

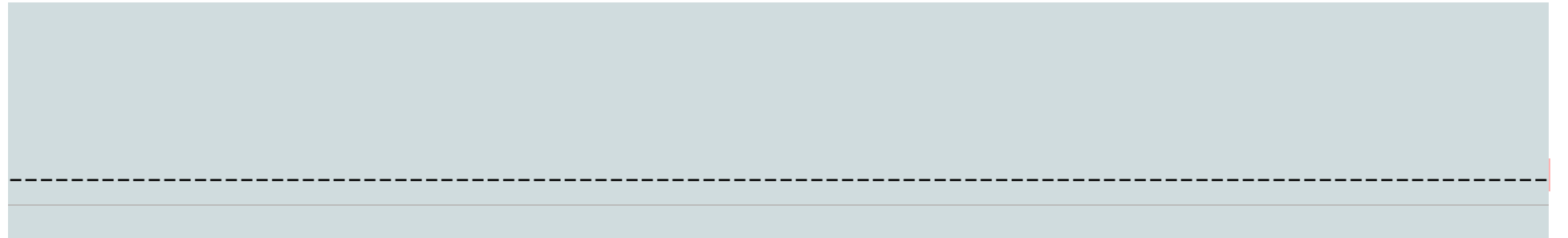
Template Alignment: 2020-12-15_F07_JLJL115ASP4

ttttctgcgcgtaatctgctgcttgcaaacaaaaaaccaccgctaccagcggtgggtttgtttgccggatcaagagctaccaactctttttccgaaggta

10 20 30 40 50 60 70 80 90 100

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



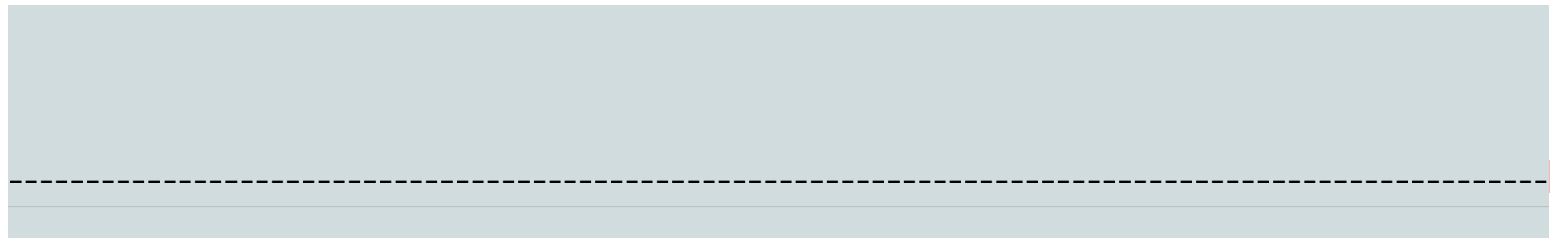
aligned sequence 2020-12-15_F07_JLJL115ASP4

actggcttcagcagagcgcagataccaaatactgtccttctagtgtagccgtagttaggccaccacttcaagaactctgtagcaccgcctacatacctcg

110 120 130 140 150 160 170 180 190 200

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



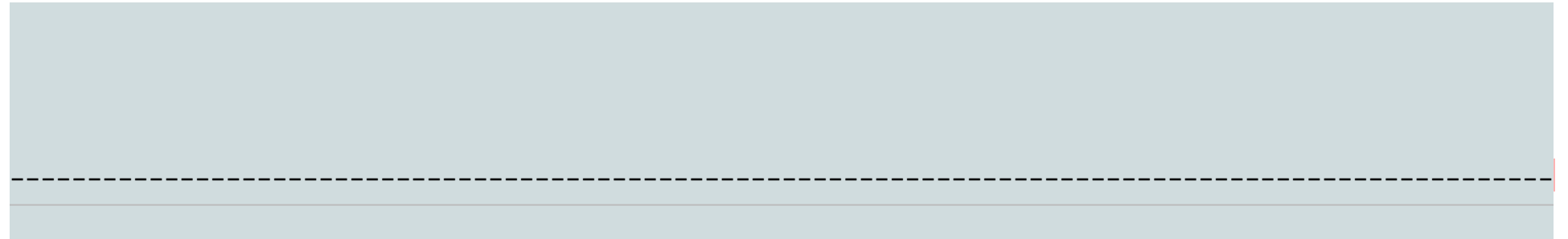
aligned sequence 2020-12-15_F07_JLJL115ASP4

ctctgctaatacctgttaccagtggctgctgccagtggcgataagtcgtgtcttaccgggttggaactcaagacgatagttaccggataaggcgcagcggtc

210 220 230 240 250 260 270 280 290 300

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



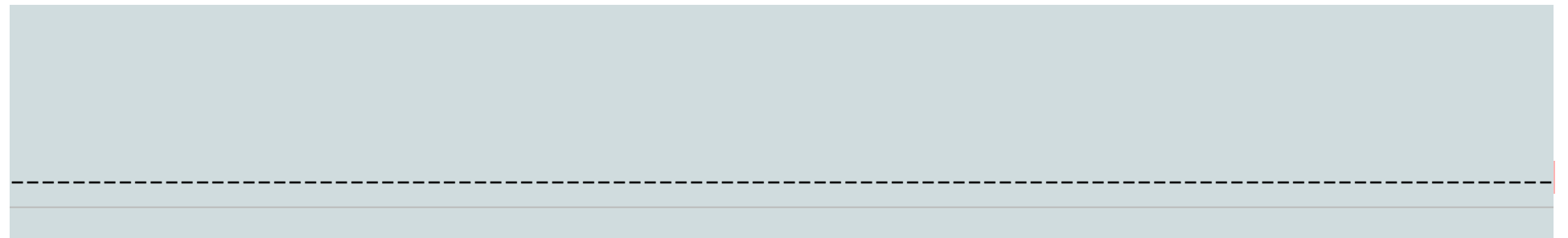
aligned sequence 2020-12-15_F07_JLJL115ASP4

gggctgaacgggggggttcgtgcacacagcccagcttggagcgaacgacctacaccgaactgagatacctacagcgtgagctatgagaaagcgccacgctt

310 320 330 340 350 360 370 380 390 400

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

cccgaagggagaaaaggcggacagggtatccggtaagcggcaggggtcgggaacaggagagcgcacgagggagcttccagggggaaacgcctggtatctttata

410

420

430

440

450

460

470

480

490

500

pBR322ori-F

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)

aligned sequence 2020-12-15_F07_JLJL115ASP4

gtcctgtcgggtttcgccacctctgacttgagcgtcgatttttgtgatgctcgtcaggggggaggagcctatggaaaaacgccagcaacgcggccttttt

510

520

530

540

550

560

570

580

590

600

ori

template sequence pAS1.15 (J23119-mScarletI-TcppPX)

aligned sequence 2020-12-15_F07_JLJL115ASP4

acggttcctggcagatcctagatgtggcgcaacgatgccggcgacaagcaggagcgcaccgacttcttccgcatcaagtgttttggctctcaggccgagg

610

620

630

640

650

660

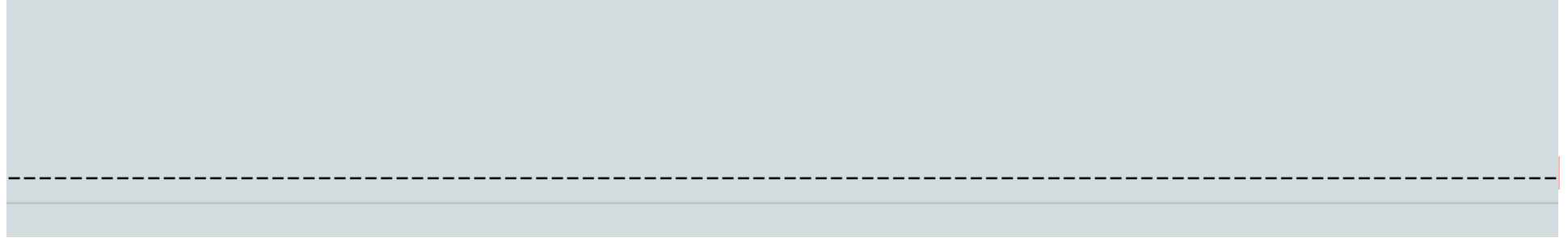
670

680

690

700

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

cccacggcaagtatttgggcaaggggtcgcttggtattcgtgcagggaagattcggaataccaagtacgagaaggacggccagacggtctacgggaccga

710

720

730

740

750

760

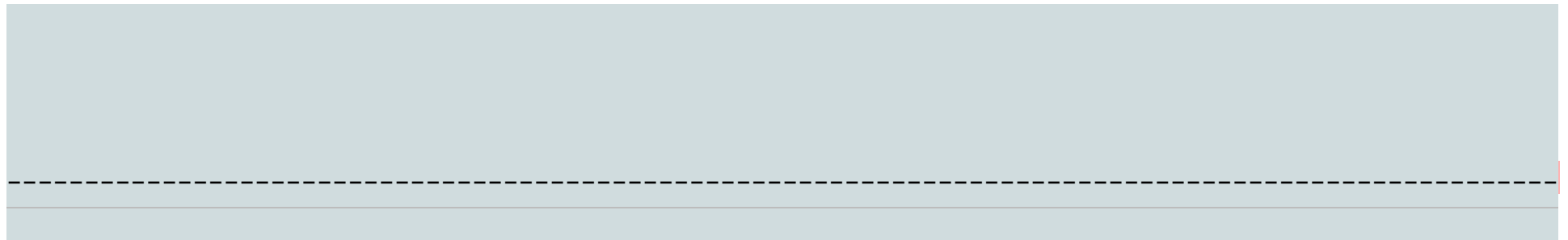
770

780

790

800

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

cttcattgccgataaggtggattatctggacaccaaggcaccaggcgggtcaaatacaggaataagggcacattgccccggcgtgagtcggggcaatcccg

810

820

830

840

850

860

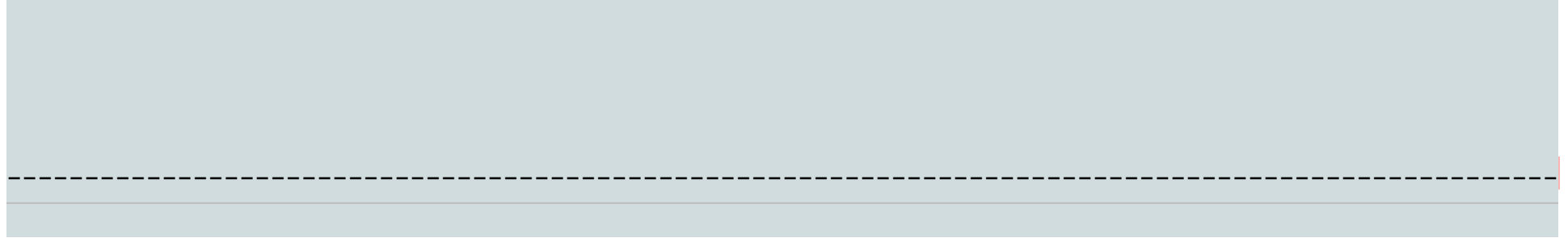
870

880

890

900

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

caaggagggtgaatgaatcggacgtttgaccggaaggcatacaggcaagaactgatcgacgcgggggtttccgccgaggatgccgaaaccatcgcaagcc

