PB2 (2341 bp)

Nature: cRNA 5’ → 3’

Source: DQ486029.1 Influenza A virus (A/Moscow/10/99(H3N2)) polymerase PB2

AGCGAAAGCAGGTCAATTATATTCAGTATGGAAAGAATAAAAGAACTACGGAACCTGATGTCGCAGTCTC
GCACTCGCGAGATACTAACAAAAACCACAGTGGACCATATGGCCATAATTAAGAAGTACACATCAGGGAG
ACAGGAAAAGAACCCGTCACTTAGGATGAAATGGATGATGGCAATGAAATACCCAATCACTGCTGACAAA
AGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGGACAAACTCTATGGAGTAAAATGAGTGATGCTG
GATCAGATCGAGTGATGGTATCACCTTTGGCTGTGACATGGTGGAATAGAAATGGACCCGTGACAAGTAC
GGTCCACTACCCAAAAGTATACAAGACTTATTTTGACAAAGTCGAAAGGTTAAAACATGGAACCTTTGGC
CCTGTTCATTTTAGAAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCTGGTCATGCAGACCTCA
GTGCCAAGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACTAAC
ATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAACTCCGAGATTGCAAAATTTCTCCCTTG
ATGGTTGCATACATGTTAGAGAGAGAACTTGTCCGAAAAACAAGATTTCTCCCAGTTGCTGGCGGAACAA
GCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGTTGGGAACAAATGTACACTCCAGGTGG
AGAAGTGAGGAATGACGATGTTGACCAAAGCCTAATTATTGCAGCCAGGAACATAGTAAGAAGAGCCGCA
GTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAAATTGGCGGGACAAGGATGG
TGGACATTCTTAGGCAGAACCCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGATTGAG
AATCAGCTCATCCTTCAGCTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAAGAGAG
GAAGAAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTCACAA
TGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCTCATAGTGAGTGG
AAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTTTCACAAGAGGATTGCATGATA
AAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAATCAGCGGTTGAACCCCATGCATCAGCTTT
TAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTTTCAGAATTGGGGAATTGAACACATCGACAGTGTGAT
GGGAATGGTTGGAGTATTACCAGATATGACCCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGC
AAAATGGGTGTGGATGAATACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTGAGAGTTC
GAGACCAACGCGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAAACACAGGGAACAGAGAGACTGAC
AATAACTTATTCATCGTCAATGATGTGGGAGATTAACGGTCCTGAGTCGGTTTTGGTCAATACCTATCAA
TGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAATGTTGTACAACAAAA
TGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCAATTAGAGGCCAATACAGTGGGTTTGTCAGAAC
TCTATTCCAACAAATGAGAGATGTACTTGGGACATTTGACACCACCCAGATAATAAAGCTTCTCCCTTTT
GCAGCCGCTCCACCAAAGCAAAGCAGAATGCAGTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGA
TGAGAATACTTGTAAGGGGCAATTCTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAATTCT
CGGAAAAGATGCCGGCACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTG
AGAGGATTTCTCATTATAGGTAAGGAAGACAGAAGATACGGACCAGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTTGGTAATGAAACGAAA
ACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGATGGCCATCAATTAATGT
TGAATAGTTTAAAAACGACCTTGTTTCTACT

PB2 protein

Source: ABE96828.1 (759 aa) polymerase PB2

MERIKELRNLMSQSRTREILTKTTVDHMAIIKKYTSGRQEKNPSLRMKWMMAMKYPITADKRITEMVPER
NEQGQTLWSKMSDAGSDRVMVSPLAVTWWNRNGPVTSTVHYPKVYKTYFDKVERLKHGTFGPVHFRNQVK
IRRRVDINPGHADLSAKEAQDVIMEVVFPNEVGARILTSESQLTITKEKKEELRDCKISPLMVAYMLERE
LVRKTRFLPVAGGTSSIYIEVLHLTQGTCWEQMYTPGGEVRNDDVDQSLIIAARNIVRRAAVSADPLASL
LEMCHSTQIGGTRMVDILRQNPTEEQAVDICKAAMGLRISSSFSFGGFTFKRTSGSSVKREEEVLTGNLQ
TLKIRVHEGYEEFTMVGKRATAILRKATRRLVQLIVSGRDEQSIAEAIIVAMVFSQEDCMIKAVRGDLNF
VNRANQRLNPMHQLLRHFQKDAKVLFQNWGIEHIDSVMGMVGVLPDMTPSTEMSMRGIRVSKMGVDEYSS
TERVVVSIDRFLRVRDQRGNVLLSPEEVSETQGTERLTITYSSSMMWEINGPESVLVNTYQWIIRNWEAV
KIQWSQNPAMLYNKMEFEPFQSLVPKAIRGQYSGFVRTLFQQMRDVLGTFDTTQIIKLLPFAAAPPKQSR
MQFSSLTVNVRGSGMRILVRGNSPVFNYNKTTKRLTILGKDAGTLIEDPDESTSGVESAVLRGFLIIGKE
DRRYGPALSINELSNLAKGEKANVLIGQGDVVLVMKRKRDSSILTDSQTATKRIRMAIN

PB2 (2341 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS_2022

NNNNNNAGCAGGTCAATTATATTCAGTATGGAAAGAATAAAAGAACTACGGAACCTGATGTC
GCAGTCTCGCACTCGCGAGATACTAACAAAAACCACAGTGGACCATATGGCCATAATTAAGA
AGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAAATGGATGATGGCAATG
AAATACCCAATCACTGCTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGG
ACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTATCACCTTTGG
CTGTGACATGGTGGAATAGAAATGGACCCGTGACAAGTACGGTCCACTACCCAAAAGTATAC
AAGACTTATTTTGACAAAGTCGAAAGGTTAAAACATGGAACCTTTGGCCCTGTTCATTTTAG
AAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCTGGTCATGCAGACCTCAGTGCCA
AGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACTA
ACATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAACTCCGAGATTGCAAAAT
TTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTTGTCCGAAAAACAAGATTTCTCC
CAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGT
TGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGGAATGACGATGTTGACCAAAGCCTAAT
TATTGCAGCCAGGAACATAGTAAGAAGAGCCGCAGTATCAGCAGATCCACTAGCATCTTTAT
TGGAGATGTGCCACAGCACACAAATTGGCGGGACAAGGATGGTGGACATTCTTAGGCAGAAC
CCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGGTTGAGAATCAGCTCATC
CTTCAGCTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAAGAGAGGAAG
AAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTC
ACAATGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCT
CATAGTGAGTGGAAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTTT
CACAAGAGGATTGCATGATAAAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAAT
CAGCGGTTGAACCCCATGCATCAGCTTTTAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTT
TCAGAATTGGGGAATTGAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATA
TGACTCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAA
TACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTGAGAGTTCGAGACCAACG
CGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAAACACAGGGAACAGAGAGACTGACAA
TAACTTATTCATCGTCAATGATGTGGGAGATTAACGGTCCTGAGTCGGTTTTGGTCAATACC
TATCAATGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAAT
GTTGTACAACAAAATGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCCATTAGAGGCC
AATACAGTGGGTTTGTCAGAACTCTATTCCAACAAATGAGAGATGTACTTGGGACATTTGAC
ACCACCCAGATAATAAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAAGCAAAGCAGAATGCA
GTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGATGAGAATACTTGTAAGGGGCAATT
CTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAATTCTCGGAAAAGATGCCGGC
ACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTGAGAGGATT
TCTCATTATAGGTAAGGAAGACAGAAGATACGGACCGGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTTGGTAATG
AAACGAAAACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGAT
GGCCATCAATTAATGTTGAATAGTTTAAAAACGACCTNNNNNNNNNN

PB2 (2341 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCGAAAGCAGGTCAATTATATTCAGTATGGAAAGAATAAAAGAACTACGGAACCTGATGTC
GCAGTCTCGCACTCGCGAGATACTAACAAAAACCACAGTGGACCATATGGCCATAATTAAGA
AGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAAATGGATGATGGCAATG
AAATACCCAATCACTGCTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGG
ACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTATCACCTTTGG
CTGTGACATGGTGGAATAGAAATGGACCCGTGACAAGTACGGTCCACTACCCAAAAGTATAC
AAGACTTATTTTGACAAAGTCGAAAGGTTAAAACATGGAACCTTTGGCCCTGTTCATTTTAG
AAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCTGGTCATGCAGACCTCAGTGCCA
AGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACTA
ACATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAACTCCGAGATTGCAAAAT
TTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTTGTCCGAAAAACAAGATTTCTCC
CAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGT
TGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGGAATGACGATGTTGACCAAAGCCTAAT
TATTGCAGCCAGGAACATAGTAAGAAGAGCCGCAGTATCAGCAGATCCACTAGCATCTTTAT
TGGAGATGTGCCACAGCACACAAATTGGCGGGACAAGGATGGTGGACATTCTTAGGCAGAAC
CCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGGTTGAGAATCAGCTCATC
CTTCAGCTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAAGAGAGGAAG
AAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTC
ACAATGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCT
CATAGTGAGTGGAAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTTT
CACAAGAGGATTGCATGATAAAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAAT
CAGCGGTTGAACCCCATGCATCAGCTTTTAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTT
TCAGAATTGGGGAATTGAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATA
TGACTCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAA
TACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTGAGAGTTCGAGACCAACG
CGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAAACACAGGGAACAGAGAGACTGACAA
TAACTTATTCATCGTCAATGATGTGGGAGATTAACGGTCCTGAGTCGGTTTTGGTCAATACC
TATCAATGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAAT
GTTGTACAACAAAATGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCCATTAGAGGCC
AATACAGTGGGTTTGTCAGAACTCTATTCCAACAAATGAGAGATGTACTTGGGACATTTGAC
ACCACCCAGATAATAAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAAGCAAAGCAGAATGCA
GTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGATGAGAATACTTGTAAGGGGCAATT
CTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAATTCTCGGAAAAGATGCCGGC
ACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTGAGAGGATT
TCTCATTATAGGTAAGGAAGACAGAAGATACGGACCGGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTTGGTAATG
AAACGAAAACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGAT
GGCCATCAAT**TAA**TGTTGAATAGTTTAAAAACGACCTTGTTTCTACT

PB1 (2341 bp)

Nature: cRNA 5’ → 3’

