

PB2 (2341 bp)

Nature: cRNA 5' → 3'

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

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AGCGAAAGCAGGTCAATTATATTTCAGTATGGAAAAGAATAAAAAGAACTACGGAACCTGATGTGCGCAGTCTC
GCACTCGCGAGATACTAACAAAAACCACAGTGGACCATATGGCCATAATTAAGAAGTACACATCAGGGAG
ACAGGAAAAGAACCCGTCACCTTAGGATGAAATGGATGATGGCAATGAAATACCCAATCACTGCTGACAAA
AGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGGACAAACTCTATGGAGTAAAAATGAGTGATGCTG
GATCAGATCGAGTGATGGTATCACCTTTGGCTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAGTAC
GGTCCACTACCCAAAAGTATACAAGACTTATTTTGACAAAGTCGAAAGGTTAAAAACATGGAACCTTTGGC
CCTGTTCATTTTAGAAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCCTGGTCATGCAGACCTCA
GTGCCAAGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACCTAAC
ATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAACTCCGAGATTGCAAAAATTTCTCCCTTG
ATGGTTGCATACATGTTAGAGAGAGAACTTGTCCGAAAAACAAGATTTCTCCAGTTGCTGGCGGAACAA
GCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGTTGGGAACAAAATGTACACTCCAGGTGG
AGAAGTGAGGAATGACGATGTTGACCAAAGCCTAATTATTCAGCCAGGAACATAGTAAGAAGAGCCGCA
GTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAAAATTGGCGGGACAAGGATGG
TGGACATTCTTAGGCAGAACCCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGATTGAG
AATCAGCTCATCCTTCAGCTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAAGAGAG
GAAGAAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTCACAA
TGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCTCATAGTGAGTGG
AAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTTTTCACAAGAGGATTGCATGATA
AAAGCAGTTAGAGGTGACCTGAATTTTCGTCAACAGAGCAAAATCAGCGGTTGAACCCCATGCATCAGCTTT
TAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTTTTCAGAAATTGGGGAAATTGAACACATCGACAGTGTGAT
GGGAATGGTTGGAGTATTACCAGATATGACCCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGC
AAAATGGGTGTGGATGAATACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTGGAGAGTTC
GAGACCAACGCGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAACACAGGGAACAGAGAGACTGAC
AATAACTTATTCATCGTCAATGATGTGGGAGATTAACGGTCTGAGTCGGTTTTTGGTCAATACCTATCAA
TGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAATGTTGTACAACAAAA
TGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCAATTAGAGGCCAATACAGTGGGTTTGTGAGAAC
TCTATTCCAACAAATGAGAGATGTACTTGGGACATTTGACACCAACCAGATAATAAAGCTTCTCCCTTTT
GCAGCCGCTCCACCAAAGCAAAGCAGAATGCAGTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGA
TGAGAATACTTGTAAGGGGCAATTCTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAATTCT
CGGAAAAGATGCCGGCACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTG
AGAGGATTTCTCATTATAGGTAAGGAAGACAGAAGATACGGACCAGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTGGTAATGAAACGAAA
ACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAAGAATTTCGGATGGCCATCAATTAATGT
TGAATAGTTTAAAAACGACCTTGTTTCTACT
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PB2 protein

Source: [ABE96828.1](#) (759 aa) polymerase PB2

MERIKELRNLMSSQSRTEILTKTTVDHMAIIKKYTSGRQEKNP SLRMKWMAMKYPITADKRITEMVPER
NEQGQTLWSKMSDAGSDRVMVSPLAVTWNNRNGPVTSTVHYPKVYKTYFDKVERLKHGTFGPVHFRNQVK
IRRRVDINPGHADLSAKEAQDVIMEVVPNEVGARILTSESQLTITKEKKEELRDCKISPLMVAYMLERE
LVRKTRFLPVAGGTSSIIYIEVLHLTQGTCWEQMYTPGGEVRNDDVDQSLIIAARNIVRRAAVSADPLASL
LEMCHSTQIGGTRMVDILRQNPTEEQAVIDICKAAMGLRISSSFSGGFTFKRTSGSSVKREEEVLTGNLQ
TLKIRVHEGYEEFTMVGKRATAILRKATRRLVQLIVSGRDEQSIAEAIIVAMVFSQEDCMIKAVRGDLNF
VNRANQRLNPMHQLLRHVFQKDAKVLFQNWGIEHIDSVGMGMVGVLPMTPSTEMSMRGIRVSKMGVDEYSS
TERVVVSIDRFLRVRDQRGNVLLSPEEVSETQGTERLTITYSSSMWEINGPESVLVNTYQWII RNWEAV
KIQWSQNPAMLYNKMEFEPFQSLVPKAIRGQYSGFVRTLFQQMRDVLGTFDTTQIIKLLPFAAAPPKQSR
MQFSSLTVNVVRGSGMRILVRGNSPVFNYNKTTKRLTILGKDAGTLIEDPDESTSGVESAVLRGFLIIGKE
DRRYGPALSINELSNLAKGEKANVLIGQGDVVLVMKRKRDSILTDSQTATKRIRMAIN