910

920

930

940

950

960

970

980

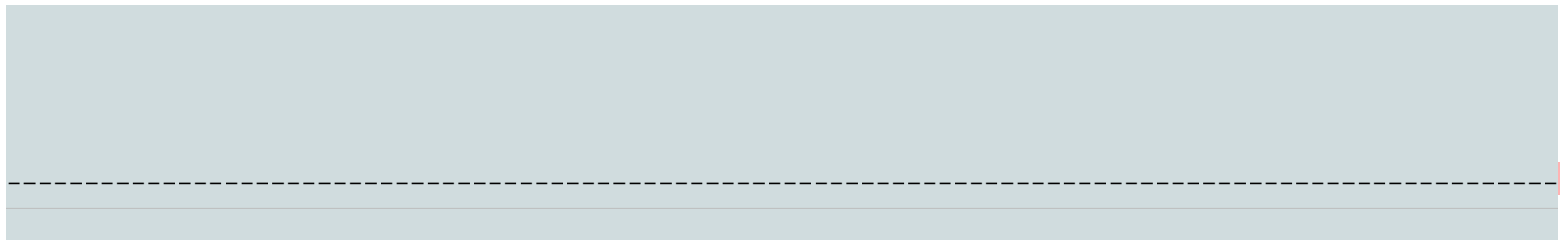
990

1,000

trfA



template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

gcaccgtcatgcgtgcgccccgcgaaaccttccagtcggtcggctcgatgggtccagcaagctacggccaagatcgagcgcgacagcgtgcaactggctcc

1,010

1,020

1,030

1,040

1,050

1,060

1,070

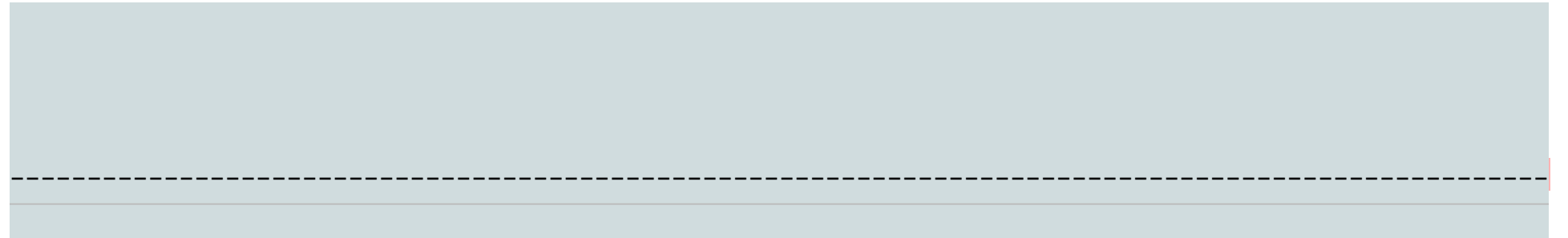
1,080

1,090

1,100

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

ccctgccctgcccgcgccatcgcccgccgtggagcggttcgcgtcgtcttgaacaggaggcggcagggttggcgaagtcgatgaccatcgacacgcgagga

1,110

1,120

1,130

1,140

1,150

1,160

1,170

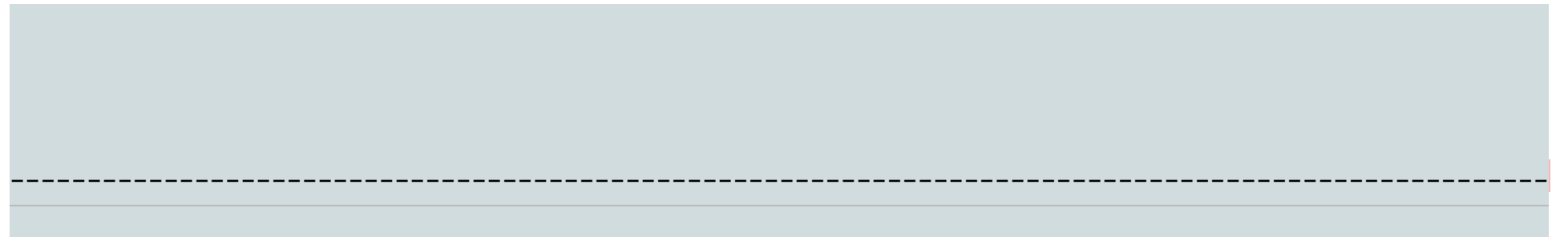
1,180

1,190

1,200

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

actatgacgaccaagaagcgaaaaaccgccggcgaggacctggcaaaacaggtcagcgaggccaagcaggccgcgttgctgaaacacacgaagcagcaga

1,210

1,220

1,230

1,240

1,250

1,260

1,270

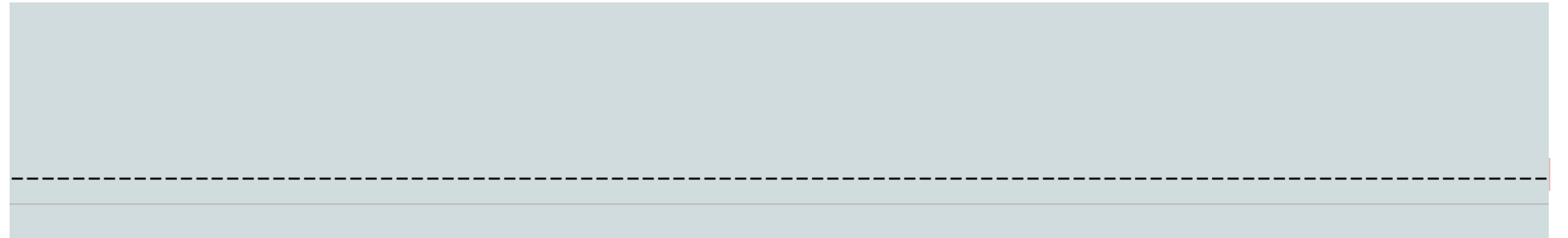
1,280

1,290

1,300

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

tcaaggaaatgcagctttccttgttcgatattgcgccgtggccggacacgatgcgagcgatgccaaacgacacggcccgctctgccctgttcaccacgcg

1,310

1,320

1,330

1,340

1,350

1,360

1,370

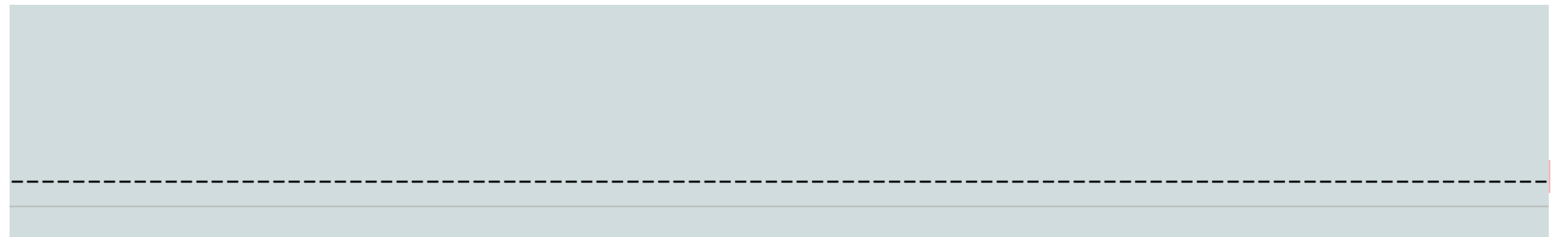
1,380

1,390

1,400

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

caacaagaaaatcccgcgcgaggcgctgcaaaacaaggtcattttccacgtcaacaaggacgtgaagatcacctacaccggcgtcgagctgcgggccgac

1,410

1,420

1,430

1,440

1,450

1,460

1,470

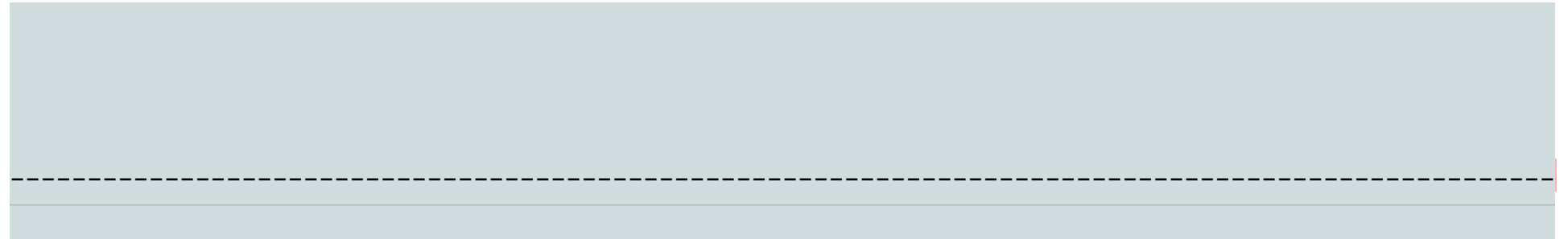
1,480

1,490

1,500

>> trfA >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



gatgacgaactggtgtggcagcaggtgttggagtacgcgaagcgcacccctatcggcgagccgatcaccttcacgttctacgagctttgccaggacctgg

1,510

1,520

1,530

1,540

1,550

1,560

1,570

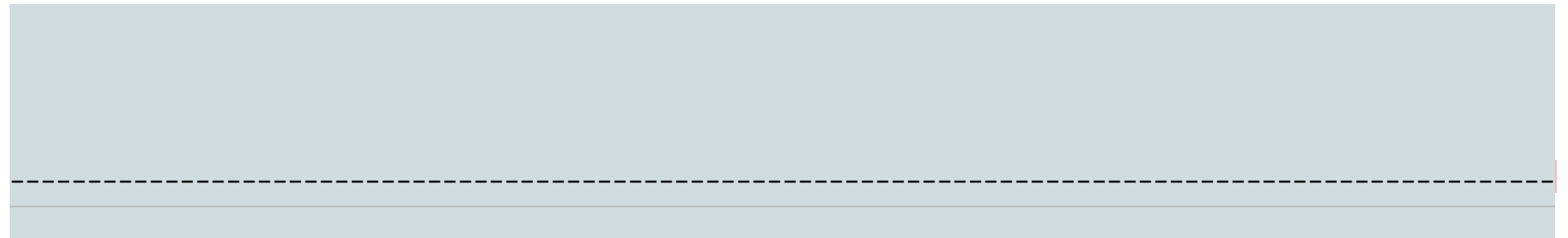
1,580

1,590

1,600

>> trfA >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



gctggtcgatcaatggccggtattacacgaaggccgaggaatgcctgtcgcgcctacaggcgacggcgatgggcttcacgtccgaccgcgttgggcacct

