PB2 (2341 bp)

Nature: cRNA 5’ → 3’

Source: NC_002023.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 1

AGCGAAAGCAGGTCAATTATATTCAATATGGAAAGAATAAAAGAACTAAGAAATCTAATGTCGCAGTCTC
GCACCCGCGAGATACTCACAAAAACCACCGTGGACCATATGGCCATAATCAAGAAGTACACATCAGGAAG
ACAGGAGAAGAACCCAGCACTTAGGATGAAATGGATGATGGCAATGAAATATCCAATTACAGCAGACAAG
AGGATAACGGAAATGATTCCTGAGAGAAATGAGCAAGGACAAACTTTATGGAGTAAAATGAATGATGCCG
GATCAGACCGAGTGATGGTATCACCTCTGGCTGTGACATGGTGGAATAGGAATGGACCAATGACAAATAC
AGTTCATTATCCAAAAATCTACAAAACTTATTTTGAAAGAGTCGAAAGGCTAAAGCATGGAACCTTTGGC
CCTGTCCATTTTAGAAACCAAGTCAAAATACGTCGGAGAGTTGACATAAATCCTGGTCATGCAGATCTCA
GTGCCAAGGAGGCACAGGATGTAATCATGGAAGTTGTTTTCCCTAACGAAGTGGGAGCCAGGATACTAAC
ATCGGAATCGCAACTAACGATAACCAAAGAGAAGAAAGAAGAACTCCAGGATTGCAAAATTTCTCCTTTG
ATGGTTGCATACATGTTGGAGAGAGAACTGGTCCGCAAAACGAGATTCCTCCCAGTGGCTGGTGGAACAA
GCAGTGTGTACATTGAAGTGTTGCATTTGACTCAAGGAACATGCTGGGAACAGATGTATACTCCAGGAGG
GGAAGTGAAGAATGATGATGTTGATCAAAGCTTGATTATTGCTGCTAGGAACATAGTGAGAAGAGCTGCA
GTATCAGCAGACCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAGATTGGTGGAATTAGGATGG
TAGACATCCTTAAGCAGAACCCAACAGAAGAGCAAGCCGTGGGTATATGCAAGGCTGCAATGGGACTGAG
AATTAGCTCATCCTTCAGTTTTGGTGGATTCACATTTAAGAGAACAAGCGGATCATCAGTCAAGAGAGAG
GAAGAGGTGCTTACGGGCAATCTTCAAACATTGAAGATAAGAGTGCATGAGGGATATGAAGAGTTCACAA
TGGTTGGGAGAAGAGCAACAGCCATACTCAGAAAAGCAACCAGGAGATTGATTCAGCTGATAGTGAGTGG
GAGAGACGAACAGTCGATTGCCGAAGCAATAATTGTGGCCATGGTATTTTCACAAGAGGATTGTATGATA
AAAGCAGTTAGAGGTGATCTGAATTTCGTCAATAGGGCGAATCAGCGACTGAATCCTATGCATCAACTTT
TAAGACATTTTCAGAAGGATGCGAAAGTGCTTTTTCAAAATTGGGGAGTTGAACCTATCGACAATGTGAT
GGGAATGATTGGGATATTGCCCGACATGACTCCAAGCATCGAGATGTCAATGAGAGGAGTGAGAATCAGC
AAAATGGGTGTAGATGAGTACTCCAGCACGGAGAGGGTAGTGGTGAGCATTGACCGGTTCTTGAGAGTCC
GGGACCAACGAGGAAATGTACTACTGTCTCCCGAGGAGGTCAGTGAAACACAGGGAACAGAGAAACTGAC
AATAACTTACTCATCGTCAATGATGTGGGAGATTAATGGTCCTGAATCAGTGTTGGTCAATACCTATCAA
TGGATCATCAGAAACTGGGAAACTGTTAAAATTCAGTGGTCCCAGAACCCTACAATGCTATACAATAAAA
TGGAATTTGAACCATTTCAGTCTTTAGTACCTAAGGCCATTAGAGGCCAATACAGTGGGTTTGTGAGAAC
TCTGTTCCAACAAATGAGGGATGTGCTTGGGACATTTGATACCGCACAGATAATAAAACTTCTTCCCTTC
GCAGCCGCTCCACCAAAGCAAAGTAGAATGCAGTTCTCCTCATTTACTGTGAATGTGAGGGGATCAGGAA
TGAGAATACTTGTAAGGGGCAATTCTCCTGTATTCAACTACAACAAGGCCACGAAGAGACTCACAGTTCT
CGGAAAGGATGCTGGCACTTTAACCGAAGACCCAGATGAAGGCACAGCTGGAGTGGAGTCCGCTGTTCTG
AGGGGATTCCTCATTCTGGGCAAAGAAGACAGGAGATATGGGCCAGCATTAAGCATCAATGAACTGAGCA
ACCTTGCGAAAGGAGAGAAGGCTAATGTGCTAATTGGGCAAGGAGACGTGGTGTTGGTAATGAAACGAAA
ACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGATGGCCATCAATTAGTGT
CGAATAGTTTAAAAACGACCTTGTTTCTACT

PB2 protein

Source: NP_040987.1 polymerase PB2 (759 aa)

Sequence: 1- 2341

MERIKELRNLMSQSRTREILTKTTVDHMAIIKKYTSGRQEKNPALRMKWMMAMKYPITADKRITEMIPER
NEQGQTLWSKMNDAGSDRVMVSPLAVTWWNRNGPMTNTVHYPKIYKTYFERVERLKHGTFGPVHFRNQVK
IRRRVDINPGHADLSAKEAQDVIMEVVFPNEVGARILTSESQLTITKEKKEELQDCKISPLMVAYMLERE
LVRKTRFLPVAGGTSSVYIEVLHLTQGTCWEQMYTPGGEVKNDDVDQSLIIAARNIVRRAAVSADPLASL
LEMCHSTQIGGIRMVDILKQNPTEEQAVGICKAAMGLRISSSFSFGGFTFKRTSGSSVKREEEVLTGNLQ
TLKIRVHEGYEEFTMVGRRATAILRKATRRLIQLIVSGRDEQSIAEAIIVAMVFSQEDCMIKAVRGDLNF
VNRANQRLNPMHQLLRHFQKDAKVLFQNWGVEPIDNVMGMIGILPDMTPSIEMSMRGVRISKMGVDEYSS
TERVVVSIDRFLRVRDQRGNVLLSPEEVSETQGTEKLTITYSSSMMWEINGPESVLVNTYQWIIRNWETV
KIQWSQNPTMLYNKMEFEPFQSLVPKAIRGQYSGFVRTLFQQMRDVLGTFDTAQIIKLLPFAAAPPKQSR
MQFSSFTVNVRGSGMRILVRGNSPVFNYNKATKRLTVLGKDAGTLTEDPDEGTAGVESAVLRGFLILGKE
DRRYGPALSINELSNLAKGEKANVLIGQGDVVLVMKRKRDSSILTDSQTATKRIRMAIN

PB2 (2341 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS_2022

NNNNNNAGCAGGTCAATTATATTCAATATGGAAAGAATAAAAGAACTACGAAATCTAATGTCGCAGTCTCGCACC
CGCGAGATACTCACAAAAACCACCGTGGACCATATGGCCATAATCAAGAAGTACACATCAGGAAGACAGGAGAAG
AACCCAGCACTTAGGATGAAATGGATGATGGCAATGAAATATCCAATTACAGCAGACAAGAGGATAACGGAAATG
ATTCCTGAGAGAAATGAGCAAGGACAAACTTTATGGAGTAAAATGAATGATGCCGGATCAGACCGAGTGATGGTA
TCACCTCTGGCTGTGACATGGTGGAATAGGAATGGACCAATAACAAATACAGTTCATTATCCAAAAATCTACAAA
ACTTATTTTGAAAGAGTCGAAAGGCTAAAGCATGGAACCTTTGGCCCTGTCCATTTTAGAAACCAAGTCAAAATA
CGTCGGAGAGTTGACATAAATCCTGGTCATGCAGATCTCAGTGCCAAGGAGGCACAGGATGTAATCATGGAAGTT
GTTTTCCCTAACGAAGTGGGAGCCAGGATACTAACATCGGAATCGCAACTAACGATAACCAAAGAGAAGAAAGAA
GAACTCCAGGATTGCAAAATTTCTCCTTTGATGGTTGCATACATGTTGGAGAGAGAACTGGTCCGCAAAACGAGA
TTCCTCCCAGTGGCTGGTGGAACAAGCAGTGTGTACATTGAAGTGTTGCATTTGACTCAAGGAACATGCTGGGAA
CAGATGTATACTCCAGGAGGGGAAGTGAGGAATGATGATGTTGATCAAAGCTTGATTATTGCTGCTAGGAACATA
GTGAGAAGAGCTGCAGTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAGATTGGTGGA
ATTAGGATGGTAGACATCCTTAGGCAGAACCCAACAGAAGAGCAAGCCGTGGATATATGCAAGGCTGCAATGGGA
CTGAGAATTAGCTCATCCTTCAGTTTTGGTGGATTCACATTTAAGAGAACAAGCGGATCATCAGTCAAGAGAGAG
GAAGAGGTGCTTACGGGCAATCTTCAAACATTGAAGATAAGAGTGCATGAGGGATATGAAGAGTTCACAATGGTT
GGGAGAAGAGCAACAGCCATACTCAGAAAAGCAACCAGGAGATTGATTCAGCTGATAGTGAGTGGGAGAGACGAA
CAGTCGATTGCCGAAGCAATAATTGTGGCCATGGTATTTTCACAAGAGGATTGTATGATAAAAGCAGTCAGAGGT
GATCTGAATTTCGTCAATAGGGCGAATCAACGATTGAATCCTATGCATCAACTTTTAAGACATTTTCAGAAGGAT
GCGAAAGTGCTTTTTCAAAATTGGGGAGTTGAACCTATCGACAATGTGATGGGAATGATTGGGATATTGCCCGAC
ATGACTCCAAGCATCGAGATGTCAATGAGAGGAGTGAGAATCAGCAAAATGGGTGTAGATGAGTACTCCAGCACG
GAGAGGGTAGTGGTGAGCATTGACCGTTTTTTGAGAATCCGGGACCAACGAGGAAATGTACTACTGTCTCCCGAG
GAGGTCAGTGAAACACAGGGAACAGAGAAACTGACAATAACTTACTCATCGTCAATGATGTGGGAGATTAATGGT
CCTGAATCAGTGTTGGTCAATACCTATCAATGGATCATCAGAAACTGGGAAACTGTTAAAATTCAGTGGTCCCAG
AACCCTACAATGCTATACAATAAAATGGAATTTGAACCATTTCAGTCTTTAGTACCTAAGGCCATTAGAGGCCAA
TACAGTGGGTTTGTAAGAACTCTGTTCCAACAAATGAGGGATGTGCTTGGGACATTTGATACCGCACAGATAATA
AAACTTCTTCCCTTCGCAGCCGCTCCACCAAAGCAAAGTAGAATGCAGTTCTCCTCATTTACTGTGAATGTGAGG
GGATCAGGAATGAGAATACTTGTAAGGGGCAATTCTCCTGTATTCAACTATAACAAGGCCACGAAGAGACTCACA
GTTCTCGGAAAGGATGCTGGCACTTTAACTGAAGACCCAGATGAAGGCACAGCTGGAGTGGAGTCCGCTGTTCTG
AGGGGATTCCTCATTCTGGGCAAAGAAGACAAGAGATATGGGCCAGCACTAAGCATCAATGAACTGAGCAACCTT
GCGAAAGGAGAGAAGGCTAATGTGCTAATTGGGCAAGGAGACGTGGTGTTGGTAATGAAACGGAAACGGGACTCT
AGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGATGGCCATCAATTAGTGTCGAATAGTTTAAAAA
CGACCTTGNNNNNNNN