Source: DQ487328.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 2

AGCGAAAGCAGGCAAACCATTTGAATGGATGTCAATCCGACTCTACTTTTCCTAAAGGTTCCAGCGCAAA
ATGCCATAAGCACCACATTCCCTTATACTGGAGATCCTCCATACAGCCATGGAACAGGAACAGGGTACAC
CATGGACACAGTCAACAGAACACACCAATATTCAGAAAAGGGGAAGTGGACGACAAATACAGAAACTGGG
GCACCCCAACTCAACCCAATTGATGGACCACTACCTGAGGATAATGAGCCAAGTGGATATGCACAAACAG
ACTGTGTCCTGGAGGCTATGGCCTTCCTTGAAGAATCCCACCCAGGGATCTTTGAGAACTCATGCCTTGA
AACAATGGAAGTCGTTCAACAAACAAGGGTGGACAAACTAACTCAAGGTCGCCAGACTTATGATTGGACA
TTAAACAGAAATCAACCGGCAGCAACTGCATTAGCCAACACCATAGAAGTTTTTAGATCGAATGGTCTAA
CAGCTAATGAATCAGGAAGGCTAATAGATTTCCTCAAGGATGTGATGGAATCAATGGATAAAGAGGAAAT
GGAGATAACAACACACTTTCAAAGAAAAAGGAGAGTAAGAGACAACATGACCAAGAAAATGGTCACACAA
AGAACAATAGGGAAGAAAAAACAAAGAGTGAATAAGAGAGGCTATCTAATAAGAGCTTTGACATTGAACA
CGATGACCAAAGATGCAGAGAGAGGTAAATTAAAAAGAAGGGCTATTGCAACACCCGGGATGCAAATTAG
AGGGTTCGTGTACTTCGTTGAAACTTTAGCTAGAAGCATTTGCGAAAAGCTTGAACAGTCTGGACTTCCG
GTTGGGGGTAATGAAAAGAAGGCCAAACTGGCAAATGTTGTGAGAAAAATGATGACTAATTCACAAGACA
CAGAGCTTTCTTTCACAATCACTGGGGACAACACTAAGTGGAATGAAAATCAAAACCCTCGAATGTTTTT
GGCGATGATTACATATATCACAAAAAATCAACCTGAGTGGTTCAGAAACATCCTGAGCATAGCACCAATA
ATGTTCTCAAACAAAATGGCAAGACTAGGAAAAGGATACATGTTCGAGAGTAAGAGAATGAAGCTCCGAA
CACAAATACCCGCAGAAATGCTAGCAAGCATCGACCTGAAGTATTTCAATGAATCAACAAGGAAGAAAAT
TGAGAAAATAAGGCCTCTTCTAATAGATGGCACAGCATCATTGAGCCCTGGGATGATGATGGGCATGTTC
AACATGCTAAGTACGGTTTTAGGAGTCTCGATACTGAATCTTGGGCAAAAGAAATACACCAAGACAACAT
ACTGGTGGGATGGGCTCCAATCCTCCGACGATTTTGCCCTCATAGTGAATGCACCAAATCATGAGGGAAT
ACAAGCAGGAGTGGATAGATTCTACAGGACCTGCAAGTTGGTGGGAATCAACATGAGCAAAAAGAAGTCC
TATATAAATAAAACAGGGACATTTGAATTCACAAGCTTTTTTTATCGCTATGGATTTGTGGCTAATTTTA
GCATGGAGCTGCCCAGTTTTGGAGTGTCTGGAATAAATGAGTCAGCTGATATGAGCATTGGAGTAACAGT
GATAAAGAACAACATGATAAACAATGACCTTGGACCAGCAACAGCCCAGATGGCTCTTCAATTGTTCATC
AAAGACTACAGATATACATATAGGTGCCATAGAGGAGACACACAAATTCAGACGAGAAGATCATTCGAGC
TAAAGAAGCTGTGGGATCAAACCCAATCAAGGGCAGGACTATTGGTATCAGATGGGGGACCAAACTTATA
CAATATCCGGAATCTTCACATTCCTGAAGTCTGCTTAAAGTGGGAGCTAATGGATGAGGATTATCGGGGA
AGACTTTGTAATCCCCTGAATCCCTTTGTCAGCCATAAAGAAATTGAGTCTGTAAACAATGCTGTAGTGA
TGCCAGCCCATGGTCCAGCCAAAAGTATGGAATATGATGCCGTTGCAACTACACACTCCTGGATTCCCAA
GAGGAACCGCTCTATTCTAAACACAAGCCAAAGGGGAATTCTTGAGGATGAACAGATGTACCAGAAGTGC
TGCAACTTGTTCGAGAAATTTTTCCCTAGTAGTTCATATAGGAGACCGGTTGGAATTTCTAGCATGGTGG
AGGCCATGGTGTCTAGAGCCCGGATTGATGCCAGAATTGACTTCGAGTCTGGACGGATTAAGAAGGAAGA
GTTCTCTGAGATCATGAAGATCTGTTCCACCATTGAAGAACTCAGACGGCAAAAATAATGAATTTAGCTT
GTCCTTCATGAAAAAATGCCTTGTTTCTACT

PB1 protein

Source: ABE73096.1 (757 aa) polymerase PB2

Sequence: 25- 2298

MDVNPTLLFLKVPAQNAISTTFPYTGDPPYSHGTGTGYTMDTVNRTHQYSEKGKWTTNTETGAPQLNPID
GPLPEDNEPSGYAQTDCVLEAMAFLEESHPGIFENSCLETMEVVQQTRVDKLTQGRQTYDWTLNRNQPAA
TALANTIEVFRSNGLTANESGRLIDFLKDVMESMDKEEMEITTHFQRKRRVRDNMTKKMVTQRTIGKKKQ
RVNKRGYLIRALTLNTMTKDAERGKLKRRAIATPGMQIRGFVYFVETLARSICEKLEQSGLPVGGNEKKA
KLANVVRKMMTNSQDTELSFTITGDNTKWNENQNPRMFLAMITYITKNQPEWFRNILSIAPIMFSNKMAR
LGKGYMFESKRMKLRTQIPAEMLASIDLKYFNESTRKKIEKIRPLLIDGTASLSPGMMMGMFNMLSTVLG
VSILNLGQKKYTKTTYWWDGLQSSDDFALIVNAPNHEGIQAGVDRFYRTCKLVGINMSKKKSYINKTGTF
EFTSFFYRYGFVANFSMELPSFGVSGINESADMSIGVTVIKNNMINNDLGPATAQMALQLFIKDYRYTYR
CHRGDTQIQTRRSFELKKLWDQTQSRAGLLVSDGGPNLYNIRNLHIPEVCLKWELMDEDYRGRLCNPLNP
FVSHKEIESVNNAVVMPAHGPAKSMEYDAVATTHSWIPKRNRSILNTSQRGILEDEQMYQKCCNLFEKFF
PSSSYRRPVGISSMVEAMVSRARIDARIDFESGRIKKEEFSEIMKICSTIEELRRQK

PB1-F2 protein

Source: ABE73097.1 (90 aa) polymerase PB2

Sequence: 119 - 391

MEQEQGTPWTQSTEHTNIQKRGSGRQIQKLGHPNSTQLMDHYLRIMSQVDMHKQTVSWRLWPSLKNPTQG
SLRTHALKQWKSFNKQGWTN

PB1 (2314 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGCAAACCATTTGAATGGATGTCAATCCGACTCTACTTTTCCTAAAGGTTCC
AGCGCAAAATGCCATAAGCACCACATTCCCTTATACTGGAGATCCTCCATACAGCCATGGAA
CAGGAACAGGGTACACCATGGACACAGTCAACAGAACACACCAATATTCAGAAAAGGGGAAG
TGGACGACAAATACAGAAACTGGGGCACCCCAACTCAACCCAATTGATGGACCACTACCTGA
GGATAATGAGCCAAGTGGATATGCACAAACAGACTGTGTCCTGGAGGCTATGGCCTTCCTTG
AAGAATCCCACCCAGGGATCTTTGAGAACTCATGCCTTGAAACAATGGAAGTCGTTCAACAA
ACAAGGGTGGACAAACTAACTCAAGGTCGCCAGACTTATGATTGGACATTAAACAGAAATCA
ACCGGCAGCAACTGCATTAGCCAACACCATAGAAGTTTTTAGATCGAATGGTCTAACAGCTA
ATGAATCAGGAAGGCTAATAGATTTCCTCAAGGATGTGATGGAATCAATGGATAAAGAGGAA
ATGGAGATAACAACACACTTTCAAAGAAAAAGGAGAGTAAGAGACAACATGACCAAGAAAAT
GGTCACACAAAGAACAATAGGGAAGAAAAAACAAAGAGTGAATAAGAGAGGCTATCTAATAA
GAGCTTTGACATTGAACACGATGACCAAAGATGCAGAGAGAGGTAAATTAAAAAGAAGGGCT
ATTGCAACACCCGGGATGCAAATTAGAGGGTTCGTGTACTTCGTTGAAACTTTAGCTAGAAG
CATTTGCGAAAAGCTTGAACAGTCTGGACTTCCGGTTGGGGGTAATGAAAAGAAGGCCAAAC
TGGCAAATGTTGTGAGAAAAATGATGACTAATTCACAAGACACAGAGCTTTCTTTCACAATC
ACTGGGGACAACACTAAGTGGAATGAAAATCAAAACCCTCGAATGTTTTTGGCGATGATTAC
ATATATCACAAAAAATCAACCTGAGTGGTTCAGAAACATCCTGAGCATCGCACCAATAATGT
TCTCAAACAAAATGGCAAGACTAGGAAAAGGATACATGTTCGAGAGTAAGAGAATGAAGCTC
CGAACACAAATACCCGCAGAAATGCTAGCAAGCATCGACCTGAAGTATTTCAATGAATCAAC
AAGGAAGAAAATTGAGAAAATAAGGCCTCTTCTAATAGATGGCACAGCATCATTGAGCCCTG
GGATGATGATGGGCATGTTCAACATGCTAAGTACGGTTTTAGGAGTCTCGATACTGAATCTT
GGGCAAAAGAAATACACCAAGACAACATACTGGTGGGATGGGCTCCAATCCTCCGACGATTT
TGCCCTCATAGTGAATGCACCAAATCATGAGGGAATACAAGCAGGAGTGGATAGATTCTACA
GGACCTGCAAGTTGGTGGGAATCAACATGAGCAAAAAGAAGTCCTATATAAATAAAACAGGG
ACATTTGAATTCACAAGCTTTTTTTATCGCTATGGATTTGTGGCTAATTTTAGCATGGAGCT
GCCCAGTTTTGGAGTGTCTGGAATAAATGAGTCAGCTGATATGAGCATTGGAGTAACAGTGA
TAAAGAACAACATGATAAACAATGACCTTGGACCAGCAACAGCCCAGATGGCTCTTCAATTG
TTCATCAAAGACTACAGATATACATATAGGTGCCATAGAGGAGACACACAAATTCAGACGAG
AAGATCATTCGAGCTAAAGAAGCTGTGGGATCAAACCCAATCAAGGGCAGGACTATTGGTAT
CAGATGGGGGACCAAACTTATACAATATCCGGAATCTTCACATTCCTGAAGTCTGCTTAAAG
TGGGAGCTAATGAATGAGGATTATCGGGGAAGACTTTGTAATCCCCTGAATCCCTTTGTCAG
CCATAAAGAGATTGAGTCTGTAAACAATGCTGTAGTGATGCCAGCCCATGGTCCAGCCAAAA
GTATGGAATATGATGCCGTTGCAACTACACACTCCTGGATTCCCAAGAGGAACCGCTCTATT
CTCAACACAAGCCAAAGGGGAATTCTTGAGGATGAACAGATGTACCAGAAGTGCTGCAACTT
GTTCGAGAAATTTTTCCCTAGCAGTTCATATAGGAGACCGGTTGGAATTTCTAGCATGGTGG
AGGCCATGGTGTCTAGGGCCCGGATTGATGCCAGAATTGACTTCGAGTCTGGACGGATTAAG
AAGGAAGAGTTCTCTGAGATCATGAAGATCTGTTCCACCATTGAAGAACTCAGACGGCAAAA
ATAATGAATTTAGCTTGTCCTTCATGAAAAAATGCCNNNNNNNNNNN