1,610

1,620

1,630

1,640

1,650

1,660

1,670

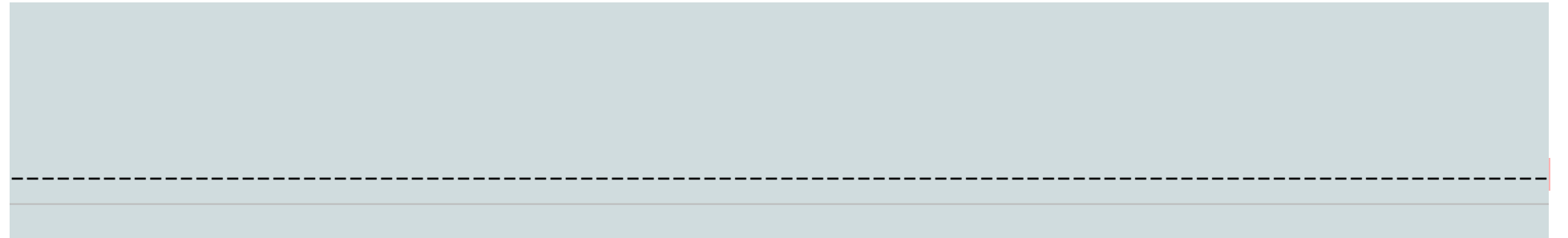
1,680

1,690

1,700

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

ggaatcgggtgtcgtgctgcaccgcttccgcgtcctggaccgtggcaagaaaacgtcccgttgccaggctcctgatcgacgaggaaatcgtcgtgctgttt

1,710

1,720

1,730

1,740

1,750

1,760

1,770

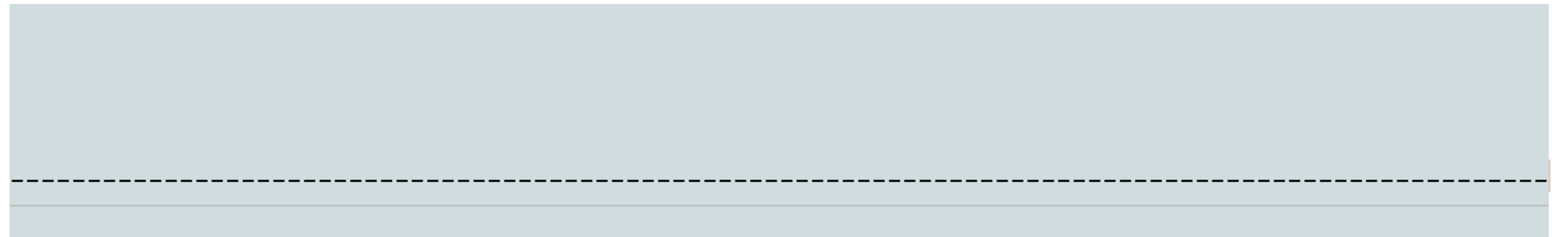
1,780

1,790

1,800

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



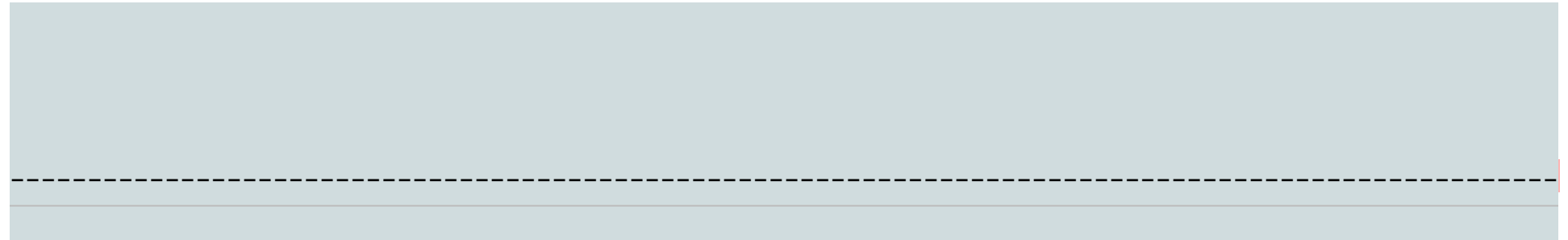
aligned sequence 2020-12-15_F07_JLJL115ASP4

gctggcgaccactacacgaaattcatatgggagaagtaccgcaagctgtcgccgacggcccgacggatgttcgactatttcagctcgcaccgggagccgt

1,810 1,820 1,830 1,840 1,850 1,860 1,870 1,880 1,890 1,900

trfA

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



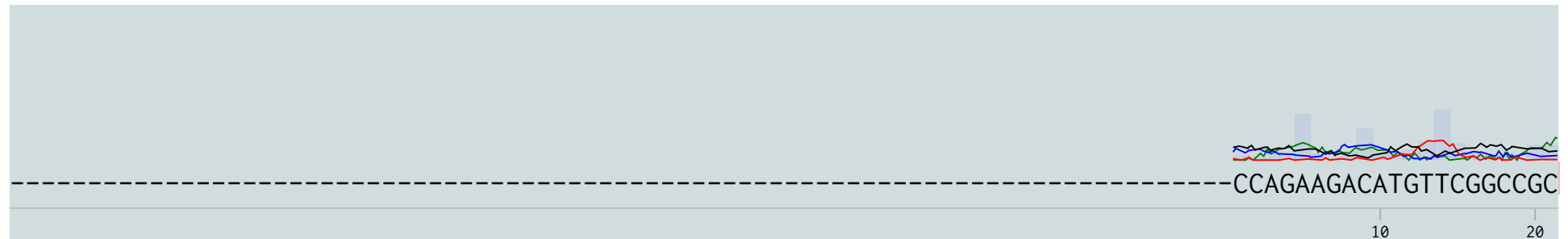
aligned sequence 2020-12-15_F07_JLJL115ASP4

acccgctcaagctggaaccttccgcctcatgtgcggatcggattccacccgcgtgaagaagtggcgcgagcaggtcggcgaagcctgcgaagagttgcg

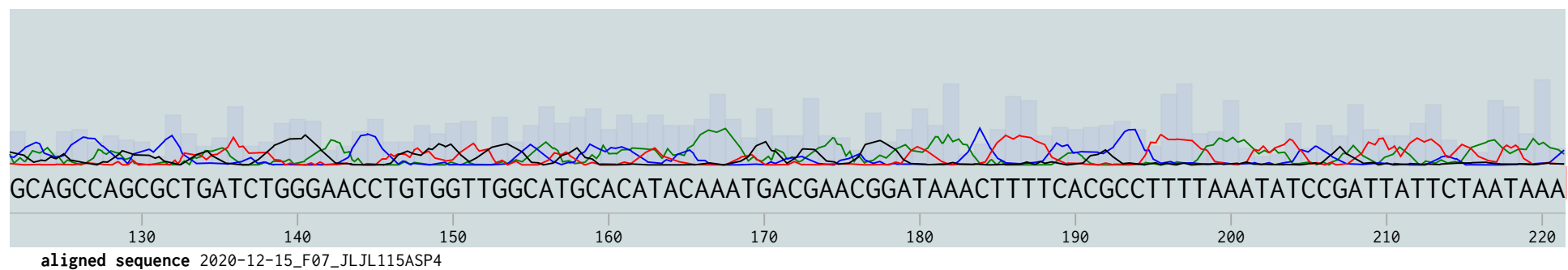
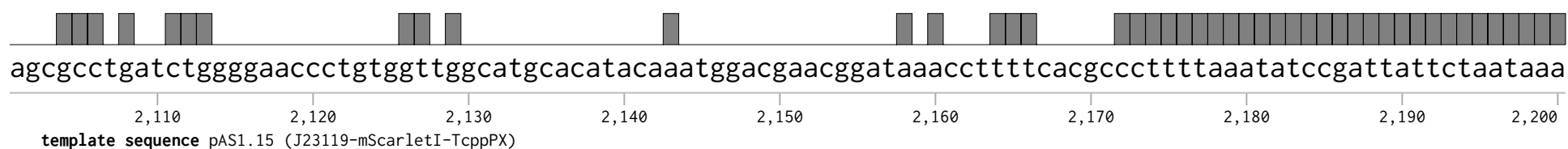
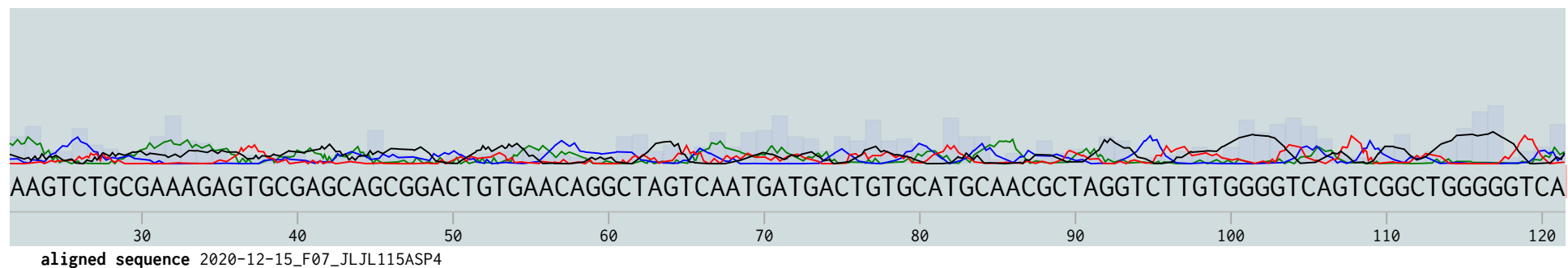
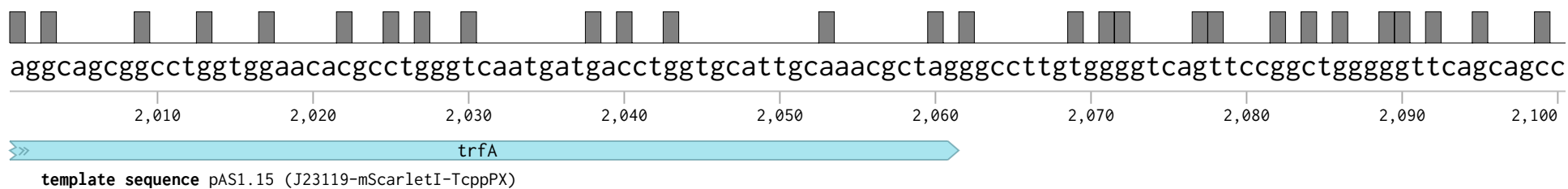
1,910 1,920 1,930 1,940 1,950 1,960 1,970 1,980 1,990 2,000