PB2 (2341 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCGAAAGCAGGTCAATTATATTCAATATGGAAAGAATAAAAGAACTACGAAATCTAATGTCGCAGTCTCGCACC
CGCGAGATACTCACAAAAACCACCGTGGACCATATGGCCATAATCAAGAAGTACACATCAGGAAGACAGGAGAAG
AACCCAGCACTTAGGATGAAATGGATGATGGCAATGAAATATCCAATTACAGCAGACAAGAGGATAACGGAAATG
ATTCCTGAGAGAAATGAGCAAGGACAAACTTTATGGAGTAAAATGAATGATGCCGGATCAGACCGAGTGATGGTA
TCACCTCTGGCTGTGACATGGTGGAATAGGAATGGACCAATAACAAATACAGTTCATTATCCAAAAATCTACAAA
ACTTATTTTGAAAGAGTCGAAAGGCTAAAGCATGGAACCTTTGGCCCTGTCCATTTTAGAAACCAAGTCAAAATA
CGTCGGAGAGTTGACATAAATCCTGGTCATGCAGATCTCAGTGCCAAGGAGGCACAGGATGTAATCATGGAAGTT
GTTTTCCCTAACGAAGTGGGAGCCAGGATACTAACATCGGAATCGCAACTAACGATAACCAAAGAGAAGAAAGAA
GAACTCCAGGATTGCAAAATTTCTCCTTTGATGGTTGCATACATGTTGGAGAGAGAACTGGTCCGCAAAACGAGA
TTCCTCCCAGTGGCTGGTGGAACAAGCAGTGTGTACATTGAAGTGTTGCATTTGACTCAAGGAACATGCTGGGAA
CAGATGTATACTCCAGGAGGGGAAGTGAGGAATGATGATGTTGATCAAAGCTTGATTATTGCTGCTAGGAACATA
GTGAGAAGAGCTGCAGTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAGATTGGTGGA
ATTAGGATGGTAGACATCCTTAGGCAGAACCCAACAGAAGAGCAAGCCGTGGATATATGCAAGGCTGCAATGGGA
CTGAGAATTAGCTCATCCTTCAGTTTTGGTGGATTCACATTTAAGAGAACAAGCGGATCATCAGTCAAGAGAGAG
GAAGAGGTGCTTACGGGCAATCTTCAAACATTGAAGATAAGAGTGCATGAGGGATATGAAGAGTTCACAATGGTT
GGGAGAAGAGCAACAGCCATACTCAGAAAAGCAACCAGGAGATTGATTCAGCTGATAGTGAGTGGGAGAGACGAA
CAGTCGATTGCCGAAGCAATAATTGTGGCCATGGTATTTTCACAAGAGGATTGTATGATAAAAGCAGTCAGAGGT
GATCTGAATTTCGTCAATAGGGCGAATCAACGATTGAATCCTATGCATCAACTTTTAAGACATTTTCAGAAGGAT
GCGAAAGTGCTTTTTCAAAATTGGGGAGTTGAACCTATCGACAATGTGATGGGAATGATTGGGATATTGCCCGAC
ATGACTCCAAGCATCGAGATGTCAATGAGAGGAGTGAGAATCAGCAAAATGGGTGTAGATGAGTACTCCAGCACG
GAGAGGGTAGTGGTGAGCATTGACCGTTTTTTTGAGAATCCGGGACCAACGAGGAAATGTACTACTGTCTCCCGAG
GAGGTCAGTGAAACACAGGGAACAGAGAAACTGACAATAACTTACTCATCGTCAATGATGTGGGAGATTAATGGT
CCTGAATCAGTGTTGGTCAATACCTATCAATGGATCATCAGAAACTGGGAAACTGTTAAAATTCAGTGGTCCCAG
AACCCTACAATGCTATACAATAAAATGGAATTTGAACCATTTCAGTCTTTAGTACCTAAGGCCATTAGAGGCCAA
TACAGTGGGTTTGTAAGAACTCTGTTCCAACAAATGAGGGATGTGCTTGGGACATTTGATACCGCACAGATAATA
AAACTTCTTCCCTTCGCAGCCGCTCCACCAAAGCAAAGTAGAATGCAGTTCTCCTCATTTACTGTGAATGTGAGG
GGATCAGGAATGAGAATACTTGTAAGGGGCAATTCTCCTGTATTCAACTATAACAAGGCCACGAAGAGACTCACA
GTTCTCGGAAAGGATGCTGGCACTTTAACTGAAGACCCAGATGAAGGCACAGCTGGAGTGGAGTCCGCTGTTCTG
AGGGGATTCCTCATTCTGGGCAAAGAAGACAAGAGATATGGGCCAGCACTAAGCATCAATGAACTGAGCAACCTT
GCGAAAGGAGAGAAGGCTAATGTGCTAATTGGGCAAGGAGACGTGGTGTTGGTAATGAAACGGAAACGGGACTCT
AGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGATGGCCATCAATTAGTGTCGAATAGTTTAAAAA
CGACCTTGTTTCTACT

PB1 (2341 bp)

Nature: cRNA

Source: NC_002021.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 2

AGCGAAAGCAGGCAAACCATTTGAATGGATGTCAATCCGACCTTACTTTTCTTAAAAGTGCCAGCACAAA
ATGCTATAAGCACAACTTTCCCTTATACCGGAGACCCTCCTTACAGCCATGGGACAGGAACAGGATACAC
CATGGATACTGTCAACAGGACACATCAGTACTCAGAAAAGGCAAGATGGACAACAAACACCGAAACTGGA
GCACCGCAACTCAACCCGATTGATGGGCCACTGCCAGAAGACAATGAACCAAGTGGTTATGCCCAAACAG
ATTGTGTATTGGAAGCAATGGCTTTCCTTGAGGAATCCCATCCTGGTATTTTTGAAAACTCGTGTATTGA
AACGATGGAGGTTGTTCAGCAAACACGAGTAGACAAGCTGACACAAGGCCGACAGACCTATGACTGGACT
TTAAATAGAAACCAGCCTGCTGCAACAGCATTGGCCAACACAATAGAAGTGTTCAGATCAAATGGCCTCA
CGGCCAATGAGTCTGGAAGGCTCATAGACTTCCTTAAGGATGTAATGGAGTCAATGAAAAAAGAAGAAAT
GGGGATCACAACTCATTTTCAGAGAAAGAGACGGGTGAGAGACAATATGACTAAGAAAATGATAACACAG
AGAACAATAGGTAAAAGGAAACAGAGATTGAACAAAAGGAGTTATCTAATTAGAGCATTGACCCTGAACA
CAATGACCAAAGATGCTGAGAGAGGGAAGCTAAAACGGAGAGCAATTGCAACCCCAGGGATGCAAATAAG
GGGGTTTGTATACTTTGTTGAGACACTGGCAAGGAGTATATGTGAGAAACTTGAACAATCAGGGTTGCCA
GTTGGAGGCAATGAGAAGAAAGCAAAGTTGGCAAATGTTGTAAGGAAGATGATGACCAATTCTCAGGACA
CCGAACTTTCTTTGACCATCACTGGAGATAACACCAAATGGAACGAAAATCAGAATCCTCGGATGTTTTT
GGCCATGATCACATATATGACCAGAAATCAGCCCGAATGGTTCAGAAATGTTCTAAGTATTGCTCCAATA
ATGTTCTCAAACAAAATGGCGAGACTGGGAAAAGGGTATATGTTTGAGAGCAAGAGTATGAAACTTAGAA
CTCAAATACCTGCAGAAATGCTAGCAAGCATTGATTTGAAATATTTCAATGATTCAACAAGAAAGAAGAT
TGAAAAAATCCGACCGCTCTTAATAGAGGGGACTGCATCATTGAGCCCTGGAATGATGATGGGCATGTTC
AATATGTTAAGCACTGTATTAGGCGTCTCCATCCTGAATCTTGGACAAAAGAGATACACCAAGACTACTT
ACTGGTGGGATGGTCTTCAATCCTCTGACGATTTTGCTCTGATTGTGAATGCACCCAATCATGAAGGGAT
TCAAGCCGGAGTCGACAGGTTTTATCGAACCTGTAAGCTACATGGAATCAATATGAGCAAGAAAAAGTCT
TACATAAACAGAACAGGTACATTTGAATTCACAAGTTTTTTCTATCGTTATGGGTTTGTTGCCAATTTCA
GCATGGAGCTTCCCAGTTTTGGTGTGTCTGGGAGCAACGAGTCAGCGGACATGAGTATTGGAGTTACTGT
CATCAAAAACAATATGATAAACAATGATCTTGGTCCAGCAACAGCTCAAATGGCCCTTCAGTTGTTCATC
AAAGATTACAGGTACACGTACCGATGCCATAGAGGTGACACACAAATACAAACCCGAAGATCATTTGAAA
TAAAGAAACTGTGGGAGCAAACCCGTTCCAAAGCTGGACTGCTGGTCTCCGACGGAGGCCCAAATTTATA
CAACATTAGAAATCTCCACATTCCTGAAGTCTGCCTAAAATGGGAATTGATGGATGAGGATTACCAGGGG
CGTTTATGCAACCCACTGAACCCATTTGTCAGCCATAAAGAAATTGAATCAATGAACAATGCAGTGATGA
TGCCAGCACATGGTCCAGCCAAAAACATGGAGTATGATGCTGTTGCAACAACACACTCCTGGATCCCCAA
AAGAAATCGATCCATCTTGAATACAAGTCAAAGAGGAGTACTTGAAGATGAACAAATGTACCAAAGGTGC
TGCAATTTATTTGAAAAATTCTTCCCCAGCAGTTCATACAGAAGACCAGTCGGGATATCCAGTATGGTGG
AGGCTATGGTTTCCAGAGCCCGAATTGATGCACGGATTGATTTCGAATCTGGAAGGATAAAGAAAGAAGA
GTTCACTGAGATCATGAAGATCTGTTCCACCATTGAAGAGCTCAGACGGCAAAAATAGTGAATTTAGCTT
GTCCTTCATGAAAAAATGCCTTGTTCCTACT

PB1 protein

Source: NP_040985.1 polymerase PB1 (757 aa)

Sequence: 25 - 2298

MDVNPTLLFLKVPAQNAISTTFPYTGDPPYSHGTGTGYTMDTVNRTHQYSEKARWTTNTETGAPQLNPID
GPLPEDNEPSGYAQTDCVLEAMAFLEESHPGIFENSCIETMEVVQQTRVDKLTQGRQTYDWTLNRNQPAA
TALANTIEVFRSNGLTANESGRLIDFLKDVMESMKKEEMGITTHFQRKRRVRDNMTKKMITQRTIGKRKQ
RLNKRSYLIRALTLNTMTKDAERGKLKRRAIATPGMQIRGFVYFVETLARSICEKLEQSGLPVGGNEKKA
KLANVVRKMMTNSQDTELSLTITGDNTKWNENQNPRMFLAMITYMTRNQPEWFRNVLSIAPIMFSNKMAR
LGKGYMFESKSMKLRTQIPAEMLASIDLKYFNDSTRKKIEKIRPLLIEGTASLSPGMMMGMFNMLSTVLG
VSILNLGQKRYTKTTYWWDGLQSSDDFALIVNAPNHEGIQAGVDRFYRTCKLHGINMSKKKSYINRTGTF
EFTSFFYRYGFVANFSMELPSFGVSGSNESADMSIGVTVIKNNMINNDLGPATAQMALQLFIKDYRYTYR
CHRGDTQIQTRRSFEIKKLWEQTRSKAGLLVSDGGPNLYNIRNLHIPEVCLKWELMDEDYQGRLCNPLNP
FVSHKEIESMNNAVMMPAHGPAKNMEYDAVATTHSWIPKRNRSILNTSQRGVLEDEQMYQRCCNLFEKFF
PSSSYRRPVGISSMVEAMVSRARIDARIDFESGRIKKEEFTEIMKICSTIEELRRQK

PB1-F2 protein

Source: YP_418248.1 (87 aa)