PB1 (2341 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCGAAAGCAGGCAAACCATTTGA**ATG**GATGTCAATCCGACTCTACTTTTCCTAAAGGTTCC
AGCGCAAAATGCCATAAGCACCACATTCCCTTATACTGGAGATCCTCCATACAGCCATGGAA
CAGGAACAGGGTACACCATGGACACAGTCAACAGAACACACCAATATTCAGAAAAGGGGAAG
TGGACGACAAATACAGAAACTGGGGCACCCCAACTCAACCCAATTGATGGACCACTACCTGA
GGATAATGAGCCAAGTGGATATGCACAAACAGACTGTGTCCTGGAGGCTATGGCCTTCCTTG
AAGAATCCCACCCAGGGATCTTTGAGAACTCATGCCTTGAAACAATGGAAGTCGTTCAACAA
ACAAGGGTGGACAAACTAACTCAAGGTCGCCAGACTTATGATTGGACATTAAACAGAAATCA
ACCGGCAGCAACTGCATTAGCCAACACCATAGAAGTTTTTAGATCGAATGGTCTAACAGCTA
ATGAATCAGGAAGGCTAATAGATTTCCTCAAGGATGTGATGGAATCAATGGATAAAGAGGAA
ATGGAGATAACAACACACTTTCAAAGAGAAAGGAGAGTAAGAGACAACATGACCAAGAAAAT
GGTCACACAAAGAACAATAGGGAAGAAAAAACAAAGAGTGAATAAGAGAGGCTATCTAATAA
GAGCTTTGACATTGAACACGATGACCAAAGATGCAGAGAGAGGTAAATTAAAAAGAAGGGCT
ATTGCAACACCCGGGATGCAAATTAGAGGGTTCGTGTACTTCGTTGAAACTTTAGCTAGAAG
CATTTGCGAAAAGCTTGAACAGTCTGGACTTCCGGTTGGGGGTAATGAAAAGAAGGCCAAAC
TGGCAAATGTTGTGAGAAAAATGATGACTAATTCACAAGACACAGAGCTTTCTTTCACAATC
ACTGGGGACAACACTAAGTGGAATGAAAATCAAAACCCTCGAATGTTTTTGGCGATGATTAC
ATATATCACAAAAAATCAACCTGAGTGGTTCAGAAACATCCTGAGCATCGCACCAATAATGT
TCTCAAACAAAATGGCAAGACTAGGAAAAGGATACATGTTCGAGAGTAAGAGAATGAAGCTC
CGAACACAAATACCCGCAGAAATGCTAGCAAGCATCGACCTGAAGTATTTCAATGAATCAAC
AAGGAAGAAAATTGAGAAAATAAGGCCTCTTCTAATAGATGGCACAGCATCATTGAGCCCTG
GGATGATGATGGGCATGTTCAACATGCTAAGTACGGTTTTAGGAGTCTCGATACTGAATCTT
GGGCAAAAGAAATACACCAAGACAACATACTGGTGGGATGGGCTCCAATCCTCCGACGATTT
TGCCCTCATAGTGAATGCACCAAATCATGAGGGAATACAAGCAGGAGTGGATAGATTCTACA
GGACCTGCAAGTTGGTGGGAATCAACATGAGCAAAAAGAAGTCCTATATAAATAAAACAGGG
ACATTTGAATTCACAAGCTTTTTTTATCGCTATGGATTTGTGGCTAATTTTAGCATGGAGCT
GCCCAGTTTTGGAGTGTCTGGAATAAATGAGTCAGCTGATATGAGCATTGGAGTAACAGTGA
TAAAGAACAACATGATAAACAATGACCTTGGACCAGCAACAGCCCAGATGGCTCTTCAATTG
TTCATCAAAGACTACAGATATACATATAGGTGCCATAGAGGAGACACACAAATTCAGACGAG
AAGATCATTCGAGCTAAAGAAGCTGTGGGATCAAACCCAATCAAAGGCAGGACTATTGGTAT
CAGATGGGGGACCAAACTTATACAATATCCGGAATCTTCACATTCCTGAAGTCTGCTTAAAA
TGGGAGCTAATGAATGAGGATTATCGGGGAAGACTTTGTAATCCCCTGAATCCCTTTGTCAG
CCATAAAGAGATTGAGTCTGTAAACAATGCTGTAGTGATGCCAGCCCATGGTCCAGCCAAAA
GTATGGAATATGATGCCGTTGCAACTACACACTCCTGGATTCCCAAGAGGAACCGCTCTATT
CTCAACACAAGCCAAAGGGGAATTCTTGAGGATGAACAGATGTACCAGAAGTGCTGCAACTT
GTTCGAGAAATTTTTCCCTAGCAGTTCATATAGGAGACCGGTTGGAATTTCTAGCATGGTGG
AGGCCATGGTGTCTAGGGCCCGGATTGATGCCAGAATTGACTTCGAGTCTGGACGGATTAAG
AAGGAAGAGTTCTCTGAGATCATGAAGATCTGTTCCACCATTGAAGAACTCAGACGGCAAAA
A**TAA**TGAATTTAGCTTGTCCTTCATGAAAAAATGCCTTGTTTCTACT

PA (2233 bp)

Nature: cRNA

Source: DQ487327.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 3

AGCGAAAGCAGGTACTGATTCGAAATGGAAGATTTTGTGCGACAATGCTTCAACCCGATGATTGTCGAAC
TTGCAGAAAAAGCAATGAAAGAGTATGGAGAGGATCTGAAAATTGAAACAAACAAATTTGCAGCAATATG
CACTCACTTGGAGGTATGTTTCATGTATTCAGATTTTCATTTCATCAATGAACAAGGCGAATCAATAGTG
GTAGAACTTGATGATCCAAATGCACTGTTAAAGCACAGATTTGAAATAATCGAGGGGAGAGACAGAACAA
TGGCCTGGACAGTAGTAAACAGTATCTGCAACACTACTGGAGCTGAAAAACCGAAGTTTCTACCAGATTT
GTATGATTACAAGGAGAACAGATTCATCGAAATTGGAGTGACAAGGAGAGAAGTCCACATATATTACCTT
GAAAAGGCCAATAAAATTAAATCTGAGAATACACACATTCACATTTTCTCATTCACTGGGGAGGAAATGG
CCACAAAGGCAGACTACACTCTCGACGAGGAAAGCAGGGCTAGGATTAAGACCAGGCTATTTACCATAAG
ACAAGAAATGGCCAACAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAAAGAGGCGAAGAAACAATTGAA
GAAAAATTTGAAATCTCAGGAACTATGCGCAGGCTTGCCGACCAAAGTCTCCCGCCGAACTTCTCCTGCC
TTGAGAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGCTGCATTGAGGGCAAGCTTTCTCAAAT
GTCCAAAGAAGTGAATGCCAAAATTGAACCTTTTCTGAAGACAACACCAAGACCAATCAAACTTCCGAAT
GGACCTCCTTGTTATCAGCGGTCCAAATTCCTCCTGATGGATGCTTTAAAATTGAGCATTGAAGACCCAA
GTCACGAAGGAGAAGGGATCCCACTATATGATGCGATCAAGTGCATAAAAACATTCTTTGGATGGAAAGA
ACCTTATATAGTCAAACCACACGAAAAGGGAATAAATTCAAATTACCTGCTGTCATGGAAGCAAGTATTG
TCAGAATTGCAGGACATTGAAAATGAGGAGAAGATTCCAAGGACTAAAAACATGAAGAAAACGAGTCAAC
TAAAGTGGGCTCTTGGTGAAAACATGGCACCAGAGAAAGTAGACTTTGACAACTGCAGAGACATAAGCGA
TTTGAAGCAATATGATAGTGACGAACCTGAATTAAGGTCACTTTCAAGCTGGATACAGAATGAGTTCAAC
AAGGCCTGCGAGCTAACTGATTCAATCTGGATAGAGCTCGATGAAATTGGAGAGGACGTAGCCCCAATTG
AGTACATTGCAAGCATGAGGAGGAATTATTTCACAGCAGAGGTGTCCCATTGTAGAGCCACTGAATACAT
AATGAAGGGGGTATACATTAATACTGCCTTGCTCAATGCATCCTGTGCAGCAATGGACGATTTTCAACTA
ATTCCCATGATAAGCAAGTGCAGAACTAAAGAGGGAAGGCGAAAAACCAATTTATATGGATTCATCATAA
AAGGAAGATCTCATTTAAGGAATGACACAGATGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGA
CCCGAGACTTGAGCCACATAAATGGGAGAAATACTGTGTCCTTGAGATAGGAGATATGTTACTAAGAAGT
GCCATAGGCCAAATTTCAAGGCCTATGTTCTTGTATGTGAGGACAAACGGAACATCAAAGGTCAAAATGA
AATGGGGAATGGAGATGAGACGTTGCCTCCTTCAGTCACTCCAGCAGATCGAGAGCATGATTGAAGCCGA
GTCCTCGGTTAAAGAGAAAGACATGACCAAAGAGTTTTTTGAGAATAAATCAGAAGCATGGCCCATTGGG
GAGTCCCCCAAGGGAGTGGAAGAAGGTTCCATTGGGAAAGTCTGTAGGACTCTGTTGGCTAAGTCGGTGT
TCAATAGCCTGTATGCATCACCACAATTAGAAGGATTTTCAGCGGAGTCAAGAAAACTGCTCCTTGTTGT
TCAGGCTCTTAGGGACAACCTCGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAG
TGCCTGATTAATGATCCCTGGGTTTTGCTCAATGCGTCTTGGTTCAACTCCTTCCTGACACATGCATTAA
AATAGTTATGGCAGTGCTACTATTTGTTATCCGTACTGTCCAAAAAAGTACCTTGTTTCTACT