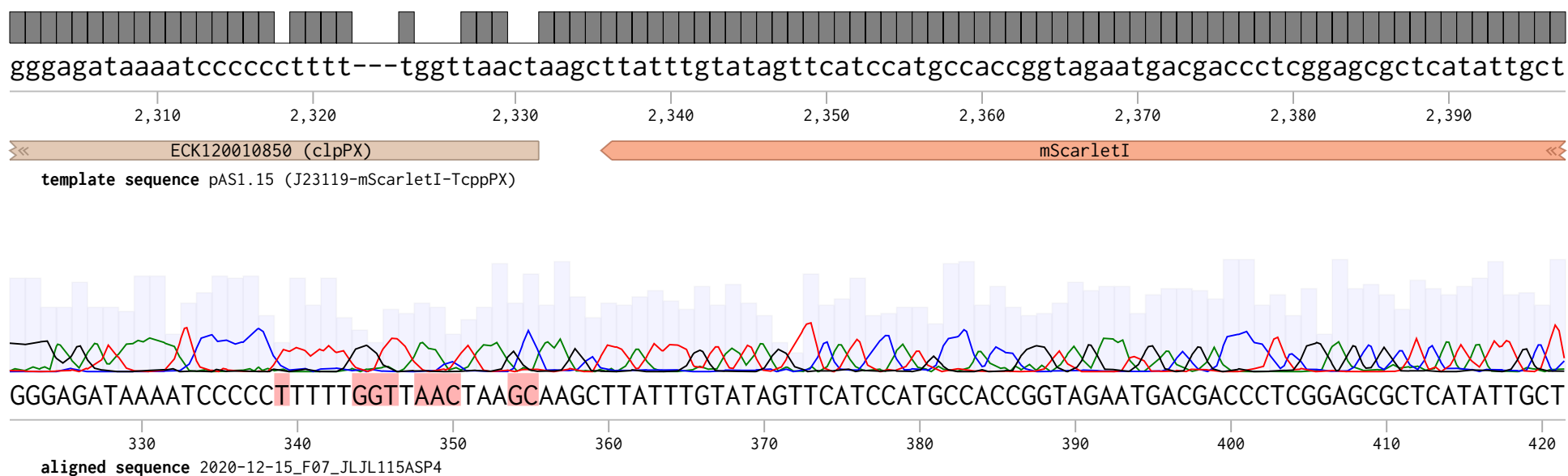
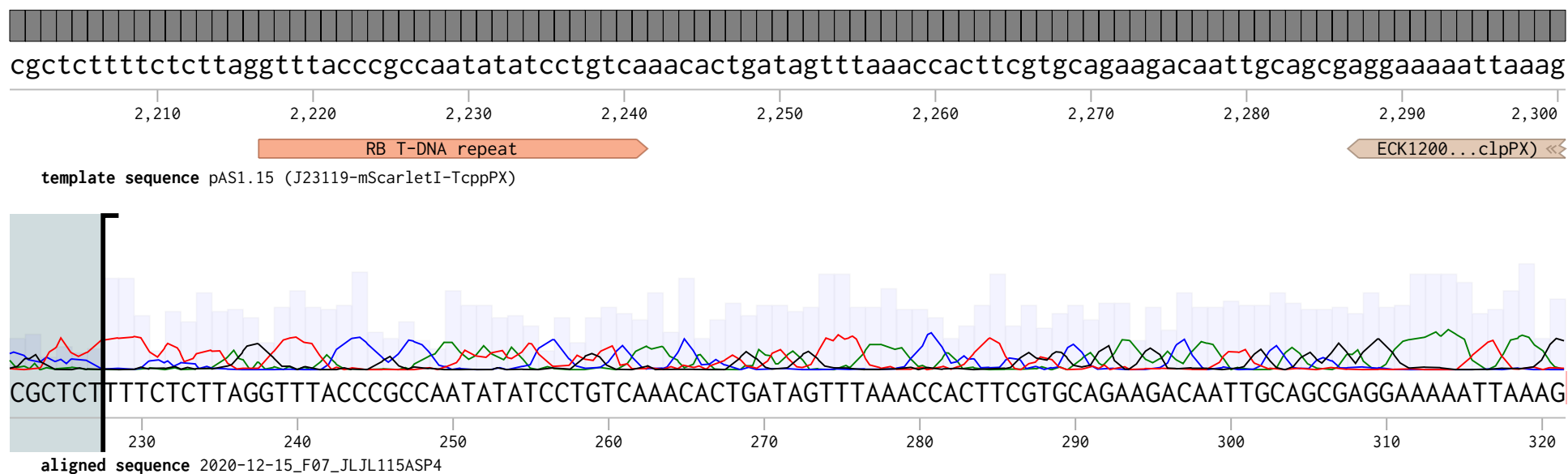
trfA

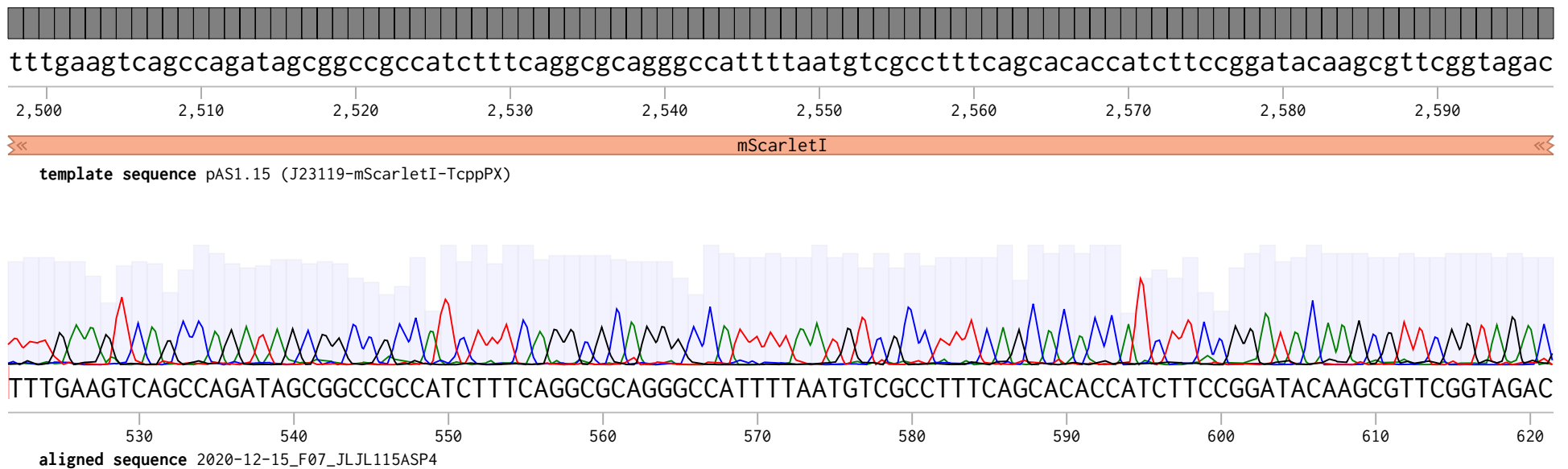
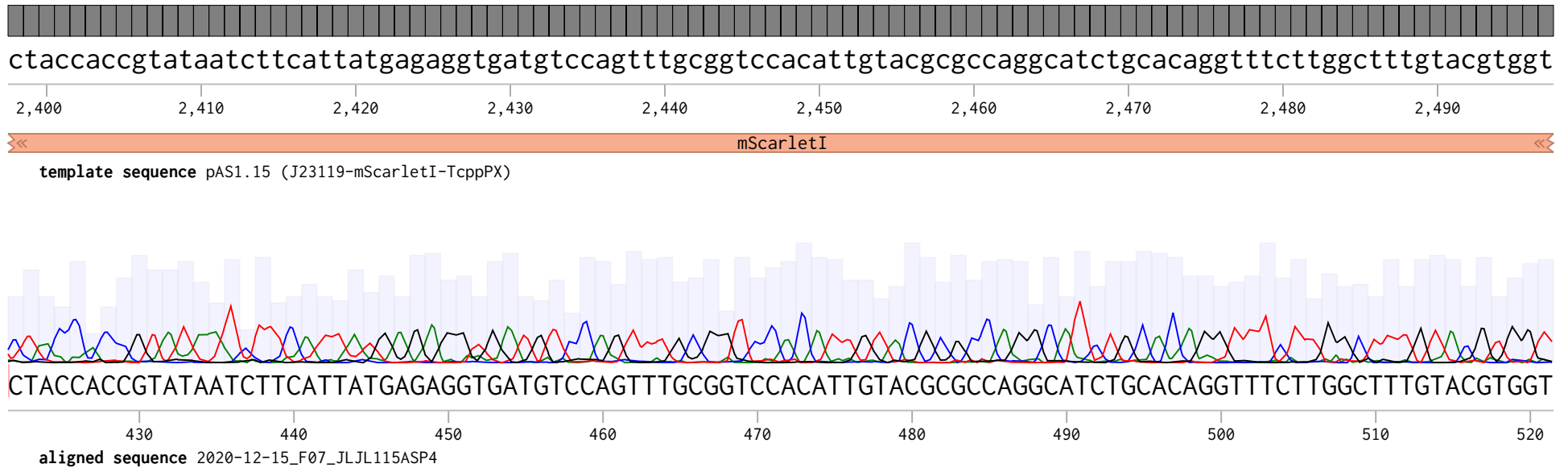
template sequence pAS1.15 (J23119-mScarletI-TcppPX)