Sequence: 119- 382

MGQEQDTPWILSTGHISTQKRQDGQQTPKLEHRNSTRLMGHCQKTMNQVVMPKQIVYWKQWLSLRNPILV
FLKTRVLKRWRLFSKHE

PB1 (2341 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNAAGCAGGCAAACCATTTGAATGGATGTCAATCCGACCTTACTTTTCTTAAAAGTGCC
AGCACAAAATGCTATAAGCACAACTTTCCCTTATACTGGAGACCCTCCTTACAGCCATGGGA
CAGGAACAGGATACACCATGGATACTGTCAACAGGACACATCAGTACTCAGAAAAGGGAAGA
TGGACAACAAACACCGAAACTGGAGCACCGCAACTCAACCCGATTGATGGGCCACTGCCAGA
AGACAATGAACCAAGTGGTTATGCCCAAACAGATTGTGTATTGGAGGCGATGGCTTTCCTTG
AGGAATCCCATCCTGGTATTTTTGAAAACTCGTGTATTGAAACGATGGAGGTTGTTCAGCAA
ACACGAGTAGACAAGCTGACACAAGGCCGACAGACCTATGACTGGACTCTAAATAGAAACCA
ACCTGCTGCAACAGCATTGGCCAACACAATAGAAGTGTTCAGATCAAATGGCCTCACGGCCA
ATGAGTCTGGAAGGCTCATAGACTTCCTTAAGGATGTAATGGAGTCAATGAACAAAGAAGAA
ATGGGGATCACAACTCATTTTCAGAGAAAGAGACGGGTGAGAGACAATATGACTAAGAAAAT
GATAACACAGAGAACAATGGGTAAAAAGAAGCAGAGATTGAACAAAAGGAGTTATCTAATTA
GAGCATTGACCCTGAACACAATGACCAAAGATGCTGAGAGAGGGAAGCTAAAACGGAGAGCA
ATTGCAACCCCAGGGATGCAAATAAGGGGGTTTGTATACTTTGTTGAGACACTGGCAAGGAG
TATATGTGAGAAACTTGAACAATCAGGGTTGCCAGTTGGAGGCAATGAGAAGAAAGCAAAGT
TGGCAAATGTTGTAAGGAAGATGATGACCAATTCTCAGGACACCGAACTTTCTTTCACCATC
ACTGGAGATAACACCAAATGGAACGAAAATCAGAATCCTCGGATGTTTTTGGCCATGATCAC
ATATATGACCAGAAATCAGCCCGAATGGTTCAGAAATGTTCTAAGTATTGCTCCAATAATGT
TCTCAAACAAAATGGCGAGACTGGGAAAAGGGTATATGTTTGAGAGCAAGAGTATGAAACTT
AGAACTCAAATACCTGCAGAAATGCTAGCAAGCATCGATTTGAAATATTTCAATGATTCAAC
AAGAAAGAAGATTGAAAAAATCCGACCGCTCTTAATAGAGGGGACTGCATCATTGAGCCCTG
GAATGATGATGGGCATGTTCAATATGTTAAGCACTGTATTAGGCGTCTCCATCCTGAATCTT
GGACAAAAGAGATACACCAAGACTACTTACTGGTGGGATGGTCTTCAATCCTCTGACGATTT
TGCTCTGATTGTGAATGCACCCAATCATGAAGGGATTCAAGCCGGAGTCGACAGGTTTTATC
GAACCTGTAAGCTACTTGGAATCAATATGAGCAAGAAAAAGTCTTACATAAACAGAACAGGT
ACATTTGAATTCACAAGTTTTTTCTATCGTTATGGGTTTGTTGCCAATTTCAGCATGGAGCT
TCCCAGTTTTGGGGTGTCTGGGATCAACGAGTCAGCGGACATGAGTATTGGAGTTACTGTCA
TCAAAAACAATATGATAAACAATGATCTTGGTCCAGCAACAGCTCAAATGGCCCTTCAGTTG
TTCATCAAAGATTACAGGTACACGTACCGATGCCATATAGGTGACACACAAATACAAACCCG
AAGATCATTTGAAATAAAGAAACTGTGGGAGCAAACCCGTTCCAAAGCTGGACTGCTGGTCT
CCGACGGAGGCCCAAATTTATACAACATTAGAAATCTCCACATTCCTGAAGTCTGCCTAAAA
TGGGAATTGATGGATGAGGATTACCAGGGGCGTTTATGCAACCCACTGAACCCATTTGTCAG
CCATAAAGAAATTGAATCAATGAACAATGCAGTGATGATGCCAGCACATGGTCCAGCCAAAA
ACATGGAGTATGATGCTGTTGCAACAACACACTCCTGGATCCCCAAAAGAAATCGATCCATC
TTGAATACAAGTCAAAGAGGAGTACTTGAGGATGAACAAATGTACCAAAGGTGCTGCAATTT
ATTTGAAAAATTCTTCCCCAGCAGTTCATACAGAAGACCAGTCGGGATATCCAGTATGGTGG
AGGCTATGGTTTCCAGAGCCCGAATTGATGCACGGATTGATTTCGAATCTGGAAGGATAAAG
AAAGAAGAGTTCACTGAGATCATGAAGATCTGTTCCACCATTGAAGAGCTCAGACGGCAAAA
ATAGTGAATTTAGCTTGTCCTTCATGAAAAAATGCCTTGNNNNNNNN

PB1 (2341 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_ACJ_2023

AGCGAAAGCAGGCAAACCATTTGA**ATG**GATGTCAATCCGACCTTACTTTTCTTAAAAGTGCC
AGCACAAAATGCTATAAGCACAACTTTCCCTTATACTGGAGACCCTCCTTACAGCC**ATG**GGA
CAGGAACAGGATACACCATGGATACTGTCAACAGGACACATCAGTACTCAGAAAAGGGAAGA
TGGACAACAAACACCGAAACTGGAGCACCGCAACTCAACCCGATTGATGGGCCACTGCCAGA
AGACAATGAACCAAGTGGTTATGCCCAAACAGATTGTGTATTGGAGGCGATGGCTTTCCTTG
AGGAATCCCATCCTGGTATTTTTGAAAACTCGTGTATTGAAACGATGGAGGTTGTTCAGCAA
ACACGAGTAGACAAGCTGACACAAGGCCGACAGACCTATGACTGGACTCTAAATAGAAACCA
ACCTGCTGCAACAGCATTGGCCAACACAATAGAAGTGTTCAGATCAAATGGCCTCACGGCCA
ATGAGTCTGGAAGGCTCATAGACTTCCTTAAGGATGTAATGGAGTCAATGAACAAAGAAGAA
ATGGGGATCACAACTCATTTTCAGAGAAAGAGACGGGTGAGAGACAATATGACTAAGAAAAT
GATAACACAGAGAACAATGGGTAAAAAGAAGCAGAGATTGAACAAAAGGAGTTATCTAATTA
GAGCATTGACCCTGAACACAATGACCAAAGATGCTGAGAGAGGGAAGCTAAAACGGAGAGCA
ATTGCAACCCCAGGGATGCAAATAAGGGGGTTTGTATACTTTGTTGAGACACTGGCAAGGAG
TATATGTGAGAAACTTGAACAATCAGGGTTGCCAGTTGGAGGCAATGAGAAGAAAGCAAAGT
TGGCAAATGTTGTAAGGAAGATGATGACCAATTCTCAGGACACCGAACTTTCTTTCACCATC
ACTGGAGATAACACCAAATGGAACGAAAATCAGAATCCTCGGATGTTTTTGGCCATGATCAC
ATATATGACCAGAAATCAGCCCGAATGGTTCAGAAATGTTCTAAGTATTGCTCCAATAATGT
TCTCAAACAAAATGGCGAGACTGGGAAAAGGGTATATGTTTGAGAGCAAGAGTATGAAACTT
AGAACTCAAATACCTGCAGAAATGCTAGCAAGCATCGATTTGAAATATTTCAATGATTCAAC
AAGAAAGAAGATTGAAAAAATCCGACCGCTCTTAATAGAGGGGACTGCATCATTGAGCCCTG
GAATGATGATGGGCATGTTCAATATGTTAAGCACTGTATTAGGCGTCTCCATCCTGAATCTT
GGACAAAAGAGATACACCAAGACTACTTACTGGTGGGATGGTCTTCAATCCTCTGACGATTT
TGCTCTGATTGTGAATGCACCCAATCATGAAGGGATTCAAGCCGGAGTCGACAGGTTTTATC
GAACCTGTAAGCTACTTGGAATCAATATGAGCAAGAAAAAGTCTTACATAAACAGAACAGGT
ACATTTGAATTCACAAGTTTTTTCTATCGTTATGGGTTTGTTGCCAATTTCAGCATGGAGCT
TCCCAGTTTTGGGGTGTCTGGGATCAACGAGTCAGCGGACATGAGTATTGGAGTTACTGTCA
TCAAAAACAATATGATAAACAATGATCTTGGTCCAGCAACAGCTCAAATGGCCCTTCAGTTG
TTCATCAAAGATTACAGGTACACGTACCGATGCCATATAGGTGACACACAAATACAAACCCG
AAGATCATTTGAAATAAAGAAACTGTGGGAGCAAACCCGTTCCAAAGCTGGACTGCTGGTCT
CCGACGGAGGCCCAAATTTATACAACATTAGAAATCTCCACATTCCTGAAGTCTGCCTAAAA
TGGGAATTGATGGATGAGGATTACCAGGGGCGTTTATGCAACCCACTGAACCCATTTGTCAG
CCATAAAGAAATTGAATCAATGAACAATGCAGTGATGATGCCAGCACATGGTCCAGCCAAAA
ACATGGAGTATGATGCTGTTGCAACAACACACTCCTGGATCCCCAAAAGAAATCGATCCATC
TTGAATACAAGTCAAAGAGGAGTACTTGAGGATGAACAAATGTACCAAAGGTGCTGCAATTT
ATTTGAAAAATTCTTCCCCAGCAGTTCATACAGAAGACCAGTCGGGATATCCAGTATGGTGG
AGGCTATGGTTTCCAGAGCCCGAATTGATGCACGGATTGATTTCGAATCTGGAAGGATAAAG
AAAGAAGAGTTCACTGAGATCATGAAGATCTGTTCCACCATTGAAGAGCTCAGACGGCAAAA
ATAGTGAATTTAGCTTGTCCTTCATGAAAAAATGCCTTGTTTCTACT

PA (2233 bp)

Nature: cRNA

Source: NC_002022.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 3

AGCGAAAGCAGGTACTGATCCAAAATGGAAGATTTTGTGCGACAATGCTTCAATCCGATGATTGTCGAGC
TTGCGGAAAAAACAATGAAAGAGTATGGGGAGGACCTGAAAATCGAAACAAACAAATTTGCAGCAATATG
CACTCACTTGGAAGTATGCTTCATGTATTCAGATTTCCACTTCATCAATGAGCAAGGCGAGTCAATAATC
GTAGAACTTGGTGATCCTAATGCACTTTTGAAGCACAGATTTGAAATAATCGAGGGAAGAGATCGCACAA
TGGCCTGGACAGTAGTAAACAGTATTTGCAACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTT
GTATGATTACAAGGAAAATAGATTCATCGAAATTGGAGTAACAAGGAGAGAAGTTCACATATACTATCTG
GAAAAGGCCAATAAAATTAAATCTGAGAAAACACACATCCACATTTTCTCGTTCACTGGGGAAGAAATGG
CCACAAAGGCCGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGGCTATTCACCATAAG
ACAAGAAATGGCCAGCAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAGAGAGGAGAAGAGACAATTGAA
GAAAGGTTTGAAATCACAGGAACAATGCGCAAGCTTGCCGACCAAAGTCTCCCGCCGAACTTCTCCAGCC
TTGAAAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGCTACATTGAGGGCAAGCTGTCTCAAAT
GTCCAAAGAAGTAAATGCTAGAATTGAACCTTTTTTGAAAACAACACCACGACCACTTAGACTTCCGAAT
GGGCCTCCCTGTTCTCAGCGGTCCAAATTCCTGCTGATGGATGCCTTAAAATTAAGCATTGAGGACCCAA
GTCATGAAGGAGAGGGAATACCGCTATATGATGCAATCAAATGCATGAGAACATTCTTTGGATGGAAGGA
ACCCAATGTTGTTAAACCACACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTG
GCAGAACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAATATGAAAAAAACAAGTCAGC
TAAAGTGGGCACTTGGTGAGAACATGGCACCAGAAAAGGTAGACTTTGACGACTGTAAAGATGTAGGTGA
TTTGAAGCAATATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTTGGATTCAGAATGAGTTCAAC
AAGGCATGCGAACTGACAGATTCAAGCTGGATAGAGCTTGATGAGATTGGAGAAGATGTGGCTCCAATTG
AACACATTGCAAGCATGAGAAGGAATTATTTCACATCAGAGGTGTCTCACTGCAGAGCCACAGAATACAT
AATGAAGGGGGTGTACATCAATACTGCCTTACTTAATGCATCTTGTGCAGCAATGGATGATTTCCAATTA
ATTCCAATGATAAGCAAGTGTAGAACTAAGGAGGGAAGGCGAAAGACCAACTTGTATGGTTTCATCATAA
AAGGAAGATCCCACTTAAGGAATGACACCGACGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGA
CCCAAGACTTGAACCACACAAATGGGAGAAGTACTGTGTTCTTGAGATAGGAGATATGCTTCTAAGAAGT
GCCATAGGCCAGGTTTCAAGGCCCATGTTCTTGTATGTGAGGACAAATGGAACCTCAAAAATTAAAATGA
AATGGGGAATGGAGATGAGGCGTTGTCTCCTCCAGTCACTTCAACAAATTGAGAGTATGATTGAAGCTGA
GTCCTCTGTCAAAGAGAAAGACATGACCAAAGAGTTCTTTGAGAACAAATCAGAAACATGGCCCATTGGA
GAGTCTCCCAAAGGAGTGGAGGAAAGTTCCATTGGGAAGGTCTGCAGGACTTTATTAGCAAAGTCGGTAT
TTAACAGCTTGTATGCATCTCCACAACTAGAAGGATTTTCAGCTGAATCAAGAAAACTGCTTCTTATCGT
TCAGGCTCTTAGGGACAATCTGGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAG
TGCCTAATTAATGATCCCTGGGTTTTGCTTAATGCTTCTTGGTTCAACTCCTTCCTTACACATGCATTGA
GTTAGTTGTGGCAGTGCTACTATTTGCTATCCATACTGTCCAAAAAAGTACCTTGTTTCTACT

