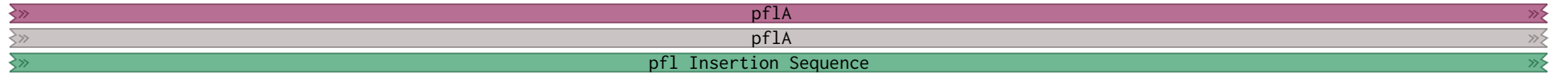
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



gtggaaccgtagacggcccagggtattcgctttatcacctttttccagggctgcctgatgcgctgcctgtattgtcataaccgc

C G T V D G P G I R F I T F F Q G C L M R C L Y C H N R



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

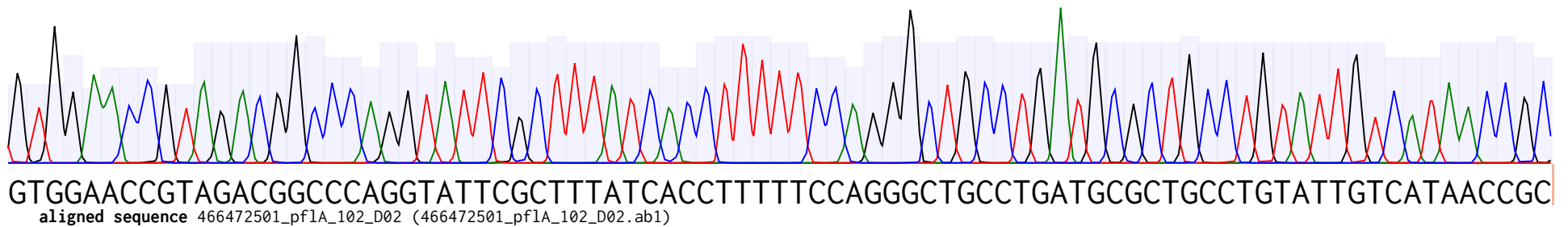


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

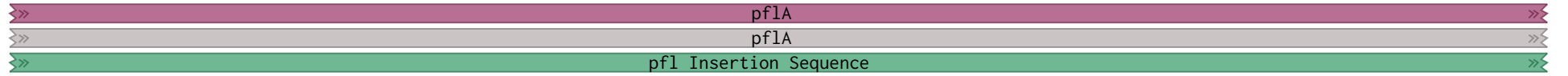
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



gacacctgggacacgcatggcggtaaagaagtaccggttgaagatttgatgaaggaagtggtgacctatcgccactttatgaa

D T W D T H G G K E V T V E D L M K E V V T Y R H F M N



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

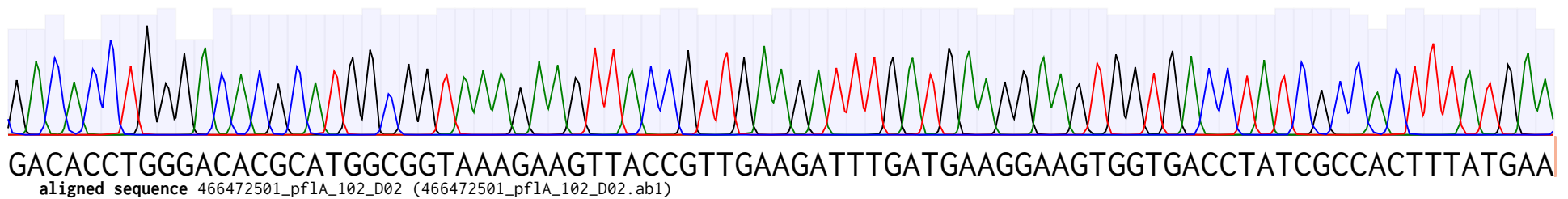


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

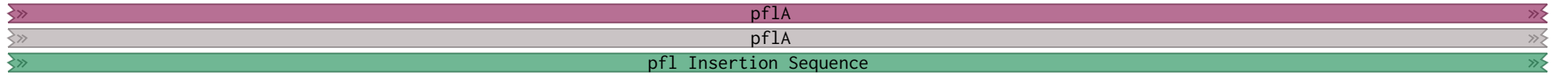
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