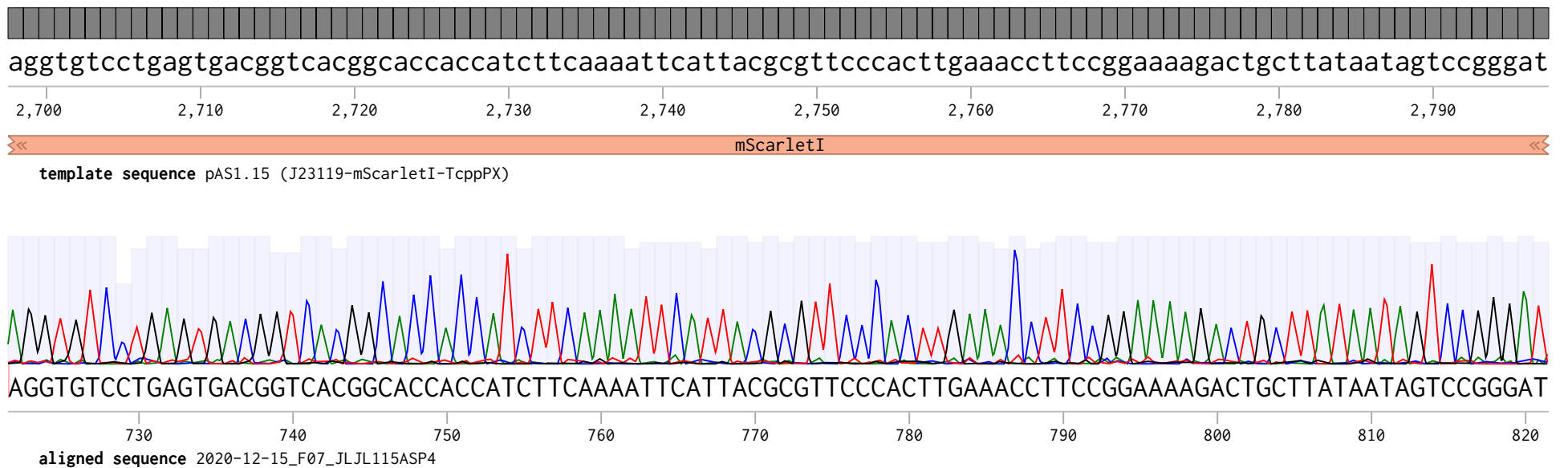
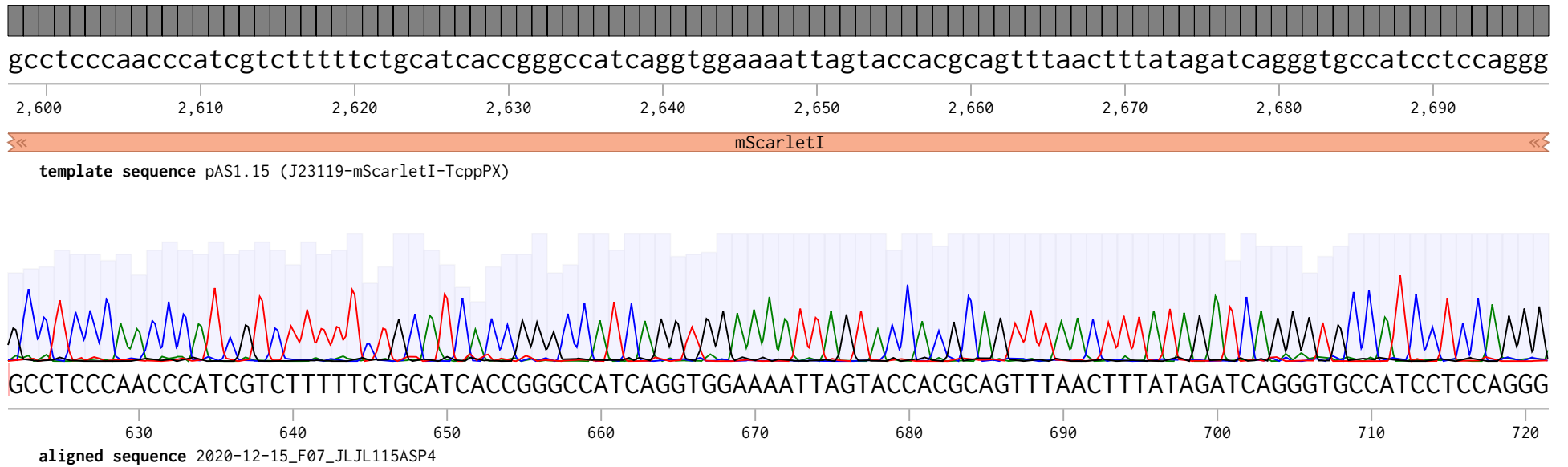


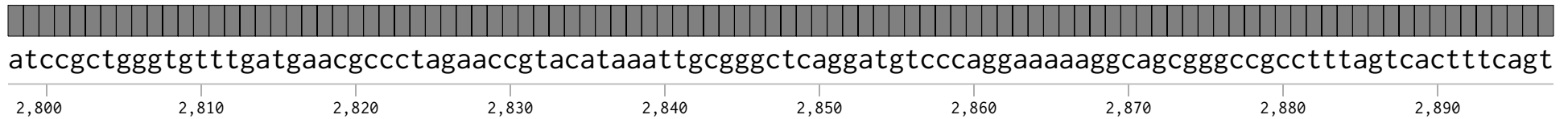
aligned sequence 2020-12-15_F07_JLJL115ASP4



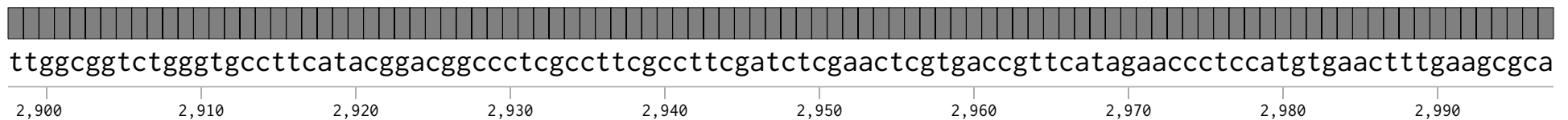
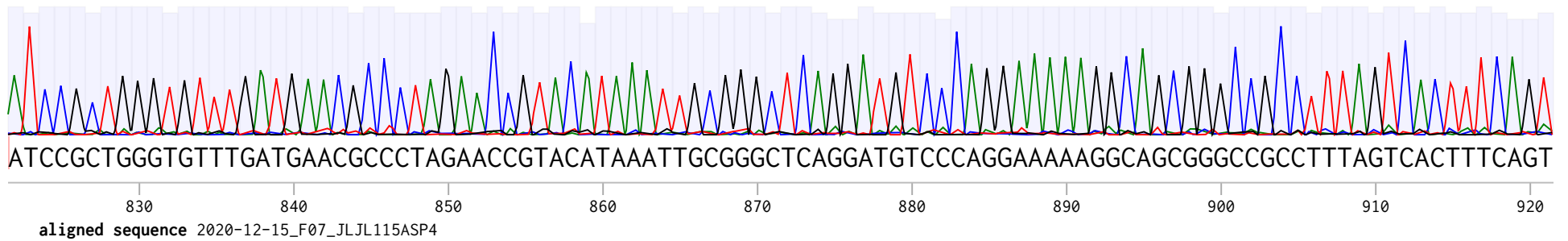




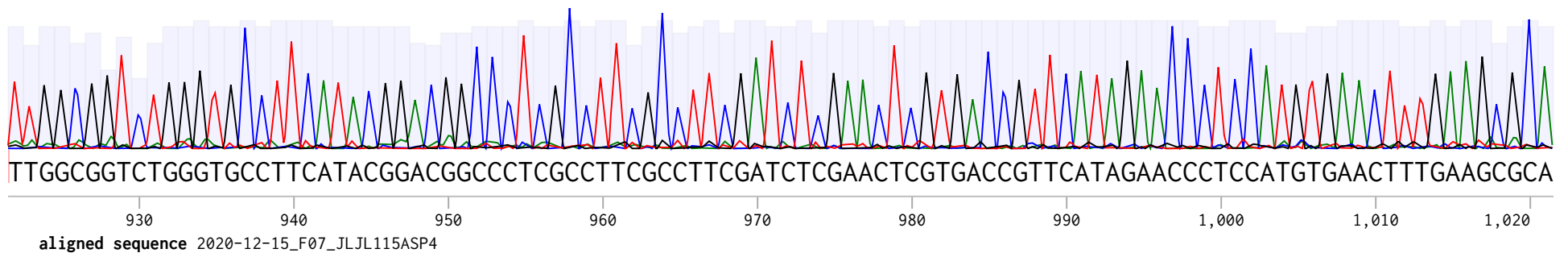


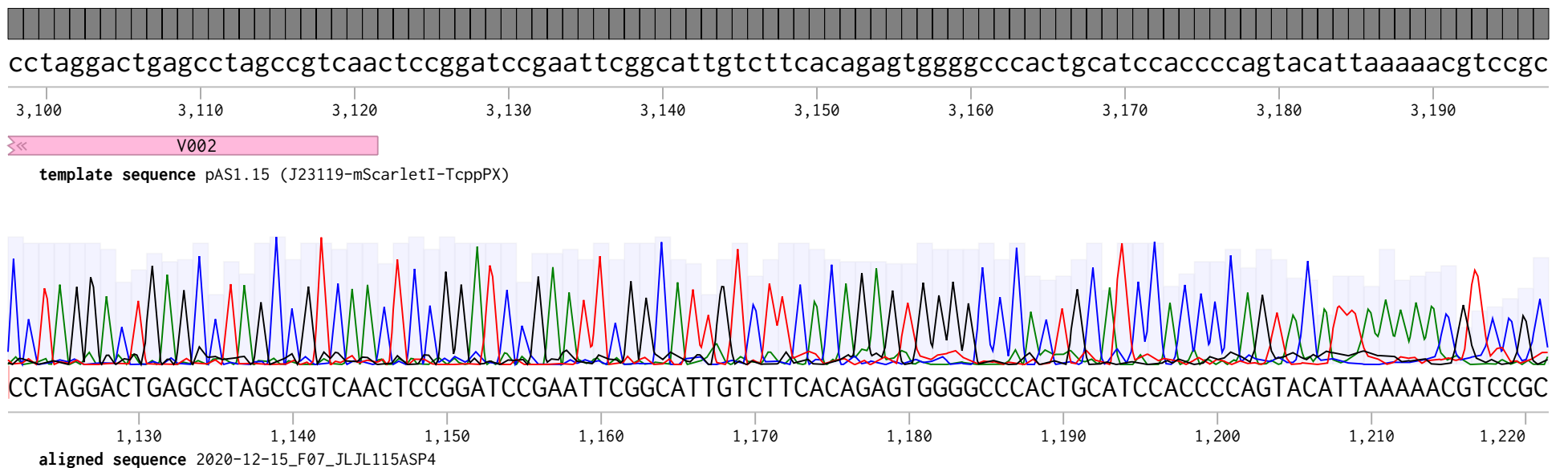
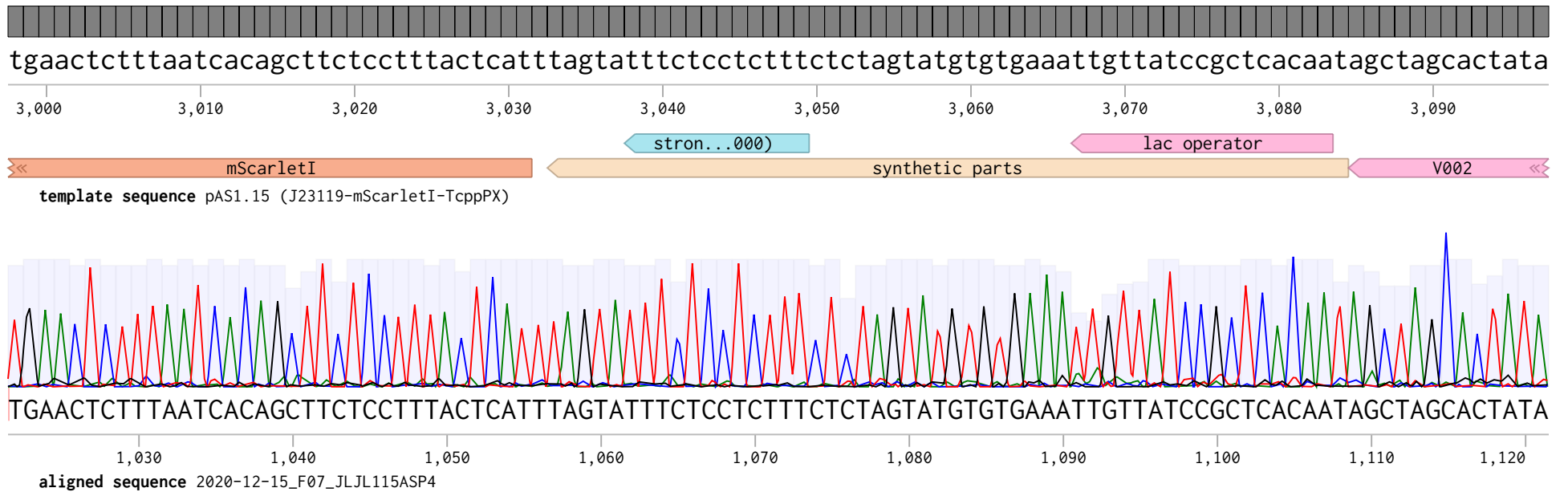