PA protein

Source: NP_040986.1 (716 aa)

Sequence: 25 - 2175

MEDFVRQCFNPMIVELAEKTMKEYGEDLKIETNKFAAICTHLEVCFMYSDFHFINEQGESIIVELGDPNA
LLKHRFEIIEGRDRTMAWTVVNSICNTTGAEKPKFLPDLYDYKENRFIEIGVTRREVHIYYLEKANKIKS
EKTHIHIFSFTGEEMATKADYTLDEESRARIKTRLFTIRQEMASRGLWDSFRQSERGEETIEERFEITGT
MRKLADQSLPPNFSSLENFRAYVDGFEPNGYIEGKLSQMSKEVNARIEPFLKTTPRPLRLPNGPPCSQRS
KFLLMDALKLSIEDPSHEGEGIPLYDAIKCMRTFFGWKEPNVVKPHEKGINPNYLLSWKQVLAELQDIEN
EEKIPKTKNMKKTSQLKWALGENMAPEKVDFDDCKDVGDLKQYDSDEPELRSLASWIQNEFNKACELTDS
SWIELDEIGEDVAPIEHIASMRRNYFTSEVSHCRATEYIMKGVYINTALLNASCAAMDDFQLIPMISKCR
TKEGRRKTNLYGFIIKGRSHLRNDTDVVNFVSMEFSLTDPRLEPHKWEKYCVLEIGDMLLRSAIGQVSRP
MFLYVRTNGTSKIKMKWGMEMRRCLLQSLQQIESMIEAESSVKEKDMTKEFFENKSETWPIGESPKGVEE
SSIGKVCRTLLAKSVFNSLYASPQLEGFSAESRKLLLIVQALRDNLEPGTFDLGGLYEAIEECLINDPWV
LLNASWFNSFLTHALS

PA-X protein

Source: YP_006495785.1 (252 aa)

Sequence: 25 - 784

MEDFVRQCFNPMIVELAEKTMKEYGEDLKIETNKFAAICTHLEVCFMYSDFHFINEQGESIIVELGDPNA
LLKHRFEIIEGRDRTMAWTVVNSICNTTGAEKPKFLPDLYDYKENRFIEIGVTRREVHIYYLEKANKIKS
EKTHIHIFSFTGEEMATKADYTLDEESRARIKTRLFTIRQEMASRGLWDSFVSPREEKRQLKKGLKSQEQ
CASLPTKVSRRTSPALKILEPMWMDSNRTATLRASCLKCPKK

PA (2233 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNAAGCAGGTACTGATCCAAAATGGAAGATTTTGTGCGACAATGCTTCAATCCGATGAT
TGTCGAGCTTGCGGAAAAAACAATGAAAGAGTATGGGGAGGACCTGAAAATCGAAACAAACA
AATTTGCAGCAATATGCACTCACTTGGAAGTATGCTTCATGTATTCAGATTTTCACTTCATC
AATGAGCAAGGCGAGTCAATAATCGTAGAACTTGGTGATCCAAATGCACTTTTGAAGCACAG
ATTTGAAATAATCGAGGGAAGAGATCGCACAATGGCCTGGACAGTAGTAAACAGTATTTGCA
ACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTTGTATGATTACAAGGAGAATAGA
TTCATCGAAATTGGAGTAACAAGGAGAGAAGTTCACATATACTATCTGGAAAAGGCCAATAA
AATTAAATCTGAGAAAACACACATCCACATTTTCTCGTTCACTGGGGAAGAAATGGCCACAA
AGGCAGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGACTATTCACCATA
AGACAAGAAATGGCCAGCAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAGAGAGGAGAAGA
GACAATTGAAGAAAGGTTTGAAATCACAGGAACAATGCGTAAGCTTGCCGACCAAAGTCTCC
CGCCGAACTTCTCCAGCCTTGAAAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGC
TACATTGAGGGCAAGCTGTCTCAAATGTCCAAAGAAGTAAATGCTAGAATTGAACCTTTTTT
GAAAACAACACCACGACCACTTAGACTTCCGAATGGGCCTCCCTGTTCTCAGCGGTCCAAAT
TCCTGCTGATGGATGCCTTAAAATTAAGCATTGAGGACCCAAGTCATGAAGGAGAGGGAATA
CCGCTATATGATGCAATCAAATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGT
TAAACCACACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTGGCAG
AACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAATATGAAGAAAACAAGT
CAGCTAAAGTGGGCACTTGGTGAGAACATGGCACCAGAAAAGGTAGACTTTGACGACTGTAA
AGATGTAGGTGATTTGAAGCAATATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTT
GGATTCAGAATGAGTTTAACAAGGCATGCGAACTGACAGATTCAAGCTGGATAGAGCTCGAT
GAGATTGGAGAAGATGTGGCTCCAATTGAACACATTGCAAGCATGAGAAGGAATTATTTCAC
ATCAGAGGTGTCTCACTGCAGAGCCACAGAATACATAATGAAGGGAGTGTACATCAATACTG
CCTTGCTTAATGCATCTTGTGCAGCAATGGATGATTTCCAATTAATTCCAATGATAAGCAAG
TGTAGAACTAAGGAGGGAAGGCGAAAGACCAACTTGTATGGTTTCATCATAAAAGGAAGATC
CCACTTAAGGAATGACACCGACGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGACC
CAAGACTTGAACCACATAAATGGGAGAAGTACTGTGTTCTTGAGATAGGAGATATGCTTATA
AGAAGTGCCATAGGCCAGGTTTCAAGGCCCATGTTCTTGTATGTGAGAACAAATGGAACCTC
AAAAATTAAAATGAAATGGGGAATGGAGATGAGGCGTTGCCTCCTCCAGTCACTTCAACAAA
TTGAGAGTATGATTGAAGCTGAGTCCTCTGTCAAAGAGAAAGACATGACCAAAGAGTTCTTT
GAGAACAAATCAGAAACATGGCCCATTGGAGAGTCCCCCAAAGGAGTGGAGGAAAGTTCCAT
TGGGAAGGTCTGCAGGACTTTATTAGCAAAGTCGGTATTCAACAGCTTGTATGCATCTCCAC
AACTAGAAGGATTTTCAGCTGAATCAAGAAAACTGCTTCTTATCGTTCAGGCTCTTAGGGAC
AACCTGGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAGTGCCTGAT
TAATGATCCCTGGGTTTTGCTTAATGCTTCTTGGTTCAACTCCTTCCTTACACATGCATTGA
GTTAGTTGTGGCAGTGCTACTATTTGCTATCCATACTGTCCAAAAAAGTACCTTGTTTNNNN
N

PA (2233 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCGAAAGCAGGTACTGATCCAAA**ATG**GAAGATTTTGTGCGACAATGCTTCAATCCGATGAT
TGTCGAGCTTGCGGAAAAAACAATGAAAGAGTATGGGGAGGACCTGAAAATCGAAACAAACA
AATTTGCAGCAATATGCACTCACTTGGAAGTATGCTTCATGTATTCAGATTTTCACTTCATC
AATGAGCAAGGCGAGTCAATAATCGTAGAACTTGGTGATCCAAATGCACTTTTGAAGCACAG
ATTTGAAATAATCGAGGGAAGAGATCGCACAATGGCCTGGACAGTAGTAAACAGTATTTGCA
ACACTACAGGGGCTGAGAAACCAAAGTTTCTACCAGATTTGTATGATTACAAGGAGAATAGA
TTCATCGAAATTGGAGTAACAAGGAGAGAAGTTCACATATACTATCTGGAAAAGGCCAATAA
AATTAAATCTGAGAAAACACACATCCACATTTTCTCGTTCACTGGGGAAGAAATGGCCACAA
AGGCAGACTACACTCTCGATGAAGAAAGCAGGGCTAGGATCAAAACCAGACTATTCACCATA
AGACAAGAAATGGCCAGCAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAGAGAGGAGAAGA
GACAATTGAAGAAAGGTTTGAAATCACAGGAACAATGCGTAAGCTTGCCGACCAAAGTCTCC
CGCCGAACTTCTCCAGCCTTGAAAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGC
TACATTGAGGGCAAGCTGTCTCAAATGTCCAAAGAAGTAAATGCTAGAATTGAACCTTTTTT
GAAAACAACACCACGACCACTTAGACTTCCGAATGGGCCTCCCTGTTCTCAGCGGTCCAAAT
TCCTGCTGATGGATGCCTTAAAATTAAGCATTGAGGACCCAAGTCATGAAGGAGAGGGAATA
CCGCTATATGATGCAATCAAATGCATGAGAACATTCTTTGGATGGAAGGAACCCAATGTTGT
TAAACCACACGAAAAGGGAATAAATCCAAATTATCTTCTGTCATGGAAGCAAGTACTGGCAG
AACTGCAGGACATTGAGAATGAGGAGAAAATTCCAAAGACTAAAAATATGAAGAAAACAAGT
CAGCTAAAGTGGGCACTTGGTGAGAACATGGCACCAGAAAAGGTAGACTTTGACGACTGTAA
AGATGTAGGTGATTTGAAGCAATATGATAGTGATGAACCAGAATTGAGGTCGCTTGCAAGTT
GGATTCAGAATGAGTTTAACAAGGCATGCGAACTGACAGATTCAAGCTGGATAGAGCTCGAT
GAGATTGGAGAAGATGTGGCTCCAATTGAACACATTGCAAGCATGAGAAGGAATTATTTCAC
ATCAGAGGTGTCTCACTGCAGAGCCACAGAATACATAATGAAGGGAGTGTACATCAATACTG
CCTTGCTTAATGCATCTTGTGCAGCAATGGATGATTTCCAATTAATTCCAATGATAAGCAAG
TGTAGAACTAAGGAGGGAAGGCGAAAGACCAACTTGTATGGTTTCATCATAAAAGGAAGATC
CCACTTAAGGAATGACACCGACGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGACC
CAAGACTTGAACCACATAAATGGGAGAAGTACTGTGTTCTTGAGATAGGAGATATGCTTATA
AGAAGTGCCATAGGCCAGGTTTCAAGGCCCATGTTCTTGTATGTGAGAACAAATGGAACCTC
AAAAATTAAAATGAAATGGGGAATGGAGATGAGGCGTTGCCTCCTCCAGTCACTTCAACAAA
TTGAGAGTATGATTGAAGCTGAGTCCTCTGTCAAAGAGAAAGACATGACCAAAGAGTTCTTT
GAGAACAAATCAGAAACATGGCCCATTGGAGAGTCCCCCAAAGGAGTGGAGGAAAGTTCCAT
TGGGAAGGTCTGCAGGACTTTATTAGCAAAGTCGGTATTCAACAGCTTGTATGCATCTCCAC
AACTAGAAGGATTTTCAGCTGAATCAAGAAAACTGCTTCTTATCGTTCAGGCTCTTAGGGAC
AACCTGGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAGTGCCTGAT
TAATGATCCCTGGGTTTTGCTTAATGCTTCTTGGTTCAACTCCTTCCTTACACATGCATTGA
GTTAGTTGTGGCAGTGCTACTATTTGCTATCCATACTGTCCAAAAAAGTACCTTGTTTCTAC
T