PA protein

Source: ABE73095.1 (716 aa) polymerase PB2

Sequence: 251- 715

MEDFVRQCFNPMIVELAEKAMKEYGEDLKIETNKFAAICTHLEVCFMYSDFHFINEQGESIVVELDDPNA
LLKHRFEIIEGRDRTMAWTVVNSICNTTGAEKPKFLPDLYDYKENRFIEIGVTRREVHIYYLEKANKIKS
ENTHIHIFSFTGEEMATKADYTLDEESRARIKTRLFTIRQEMANRGLWDSFRQSERGEETIEEKFEISGT
MRRLADQSLPPNFSCLENFRAYVDGFEPNGCIEGKLSQMSKEVNAKIEPFLKTTPRPIKLPNGPPCYQRS
KFLLMDALKLSIEDPSHEGEGIPLYDAIKCIKTFFGWKEPYIVKPHEKGINSNYLLSWKQVLSELQDIEN
EEKIPRTKNMKKTSQLKWALGENMAPEKVDFDNCRDISDLKQYDSDEPELRSLSSWIQNEFNKACELTDS
IWIELDEIGEDVAPIEYIASMRRNYFTAEVSHCRATEYIMKGVYINTALLNASCAAMDDFQLIPMISKCR
TKEGRRKTNLYGFIIKGRSHLRNDTDVVNFVSMEFSLTDPRLEPHKWEKYCVLEIGDMLLRSAIGQISRP
MFLYVRTNGTSKVKMKWGMEMRRCLLQSLQQIESMIEAESSVKEKDMTKEFFENKSEAWPIGESPKGVEE
GSIGKVCRTLLAKSVFNSLYASPQLEGFSAESRKLLLVVQALRDNLEPGTFDLGGLYEAIEECLINDPWV
LLNASWFNSFLTHALK

PA (2233 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGTACTGATTCGAAATGGAAGATTTTGTGCGACAATGCTTCAACCCGATGAT
TGTCGAACTTGCAGAAAAAGCAATGAAAGAGTATGGAGAGGATCTGAAAATTGAAACAAACA
AATTTGCAGCAATATGCACTCACTTGGAGGTATGTTTCATGTATTCAGATTTTCATTTCATC
AATGAACAAGGCGAATCAATAGTGGTAGAACTTGATGATCCAAATGCACTGTTAAAGCACAG
ATTTGAAATAATCGAGGGGAGAGACAGAACAATGGCCTGGACAGTAGTAAACAGTATCTGCA
ACACTACTGGAGCTGAAAAACCGAAGTTTCTACCAGATTTGTATGATTACAAGGAGAACAGA
TTCATCGAAATTGGAGTGACAAGGAGAGAAGTCCACATATATTACCTTGAAAAGGCCAATAA
AATTAAATCTGAGAATACACACATTCACATTTTCTCATTCACTGGGGAGGAAATGGCCACAA
AGGCAGACTACACTCTCGACGAGGAAAGCAGGGCTAGGATTAAGACCAGGCTATTTACCATA
AGACAAGAAATGGCCAACAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAAAGAGGCGAAGA
AACAATTGAAGAAAAATTTGAAATCTCAGGAACTATGCGCAGGCTTGCCGACCAAAGTCTCC
CGCCGAACTTCTCCTGCCTTGAGAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGC
TGCATTGAGGGCAAGCTTTCTCAAATGTCCAAAGAAGTGAATGCCAAAATTGAACCTTTTCT
GAAGACAACACCAAGACCAATCAAACTTCCGAATGGACCTCCTTGTTATCAGCGGTCCAAAT
TCCTCCTGATGGATGCTTTAAAATTGAGCATTGAAGACCCAAGTCACGAAGGAGAAGGGATC
CCACTATATGATGCGATCAAGTGCATAAAAACATTCTTTGGATGGAAAGAACCTTATATAGT
CAAACCACACGAAAAGGGAATAAATTCAAATTACCTGCTGTCATGGAAGCAAGTATTGTCAG
AATTGCAGGACATTGAAAATGAGGAGAAGATTCCAAGGACTAAAAACATGAAGAAAACGAGT
CAACTAAAGTGGGCTCTTGGTGAAAACATGGCACCAGAGAAAGTAGACTTTGACAACTGCAG
AGACATAAGCGATTTGAAGCAATATGATAGTGACGAACCTGAATTAAGGTCACTTTCAAGCT
GGATACAGAATGAGTTCAACAAGGCCTGCGAGCTAACTGATTCAATCTGGATAGAGCTCGAT
GAAATTGGAGAGGACGTAGCCCCAATTGAGTACATTGCAAGCATGAGGAGGAATTATTTCAC
AGCAGAGGTGTCCCATTGTAGAGCCACTGAGTACATAATGAAGGGGGTATACATTAATACTG
CCTTGCTCAATGCATCCTGTGCAGCAATGGACGATTTTCAACTAATTCCCATGATAAGCAAG
TGCAGAACTAAAGAGGGAAGGCGAAAAACCAATTTATATGGATTCATCATAAAAGGAAGATC
TCATTTAAGGAATGACACAGATGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGACC
CGAGACTTGAGCCACATAAATGGGAGAAATACTGTGTCCTTGAGATAGGAGATATGTTACTA
AGAAGTGCCATAGGCCAAATTTCAAGGCCTATGTTCTTGTATGTGAGGACAAACGGAACATC
AAAGGTCAAAATGAAATGGGGAATGGAGATGAGACGTTGCCTCCTTCAGTCACTCCAGCAGA
TCGAGAGCATGATTGAAGCCGAGTCCTCGGTTAAAGAGAAAGACATGACCAAAGAGTTTTTT
GAGAATAAATCAGAAGCATGGCCCATTGGGGAGTCCCCCAAGGGAGTGGAAGAAGGTTCCAT
TGGGAAAGTCTGTAGGACTCTGTTGGCTAAGTCGGTGTTCAATAGCCTGTATGCATCACCAC
AATTAGAAGGATTTTCAGCGGAGTCAAGAAAACTGCTCCTTGTTGTTCAGGCTCTTAGGGAC
AACCTCGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAGTGCCTGAT
TAATGATCCCTGGGTTTTGCTCAATGCGTCTTGGTTCAACTCCTTCCTGACACATGCATTAA
AATAGTTATGGCAGTGCTACTATTTGTTATCCGTACTGTCCAAAAAAGTACCTTGNNNNNNN
N

PA (2233 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGTACTGATTCGAA**ATG**GAAGATTTTGTGCGACAATGCTTCAACCCGATGAT
TGTCGAACTTGCAGAAAAAGCAATGAAAGAGTATGGAGAGGATCTGAAAATTGAAACAAACA
AATTTGCAGCAATATGCACTCACTTGGAGGTATGTTTCATGTATTCAGATTTTCATTTCATC
AATGAACAAGGCGAATCAATAGTGGTAGAACTTGATGATCCAAATGCACTGTTAAAGCACAG
ATTTGAAATAATCGAGGGGAGAGACAGAACAATGGCCTGGACAGTAGTAAACAGTATCTGCA
ACACTACTGGAGCTGAAAAACCGAAGTTTCTACCAGATTTGTATGATTACAAGGAGAACAGA
TTCATCGAAATTGGAGTGACAAGGAGAGAAGTCCACATATATTACCTTGAAAAGGCCAATAA
AATTAAATCTGAGAATACACACATTCACATTTTCTCATTCACTGGGGAGGAAATGGCCACAA
AGGCAGACTACACTCTCGACGAGGAAAGCAGGGCTAGGATTAAGACCAGGCTATTTACCATA
AGACAAGAAATGGCCAACAGAGGCCTCTGGGATTCCTTTCGTCAGTCCGAAAGAGGCGAAGA
AACAATTGAAGAAAAATTTGAAATCTCAGGAACTATGCGCAGGCTTGCCGACCAAAGTCTCC
CGCCGAACTTCTCCTGCCTTGAGAATTTTAGAGCCTATGTGGATGGATTCGAACCGAACGGC
TGCATTGAGGGCAAGCTTTCTCAAATGTCCAAAGAAGTGAATGCCAAAATTGAACCTTTTCT
GAAGACAACACCAAGACCAATCAAACTTCCGAATGGACCTCCTTGTTATCAGCGGTCCAAAT
TCCTCCTGATGGATGCTTTAAAATTGAGCATTGAAGACCCAAGTCACGAAGGAGAAGGGATC
CCACTATATGATGCGATCAAGTGCATAAAAACATTCTTTGGATGGAAAGAACCTTATATAGT
CAAACCACACGAAAAGGGAATAAATTCAAATTACCTGCTGTCATGGAAGCAAGTATTGTCAG
AATTGCAGGACATTGAAAATGAGGAGAAGATTCCAAGGACTAAAAACATGAAGAAAACGAGT
CAACTAAAGTGGGCTCTTGGTGAAAACATGGCACCAGAGAAAGTAGACTTTGACAACTGCAG
AGACATAAGCGATTTGAAGCAATATGATAGTGACGAACCTGAATTAAGGTCACTTTCAAGCT
GGATACAGAATGAGTTCAACAAGGCCTGCGAGCTAACTGATTCAATCTGGATAGAGCTCGAT
GAAATTGGAGAGGACGTAGCCCCAATTGAGTACATTGCAAGCATGAGGAGGAATTATTTCAC
AGCAGAGGTGTCCCATTGTAGAGCCACTGAGTACATAATGAAGGGGGTATACATTAATACTG
CCTTGCTCAATGCATCCTGTGCAGCAATGGACGATTTTCAACTAATTCCCATGATAAGCAAG
TGCAGAACTAAAGAGGGAAGGCGAAAAACCAATTTATATGGATTCATCATAAAAGGAAGATC
TCATTTAAGGAATGACACAGATGTGGTAAACTTTGTGAGCATGGAGTTTTCTCTCACTGACC
CGAGACTTGAGCCACATAAATGGGAGAAATACTGTGTCCTTGAGATAGGAGATATGTTACTA
AGAAGTGCCATAGGCCAAATTTCAAGGCCTATGTTCTTGTATGTGAGGACAAACGGAACATC
AAAGGTCAAAATGAAATGGGGAATGGAGATGAGACGTTGCCTCCTTCAGTCACTCCAGCAGA
TCGAGAGCATGATTGAAGCCGAGTCCTCGGTTAAAGAGAAAGACATGACCAAAGAGTTTTTT
GAGAATAAATCAGAAGCATGGCCCATTGGGGAGTCCCCCAAGGGAGTGGAAGAAGGTTCCAT
TGGGAAAGTCTGTAGGACTCTGTTGGCTAAGTCGGTGTTCAATAGCCTGTATGCATCACCAC
AATTAGAAGGATTTTCAGCGGAGTCAAGAAAACTGCTCCTTGTTGTTCAGGCTCTTAGGGAC
AACCTCGAACCTGGGACCTTTGATCTTGGGGGGCTATATGAAGCAATTGAGGAGTGCCTGAT
TAATGATCCCTGGGTTTTGCTCAATGCGTCTTGGTTCAACTCCTTCCTGACACATGCATTAA
AA**TAG**TTATGGCAGTGCTACTATTTGTTATCCGTACTGTCCAAAAAAGTACCTTGTTTCTAC
T