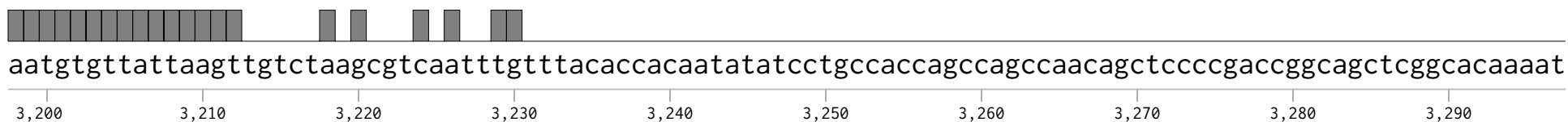
template sequence pAS1.15 (J23119-mScarletI-TcppPX)



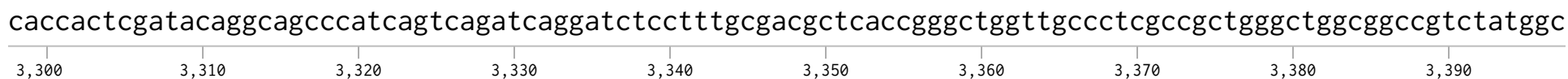
template sequence pAS1.15 (J23119-mScarletI-TcppPX)



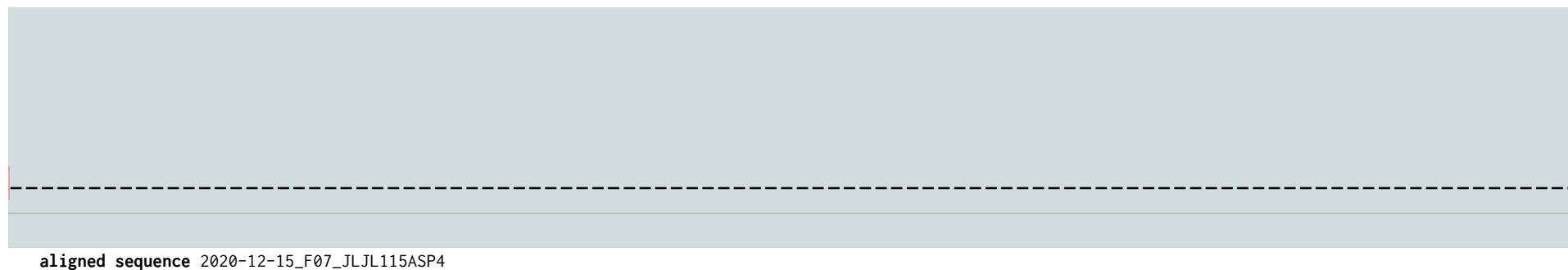




template sequence pAS1.15 (J23119-mScarletI-TcppPX)



template sequence pAS1.15 (J23119-mScarletI-TcppPX)



cctgcaaacgcgccagaaacgccgtcgaagccgtgtgcgagacaccgcggccgcggcgttgtggatacctcgcggaaaacttggccctcactgacagat

3,400 3,410 3,420 3,430 3,440 3,450 3,460 3,470 3,480 3,490

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)

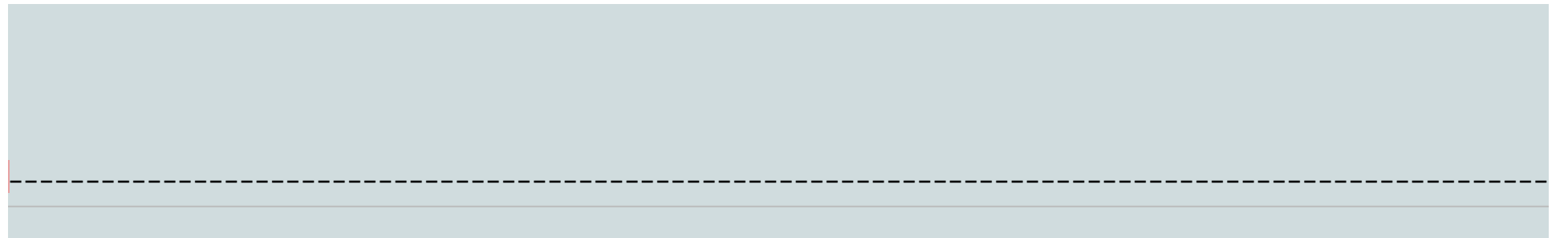


gaggggcggacgttgacacttgaggggccgactcaccggcgcggcgttgacagatgaggggcaggctcgatttcggccggcgacgtggagctggccagc

3,500 3,510 3,520 3,530 3,540 3,550 3,560 3,570 3,580 3,590

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)

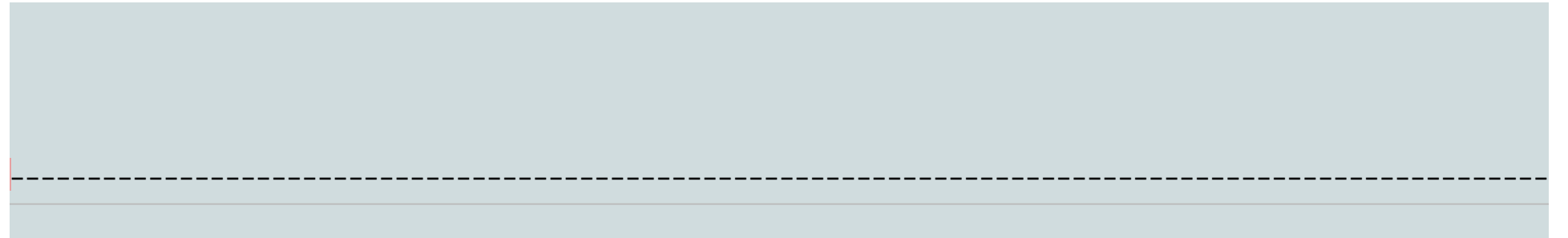


ctcgaaatcggcgaaaacgcctgattttacgcgagtttccacagatgatgtggacaagcctggggataagtgccctgcggtattgacacttgaggggc

3,600 3,610 3,620 3,630 3,640 3,650 3,660 3,670 3,680 3,690

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



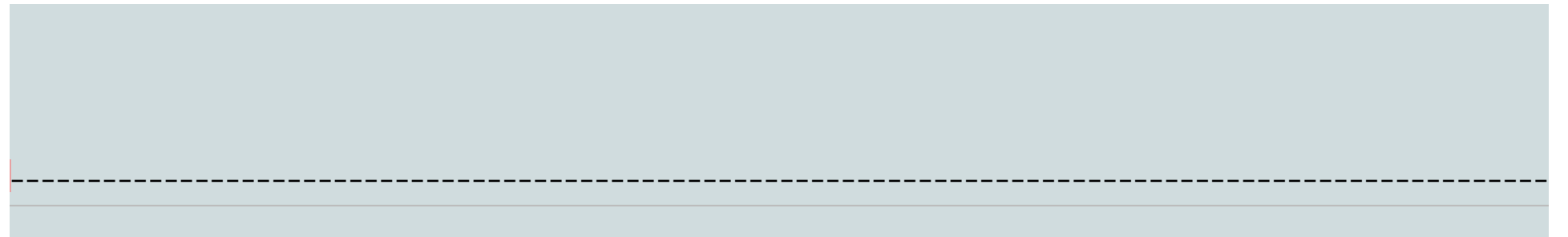
aligned sequence 2020-12-15_F07_JLJL115ASP4

gcgactactgacagatgaggggcgcgatccttgacacttgaggggcagagtgctgacagatgaggggcgcacctattgacatttgaggggctgtccacag

3,700 3,710 3,720 3,730 3,740 3,750 3,760 3,770 3,780 3,790

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



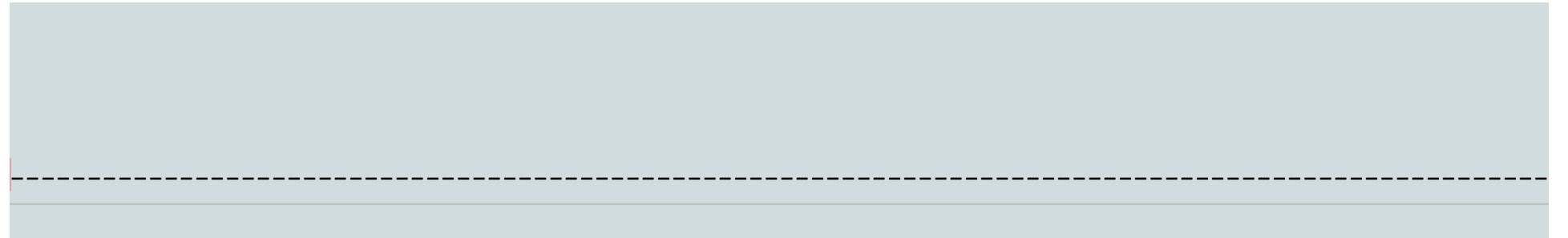
aligned sequence 2020-12-15_F07_JLJL115ASP4

gcagaaaatccagcatttgcaagggtttccgcccgtttttcggccaccgctaacctgtcttttaacctgcttttaaccaatatttataaaccttgttt