HA (1778 bp)

Nature: cRNA

Source: NC_002017.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 4

AGCAAAAGCAGGGGAAAATAAAAACAACCAAAATGAAGGCAAACCTACTGGTCCTGTTATGTGCACTTGC
AGCTGCAGATGCAGACACAATATGTATAGGCTACCATGCGAACAATTCAACCGACACTGTTGACACAGTG
CTCGAGAAGAATGTGACAGTGACACACTCTGTTAACCTGCTCGAAGACAGCCACAACGGAAAACTATGTA
GATTAAAAGGAATAGCCCCACTACAATTGGGGAAATGTAACATCGCCGGATGGCTCTTGGGAAACCCAGA
ATGCGACCCACTGCTTCCAGTGAGATCATGGTCCTACATTGTAGAAACACCAAACTCTGAGAATGGAATA
TGTTATCCAGGAGATTTCATCGACTATGAGGAGCTGAGGGAGCAATTGAGCTCAGTGTCATCATTCGAAA
GATTCGAAATATTTCCCAAAGAAAGCTCATGGCCCAACCACAACACAACCAAAGGAGTAACGGCAGCATG
CTCCCATGCGGGGAAAAGCAGTTTTTACAGAAATTTGCTATGGCTGACGGAGAAGGAGGGCTCATACCCA
AAGCTGAAAAATTCTTATGTGAACAAGAAAGGGAAAGAAGTCCTTGTACTGTGGGGTATTCATCACCCGT
CTAACAGTAAGGATCAACAGAATATCTATCAGAATGAAAATGCTTATGTCTCTGTAGTGACTTCAAATTA
TAACAGGAGATTTACCCCGGAAATAGCAGAAAGACCCAAAGTAAGAGATCAAGCTGGGAGGATGAACTAT
TACTGGACCTTGCTAAAACCCGGAGACACAATAATATTTGAGGCAAATGGAAATCTAATAGCACCAAGGT
ATGCTTTCGCACTGAGTAGAGGCTTTGGGTCCGGCATCATCACCTCAAACGCATCAATGCATGAGTGTAA
CACGAAGTGTCAAACACCCCTGGGAGCTATAAACAGCAGTCTCCCTTTCCAGAATATACACCCAGTCACA
ATAGGAGAGTGCCCAAAATACGTCAGGAGTGCCAAATTGAGGATGGTTACAGGACTAAGGAACATTCCGT
CCATTCAATCCAGAGGTCTATTTGGAGCCATTGCCGGTTTTATTGAAGGGGATGGACTGGAATGATAGA
TGGATGGTACGGTTATCATCATCAGAATGAACAGGGATCAGGCTATGCAGCGGATCAAAAAAGCACACAA
AATGCCATTAACGGGATTACAAACAAGGTGAACTCTGTTATCGAGAAAATGAACATTCAATTCACAGCTG
TGGGTAAAGAATTCAACAAATTAGAAAAAAGGATGGAAAATTTAAATAAAAAAGTTGATGATGGATTTCT
GGACATTTGGACATATAATGCAGAATTGTTAGTTCTACTGGAAAATGAAAGGACTCTGGATTTCCATGAC
TCAAATGTGAAGAATCTGTATGAGAAAGTAAAAAGCCAATTAAAGAATAATGCCAAAGAAATCGGAAATG
GATGTTTTGAGTTCTACCACAAGTGTGACAATGAATGCATGGAAAGTGTAAGAAATGGGACTTATGATTA
TCCCAAATATTCAGAAGAGTCAAAGTTGAACAGGGAAAAGGTAGATGGAGTGAAATTGGAATCAATGGGG
ATCTATCAGATTCTGGCGATCTACTCAACTGTCGCCAGTTCACTGGTGCTTTTGGTCTCCCTGGGGGCAA
TCAGTTTCTGGATGTGTTCTAATGGATCTTTGCAGTGCAGAATATGCATCTGAGATTAGAATTTCAGAAA
TATGAGGAAAAACACCCTTGTTTCTACT

HA protein

Source: NP_040980.1 (566 aa)

Sequence: 33 - 1733

HA (33-83)

HA1 YP_163735.1 (84- 1064)

HA2 YP_163736.1 (1065-1730)

MKANLLVLLCALAAADADTICIGYHANNSTDTVDTVLEKNVTVTHSVNLLEDSHNGKLCRLKGIAPLQLG
KCNIAGWLLGNPECDPLLPVRSWSYIVETPNSENGICYPGDFIDYEELREQLSSVSSFERFEIFPKESSW
PNHNTTKGVTAACSHAGKSSFYRNLLWLTEKEGSYPKLKNSYVNKKGKEVLVLWGIHHPSNSKDQQNIYQ
NENAYVSVVTSNYNRRFTPEIAERPKVRDQAGRMNYYWTLLKPGDTIIFEANGNLIAPRYAFALSRGFGS
GIITSNASMHECNTKCQTPLGAINSSLPFQNIHPVTIGECPKYVRSAKLRMVTGLRNIPSIQSRGLFGAI
AGFIEGGWTGMIDGWYGYHHQNEQGSGYAADQKSTQNAINGITNKVNSVIEKMNIQFTAVGKEFNKLEKR
MENLNKKVDDGFLDIWTYNAELLVLLENERTLDFHDSNVKNLYEKVKSQLKNNAKEIGNGCFEFYHKCDN
ECMESVRNGTYDYPKYSEESKLNREKVDGVKLESMGIYQILAIYSTVASSLVLLVSLGAISFWMCSNGSL
QCRICI

HA (1759 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGGGAAAATAAAAACAACCAAAATGAAGGCAAACCTACTGGTCCTGTTATGT
GCACTTGCAGCTGCAGATGCAGACACAATATGTATAGGCTACCATGCGAACAATTCAACCGA
CACTGTTGACACAGTACTCGAGAAGAATGTGACAGTGACACACTCTGTTAACCTGCTCGAAG
ACAGCCACAACGGAAAACTATGTAGATTAAAAGGAATAGCCCCACTACAATTGGGGAAATGT
AACATCGCCGGATGGCTCTTGGGAAACCCAGAATGCAACCCACTGCTTCCAGTGAGATCATG
GTCCTACATTGTAGAAACACCAAACTCTGAGAATGGAATATGTTATCCAGGAGATTTCATCG
ACTATGAGGAACTGAGGGAGCAATTGAGCTCAGTGTCATCACTCGAAAGATTCGAAATATTT
CCCAAAGAAAGCTCATGGCCCAACCACAACACAAACGGAGTAACGGCAGCATGCTCCCATGC
GGGGGAAAGCAGTTTTTACAGAAATTTGCTATGGCTGACGGAGAAGGAGGGCTCATACCCAA
AGCTGAAAAATTCTTATGTGAACAAGAAAGGGAAAGAAGTCCTTGTACTGTGGGGTATTCAT
CACCCGTCTAACAGTAAGGATCAACAGAATCTCTATCAGAATGAAAATGCTTATGTCTCTGT
AGTGTCTTCAAATTATAACAGGAGATTTACCCCGGAAATAGCAGAAAGACCCAAAGTAAGAG
ATCAAGCTGGGAGGATGAACTATTACTGGACCTTGCTAAAACCCGGAGACACAATAATATTT
GAGGCAAATGGAAATCTAATAGCACCAAGGTATGCTTTCGCACTGAGTAGAGGCTTTGGGTC
CGGCATCATCACCTCAAACGCATCAATGCATGAGTGTAACACGAAGTGTCAAACACCCCTGG
GAGCTATAAACAGCAGTCTCCCTTTCCAGAATATACACCCAGTCACAATAGGAGAGTGCCCA
AAATACGTCAGGAGTGCCAAATTGAGGATGGTTACAGGACTAAGGAACATTCCGTCCATTCA
ATCCAGAGGTCTATTTGGAGCCATTGCCGGTTTTATTGAAGGAGGATGGACTGGAATGATAG
ATGGATGGTATGGTTATCATCATCAGAATGAACAGGGATCAGGCTATGCAGCGGATCAAAAA
AGCACACAAAATGCCATTAACGGGATTACAAACAAGGTGAACTCTGTTATCGAGAAAATGAA
CACTCAATTCACAGCTGTGGGTAAAGAATTCAACAAATTAGAAAAAAGGATGGAAAATTTAA
ATAAAAAAGTTGATGATGGATTTCTGGACATTTGGACATATAATGCAGAATTGTTAGTTCTA
CTGGAAAATGAAAGGACTCTGGATTTCCATGACTCAAATGTGAAGAATCTGTATGAGAAAGT
AAAAAGCCAATTAAAGAATAATGCCAAAGAAATCGGAAATGGATGTTTTGAGTTCTACCACA
AGTGTGACAATGAATGCATGGAAAGTGTAAGAAATGGGACTTATGATTATCCCAAATATTCA
GAAGAGTCAAAGTTGAACAGGGAAAAGATAGATGGAGTGAAATTGGAATCAATGGGGATCTA
TCAGATTCTGGCGATCTACTCAACTGTCGCCAGTTCACTGGTGCTTTTGGTCTCCCTGGGGG
CAATCAGTTTCTGGATGTGTTCTAATGGATCTTTGCAGTGCAGAATATGCATCTGAGATTAG
AATTTCAGAAATATGAGGAAAAACACCCTTGNNNNNNNN

HA (1759 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGGGATAATTCTATTAACC**ATG**AAGACTATCATTGCTTTGAGCTACATTTTA
TGTCTGGTTTTCGCTCAAAAACTTCCCGGAAATGACAACAGCACGGCAACGCTGTGCCTGGG
ACACCATGCAGTGCCAAACGGAACGCTAGTGAAAACAATCACGAATGACCAAATTGAAGTGA
CTAATGCTACTGAGCTGGTTCAGAGTTCCTCAACAGGTAGAATATGCGACAGTCCTCACCAA
ATCCTTGATGGAGAAAACTGCACACTGATAGATGCTCTATTGGGAGACCCACATTGTGATGG
CTTCCAAAATAAGGAATGGGACCTTTTTGTTGAACGCAGCAAAGCCTACAGCAACTGTTACC
CTTATGATGTGCCGGATTATGCCTCCCTTAGGTCACTAGTTGCCTCATCCGGCACCCTGGAG
TTTAACAATGAAAGCTTCAATTGGACTGGAGTCGCTCAGAATGGAACAAGCTCTGCTTGCAA
AAGGAGATCTATTAACAGTTTCTTTAGTAGATTGAATTGGTTGCACCAATTAAAATACAGAT
ATCCAGCACTGAACGTGACTATGCCAAACAATGACAAATTTGACAAATTGTACATTTGGGGG
GTTCACCACCCGAGTACGGACAGTGACCAAACCAGCCTATATACCCCATCAGGGAGAGTCAC
AGTCTCTACCAAAAGAAGCCAACAAACTGTAATCCCGAATATCGGATCCAGACCCTGGGTAA
GGGGTATCTCCAGCAGAATAAGCATCTATTGGACAATAGTAAAACCGGGAGACATACTTTTG
ATTAACAGCACAGGGAATCTAATTGCTCCTCGGGGTTACTTCAAAATACGAAGTGGGAAAAG
CTCAATAATGAGGTCAGATGCACCCATTGACAAATGCAATTCTGAATGCATCACTCCAAATG
GAAGCATTCCCAATGACAAACCATTTCAAAATGTAAACAGGATCACATATGGGGCCTGTCCC
AGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGCGGAATGTACCAGAGAAACA
AACTAGAGGCATATTCGGCGCAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGATGG
ACGGTTGGTACGGTTTCAGGCATCAAAATTCTGAGGGCACAGGACAAGCAGCAGATCTTAAA
AGCACTCAAGCAGCAATCAACCAAATCAACGGGAAACTGAATAGGTTAATCGAGAAAACGAA
CGAGAAATTCCATCAAATTGAAAAAGAATTCTCAGAAGTAGAAGGGAGAATTCAGGACCTCG
AGAAATATGTTGAGGACACTAAAATAGATCTCTGGTCGTACAACGCGGAGCTTCTTGTTGCC
CTGGAGAACCAACATACAATTGATCTAACTGACTCAGAAATGAACAAACTGTTTGAAAGAAC
AAGGAAGCAACTGAGAGAAAATGCTGAGGATATGGGCAATGGTTGTTTCAAAATATACCACA
AATGTGACAATGCCTGCATAGGGTCAATCAGAAATGGAACTTATGACCATGATGTATACAGA
GACGAAGCATTAAACAACCGGTTCCAGATCAAAGGTGTTGAGCTGAAGTCAGGATACAAAGA
TTGGATCCTATGGATTTCCTTTGCCATATCATGTTATTTGCTTTGTGTTGTTTTGCTGGGGT
TCATTATGTGGGCCTGCCAAAAAGGCAACATTAGGTGCAACATTTGCATT**TGA**GTGCATTAA
TTAAAAACACCCTTGTTTCTACT