PB2 (2341 bp)

Nature: vRNA

Source: Illumina sequences from virus stocks_RPS_2022

NNNNNNAGCAGGTCAATTATATTCAGTATGGAAAGAATAAAAGAACTACGGAACCTGATGTC
GCAGTCTCGCACTCGCGAGATACTAACAAAAACCACAGTGGACCATATGGCCATAATTAAGA
AGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAAATGGATGATGGCAATG
AAATACCCAATCACTGCTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGG
ACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTATCACCTTTGG
CTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAGTACGGTCCACTACCCAAAAGTATAC
AAGACTTATTTTTGACAAAGTCGAAAGGTTAAAACATGGAACCTTTGGCCCTGTTTCATTTTAG
AAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCCTGGTCATGCAGACCTCAGTGCCA
AGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACTA
ACATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAAGTCCGAGATTGCAAAAT
TTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAAGTGTCCGAAAAACAAGATTTCTCC
CAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGT
TGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGGAATGACGATGTTGACCAAAGCCTAAT
TATTGCAGCCAGGAACATAGTAAGAAGAGCCGCAGTATCAGCAGATCCACTAGCATCTTTAT
TGGAGATGTGCCACAGCACACAAATTGGCGGGACAAGGATGGTGGACATTCTTAGGCAGAAC
CCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGGTTGAGAATCAGCTCATC
CTTCAGCTTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAAGAGAGGAAG
AAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTC
ACAATGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCT
CATAGTGAGTGGAAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGT
CACAAGAGGATTGCATGATAAAAGCAGTTAGAGGTGACCTGAATTTTCGTCAACAGAGCAAAT
CAGCGGTTGAACCCCATGCATCAGCTTTTTAAGGCATTTTTCAGAAAGATGCGAAAGTGCTTTT
TCAGAATTGGGGGAATTGAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATA
TGACTCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAA
TACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTTGAGAGTTCGAGACCAACG
CGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAAACACAGGGAACAGAGAGACTGACAA
TAAC TTATTTCATCGTCAATGATGTGGGAGATTAACGGTCCTGAGTCGGTTTTTGGTCAATACC
TATCAATGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAAT
GTTGTACAACAAAATGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCCATTAGAGGCC
AATACAGTGGGTTTGTGCAAGTCTATTTCCAACAAATGAGAGATGTACTTGGGACATTTGAC
ACCACCCAGATAATAAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAAGCAAAGCAGAATGCA
GTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGATGAGAATACTTGTAAAGGGGCAATT
CTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAAATTCTCGGAAAAGATGCCGGC
ACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTGAGAGGATT
TCTCATTATAGGTAAGGAAGACAGAAGATACGGACCGGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTGTTGGTAATG
AAACGAAAACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCCGGAT
GGCCATCAATTAATGTTGAATAGTTTAAAACGACCTNNNNNNNNNN

PB2 (2341 bp)