3,800 3,810 3,820 3,830 3,840 3,850 3,860 3,870 3,880 3,890

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



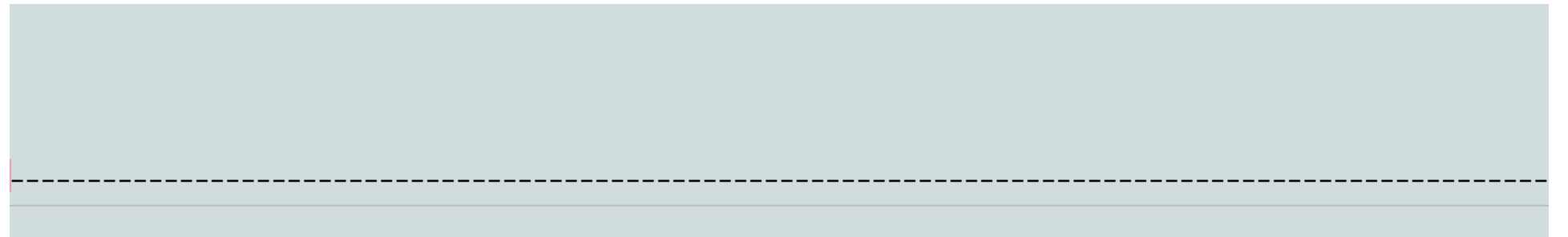
aligned sequence 2020-12-15_F07_JLJL115ASP4

taaccagggtgcgccctgtgcgctgaccgcgcacgccgaaggggggtgcccccttctcgaaccctcccggcccgtaacgcgggcctcccatcccc

3,900 3,910 3,920 3,930 3,940 3,950 3,960 3,970 3,980 3,990

>> oriV >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



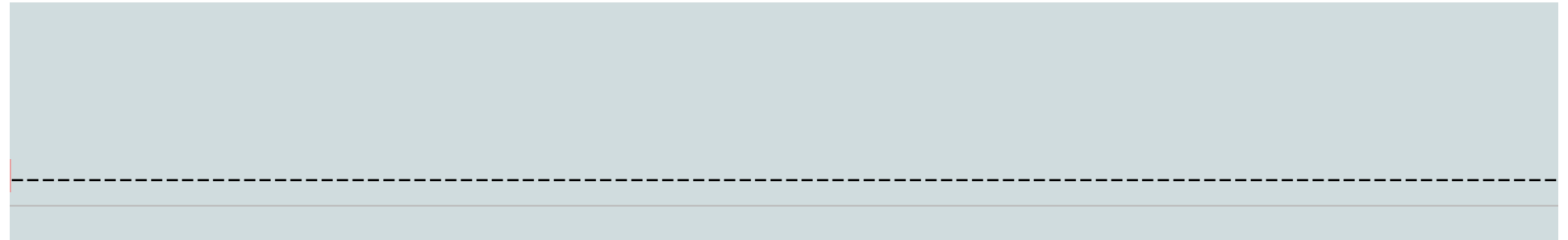
aligned sequence 2020-12-15_F07_JLJL115ASP4

ccaggggctgcgcccctcggccgcgaacggcctcaccacaaaaatggcagcgctggccaattcgtgcgcggaaccctatttgtttatttttctaaatac

4,000 4,010 4,020 4,030 4,040 4,050 4,060 4,070 4,080 4,090

AmpR promoter >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



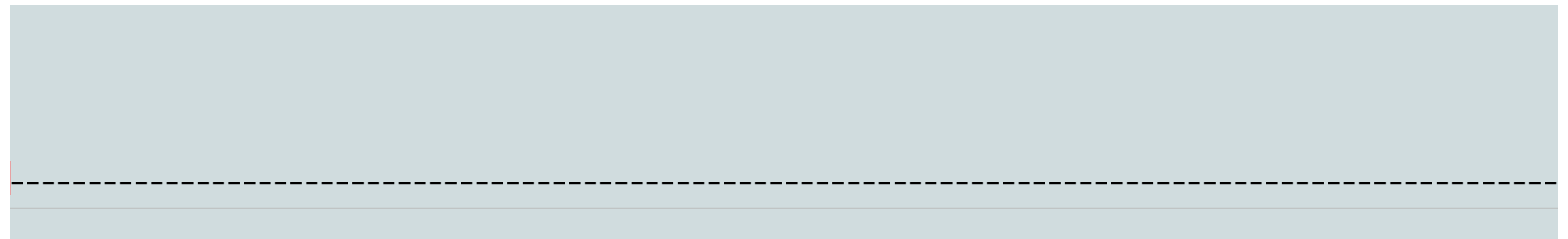
aligned sequence 2020-12-15_F07_JLJL115ASP4

attcaaatatgtatccgctcatgagacaataaccctgataaatgcttcaataatattgaaaaaggaagagtatgagtattcaacatttcggtgtcgccct

4,100 4,110 4,120 4,130 4,140 4,150 4,160 4,170 4,180 4,190

>> AmpR promoter AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



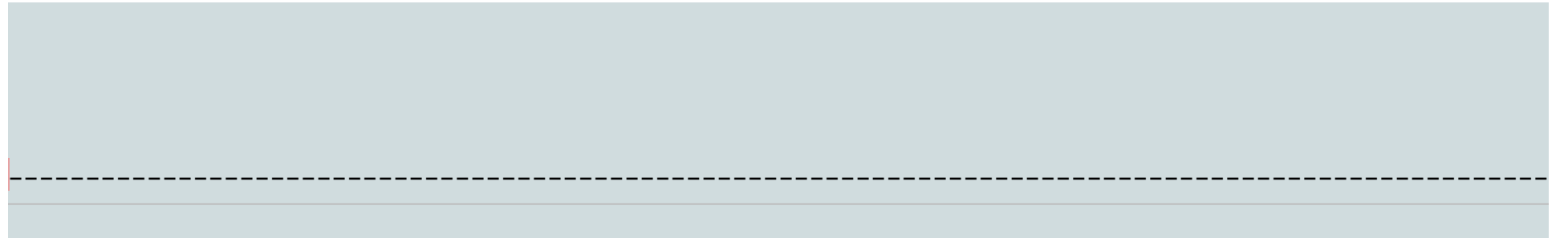
aligned sequence 2020-12-15_F07_JLJL115ASP4

tattccctttttgcggcattttgccttcctgtttttgctcaccagaaacgctggtgaaagtaaaagatgctgaagatcagttgggtgcacgagtgggt

4,200 4,210 4,220 4,230 4,240 4,250 4,260 4,270 4,280 4,290

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



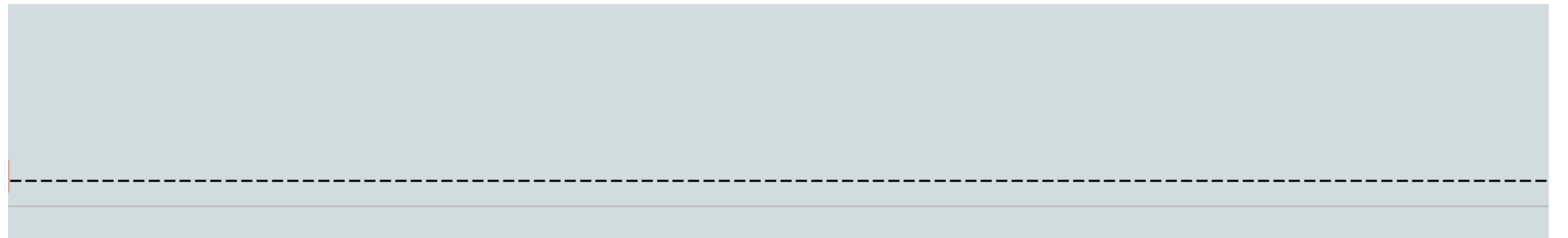
aligned sequence 2020-12-15_F07_JLJL115ASP4

tacatcgaactggatctcaacagcggttaagatccttgagagttttcgccccgaagaacgttttccaatgatgagcacttttaaagttctgctatgtggcg

4,300 4,310 4,320 4,330 4,340 4,350 4,360 4,370 4,380 4,390

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

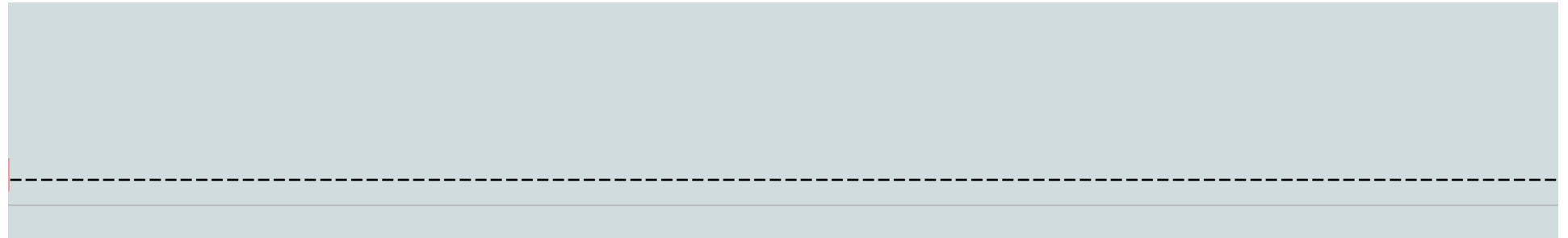
cggtattatcccgtattgacgccgggcaagagcaactcggtcgccgcatacactattctcagaatgacttggttgagtactcaccagtcacagaaaagca

4,400 4,410 4,420 4,430 4,440 4,450 4,460 4,470 4,480 4,490

« Amp-R

AmpR »