NP (1565 bp)

Nature: cRNA

Source: NC_002019.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 5

AGCAAAAGCAGGGTAGATAATCACTCACTGAGTGACATCAAAATCATGGCGTCCCAAGGCACCAAACGGT
CTTACGAACAGATGGAGACTGATGGAGAACGCCAGAATGCCACTGAAATCAGAGCATCCGTCGGAAAAAT
GATTGGTGGAATTGGACGATTCTACATCCAAATGTGCACAGAACTTAAACTCAGTGATTATGAGGGACGG
TTGATCCAAAACAGCTTAACAATAGAGAGAATGGTGCTCTCTGCTTTTGACGAAAGGAGAAATAAATACC
TGGAAGAACATCCCAGTGCGGGGAAGGATCCTAAGAAAACTGGAGGACCTATATACAGAAGAGTAAACGG
AAAGTGGATGAGAGAACTCATCCTTTATGACAAAGAAGAAATAAGGCGAATCTGGCGCCAAGCTAATAAT
GGTGACGATGCAACGGCTGGTCTGACTCACATGATGATCTGGCATTCCAATTTGAATGATGCAACTTATC
AGAGGACAAGGGCTCTTGTTCGCACCGGAATGGATCCCAGGATGTGCTCTCTGATGCAAGGTTCAACTCT
CCCTAGGAGGTCTGGAGCCGCAGGTGCTGCAGTCAAAGGAGTTGGAACAATGGTGATGGAATTGGTCAGG
ATGATCAAACGTGGGATCAATGATCGGAACTTCTGGAGGGGTGAGAATGGACGAAAAACAAGAATTGCTT
ATGAAAGAATGTGCAACATTCTCAAAGGGAAATTTCAAACTGCTGCACAAAAAGCAATGATGGATCAAGT
GAGAGAGAGCCGGGACCCAGGGAATGCTGAGTTCGAAGATCTCACTTTTCTAGCACGGTCTGCACTCATA
TTGAGAGGGTCGGTTGCTCACAAGTCCTGCCTGCCTGCCTGTGTGTATGGACCTGCCGTAGCCAGTGGGT
ACGACTTTGAAAGAGAGGGATACTCTCTAGTCGGAATAGACCCTTTCAGACTGCTTCAAAACAGCCAAGT
GTACAGCCTAATCAGACCAAATGAGAATCCAGCACACAAGAGTCAACTGGTGTGGATGGCATGCCATTCT
GCCGCATTTGAAGATCTAAGAGTATTGAGCTTCATCAAAGGGACGAAGGTGGTCCCAAGAGGGAAGCTTT
CCACTAGAGGAGTTCAAATTGCTTCCAATGAAAATATGGAGACTATGGAATCAAGTACACTTGAACTGAG
AAGCAGGTACTGGGCCATAAGGACCAGAAGTGGAGGAAACACCAATCAACAGAGGGCATCTGCGGGCCAA
ATCAGCATACAACCTACGTTCTCAGTACAGAGAAATCTCCCTTTTGACAGAACAACCGTTATGGCAGCAT
TCACTGGGAATACAGAGGGGAGAACATCTGACATGAGGACCGAAATCATAAGGATGATGGAAAGTGCAAG
ACCAGAAGATGTGTCTTTCCAGGGGCGGGGAGTCTTCGAGCTCTCGGACGAAAAGGCAGCGAGCCCGATC
GTGCCTTCCTTTGACATGAGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATT
AAAGAAAAATACCCTTGTTTCTACT

NP protein

Source: NP_040982.1 (566 aa)

Sequence: 46 - 1542

MASQGTKRSYEQMETDGERQNATEIRASVGKMIGGIGRFYIQMCTELKLSDYEGRLIQNSLTIERMVLSA
FDERRNKYLEEHPSAGKDPKKTGGPIYRRVNGKWMRELILYDKEEIRRIWRQANNGDDATAGLTHMMIWH
SNLNDATYQRTRALVRTGMDPRMCSLMQGSTLPRRSGAAGAAVKGVGTMVMELVRMIKRGINDRNFWRGE
NGRKTRIAYERMCNILKGKFQTAAQKAMMDQVRESRDPGNAEFEDLTFLARSALILRGSVAHKSCLPACV
YGPAVASGYDFEREGYSLVGIDPFRLLQNSQVYSLIRPNENPAHKSQLVWMACHSAAFEDLRVLSFIKGT
KVVPRGKLSTRGVQIASNENMETMESSTLELRSRYWAIRTRSGGNTNQQRASAGQISIQPTFSVQRNLPF
DRTTVMAAFTGNTEGRTSDMRTEIIRMMESARPEDVSFQGRGVFELSDEKAASPIVPSFDMSNEGSYFFG
DNAEEYDN

NP (1566 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNAAGCAGGGTAGATAATCACTCACTGAGTGACATCAAAATCATGGCGTCTCAAGGCAC
CAAACGATCTTACGAACAGATGGAGACTGATGGAGAACGCCAGAATGCCACTGAAATCAGAG
CATCCGTCGGAAAAATGATTGGTGGAATTGGACGATTCTACATCCAAATGTGCACCGAACTC
AAACTCAGTGATTATGAGGGACGGTTGATCCAAAACAGCTTAACAATAGAGAGAATGGTGCT
CTCTGCTTTTGACGAAAGGAGAAATAAATACCTTGAAGAACATCCCAGTGCGGGGAAAGATC
CTAAGAAAACTGGAGGACCTATATACAGGAGAGTAAACGGAAAGTGGATGAGAGAACTCATC
CTTTATGACAAAGAAGAAATAAGGCGAATCTGGCGCCAAGCTAATAATGGTGACGATGCAAC
GGCTGGTCTGACTCACATGATGATCTGGCATTCCAATTTGAATGATGCAACTTATCAGAGGA
CAAGAGCTCTTGTTCGCACCGGAATGGATCCCAGGATGTGCTCTCTGATGCAAGGTTCAACT
CTCCCTAGGAGGTCTGGAGCCGCAGGTGCTGCAGTCAAAGGAGTTGGAACAATGGTGATGGA
ATTGGTCAGAATGATCAAACGTGGGATCAATGATCGGAACTTCTGGAGGGGTGAGAATGGAC
GAAAAACAAGAATTGCTTATGAAAGAATGTGCAACATTCTCAAAGGGAAATTTCAAACTGCT
GCACAAAAAGCAATGATGGATCAAGTGAGAGAGAGCCGGAACCCAGGGAATGCTGAGTTCGA
AGATCTCACTTTTCTAGCACGGTCTGCACTCATATTGAGAGGGTCGGTTGCTCACAAGTCCT
GCCTGCCTGCCTGTGTGTATGGACCTGCCGTAGCCAGTGGGTACGACTTTGAAAGGGAGGGA
TACTCTCTAGTCGGAATAGACCCTTTCAGACTGCTTCAAAACAGCCAAGTGTACAGCCTAAT
CAGACCAAATGAGAATCCAGCACACAAGAGTCAACTGGTGTGGATGGCATGCCATTCTGCCG
CATTTGAAGATCTAAGAGTATTAAGCTTCATCAAAGGGACGAAGGTGCTCCCAAGAGGGAAG
CTTTCCACTAGAGGAGTTCAAATTGCTTCCAATGAAAATATGGAGACTATGGAATCAAGTAC
ACTTGAACTGAGAAGCAGGTACTGGGCCATAAGGACCAGAAGTGGAGGAAACACCAATCAAC
AGAGGGCATCTGCGGGCCAAATCAGCATACAACCTACGTTCTCAGTACAGAGAAATCTCCCT
TTTGACAGAACAACCATTATGGCAGCATTCAATGGGAATACAGAGGGGAGAACATCTGACAT
GAGGACCGAAATCATAAGGATGATGGAAAGTGCAAGACCAGAAGATGTGTCTTTCCAGGGGC
GGGGAGTCTTCGAGCTCTCGGACGAAAAGGCAGCGAGCCCGATCGTGCCTTCCTTTGACATG
AGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGAGGAGTACGACAATTAAAGAAAAAT
ACCCTTGNNNNNNNN

NP (1566 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGGTAGATAATCACTCACTGAGTGACATCAAAATCATGGCGTCTCAAGGCAC
CAAACGATCTTACGAACAGATGGAGACTGATGGAGAACGCCAGAATGCCACTGAAATCAGAG
CATCCGTCGGAAAAATGATTGGTGGAATTGGACGATTCTACATCCAAATGTGCACCGAACTC
AAACTCAGTGATTATGAGGGACGGTTGATCCAAAACAGCTTAACAATAGAGAGAATGGTGCT
CTCTGCTTTTGACGAAAGGAGAAATAAATACCTTGAAGAACATCCCAGTGCGGGGAAAGATC
CTAAGAAAACTGGAGGACCTATATACAGGAGAGTAAACGGAAAGTGGATGAGAGAACTCATC
CTTTATGACAAAGAAGAAATAAGGCGAATCTGGCGCCAAGCTAATAATGGTGACGATGCAAC
GGCTGGTCTGACTCACATGATGATCTGGCATTCCAATTTGAATGATGCAACTTATCAGAGGA
CAAGAGCTCTTGTTCGCACCGGAATGGATCCCAGGATGTGCTCTCTGATGCAAGGTTCAACT
CTCCCTAGGAGGTCTGGAGCCGCAGGTGCTGCAGTCAAAGGAGTTGGAACAATGGTGATGGA
ATTGGTCAGAATGATCAAACGTGGGATCAATGATCGGAACTTCTGGAGGGGTGAGAATGGAC
GAAAAACAAGAATTGCTTATGAAAGAATGTGCAACATTCTCAAAGGGAAATTTCAAACTGCT
GCACAAAAAGCAATGATGGATCAAGTGAGAGAGAGCCGGAACCCAGGGAATGCTGAGTTCGA
AGATCTCACTTTTCTAGCACGGTCTGCACTCATATTGAGAGGGTCGGTTGCTCACAAGTCCT
GCCTGCCTGCCTGTGTGTATGGACCTGCCGTAGCCAGTGGGTACGACTTTGAAAGGGAGGGA
TACTCTCTAGTCGGAATAGACCCTTTCAGACTGCTTCAAAACAGCCAAGTGTACAGCCTAAT
CAGACCAAATGAGAATCCAGCACACAAGAGTCAACTGGTGTGGATGGCATGCCATTCTGCCG
CATTTGAAGATCTAAGAGTATTAAGCTTCATCAAAGGGACGAAGGTGCTCCCAAGAGGGAAG
CTTTCCACTAGAGGAGTTCAAATTGCTTCCAATGAAAATATGGAGACTATGGAATCAAGTAC
ACTTGAACTGAGAAGCAGGTACTGGGCCATAAGGACCAGAAGTGGAGGAAACACCAATCAAC
AGAGGGCATCTGCGGGCCAAATCAGCATACAACCTACGTTCTCAGTACAGAGAAATCTCCCT
TTTGACAGAACAACCATTATGGCAGCATTCAATGGGAATACAGAGGGGAGAACATCTGACAT
GAGGACCGAAATCATAAGGATGATGGAAAGTGCAAGACCAGAAGATGTGTCTTTCCAGGGGC
GGGGAGTCTTCGAGCTCTCGGACGAAAAGGCAGCGAGCCCGATCGTGCCTTCCTTTGACATG
AGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGA**G**GAGTACGACAATTAA**A**G**AAAAA**T
ACCCTTGTTTCTACT