HA (1762 bp)

Nature: cRNA

Source: DQ487341.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 4

AGCAAAAGCAGGGGAGAATTCTATTAACCATGAAGACTATCATTGCTTTGAGCTACATTTTATGTCTGGT
TTTCGCTCAAAAACTTCCCGGAAATGACAACAGCACGGCAACGCTGTGCCTGGGACACCATGCAGTGCCA
AACGGAACGCTAGTGAAAACAATCACGAATGACCAAATTGAAGTGACTAATGCTACTGAGCTGGTTCAGA
GTTCCTCAACAGGTAGAATATGCGACAGTCCTCACCAAATCCTTGATGGAGAAAACTGCACACTGATAGA
TGCTCTATTGGGAGACCCACATTGTGATGGCTTCCAAAATAAGGAATGGGACCTTTTTGTTGAACGCAGC
AAAGCCTACAGCAACTGTTACCCTTATGATGTGCCGGATTATGCCTCCCTTAGGTCACTAGTTGCCTCAT
CCGGCACCCTGGAGTTTAACAATGAAAGCTTCAATTGGACTGGAGTCGCTCAGAATGGAACAAGCTCTGC
TTGCAAAAGGAGATCTATTAAAAGTTTCTTTAGTAGATTGAATTGGTTGCACCAATTAGAAAACAGATAT
CCAGCACTGAACGTGACTATGCCAAACAATGACAAATTTGACAAATTGTACATTTGGGGGGTTCACCACC
CGAGTACGGACAGTGTCCAAACCAGCGTATATGTCCAAGCATCAGGGAGAGTCACAGTCTCTACCAAAAG
AAGCCAACAAACTGTAATCCCGAATATCGGATCCAGACCCTGGGTAAGGGGTGTCTCCAGCAGAATAAGC
ATCTATTGGACAATAGTAAAACCGGGAGACATACTTTTGATTAACAGCACAGGGAATCTAATTGCTCCTC
GGGGTTACTTCAAAATACGAAGTGGGAAAAGCTCAATAATGAGGTCAGATGCACCCATTGGCAAATGCAA
TTCTGAATGCATCACTCCAAATGGAAGCATTCCCAATGACAAACCATTTCAAAATGTAAACAGGATCACA
TATGGGGCCTGTCCCAGATATGTTAAGCAAAACACTCTGAAATTGGCAACAGGGATGCGGAATGTACCAG
AGAAACAAACTAGAGGCATATTCGGCGCAATCGCGGGTTTCATAGAAAATGGTTGGGAGGGAATGATGGA
CGGTTGGTACGGTTTCAGGCATCAAAATTCTGAGGGCACAGGACAAGCAGCAGATCTTAAAAGCACTCAA
GCAGCAATCAACCAAATCAACGGGAAACTGAATAGGTTAATCGAGAAAACGAACGAGAAATTCCATCAAA
TTGAAAAAGAATTCTCAGAAGTAGAAGGGAGAATTCAGGACCTCGAGAAATATGTTGAGGACACTAAAAT
AGATCTCTGGTCGTACAACGCGGAGCTTCTTGTTGCCCTGGAGAACCAACATACAATTGATCTAACTGAC
TCAGAAATGAACAAACTGTTTGAAAGAACAAGGAAGCAACTGAGAGAAAATGCTGAGGATATGGGCAATG
GTTGTTTCAAAATATACCACAAATGTGACAATGCCTGCATAGGGTCAATCAGAAATGGAACTTATGACCA
TGATGTATACAGAGACGAAGCATTAAACAACCGGTTCCAGATCAAAGGTGTTGAGCTGAAGTCAGGATAC
AAAGATTGGATCCTATGGATTTCCTTTGCCATATCATGTTTTTTGCTTTGTGTTGTTTTGCTGGGGTTCA
TTATGTGGGCCTGCCAAAAAGGCAACATTAGGTGCAACATTTGCATTTGAGTGCATTAATTAAAAACACC
CTTGTTTCTACT

HA protein

Source: ABE73115.1 (566 aa) polymerase PB2

Sequence: 29- 521

MKTIIALSYILCLVFAQKLPGNDNSTATLCLGHHAVPNGTLVKTITNDQIEVTNATELVQSSSTGRICDS
PHQILDGENCTLIDALLGDPHCDGFQNKEWDLFVERSKAYSNCYPYDVPDYASLRSLVASSGTLEFNNES
FNWTGVAQNGTSSACKRRSIKSFFSRLNWLHQLENRYPALNVTMPNNDKFDKLYIWGVHHPSTDSVQTSV
YVQASGRVTVSTKRSQQTVIPNIGSRPWVRGVSSRISIYWTIVKPGDILLINSTGNLIAPRGYFKIRSGK
SSIMRSDAPIGKCNSECITPNGSIPNDKPFQNVNRITYGACPRYVKQNTLKLATGMRNVPEKQTRGIFGA
IAGFIENGWEGMMDGWYGFRHQNSEGTGQAADLKSTQAAINQINGKLNRLIEKTNEKFHQIEKEFSEVEG
RIQDLEKYVEDTKIDLWSYNAELLVALENQHTIDLTDSEMNKLFERTRKQLRENAEDMGNGCFKIYHKCD
NACIGSIRNGTYDHDVYRDEALNNRFQIKGVELKSGYKDWILWISFAISCFLLCVVLLGFIMWACQKGNI
RCNICI

HA (1759 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNNGCAGGGGATAATTCTATTAACCATGAAGACTATCATTGCTTTGAGCTACATTTTA
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
TCATTATGTGGGCCTGCCAAAAAGGCAACATTAGGTGCAACATTTGCATTTGAGTGCATTAA
TTAAAAACACCNNNNNNNNNNNN

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: DQ487330.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 5

AGCAAAAGCAGGGTTAATAATCACTCACTGAGTGACATCAAAATCATGGCGTCCCAAGGCACCAAACGGT
CTTATGAACAGATGGAAACTGATGGGGATCGCCAGAATGCAACTGAGATTAGGGCATCCGTCGGGAAGAT
GATTGATGGAATTGGGAGATTCTACATCCAAATGTGCACTGAACTTAAACTCAATGATTATGAAGGGCGG
TTGATCCAGAACAGCTTGACAATAGAGAAAATGGTGCTCTCTGCTTTTGATGAGAGAAGGAATAAATATC
TGGAAGAACACCCCAGCGCGGGGAAAGATCCTAAGAAAACTGGAGGGCCCATATACAGGAGAGTAGATGG
AAAATGGATGAGGGAACTCGTCCTTTATGACAAAGAAGAAATAAGGCGAATCTGGCGCCAAGCCAACAAT
GGTGAGGATGCGACAGCTGGTCTAACTCACATGATGATCTGGCATTCCAATTTGAATGATGCAACATACC
AGAGGACAAGAGCTCTTGTTCGAACCGGAATGGATCCCAGAATGTGCTCTCTGATGCAGGGCTCGACTCT
CCCTAGAAGGTCCGGAGCTGCAGGTGCTGCAGTCAAAGGAATCGGGACAATGGTGATGGAGCTGATCAGA
ATGGTCAAACGGGGGATCAACGATCGAAATTTCTGGAGAGGTGAGAATGGGCGGAAAACAAGAAGTGCTT
ATGAGAGAATGTGCAACATTCTTAAAGGAAAATTTCAAACAGCTGCACAAAGAGCAATGGTGGATCAAGT
GAGAGAAAGTCGGAACCCAGGAAATGCTGAGATCGAAGATCTCATATTTTTGGCAAGATCTGCATTGATA
TTGAGAGGGTCAGTTGCTCACAAATCTTGCCTACCTGCCTGTGTGTATGGACCTGCAGTATCCAGTGGGT
ACGACTTCGAAAAAGAGGGATATTCCTTGGTGGGAATAGACCCTTTCAAACTACTTCAAAATAGCCAAGT
ATACAGCCTAATCAGACCTAACGAGAATCCAGCACACAAGAGTCAGCTGGTGTGGATGGCATGCCATTCT
GCTGCATTTGAAGATTTAAGATTGTTAAGCTTCATCAGAGGGACCAAAGTATCTCCGCGGGGGAAACTTT
CAACTAGAGGAGTACAAATTGCTTCAAATGAGAACATGGATAATATGGGATCGAGTACTCTTGAACTGAG
AAGCGGGTACTGGGCCATAAGGACCAGGAGTGGAGGAAACACTAATCAACAGAGGGCCTCCGCAGGCCAA
ATCAGTGTGCAACCTACGTTTTCTGTACAAAGAAACCTCCCATTTGAAAAGTCAACCGTCATGGCAGCAT
TCACTGGAAATACGGAGGGAAGAACCTCAGACATGAGGGCAGAAATCATAAGAATGATGGAAGGTGCAAA
ACCAGAAGAAGTGTCGTTCCGGGGGAGGGGAGTTTTCGAGCTCTCAGACGAGAAGGCGACGAACCCGATC
GTGCCCTCTTTTGACATGAGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGAAGAGTACGACAATT
AAGGAAAAATACCCTTGTTTCTACT

NP protein

Source: ABE73100.1 (498 aa) polymerase PB2

Sequence: 1- 498

MASQGTKRSYEQMETDGDRQNATEIRASVGKMIDGIGRFYIQMCTELKLNDYEGRLIQNSLTIEKMVLSA
FDERRNKYLEEHPSAGKDPKKTGGPIYRRVDGKWMRELVLYDKEEIRRIWRQANNGEDATAGLTHMMIWH
SNLNDATYQRTRALVRTGMDPRMCSLMQGSTLPRRSGAAGAAVKGIGTMVMELIRMVKRGINDRNFWRGE
NGRKTRSAYERMCNILKGKFQTAAQRAMVDQVRESRNPGNAEIEDLIFLARSALILRGSVAHKSCLPACV
YGPAVSSGYDFEKEGYSLVGIDPFKLLQNSQVYSLIRPNENPAHKSQLVWMACHSAAFEDLRLLSFIRGT
KVSPRGKLSTRGVQIASNENMDNMGSSTLELRSGYWAIRTRSGGNTNQQRASAGQISVQPTFSVQRNLPF
EKSTVMAAFTGNTEGRTSDMRAEIIRMMEGAKPEEVSFRGRGVFELSDEKATNPIVPSFDMSNEGSYFFG
DNAEEYDN