cgcttccggcggcggcggttaccgcatccggcgggtgaagcaatcctgcaagctgagtttggttcgtgactggttccgcgcctgca
A S G G G V T A S G G E A I L Q A E F V R D W F R A C



template sequence pMTL82151_fdh_pflA_pflB_gibson



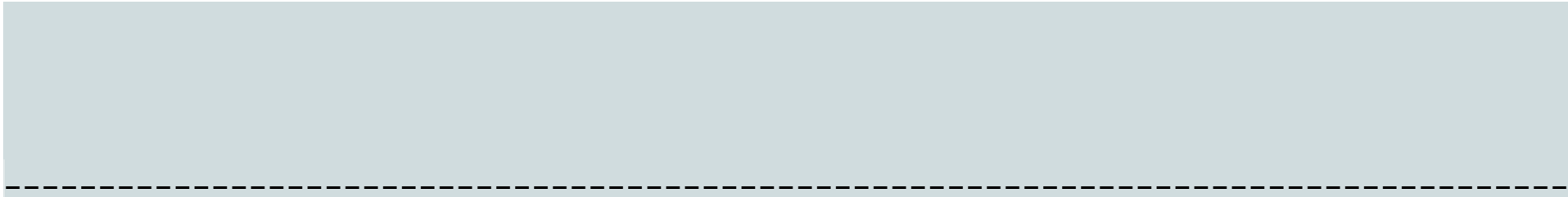
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



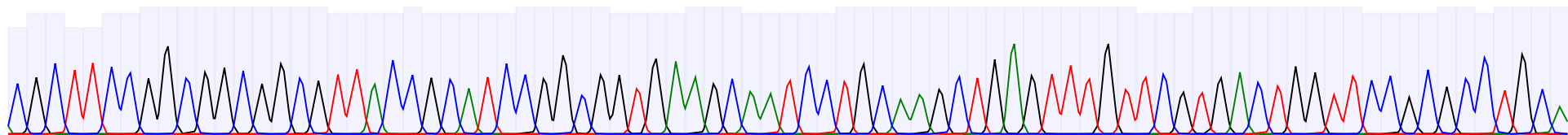
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

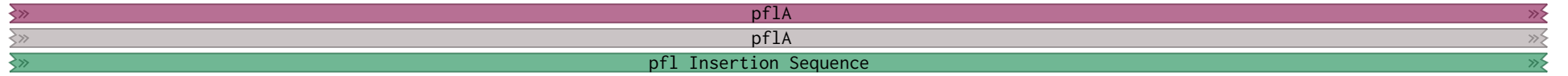


CGCTTCCGGCGGCGGCGTTACCGCATCCGGCGGTGAAGCAATCCTGCAAGCTGAGTTTGTTCGTGACTGGTTCCGCGCCTGCA

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

aaaaagaaggcattcatacctgtctggacaccaacggttttgttcgctcgttacgatccggtgattgatgaactgctggaagta