NA (1413 bp)

Nature: cRNA

Source: NC_002018.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 6

AGCGAAAGCAGGGGTTTAAAATGAATCCAAATCAGAAAATAATAACCATTGGATCAATCTGTCTGGTAGT
CGGACTAATTAGCCTAATATTGCAAATAGGGAATATAATCTCAATATGGATTAGCCATTCAATTCAAACT
GGAAGTCAAAACCATACTGGAATATGCAACCAAAACATCATTACCTATAAAAATAGCACCTGGGTAAAGG
ACACAACTTCAGTGATATTAACCGGCAATTCATCTCTTTGTCCCATCCGTGGGTGGGCTATATACAGCAA
AGACAATAGCATAAGAATTGGTTCCAAAGGAGACGTTTTTGTCATAAGAGAGCCCTTTATTTCATGTTCT
CACTTGGAATGCAGGACCTTTTTTCTGACCCAAGGTGCCTTACTGAATGACAGGCATTCAAATGGGACTG
TTAAGGACAGAAGCCCTTATAGGGCCTTAATGAGCTGCCCTGTCGGTGAAGCTCCGTCCCCGTACAATTC
AAGATTTGAATCGGTTGCTTGGTCAGCAAGTGCATGTCATGATGGCATGGGCTGGCTAACAATCGGAATT
TCAGGTCCAGATAATGGAGCAGTGGCTGTATTAAAATACAACGGCATAATAACTGAAACCATAAAAAGTT
GGAGGAAGAAAATATTGAGGACACAAGAGTCTGAATGTGCCTGTGTAAATGGTTCATGTTTTACTATAAT
GACTGATGGCCCGAGTGATGGGCTGGCCTCGTACAAAATTTTCAAGATCGAAAAGGGGAAGGTTACTAAA
TCAATAGAGTTGAATGCACCTAATTCTCACTATGAGGAATGTTCCTGTTACCCTGATACCGGCAAAGTGA
TGTGTGTGTGCAGAGACAATTGGCATGGTTCGAACCGGCCATGGGTGTCTTTCGATCAAAACCTGGATTA
TCAAATAGGATACATCTGCAGTGGGGTTTTCGGTGACAACCCGCGTCCCAAAGATGGAACAGGCAGCTGT
GGTCCAGTGTATGTTGATGGAGCAAACGGAGTAAAGGGATTTTCATATAGGTATGGTAATGGTGTTTGGA
TAGGAAGGACCAAAAGTCACAGTTCCAGACATGGGTTTGAGATGATTTGGGATCCTAATGGATGGACAGA
GACTGATAGTAAGTTCTCTGTGAGGCAAGATGTTGTGGCAATGACTGATTGGTCAGGGTATAGCGGGAGT
TTCGTTCAACATCCTGAGCTAACAGGGCTAGACTGTATAAGGCCGTGCTTCTGGGTTGAATTAATCAGGG
GACGACCTAAAGAAAAAACAATCTGGACTAGTGCGAGCAGCATTTCTTTTTGTGGCGTGAATAGTGATAC
TGTAGATTGGTCTTGGCCAGACGGTGCTGAGTTGCCATTCACCATTGACAAGTAGTCTGTTCAAAAAACT
CCTTGTTTCTACT

NA protein

Source: NP_040981.1 (454 aa)

Sequence: 21 - 1385

MNPNQKIITIGSICLVVGLISLILQIGNIISIWISHSIQTGSQNHTGICNQNIITYKNSTWVKDTTSVIL
TGNSSLCPIRGWAIYSKDNSIRIGSKGDVFVIREPFISCSHLECRTFFLTQGALLNDRHSNGTVKDRSPY
RALMSCPVGEAPSPYNSRFESVAWSASACHDGMGWLTIGISGPDNGAVAVLKYNGIITETIKSWRKKILR
TQESECACVNGSCFTIMTDGPSDGLASYKIFKIEKGKVTKSIELNAPNSHYEECSCYPDTGKVMCVCRDN
WHGSNRPWVSFDQNLDYQIGYICSGVFGDNPRPKDGTGSCGPVYVDGANGVKGFSYRYGNGVWIGRTKSH
SSRHGFEMIWDPNGWTETDSKFSVRQDVVAMTDWSGYSGSFVQHPELTGLDCIRPCFWVELIRGRPKEKT
IWTSASSISFCGVNSDTVDWSWPDGAELPFTIDK

NA (1466 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNCAAAAGCAGGAGTTTAAAATGAATCCAAATCAGAAAATAATAACCATTGGATCAATCTGT
CTGGTAGTCGGACTAATTAGCCTAATATTGCAAATAGGGAATATAATCTCAATATGGATTAG
CCATTCAATTCAAACTGGAAGTCAAAACCATACTGGAATATGCAACCAAAACATCATTACCT
ATAAAAATAGCACCTGGGTAAAGGACACAACTTCAGTGATATTAACCGGCAATTCATCTCTT
TGTCCCATCCGTGGGTGGGCTATATACAGCAAAGACAATAGCATAAGAATTGGTTCCAAAGG
AGACGTTTTTGTCATAAGAGAGCCCTTTATTTCATGTTCTCACTTGGAATGCAGGACCTTTT
TTCTGACCCAAGGTGCCTTACTGAATGACAAGCATTCAAGTGGGACTGTTAAGGACAGAAGC
CCTTATAGGGCCTTAATGAGCTGCCCTGTCGGTGAAGCTCCGTCCCCGTACAATTCAAGATT
TGAATCGGTTGCTTGGTCAGCAAGTGCATGTCATGATGGCATGGGCTGGCTAACAATCGGAA
TTTCAGGTCCAGATAATGGAGCAGTGGCTGTATTAAAATACAACGGCATAATAACTGAAACC
ATAAAAAGTTGGAGGAAGAAAATATTGAGGACACAAGAGTCTGAATGTGCCTGTGTAAATGG
TTCATGTTTTACTATAATGACTGATGGCCCGAGTGATGGGCTGGCCTCGTACAAAATTTTCA
AGATCGAAAAGGGGAAGGTTACTAAATCAATAGAGTTGAATGCACCTAATTCTCACTATGAG
GAATGTTCCTGTTACCCTGATACCGGCAAAGTGATGTGTGTGTGCAGAGACAATTGGCATGG
TTCGAACCGGCCATGGGTGTCTTTCGATCAAAACCTGGATTATCAAATAGGATACATCTGCA
GTGGGGTTTTCGGTGACAACCCGCGTCCCGAAGATGGAACAGGCAGCTGTGGTCCAGTGTAT
GTTGATGGAGCAAACGGAGTAAAGGGATTTTCATATAGGTATGGTAATGGTGTTTGGATAGG
AAGGACCAAAGGTCACAGTTCCAGACATGGGTTTGAGATGATTTGGGATCCTAATGGATGGA
CAGAGACTGATAGTAAGTTCTCTGTGAGGCAAGATGTTGTGGCAATGACTGATTGGTCAGGG
TATAGCGGAAGTTTCGTTCAACATCCTGAGCTGACAGGGCTAGACTGTATGAGGCCGTGCTT
CTGGGTTGAATTAATCAGGGGACGACCTAAAGAAAAAACAATCTGGACTAGTGCGAGCAGCA
TTTCTTTTTGTGGCGTGAATAGTGATACTGTAGATTGGTCTTGGCCAGACGGTGCTGAGTTG
CCATTCAGCATTGACAAGTAGTCTGTTCAAAAAACTCCTTGNNNNNNNN

NA (1466 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGAGTTTAAA**ATG**AATCCAAATCAGAAAATAATAACCATTGGATCAATCTGT
CTGGTAGTCGGACTAATTAGCCTAATATTGCAAATAGGGAATATAATCTCAATATGGATTAG
CCATTCAATTCAAACTGGAAGTCAAAACCATACTGGAATATGCAACCAAAACATCATTACCT
ATAAAAATAGCACCTGGGTAAAGGACACAACTTCAGTGATATTAACCGGCAATTCATCTCTT
TGTCCCATCCGTGGGTGGGCTATATACAGCAAAGACAATAGCATAAGAATTGGTTCCAAAGG
AGACGTTTTTGTCATAAGAGAGCCCTTTATTTCATGTTCTCACTTGGAATGCAGGACCTTTT
TTCTGACCCAAGGTGCCTTACTGAATGACAAGCATTCAAGTGGGACTGTTAAGGACAGAAGC
CCTTATAGGGCCTTAATGAGCTGCCCTGTCGGTGAAGCTCCGTCCCCGTACAATTCAAGATT
TGAATCGGTTGCTTGGTCAGCAAGTGCATGTCATGATGGCATGGGCTGGCTAACAATCGGAA
TTTCAGGTCCAGATAATGGAGCAGTGGCTGTATTAAAATACAACGGCATAATAACTGAAACC
ATAAAAAGTTGGAGGAAGAAAATATTGAGGACACAAGAGTCTGAATGTGCCTGTGTAAATGG
TTCATGTTTTACTATAATGACTGATGGCCCGAGTGATGGGCTGGCCTCGTACAAAATTTTCA
AGATCGAAAAGGGGAAGGTTACTAAATCAATAGAGTTGAATGCACCTAATTCTCACTATGAG
GAATGTTCCTGTTACCCTGATACCGGCAAAGTGATGTGTGTGTGCAGAGACAATTGGCATGG
TTCGAACCGGCCATGGGTGTCTTTCGATCAAAACCTGGATTATCAAATAGGATACATCTGCA
GTGGGGTTTTCGGTGACAACCCGCGTCCCGAAGATGGAACAGGCAGCTGTGGTCCAGTGTAT
GTTGATGGAGCAAACGGAGTAAAGGGATTTTCATATAGGTATGGTAATGGTGTTTGGATAGG
AAGGACCAAAGGTCACAGTTCCAGACATGGGTTTGAGATGATTTGGGATCCTAATGGATGGA
CAGAGACTGATAGTAAGTTCTCTGTGAGGCAAGATGTTGTGGCAATGACTGATTGGTCAGGG
TATAGCGGAAGTTTCGTTCAACATCCTGAGCTGACAGGGCTAGACTGTATGAGGCCGTGCTT
CTGGGTTGAATTAATCAGGGGACGACCTAAAGAAAAAACAATCTGGACTAGTGCGAGCAGCA
TTTCTTTTTGTGGCGTGAATAGTGATACTGTAGATTGGTCTTGGCCAGACGGTGCTGAGTTG
CCATTCAGCATTGACAAGTAGTCTGTTCAAAAAACTCCTTGTTTCTACT

M (1027 bp)

Nature: cRNA

Source: NC_002016.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 7

AGCGAAAGCAGGTAGATATTGAAAGATGAGTCTTCTAACCGAGGTCGAAACGTACGTTCTCTCTATCATC
CCGTCAGGCCCCCTCAAAGCCGAGATCGCACAGAGACTTGAAGATGTCTTTGCAGGGAAGAACACCGATC
TTGAGGTTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACCTCTGACTAAGGGGATTTTAGGATT
TGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGCAGCGTAGACGCTTTGTCCAAAATGCCCTTAAT
GGGAACGGGGATCCAAATAACATGGACAAAGCAGTTAAACTGTATAGGAAGCTCAAGAGGGAGATAACAT
TCCATGGGGCCAAAGAAATCTCACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGTATGGGCCTCATATA
CAACAGGATGGGGGCTGTGACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACCTGTGAACAGATTGCT
GACTCCCAGCATCGGTCTCATAGGCAAATGGTGACAACAACCAACCCACTAATCAGACATGAGAACAGAA
TGGTTTTAGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCGAGTGAGCAAGCAGCAGAGGC
CATGGAGGTTGCTAGTCAGGCTAGGCAAATGGTGCAAGCGATGAGAACCATTGGGACTCATCCTAGCTCC
AGTGCTGGTCTGAAAAATGATCTTCTTGAAAATTTGCAGGCCTATCAGAAACGAATGGGGGTGCAGATGC
AACGGTTCAAGTGATCCTCTCGCTATTGCCGCAAATATCATTGGGATCTTGCACTTGATATTGTGGATTC
TTGATCGTCTTTTTTTCAAATGCATTTACCGTCGCTTTAAATACGGACTGAAAGGAGGGCCTTCTACGGA
AGGAGTGCCAAAGTCTATGAGGGAAGAATATCGAAAGGAACAGCAGAGTGCTGTGGATGCTGACGATGGT
CATTTTGTCAGCATAGAGCTGGAGTAAAAAACTACCTTGTTTCTACT