NP (1566 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGGTTAATAATCACTCACTGAGTGACATCAAAATCATGGCGTCCCAAGGCAC
CAAACGGTCTTATGAACAGATGGAAACTGATGGGGATCGCCAGAATGCAACTGAGATTAGGG
CATCCGTCGGGAAGATGATTGATGGAATTGGGAGATTCTACATCCAAATGTGCACTGAACTT
AAACTCAGTGATTATGAAGGGCGGTTGATCCAGAACAGCTTGACAATAGAGAAAATGGTGCT
CTCTGCTTTTGATGAGAGAAGGAATAAATATCTGGAAGAACACCCCAGCGCGGGGAAAGATC
CTAAGAAAACTGGAGGGCCCATATACAGGAGAGTAGATGGAAAATGGATGAGGGAACTCGTC
CTTTATGACAAAGGAGAAATAAGGCGAATCTGGCGCCAAGCCAACAATGGTGAGGATGCGAC
AGCTGGTCTAACTCACATGATGATCTGGCATTCCAATTTGAATGATGCAACATACCAGAGGA
CAAGAGCTCTTGTTCGAACCGGAATGGATCCCAGAATGTGCTCTCTGATGCAGGGCTCGACT
CTCCCTAGAAGGTCCGGAGCTGCAGGTGCTGCAGTCAAAGGAATCGGGACAATGGTGATGGA
GCTGATCAGAATGGTCAAACGGGGGATCAACGATCGAAATTTCTGGAGAGGTGAGAATGGGC
GGAAAACAAGAAGTGCTTATGAGAGAATGTGCAACATTCTTAAAGGAAAATTTCAAACAGCT
GCACAAAGAGCAATGGTGGATCAAGTGAGAGAAAGTCGGAACCCAGGAAATGCTGAGATCGA
AGATCTCATATTTTTGGCAAGATCTGCATTGATATTGAGAGGGTCAGTTGCTCACAAATCTT
GCCTACCTGCCTGTGTGTATGGACCTGCAGTATCCAGTGGGTACGACTTCGAAAAAGAGGGA
TATTCCTTGGTGGGAATAGACCCTTTCAAACTACTTCAAAATAGCCAAGTATACAGCCTAAT
CAGACCTAACGAGAATCCAGCACACAAGAGTCAGCTGGTGTGGATGGCATGCCATTCTGCTG
CATTTGAAGATTTAAGATTGTTAAGCTTCATCAGAGGGACCAAAGTATCTCCGCGGGGGAAA
CTTTCAACTAGAGGAGTACAAATTGCTTCAAATGAGAACATGGATAATATGGGATCGAGTAC
TCTTGAACTGAGAAGCGGGTACTGGGCCATAAGGACCAGGAGTGGAGGAAACACTAATCAAC
AGAGGGCCTCCGCAGGCCAAATCAGTGTGCAACCTACGTTTTCTGTACAAAGAAACCTCCCA
TTTGAAAAGTCAACCGTCATGGCAGCATTCACTGGAAATACGGAGGGAAGAACCTCAGACAT
GAGGGCAGAAATCATAAGAATGATGGAAGGTGCAAAACCAGAAGAAGTGTCGTTCCGAGGGA
GGGGAGTTTTCGAGCTCTCAGACGAGAAGGCGACGAACCCGATCGTGCCCTCTTTTGACATG
AGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGAAGAGTACGACAATTAAGGAAAAAA
TACCCTTGNNNNNNNN

NP (1566 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGGTTAATAATCACTCACTGAGTGACATCAAAATC**ATG**GCGTCCCAAGGCAC
CAAACGGTCTTATGAACAGATGGAAACTGATGGGGATCGCCAGAATGCAACTGAGATTAGGG
CATCCGTCGGGAAGATGATTGATGGAATTGGGAGATTCTACATCCAAATGTGCACTGAACTT
AAACTCAGTGATTATGAAGGGCGGTTGATCCAGAACAGCTTGACAATAGAGAAAATGGTGCT
CTCTGCTTTTGATGAGAGAAGGAATAAATATCTGGAAGAACACCCCAGCGCGGGGAAAGATC
CTAAGAAAACTGGAGGGCCCATATACAGGAGAGTAGATGGAAAATGGATGAGGGAACTCGTC
CTTTATGACAAAGGAGAAATAAGGCGAATCTGGCGCCAAGCCAACAATGGTGAGGATGCGAC
AGCTGGTCTAACTCACATGATGATCTGGCATTCCAATTTGAATGATACAACATACCAGAGGA
CAAGAGCTCTTGTTCGAACCGGAATGGATCCCAGAATGTGCTCTCTGATGCAGGGCTCGACT
CTCCCTAGAAGGTCCGGAGCTGCAGGTGCTGCAGTCAAAGGAATCGGGACAATGGTGATGGA
GCTGATCAGAATGGTCAAACGGGGGATCAACGATCGAAATTTCTGGAGAGGTGAGAATGGGC
GGAAAACAAGAAGTGCTTATGAGAGAATGTGCAACATTCTTAAAGGAAAATTTCAAACAGCT
GCACAAAGAGCAATGGTGGATCAAGTGAGAGAAAGTCGGAACCCAGGAAATGCTGAGATCGA
AGATCTCATATTTTTGGCAAGATCTGCATTGATATTGAGAGGGTCAGTTGCTCACAAATCTT
GCCTACCTGCCTGTGTGTATGGACCTGCAGTATCCAGTGGGTACGACTTCGAAAAAGAGGGA
TATTCCTTGGTGGGAATAGACCCTTTCAAACTACTTCAAAATAGCCAAGTATACAGCCTAAT
CAGACCTAACGAGAATCCAGCACACAAGAGTCAGCTGGTGTGGATGGCATGCCATTCTGCTG
CATTTGAAGATTTAAGATTGTTAAGCTTCATCAGAGGGACCAAAGTATCTCCGCGGGGGAAA
CTTTCAACTAGAGGAGTACAAATTGCTTCAAATGAGAACATGGATAATATGGGATCGAGTAC
TCTTGAACTGAGAAGCGGGTACTGGGCCATAAGGACCAGGAGTGGAGGAAACACTAATCAAC
AGAGGGCCTCCGCAGGCCAAATCAGTGTGCAACCTACGTTTTCTGTACAAAGAAACCTCCCA
TTTGAAAAGTCAACCGTCATGGCAGCATTCACTGGAAATACGGAGGGAAGAACCTCAGACAT
GAGGGCAGAAATCATAAGAATGATGGAAGGTGCAAAACCAGAAGAAGTGTCGTTCCGAGGGA
GGGGAGTTTTCGAGCTCTCAGACGAGAAGGCGACGAACCCGATCGTGCCCTCTTTTGACATG
AGTAATGAAGGATCTTATTTCTTCGGAGACAATGCAGAAGAGTACGACAAT**TAA**GGAAAAAA
TACCCTTGTTTCTACT

NA (1466 bp)

Nature: cRNA

Source: DQ487331.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 6

AGCAAAAGCAGGAGTAAAGATGAATCCAAATCAAAAGATAATAACGATTGGCTCTGTTTCTCTCACCATT
GCCACAATATGCTTCCTTATGCAAATTGCCATCCTGGTAACTACTGTAACATTGCATTTCAAGCAATATG
AATGCAACTCCCCCCCAAACAACCAAGTGATGCTGTGTGAACCAACAATAATAGAAAGAAACATAACAGA
GATAGTGTATCTGACCAACACCACCATAGAGAAGGAAATATGCCCCAAACTAGCAAAATACAGAAATTGG
TCAAAGCCGCAATGTAACATTACAGGATTTGCACCTTTTTCTAAGGACAATTCGATTCGGCTTTCCGCTR
GTGGGGACATCTGGGTGACAAGAGAACCTTATGTGTCATGCGATCCTGACAAGTGTTATCAATTTGCCCT
TGGACAGGGAACAACACTAAACAACGGGCATTCAAATGACACAGTACATGATAGGACCCCTTATCGGACC
CTATTGATGAATGAGTTGGGTGTTCCATTTCATTTGGGAACCAAACAAGTGTGCATAGCATGGTCCAGCT
CAAGTTGTCACGATGGAAAAGCATGGCTGCATGTTTGTGTAACGGGGGATGATGAAAATGCAACTGCTAG
CTTCATTTACAATGGGAGGCTTGTAGATAGTATTGGTTCATGGTCCAAAAAAATCCTCAGGACCCAGGAG
TCGGAATGCGTTTGTATCAATGGAACTTGTACAGTAGTAATGACTGATGGGAGTGCTTCAGGAAAAGCTG
ATACTAAAATACTATTCATTGAGGAGGGGAAAATCGTTCATACTAGCCCATTGTCAGGAAGTGCTCAGCA
TGTCGAGGARTGCTCCTGTTATCCTCGATATCCTGGTGTCAGATGTGTCTGCAGAGACAACTGGAAAGGC
TCCAATAGGCCCATCGTAGATATAAATGTAAAGGATTATAGCATTGTTTCCAGTTATGTGTGCTCAGGAC
TTGTTGGAGACACACCCAGAAAAAACGACAGCTCCAGCAGTAGCCATTGCTTGGATCCTAACAATGAGGA
AGGTGGTCATGGAGTGAAAGGCTGGGCCTTTGATGATGGAAATGACGTGTGGATGGGAAGAACGATCAGC
GAGAAGTTACGCTCAGGATATGAAACCTTCAAAGTCATTGAAGGCTGGTCCAAACCYAACTCCAAATTGC
AGATAAATAGGCAAGTCATAGTTGACAGAGGTAATAGGTCCGGTTATTCTGGTATTTTCTCTGTTGAAGG
CAAAAGCTGCATCAATCGGTGCTTTTATGTGGAGTTGATAAGGGGAAGGAAACAGGAAACTGAAGTCTTG
TGGACCTCAAACAGTATTGTTGTGTTTTGTGGCACCTCAGGTACATATGGAACAGGCTCATGGCCTGATG
GGGCGGACATCAATCTCATGCCTATATAAGCTTTCGCAATTTTAGAAAAAAMTCCTTGTTTCTACT