K K E G I H T C L D T N G F V R R Y D P V I D E L L E V



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

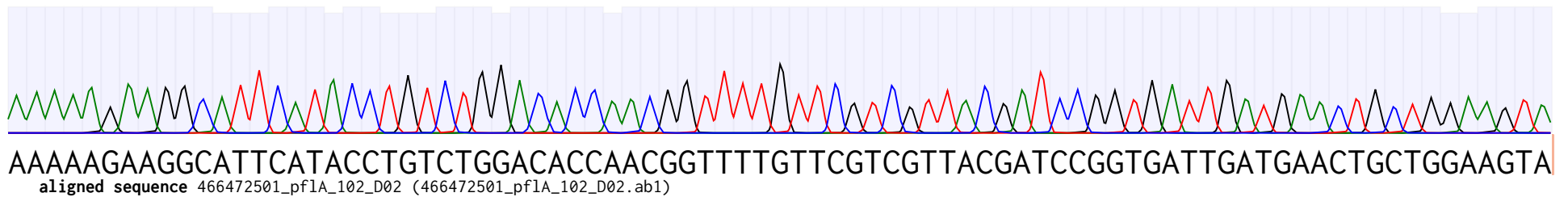


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

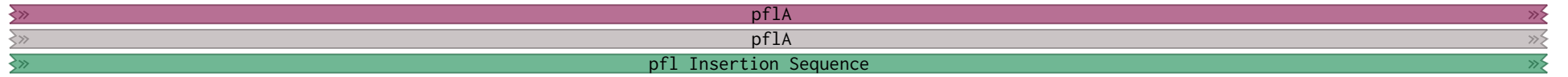
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



accgacctggtaatgctcgatctcaaacagatgaacgacgagatccaccaaactctggttggagtttccaaccaccgcacgct

T D L V M L D L K Q M N D E I H Q N L V G V S N H R T L



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)

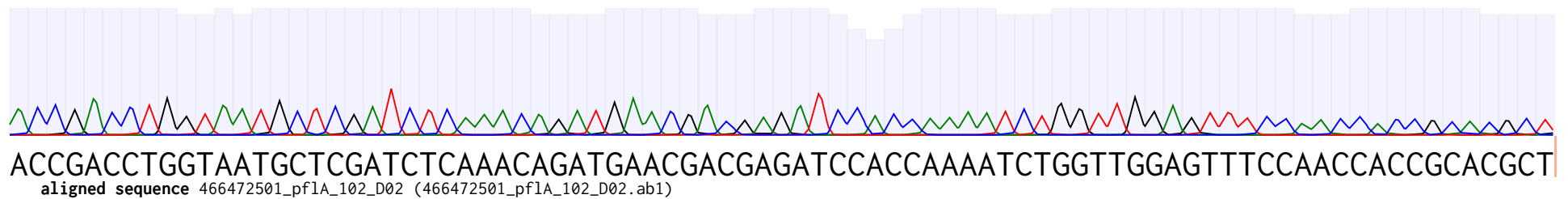


aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)

aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)

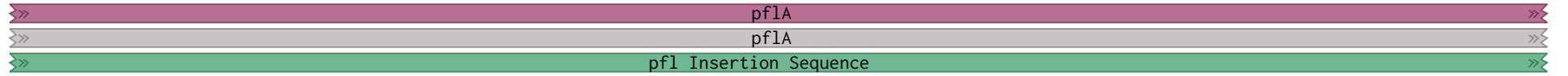
aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)

aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



ggagtTCGCTAAATATCTGGCGAACAAAAATGTGAAGGTGTGGATCCGCTACGTTGTTGTCCCAGGCTGGTCTGACGATGACG

E F A K Y L A N K N V K V W I R Y V V V P G W S D D D



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



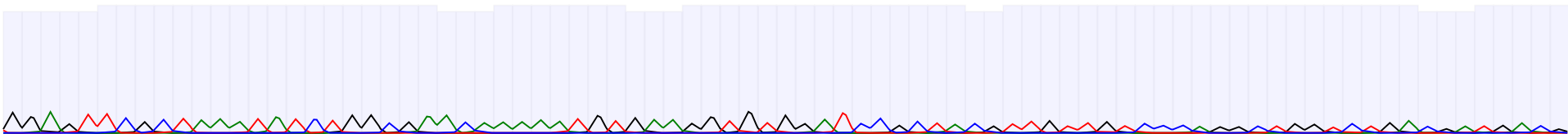
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