M1 protein

Source: NP_040978.1 (252 aa)

Sequence: 26 - 784

MSLLTEVETYVLSIIPSGPLKAEIAQRLEDVFAGKNTDLEVLMEWLKTRPILSPLTKGILGFVFTLTVPS
ERGLQRRRFVQNALNGNGDPNNMDKAVKLYRKLKREITFHGAKEISLSYSAGALASCMGLIYNRMGAVTT
EVAFGLVCATCEQIADSQHRSHRQMVTTTNPLIRHENRMVLASTTAKAMEQMAGSSEQAAEAMEVASQAR
QMVQAMRTIGTHPSSSAGLKNDLLENLQAYQKRMGVQMQRFK

M2 protein

Source: NP_040979.2 (97 aa)

Sequence: 26 - 1007

MSLLTEVETPIRNEWGCRCNGSSDPLAIAANIIGILHLILWILDRLFFKCIYRRFKYGLKGGPSTEGVPK
SMREEYRKEQQSAVDADDGHFVSIELE

M (1027 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNNGCAGGTAGATATTGAAAGATGAGTCTTCTAACCGAGGTCGAAACGTACGTACTCT
CTATCATCCCGTCAGGCCCCCTCAAAGCCGAGATCGCACAGAGACTTGAAGATGTCTTTGCA
GGGAAGAACACCGATCTTGAGGTTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACC
TCTGACTAAGGGGATTTTAGGATTTGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGC
AGCGTAGACGCTTTGTCCAAAATGCCCTTAATGGGAACGGGGATCCAAATAACATGGACAAA
GCAGTTAAACTGTATAGGAAGCTCAAGAGGGAGATAACATTCCATGGGGCCAAAGAAATCTC
ACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGTATGGGCCTCATATACAACAGGATGGGGG
CTGTGACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACCTGTGAACAGATTGCTGACTCC
CAGCATCGGTCTCATAGGCAAATGGTGACAACAACCAATCCACTAATCAGACATGAGAACAG
AATGGTTTTAGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCGAGTGAGCAAG
CAGCAGAGGCCATGGAGGTTGCTAGTCAGGCTAGACAAATGGTGCAAGCGATGAGAACCATT
GGGACTCATCCTAGCTCCAGTGCTGGTCTGAAAAATGATCTTCTTGAAAATTTGCAGGCCTA
TCAGAAACGAATGGGGGTGCAGATGCAACGGTTCAAGTGATCCTCTCACTATTGCCGCAAAT
ATCATTGGGATCTTGCACTTGACATTGTGGATTCTTGATCGTCTTTTTTTCAAATGCATTTA
CCGTCGCTTTAAATACGGACTGAAAGGAGGGCCTTCTACGGAAGGAGTGCCAAAGTCTATGA
GGGAAGAATATCGAAAGGAACAGCAGAGTGCTGTGGATGCTGACGATGGTCATTTTGTCAGC
ATAGAGCTGGAGTAAAAAACTACCTTGNNNNNNNN

M (1027 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGTAGATATTGAAAG**ATG**AGTCTTCTAACCGAGGTCGAAACGTACGTACTCT
CTATCATCCCGTCAGGCCCCCTCAAAGCCGAGATCGCACAGAGACTTGAAGATGTCTTTGCA
GGGAAGAACACCGATCTTGAGGTTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACC
TCTGACTAAGGGGATTTTAGGATTTGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGC
AGCGTAGACGCTTTGTCCAAAATGCCCTTAATGGGAACGGGGATCCAAATAACATGGACAAA
GCAGTTAAACTGTATAGGAAGCTCAAGAGGGAGATAACATTCCATGGGGCCAAAGAAATCTC
ACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGTATGGGCCTCATATACAACAGGATGGGGG
CTGTGACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACCTGTGAACAGATTGCTGACTCC
CAGCATCGGTCTCATAGGCAAATGGTGACAACAACCAATCCACTAATCAGACATGAGAACAG
AATGGTTTTAGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCGAGTGAGCAAG
CAGCAGAGGCCATGGAGGTTGCTAGTCAGGCTAGACAAATGGTGCAAGCGATGAGAACCATT
GGGACTCATCCTAGCTCCAGTGCTGGTCTGAAAAATGATCTTCTTGAAAATTTGCAGGCCTA
TCAGAAACGAATGGGGGTGCAGATGCAACGGTTCAAGTGATCCTCTCACTATTGCCGCAAAT
ATCATTGGGATCTTGCACTTGACATTGTGGATTCTTGATCGTCTTTTTTTCAAATGCATTTA
CCGTCGCTTTAAATACGGACTGAAAGGAGGGCCTTCTACGGAAGGAGTGCCAAAGTCTATGA
GGGAAGAATATCGAAAGGAACAGCAGAGTGCTGTGGATGCTGACGATGGTCATTTTGTCAGC
ATAGAGCTGGAGTAAAAAACTACCTTGTTTCTACT

NS (890 bp)

Nature: cRNA

Source: NC_002020.1 Influenza A virus (A/Puerto Rico/8/1934(H1N1)) segment 8

AGCAAAAGCAGGGTGACAAAGACATAATGGATCCAAACACTGTGTCAAGCTTTCAGGTAGATTGCTTTCT
TTGGCATGTCCGCAAACGAGTTGCAGACCAAGAACTAGGTGATGCCCCATTCCTTGATCGGCTTCGCCGA
GATCAGAAATCCCTAAGAGGAAGGGGCAGCACTCTTGGTCTGGACATCGAGACAGCCACACGTGCTGGAA
AGCAGATAGTGGAGCGGATTCTGAAAGAAGAATCCGATGAGGCACTTAAAATGACCATGGCCTCTGTACC
TGCGTCGCGTTACCTAACCGACATGACTCTTGAGGAAATGTCAAGGGAATGGTCCATGCTCATACCCAAG
CAGAAAGTGGCAGGCCCTCTTTGTATCAGAATGGACCAGGCGATCATGGATAAAAACATCATACTGAAAG
CGAACTTCAGTGTGATTTTTGACCGGCTGGAGACTCTAATATTGCTAAGGGCTTTCACCGAAGAGGGAGC
AATTGTTGGCGAAATTTCACCATTGCCTTCTCTTCCAGGACATACTGCTGAGGATGTCAAAAATGCAGTT
GGAGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTGAAACTCTACAGAGATTCG
CTTGGAGAAGCAGTAATGAGAATGGGAGACCTCCACTCACTCCAAAACAGAAACGAGAAATGGCGGGAAC
AATTAGGTCAGAAGTTTGAAGAAATAAGATGGTTGATTGAAGAAGTGAGACACAAACTGAAGGTAACAGA
GAATAGTTTTGAGCAAATAACATTTATGCAAGCCTTACATCTATTGCTTGAAGTGGAGCAAGAGATAAGA
ACTTTCTCATTTCAGCTTATTTAATAATAAAAAACACCCTTGTTTCTACT

NS1 protein

Source: NP_040984.1 (230 aa)

Sequence: 27 - 719

MDPNTVSSFQVDCFLWHVRKRVADQELGDAPFLDRLRRDQKSLRGRGSTLGLDIETATRAGKQIVERILK
EESDEALKMTMASVPASRYLTDMTLEEMSREWSMLIPKQKVAGPLCIRMDQAIMDKNIILKANFSVIFDR
LETLILLRAFTEEGAIVGEISPLPSLPGHTAEDVKNAVGVLIGGLEWNDNTVRVSETLQRFAWRSSNENG
RPPLTPKQKREMAGTIRSEV

NS1/NEP protein

Source: NP_040983.1 (121 aa)

Sequence: 27 - 864

MDPNTVSSFQDILLRMSKMQLESSSEDLNGMITQFESLKLYRDSLGEAVMRMGDLHSLQNRNEKWREQLG
QKFEEIRWLIEEVRHKLKVTENSFEQITFMQALHLLLEVEQEIRTFSFQLI

NS (890 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGGTGACAAAAACATAATGGATCCAAACACTGTGTCAAGCTTTCAGGTAGAT
TGCTTTCTTTGGCATGTCCGCAAACGAGTTGCAGACCAAGAACTAGGCGATGCCCCATTCCT
TGATCGGCTTCGCCGAGATCAGAAATCCCTAAGAGGAAGGGGCAGTACTCTCGGTCTGGACA
TCAAGACAGCCACACGTGCTGGAAAGCAGATAGTGGAGCGGATTCTGAAAGAAGAATCCGAT
GAGGCACTTAAAATGACCATGGCCTCTGTACCTGCGTCGCGTTACCTAACTGACATGACTCT
TGAGGAAATGTCAAGGGACTGGTCCATGCTCATACCCAAGCAGAAAGTGGCAGGCCCTCTTT
GTATCAGAATGGACCAGGCGATCATGGATAAGAACATCATACTGAAAGCGAACTTCAGTGTG
ATTTTTGACCGGCTGGAGACTCTAATATTGCTAAGGGCTTTCACCGAAGAGGGAGCAATTGT
TGGCGAAATTTCACCATTGCCTTCTCTTCCAGGACATACTGCTGAGGATGTCAAAAATGCAG
TTGGAGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTGAAACTCTA
CAGAGATTCGCTTGGAGAAGCAGTAATGAGAATGGGAGACCTCCACTCACTCCAAAACAGAA
ACGAGAAATGGCGGGAACAATTAGGTCAGAAGTTTGAAGAAATAAGATGGTTGATTGAAGAA
GTGAGACACAAACTGAAGATAACAGAGAATAGTTTTGAGCAAATAACATTTATGCAAGCCTT
ACATCTATTGCTTGAAGTGGAGCAAGAGATAAGAACTTTCTCGTTTCAGCTTATTTAGTACT
AAAAAACACCCTTGNNNNNNNN

NS (890 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGGTGACAAAAACATAATGGATCCAAACACTGTGTCAAGCTTTCAGGTAGAT
TGCTTTCTTTGGCATGTCCGCAAACGAGTTGCAGACCAAGAACTAGGCGATGCCCCATTCCT
TGATCGGCTTCGCCGAGATCAGAAATCCCTAAGAGGAAGGGGCAGTACTCTCGGTCTGGACA
TCAAGACAGCCACACGTGCTGGAAAGCAGATAGTGGAGCGGATTCTGAAAGAAGAATCCGAT
GAGGCACTTAAAATGACCATGGCCTCTGTACCTGCGTCGCGTTACCTAACTGACATGACTCT
TGAGGAAATGTCAAGGGACTGGTCCATGCTCATACCCAAGCAGAAAGTGGCAGGCCCTCTTT
GTATCAGAATGGACCAGGCGATCATGGATAAGAACATCATACTGAAAGCGAACTTCAGTGTG
ATTTTTGACCGGCTGGAGACTCTAATATTGCTAAGGGCTTTCACCGAAGAGGGAGCAATTGT
TGGCGAAATTTCACCATTGCCTTCTCTTCCAGGACATACTGCTGAGGATGTCAAAAATGCAG
TTGGAGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTGAAACTCTA
CAGAGATTCGCTTGGAGAAGCAGTAATGAGAATGGGAGACCTCCACTCACTCCAAAACAGAA
ACGAGAAATGGCGGGAACAATTAGGTCAGAAGTTTGAAGAAATAAGATGGTTGATTGAAGAA
GTGAGACACAAACTGAAGATAACAGAGAATAGTTTTGAGCAAATAACATTTATGCAAGCCTT
ACATCTATTGCTTGAAGTGGAGCAAGAGATAAGAACTTTCTCGTTTCAGCTTATTTAGTACT
AAAAAACACCCTTGTTTCTACT