NA protein

Source: ABE73101.1 (469 aa) polymerase PB2

Sequence: 84- 466

MNPNQKIITIGSVSLTIATICFLMQIAILVTTVTLHFKQYECNSPPNNQVMLCEPTIIERNITEIVYLTN
TTIEKEICPKLAKYRNWSKPQCNITGFAPFSKDNSIRLSAXGDIWVTREPYVSCDPDKCYQFALGQGTTL
NNGHSNDTVHDRTPYRTLLMNELGVPFHLGTKQVCIAWSSSSCHDGKAWLHVCVTGDDENATASFIYNGR
LVDSIGSWSKKILRTQESECVCINGTCTVVMTDGSASGKADTKILFIEEGKIVHTSPLSGSAQHVEECSC
YPRYPGVRCVCRDNWKGSNRPIVDINVKDYSIVSSYVCSGLVGDTPRKNDSSSSSHCLDPNNEEGGHGVK
GWAFDDGNDVWMGRTISEKLRSGYETFKVIEGWSKPNSKLQINRQVIVDRGNRSGYSGIFSVEGKSCINR
CFYVELIRGRKQETEVLWTSNSIVVFCGTSGTYGTGSWPDGADINLMPI

NA (1466 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNAGCAGGAGTAAAGATGAATCCAAATCAAAAGATAATAACGATTGGCTCTGTTTCTC
TCACCATTGCCACAATATGCTTCCTTATGCAAATTGCCATCCTGGTAACTACTGTAACATTG
CATTTCAAGCAATATGAATGCAACTCCCCCCCCAAACAACCAAGTGATGCTGTGTGAACCAAC
AATAATAGAAAGAAACATAACAGAGATAGTGTATCTGACCAACACCACCATAGAGAAGGAAA
TATGCCCCAAACTAGCAGAATACAGAAATTGGTCAAAGCCGCAATGTAACATTACAGGATTT
GCACCTTTTTCTAAGGACAATTCGATTCGGCTTTCCGCTGGTGGGGACATCTGGGTGACAAG
AGAACCTTATGTGTCATGCGATCCTGACAAGTGTTATCAATTTGCCCTTGGACAGGGAACAA
CACTAAACAACGGGCATTCAAATGACACAGTACATGATAGGACCCCTTATCGGACCCTATTG
ATGAATGAGTTGGGTGTTCCATTTCATTTGGGAACCAAGCAAGTGTGCATAGCATGGTCCAG
CTCAAGTTGTCACGATGGAAAAGCATGGCTGCATGTTTGTGTAACGGGGGATGATGAAAATG
CAACTGCTAGCTTCATTTACAATGGGAGGCTTGTAGATAGTATTGGTTCATGGTCCAAAAAA
ATCCTCAGGACCCAGGAGTCGGAATGCGTTTGTATCAATGGAACTTGTACAGTAGTAATGAC
TGATGGGAGTGCTTCAGGAAAAGCTGATACTAAAATACTATTCATTGAGGAGGGGAAAATCG
TTCATACTAGCCCATTGTCAGGAAGTGCTCAGCATGTCGAGGAATGCTCCTGTTATCCTCGA
TATCCTGGTGTCAGATGTGTCTGCAGAGACAACTGGAAAGGCTCCAATAGGCCCATCGTAGA
TATAAATGTAAAGGATTATAGCATTGTTTCCAGTTATGTGTGCTCAGGACTTGTTGGAGACA
CACCCAGAAAAAACGACAGCTCCAGCAGTAGCCATTGCTTGGATCCTAACAATGAGGAAGGT
GGTCATGGAGTGAAAGGCTGGGCCTTTGATGATGGAAATGACGTGTGGATGGGAAGAACGAT
CAGCGAGAAGTTACGCTCAGGATATGAAACCTTCAAAGTCATTGAAGGCTGGTCCAAACCCA
ACTCCAAATTGCAGATAAATAGGCAAGTCATAGTTGACAGAGGTAATAGGTCCGGTTATTCT
GGTATTTTCTCTGTTGAAGGCAAAAGCTGCATCAATCGGTGCTTTTATGTGGAGTTGATAAG
GGGAAGGAAACAGGAAACTGAAGTCTTGTGGACCTCAAACAGTATTGTTGTGTTTTGTGGCA
CCTCAGGTACATATGGAACAGGCTCATGGCCTGATGGGGCGGACATCAATCTCATGCCTATA
TAAGCTTTCGCAATTTTAGAAAAAACTNNNNNNNNNNNNN

NA (1466 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGAGTAAAG**ATG**AATCCAAATCAAAAGATAATAACGATTGGCTCTGTTTCTC
TCACCATTGCCACAATATGCTTCCTTATGCAAATTGCCATCCTGGTAACTACTGTAACATTG
CATTTCAAGCAATATGAATGCAACTCCCCCCCAAACAACCAAGTGATGCTGTGTGAACCAAC
AATAATAGAAAGAAACATAACAGAGATAGTGTATCTGACCAACACCACCATAGAGAAGGAAA
TATGCCCCAAACTAGCAGAATACAGAAATTGGTCAAAGCCGCAATGTAACATTACAGGATTT
GCACCTTTTTCTAAGGACAATTCGATTCGGCTTTCCGCTGGTGGGGACATCTGGGTGACAAG
AGAACCTTATGTGTCATGCGATCCTGACAAGTGTTATCAATTTGCCCTTGGACAGGGAACAA
CACTAAACAACGGGCATTCAAATGACACAGTACATGATAGGACCCCTTATCGGACCCTATTG
ATGAATGAGTTGGGTGTTCCATTTCATTTGGGAACCAAGCAAGTGTGCATAGCATGGTCCAG
CTCAAGTTGTCACGATGGAAAAGCATGGCTGCATGTTTGTGTAACGGGGGATGATGAAAATG
CAACTGCTAGCTTCATTTACAATGGGAGGCTTGTAGATAGTATTGGTTCATGGTCCAAAAAA
ATCCTCAGGACCCAGGAGTCGGAATGCGTTTGTATCAATGGAACTTGTACAGTAGTAATGAC
TGATGGGAGTGCTTCAGGAAAAGCTGATACTAAAATACTATTCATTGAGGAGGGGAAAATCG
TTCATACTAGCCCATTGTCAGGAAGTGCTCAGCATGTCGAGGAATGCTCCTGTTATCCTCGA
TATCCTGGTGTCAGATGTGTCTGCAGAGACAACTGGAAAGGCTCCAATAGGCCCATCGTAGA
TATAAATGTAAAGGATTATAGCATTGTTTCCAGTTATGTGTGCTCAGGACTTGTTGGAGACA
CACCCAGAAAAAACGACAGCTCCAGCAGTAGCCATTGCTTGGATCCTAACAATGAGGAAGGT
GGTCATGGAGTGAAAGGCTGGGCCTTTGATGATGGAAATGACGTGTGGATGGGAAGAACGAT
CAGCGAGAAGTTACGCTCAGGATATGAAACCTTCAAAGTCATTGAAGGCTGGTCCAAACCCA
ACTCCAAATTGCAGATAAATAGGCAAGTCATAGTTGACAGAGGTAATAGGTCCGGTTATTCT
GGTATTTTCTCTGTTGAAGGCAAAAGCTGCATCAATCGGTGCTTTTATGTGGAGTTGATAAG
GGGAAGGAAACAGGAAACTGAAGTCTTGTGGACCTCAAACAGTATTGTTGTGTTTTGTGGCA
CCTCAGGTACATATGGAACAGGCTCATGGCCTGATGGGGCGGACATCAATCTCATGCCTATA
TAAGCTTTCGCAATTTTAGAAAAAACTCCTTGTTTCTACT

M (1027 bp)

Nature: cRNA

Source: DQ487329.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 7

AGCAAAAGCAGGTAGATATTGAAAGATGAGCCTTCTAACCGAGGTCGAAACGTATGTTCTCTCTATCGTT
CCATCAGGCCCCCTCAAAGCCGAAATCGCGCAGAGACTTGAAGATGTCTTTGCTGGGAAAAACACAGATC
TTGAGGCTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACCTCTGACTAAGGGGATTTTGGGGTT
TGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGCAGCGTAGACGCTTTGTCCAAAATGCCCTCAAT
GGGAATGGGGATCCAAATAACATGGACAAAGCAGTTAAACTGTATAGAAAACTTAAGAGGGAGATAACAT
TCCATGGGGCCAAAGAAATAGCACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGCATGGGCCTCATATA
CAATAGGATGGGGGCTGTAACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACATGTGAACAGATTGCT
GACTCCCAGCACAGGTCTCATAGGCAAATGGTGGCAACAACCAATCCATTAATAAGACATGAGAACAGAA
TGGTTTTGGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCAAGTGAGCAGGCAGCGGAGGC
CATGGAGATTGCTAGTCAGGCCAGGCAAATGGTGCAGGCAATGAGAGCCGTTGGGACTCATCCTAGCTCC
AGTACTGGTCTAAGAGATGATCTTCTTGAAAATTTGCAGACCTATCAGAAACGAATGGGGGTGCAGATGC
AACGATTCAAGTGACCCGCTTGTTGTTGCCGCGAATATCATTGGGATCTTGCACTTGATATTGTGGATTC
TTGATCGTCTTTTTTTCAAATGCATCTATCGACTCTTCAAACACGGCCTTAAAAGAGGGCCTTCTACGGA
AGGAGTACCTGAGTCTATGAGGGAAGAATATCGAAAGGARCAGCAGAATGCTGTGGATGCTGACGACAGT
CATTTTGTCAGCATAGAGTTGGAGTAAAAAACTACCTTGTTTCTACT

M1 protein

Source: ABE73098.1 (252 aa)

Sequence: 26- 784

MSLLTEVETYVLSIVPSGPLKAEIAQRLEDVFAGKNTDLEALMEWLKTRPILSPLTKGILGFVFTLTVPS
ERGLQRRRFVQNALNGNGDPNNMDKAVKLYRKLKREITFHGAKEIALSYSAGALASCMGLIYNRMGAVTT
EVAFGLVCATCEQIADSQHRSHRQMVATTNPLIRHENRMVLASTTAKAMEQMAGSSEQAAEAMEIASQAR
QMVQAMRAVGTHPSSSTGLRDDLLENLQTYQKRMGVQMQRFK

M2 protein

Source: ABE73099.1 (97 aa)