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



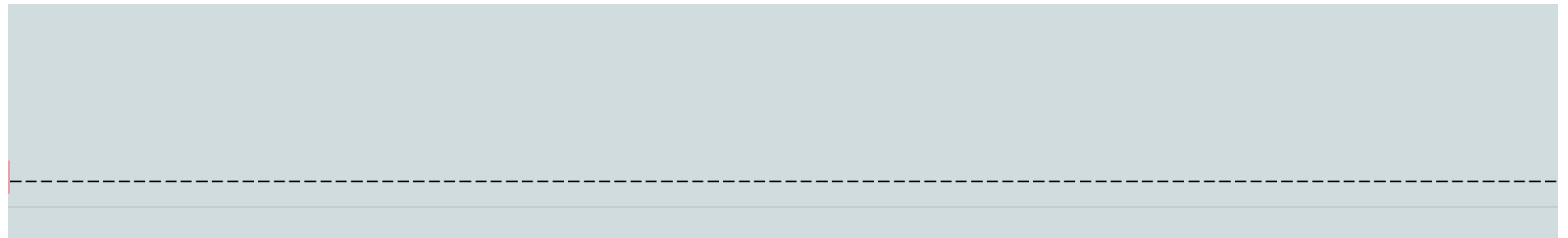
aligned sequence 2020-12-15_F07_JLJL115ASP4

tcttacggatggcatgacagtaagagaattatgcagtgctgccataacatgagtataacactgcggccaacttacttctgacaacgatcggaggaccg

4,500 4,510 4,520 4,530 4,540 4,550 4,560 4,570 4,580 4,590

« AmpR »

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



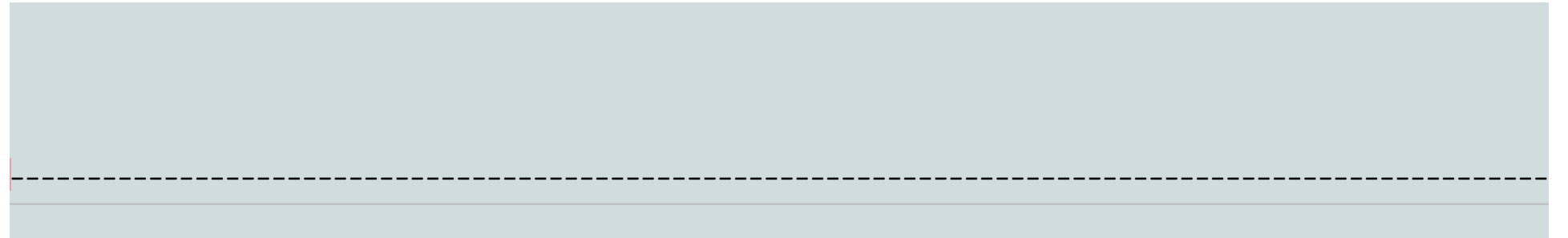
aligned sequence 2020-12-15_F07_JLJL115ASP4

aaggagctaaccgcttttttgcacaacatgggggatcatgtaactcgccttgatcgttgggaaccggagctgaatgaagccatacacaacgacgagcgtg

4,600 4,610 4,620 4,630 4,640 4,650 4,660 4,670 4,680 4,690

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



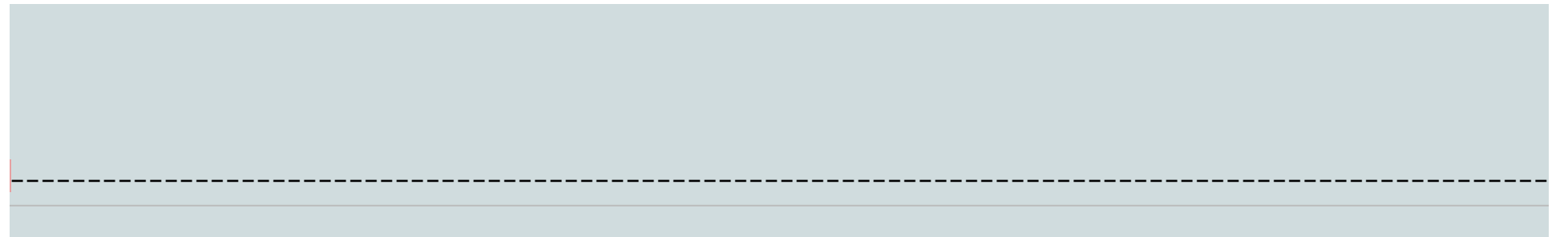
aligned sequence 2020-12-15_F07_JLJL115ASP4

acaccacgatgcctgtagcaatggcaacaacgttgcgcaaactattaactggcgaactacttactctagcttcccggcaacaattaatagactggatgga

4,700 4,710 4,720 4,730 4,740 4,750 4,760 4,770 4,780 4,790

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



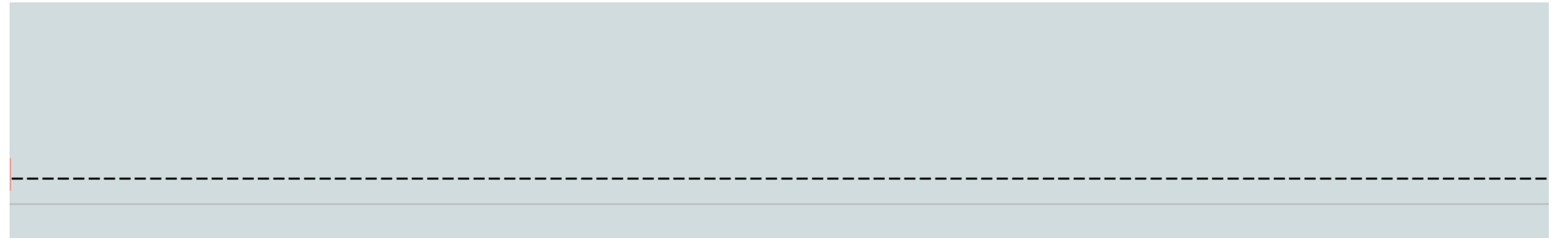
aligned sequence 2020-12-15_F07_JLJL115ASP4

ggcggataaagttgcaggaccacttctgcgctcggcccttccggctggctggttttattgctgataaatctggagccggtgagcgtgggttctcgcggtatc

4,800 4,810 4,820 4,830 4,840 4,850 4,860 4,870 4,880 4,890

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



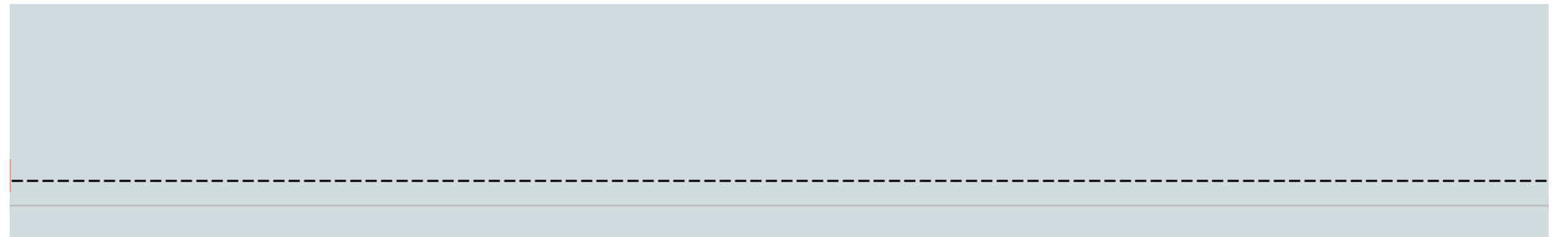
aligned sequence 2020-12-15_F07_JLJL115ASP4

attgcagcactggggccagatggtaagccctcccgtatcgtagttatctacacgacggggagtcaggcaactatggatgaacgaaatagacagatcgctg

4,900 4,910 4,920 4,930 4,940 4,950 4,960 4,970 4,980 4,990

>> AmpR >>

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



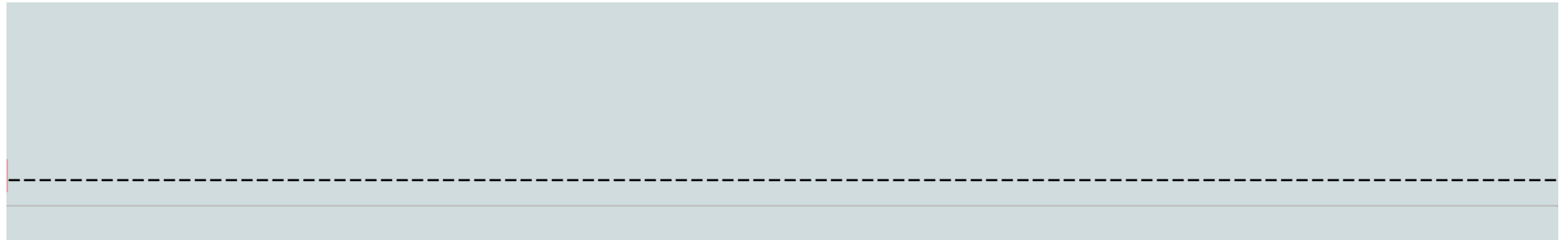
aligned sequence 2020-12-15_F07_JLJL115ASP4

agataggtgcctcactgattaagcattggtaactgtcagaccaagtttactcatatatacttttagattgatttaaaacttcatttttaatttaaaggat

5,000 5,010 5,020 5,030 5,040 5,050 5,060 5,070 5,080 5,090



template sequence pAS1.15 (J23119-mScarletI-TcppPX)

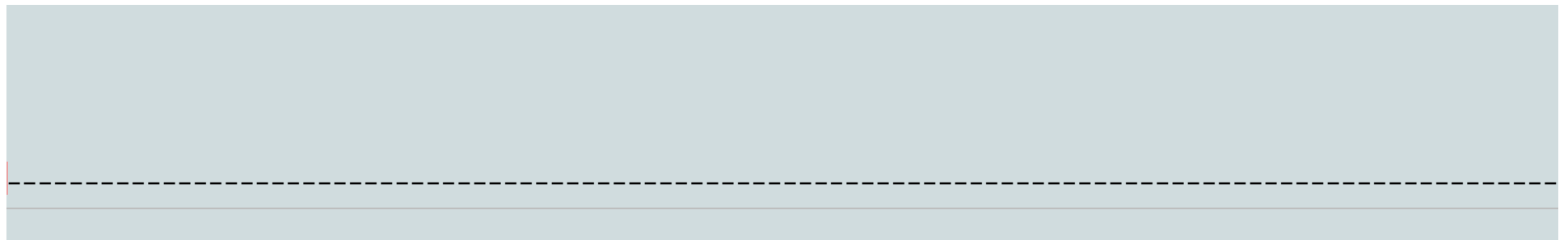


aligned sequence 2020-12-15_F07_JLJL115ASP4

ctaggtgaagatcctttttgataatctcatgacaaaatcccttaacgtgagttttcgttccactgagcgtcagaccccgtagaaaagatcaaaggatct

5,100 5,110 5,120 5,130 5,140 5,150 5,160 5,170 5,180 5,190

template sequence pAS1.15 (J23119-mScarletI-TcppPX)



aligned sequence 2020-12-15_F07_JLJL115ASP4