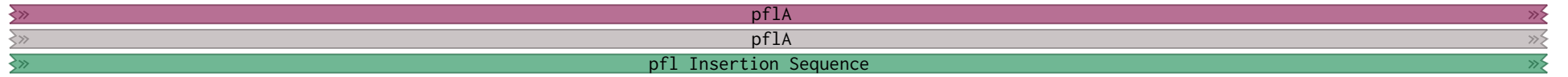


GGAGTTCGCTAAATATCTGGCGAACAAAAATGTGAAGGTGTGGATCCGCTACGTTGTTGTCCCAGGCTGGTCTGACGATGACG

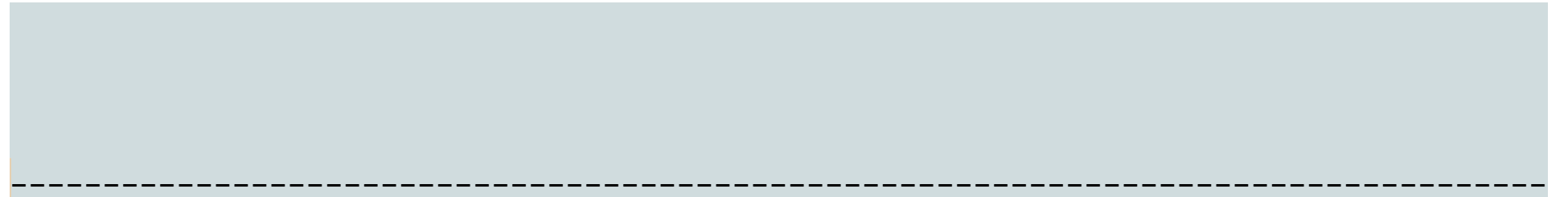
aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

attcagcgcacatcgccctcggtgaatttaccctgtgatatgggcaacgttgagaaaatcgagcttctcccctaccacgagctgggc

D S A H R L G E F T R D M G N V E K I E L L P Y H E L G



template sequence pMTL82151_fdh_pflA_pflB_gibson



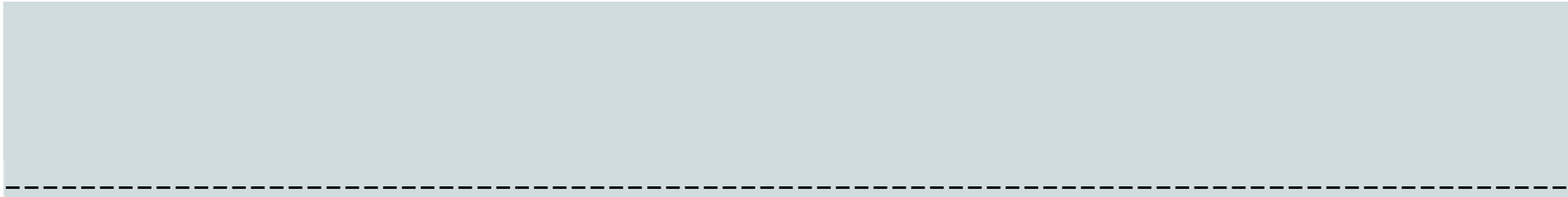
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



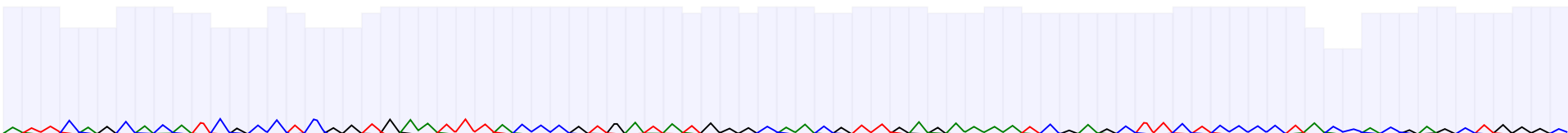
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