Sequence: 26- 1007

MSLLTEVETPIRNEWGCRCNDSSDPLVVAANIIGILHLILWILDRLFFKCIYRLFKHGLKRGPSTEGVPE
SMREEYRKEQQNAVDADDSHFVSIELE

M (1027 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NNNNNNNGCAGGTAGATATTGAAAGATGAGCCTTCTAACCGAGGTCGAAACGTATGTTCTCT
CTATCGTTCCATCAGGCCCCCTCAAAGCCGAAATCGCGCAGAGACTTGAAGATGTCTTTGCT
GGGAAAAACACAGATCTTGAGGCTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACC
TCTGACTAAGGGGATTTTGGGGTTTGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGC
AGCGTAGACGCTTTGTCCAAAATGCCCTCAATGGGAATGGGGATCCAAATAACATGGACAAA
GCAGTTAAACTGTATAGAAAACTTAAGAGGGAGATAACATTCCATGGGGCCAAAGAAATAGC
ACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGCATGGGCCTCATATACAATAGGATGGGGG
CTGTAACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACATGTGAACAGATTGCTGACTCC
CAGCACAGGTCTCATAGGCAAATGGTGGCAACAACCAATCCATTAATAAGACATGAGAACAG
AATGGTTTTGGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCAAGTGAGCAGG
CAGCGGAGGCCATGGAGATTGCTAGTCAGGCCAGGCAAATGGTGCAGGCAATGAGAGCCGTT
GGGACTCATCCTAGCTCCAGTACTGGTCTAAGAGATGATCTTCTTGAAAATTTGCAGACCTA
TCAGAAACGAATGGGGGTGCAGATGCAACGATTCAAGTGACCCGCTTGTTGTTGCCGCGAAT
ATCATTGGGATCTTGCACTTGATATTGTGGATTCTTGATCGTCTTTTTTTCAAATGCATCTA
TCGACTCTTCAAACACGGCCTTAAAAGAGGGCCTTCTACGGAAGGAGTACCTGAGTCTATGA
GGGAAGAATATCGAAAGGAACAGCAGAATGCTGTGGATGCTGACGACAGTCATTTTGTCAGC
ATAGAGTTGGAGTAAAAAACTACNNNNNNNNNNNN

M (1027 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGTAGATATTGAAAG**ATG**AGCCTTCTAACCGAGGTCGAAACGTATGTTCTCT
CTATCGTTCCATCAGGCCCCCTCAAAGCCGAAATCGCGCAGAGACTTGAAGATGTCTTTGCT
GGGAAAAACACAGATCTTGAGGCTCTCATGGAATGGCTAAAGACAAGACCAATCCTGTCACC
TCTGACTAAGGGGATTTTGGGGTTTGTGTTCACGCTCACCGTGCCCAGTGAGCGAGGACTGC
AGCGTAGACGCTTTGTCCAAAATGCCCTCAATGGGAATGGGGATCCAAATAACATGGACAAA
GCAGTTAAACTGTATAGAAAACTTAAGAGGGAGATAACATTCCATGGGGCCAAAGAAATAGC
ACTCAGTTATTCTGCTGGTGCACTTGCCAGTTGCATGGGCCTCATATACAATAGGATGGGGG
CTGTAACCACTGAAGTGGCATTTGGCCTGGTATGTGCAACATGTGAACAGATTGCTGACTCC
CAGCACAGGTCTCATAGGCAAATGGTGGCAACAACCAATCCATTAATAAGACATGAGAACAG
AATGGTTTTGGCCAGCACTACAGCTAAGGCTATGGAGCAAATGGCTGGATCAAGTGAGCAGG
CAGCGGAGGCCATGGAGATTGCTAGTCAGGCCAGGCAAATGGTGCAGGCAATGAGAGCCGTT
GGGACTCATCCTAGCTCCAGTACTGGTCTAAGAGATGATCTTCTTGAAAATTTGCAGACCTA
TCAGAAACGAATGGGGGTGCAGATGCAACGATTCAAGTGACCCGCTTGTTGTTGCCGCGAAT
ATCATTGGGATCTTGCACTTGATATTGTGGATTCTTGATCGTCTTTTTTTCAAATGCATCTA
TCGACTCTTCAAACACGGCCTTAAAAGAGGGCCTTCTACGGAAGGAGTACCTGAGTCTATGA
GGGAAGAATATCGAAAGGAACAGCAGAATGCTGTGGATGC**TGA**CGACAGTCATTTTGTCAGC
ATAGAGTTGGAGTAAAAAACTACCTTGTTTCTACT

NS (890 bp)

Nature: cRNA

Source: DQ487332.1 Influenza A virus (A/Moscow/10/99(H3N2)) segment 8

AGCAAAAGCAGGGTGACAAAGACATAATGGATTCCAACACTGTGTCAAGTTTCCAGGTAGATTGCTTTCT
TTGGCATATCCGGAAACAAGTTGTAGACCAAGAACTGAGTGATGCCCCATTCCTTGATCGGCTTCGCCGA
GATCAGAGGTCCCTAAGGGGAAGAGGCAACACTCTCGGTCTAGACATCAAAGCAGCCACCCATGTTGGAA
AGCAAATTGTAGAAAAGATTCTGAAAGAAGAATCTGATGAGGCACTTAAAATGACCATGGTCTCCACACC
TGCTTCGCGATACATAACTGACATGACTATTGAGGAATTGTCAAGAAACTGGTTCATGCTAATGCCCAAG
CAGAAAGTGGAAGGACCTCTTTGCATCAGAATGGACCAGGCAATCATGGAGAAAAACATCATGTTGAAAG
CGAATTTCAGTGTGATCTTTGACCGACTAGAGACCATAGTATTACTAAGGGCTTTCACCGAAGAGGGAGC
AATTGTTGGCGAAATCTCACCATTGCCTTCTTTTCCAGGACATACTATTGAGGATGTCAAAAATGCAATT
GGGGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTAAAAATCTACAGAGATTCG
CTTGGAGAAGCAGTAATGAGAATGGGGGACCTCCACTTACTCCAAAACAGAAACGGAAAATGGCGAGAAC
AGCTAGGTCAAAAGTTTGAAGAGATAAGATGGCTGATTGAAGAAGTGAGACACAGACTAAAAACAACTGA
AAATAGCTTTGAGCAAATAACATTCATGCAAGCATTACAGCTGCTGTTTGAAGTGGAACAGGAGATAAGA
ACTTTCTCATTTCAGCTTATTTAATGATAAAAAACACCCTTGTTTCTACT

NS1 protein

Source: ABE73102.1 (230 aa)

Sequence: 27- 719

MDSNTVSSFQVDCFLWHIRKQVVDQELSDAPFLDRLRRDQRSLRGRGNTLGLDIKAATHVGKQIVEKILK
EESDEALKMTMVSTPASRYITDMTIEELSRNWFMLMPKQKVEGPLCIRMDQAIMEKNIMLKANFSVIFDR
LETIVLLRAFTEEGAIVGEISPLPSFPGHTIEDVKNAIGVLIGGLEWNDNTVRVSKNLQRFAWRSSNENG
GPPLTPKQKRKMARTARSKV

NS2 protein

Source: ABE73103.1 (121 aa)

Sequence: 27- 864

MDSNTVSSFQDILLRMSKMQLGSSSEDLNGMITQFESLKIYRDSLGEAVMRMGDLHLLQNRNGKWREQLG
QKFEEIRWLIEEVRHRLKTTENSFEQITFMQALQLLFEVEQEIRTFSFQLI

NS (890 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS2022

NGCAAAAGCAGGGTGACAAAGACATAATGGATTCCAACACTGTGTCAAGTTTCCAGGTAGAT
TGCTTTCTTTGGCATATCCGGAAACAAGTTGTAGACCAAGAACTGAGTGATGCCCCATTCCT
TGATCGGCTTCGCCGAGATCAGAGGTCCCTAAGGGGAAGAGGCAACACTCTCGGTCTAGACA
TCAAAGCAGCCACCCATGTTGGAAAGCAAATTGTAGAAAAGATTCTGAAAGAAGAATCTGAT
GAGGCACTTAAAATGACCATGGTCTCCACACCTGCTTCGCGATACATAACTGACATGACTAT
TGAGGAATTGTCAAGAAACTGGTTCATGCTAATGCCCAAGCAGAAAGTGGAAGGACCTCTTT
GCATCAGAATGGACCAGGCAATCATGGAGAAAAACATCATGTTGAAAGCGAATTTCAGTGTG
ATCTTTGACCGACTAGAGACCATAGTATTACTAAGGGCTTTCACCGAAGAGGGAGCAATTGT
TGGCGAAATCTCACCATTGCCTTCTTTTCCAGGACATACTATTGAGGATGTCAAAAATGCAA
TTGGGGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTAAAAATCTA
CAGAGATTCGCTTGGAGAAGCAGTAATGAGAATGGGGGACCTCCACTTACTCCAAAACAGAA
ACGGAAAATGGCGAGAACAGCTAGGTCAAAAGTTTGAAGAGATAAGATGGCTGATTGAAGAA
GTGAGACACAGACTAAAAACAACTGAAAATAGCTTTGAGCAAATAACATTCATGCAAGCATT
ACAGCTGCTGTTTGAAGTGGAACAGGAGATAAGAACTTTCTCATTTCAGCTTATTTAATGAT
AAAAAACACNNNNNNNNNNNNN

NS (890 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCAAAAGCAGGGTGACAAAGACATA**ATG**GATTCCAACACTGTGTCAAGTTTCCAGGTAGAT
TGCTTTCTTTGGCATATCCGGAAACAAGTTGTAGACCAAGAACTGAGTGATGCCCCATTCCT
TGATCGGCTTCGCCGAGATCAGAGGTCCCTAAGGGGAAGAGGCAACACTCTCGGTCTAGACA
TCAAAGCAGCCACCCATGTTGGAAAGCAAATTGTAGAAAAGATTCTGAAAGAAGAATCTGAT
GAGGCACTTAAAATGACCATGGTCTCCACACCTGCTTCGCGATACATAACTGACATGACTAT
TGAGGAATTGTCAAGAAACTGGTTCATGCTAATGCCCAAGCAGAAAGTGGAAGGACCTCTTT
GCATCAGAATGGACCAGGCAATCATGGAGAAAAACATCATGTTGAAAGCGAATTTCAGTGTG
ATCTTTGACCGACTAGAGACCATAGTATTACTAAGGGCTTTCACCGAAGAGGGAGCAATTGT
TGGCGAAATCTCACCATTGCCTTCTTTTCCAGGACATACTATTGAGGATGTCAAAAATGCAA
TTGGGGTCCTCATCGGAGGACTTGAATGGAATGATAACACAGTTCGAGTCTCTAAAAATCTA
CAGAGATTCGCTTGGAGAAGCAGTAATGAGAATGGGGGACCTCCACTTACTCCAAAACAGAA
ACGGAAAATGGCGAGAACAGCTAGGTCAAAAGTTTGAAGAGATAAGATGGCTGATTGAAGAA
GTGAGACACAGACTAAAAACAACTGAAAATAGCTTTGAGCAAATAACATTCATGCAAGCATT
ACAGCTGCTGTTTGAAGTGGAACAGGAGATAAGAACTTTCTCATTTCAGCTTATT**TAA**TGAT
AAAAAACACCCTTGTTTCTACT