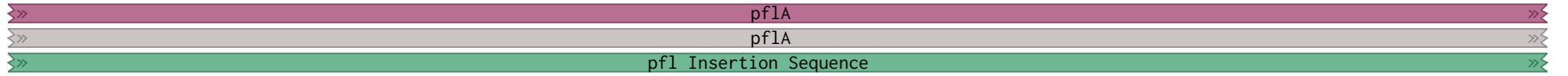


ATTCAGCACATCGCCTCGGTGAATTTACCCGTGATATGGGCAACGTTGAGAAAATCGAGCTTCTCCCCTACCACGAGCTGGGC

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

aaacacaaatgggtggcaatgggtgaagagtacaaactcgacggtgttaaaccaccgaagaaagagaccatggaacgcgtgaa

K H K W V A M G E E Y K L D G V K P P K K E T M E R V K



template sequence pMTL82151_fdh_pflA_pflB_gibson



aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



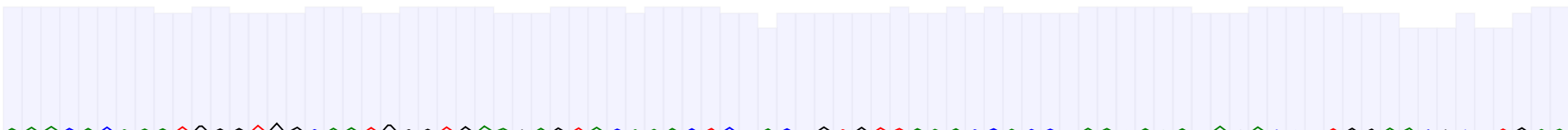
aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)

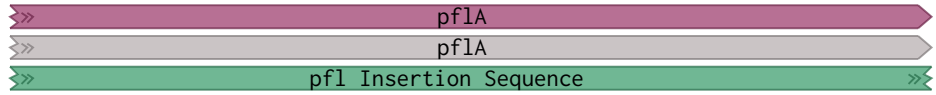


AAACACAAATGGGTGGCAATGGGTGAAGAGTACAAACTCGACGGTGTTAAACCACCGAAGAAAGAGACCATGGAACGCGTGAA

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)

aggcattcttgagcagtcacggtcataaggtaatggttctaa

G I L E Q Y G H K V M F *



template sequence pMTL82151_fdh_pflA_pflB_gibson



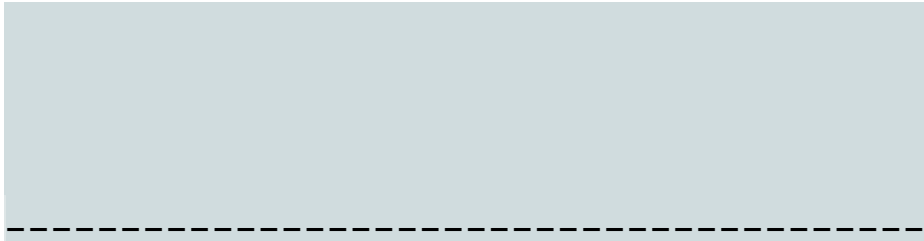
aligned sequence 462393301_a2R_M13R_B11 (462393301_a2R_M13R_B11.ab1)



aligned sequence 462393301_a2F_M13F_A11 (462393301_a2F_M13F_A11.ab1)



aligned sequence 463614401_pfl3_AB063_E11 (463614401_pfl3_AB063_E11.ab1)



aligned sequence 463614401_pfl4_AB063_F11 (463614401_pfl4_AB063_F11.ab1)



aligned sequence 466472501_pflBf_103_E02 (466472501_pflBf_103_E02.ab1)



aligned sequence 466472501_pflbR_104_F02 (466472501_pflbR_104_F02.ab1)



AGGCATTCTTGAGCAGTACGGTCATAAGGTAATGTTCTAA

aligned sequence 466472501_pflA_102_D02 (466472501_pflA_102_D02.ab1)