Nature: cDNA_pHW2000

Source: GATC sequences from Maxiprep_RPS_2023

AGCGAAAGCAGGTCAATTATATTCAGTATGGAAAGAATAAAAGAACTACGGAACCTGATGTC
GCAGTCTCGCACTCGCGAGATACTAACAAAAACACAGTGGACCATATGGCCATAATTAAGA
AGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAAATGGATGATGGCAATG
AAATACCCAATCACTGCTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAATGAACAAGG
ACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTATCACCTTTGG
CTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAAGTACGGTCCACTACCCAAAAGTATAC
AAGACTTATTTTTGACAAAGTCGAAAGGTTAAAACATGGAACCTTTGGCCCTGTTTCATTTTAG
AAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCCCTGGTCATGCAGACCTCAGTGCCA
AGGAGGCACAAGATGTAATTATGGAAGTTGTTTTTCCCAATGAAGTGGGAGCCAGGATACTA
ACATCAGAATCACAATTAACAATAACTAAAGAGAAAAAAGAAGAAGTCCGAGATTGCAAAAT
TTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTTGTCCGAAAAACAAGATTTCTCC
CAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTTTTACATTTGACTCAAGGAACGTGT
TGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGGAATGACGATGTTGACCAAAGCCTAAT
TATTGCAGCCAGGAACATAGTAAGAAGAGCCGCAGTATCAGCAGATCCACTAGCATCTTTAT
TGGAGATGTGCCACAGCACACAAATTGGCGGGACAAGGATGGTGGACATTCTTAGGCAGAAC
CCGACTGAAGAACAAGCTGTGGATATATGCAAGGCTGCAATGGGGTTGAGAATCAGCTCATC
CTTCAGCTTTTGGTGGATTTACATTTAAAAGAACAAGCGGGTCATCAGTCAAAGAGAGGAAG
AAGTGCTTACAGGCAATCTCCAAACATTGAAAATAAGAGTACATGAGGGGTATGAGGAGTTC
ACAATGGTGGGGAAAAGAGCAACAGCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCT
CATAGTGAGTGGAAGGGACGAACAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGT
CACAAGAGGATTGCATGATAAAAAGCAGTTAGAGGTGACCTGAATTTTCGTCAACAGAGCAAAT
CAGCGGTTGAACCCCATGCATCAGCTTTTTAAGGCATTTTTCAGAAAGATGCGAAAGTGCTTTT
TCAGAATTGGGGGAATTGAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATA
TGACTCCAAGCACAGAGATGTCAATGAGAGGAATAAGAGTCAGCAAATGGGTGTGGATGAA
TACTCCAGTACAGAGAGGGTGGTGGTTAGCATTGATCGGTTTTTTGAGAGTTCGAGACCAACG
CGGGAATGTATTATTATCTCCTGAGGAGGTCAGTGAAACACAGGGAACAGAGAGACTGACAA
TAAC TTATTTCATCGTCAATGATGTGGGAGATTAACGGTCCTGAGTCGGTTTTTGGTCAATACC
TATCAATGGATCATCAGAAATTGGGAAGCTGTCAAAATTCAATGGTCTCAGAATCCTGCAAT
GTTGTACAACAAAATGGAATTTGAACCATTTCAATCTTTAGTCCCTAAGGCCATTAGAGGCC
AATACAGTGGGTTTGTGCAAGTCTATTCCAACAAATGAGAGATGTACTTGGGACATTTGAC
ACCACCCAGATAATAAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAAGCAAAGCAGAATGCA
GTTCTCTTCATTGACTGTAAATGTGAGGGGATCAGGGATGAGAATACTTGTAAGGGGCAATT
CTCCTGTATTCAACTACAACAAGACCACTAAAAGACTAACAATTCTCGGAAAAGATGCCGGC
ACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTGAGAGGATT
TCTCATTATAGGTAAGGAAGACAGAAGATACGGACCGGCATTAAGCATCAATGAACTGAGTA
ACCTTGCAAAGGGGAAAAAGCTAATGTGCTAATCGGGCAAGGAGACGTGGTGTGGTAATG
AAACGAAAACGGGACTCTAGCATACTTACTGACAGCCAGACAGCGACCAAAAGAATTCGGAT
GGCCATCAAT**TAA**TGTTGAATAGTTTAAAACGACCTTGTTTCTACT

LUSTAL O(1.2.4) multiple sequence alignment		
MO_PB2_Virus	NNNNNNAGCAGGTCAATTATATTTCAGTATGGAAAGAATAAAAGAACTACGGAACTTGATG	60
MO_PB2_NCB1	AGCGAAAGCAGGTCAAATTATATTTCAGTATGGAAAGAATAAAAGAACTACGGAACTTGATG	60
MO_PB2_pHW2000	AGCGAAAGCAGGTCAAATTATATTTCAGTATGGAAAGAATAAAAGAACTACGGAACTTGATG	60

MO_PB2_Virus	TCGCAGTCTTCGCACCTCGCGAGATACTAACAAAAACCACGTGGACCATATGGCCATAATT	120
MO_PB2_NCB1	TCGCAGTCTTCGCACCTCGCGAGATACTAACAAAAACCACGTGGACCATATGGCCATAATT	120
MO_PB2_pHW2000	TCGCAGTCTTCGCACCTCGCGAGATACTAACAAAAACCACGTGGACCATATGGCCATAATT	120

MO_PB2_Virus	AAGAAGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAATGGATGATG	180
MO_PB2_NCB1	AAGAAGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAATGGATGATG	180
MO_PB2_pHW2000	AAGAAGTACACATCAGGGAGACAGGAAAAGAACCCGTCACTTAGGATGAATGGATGATG	180

MO_PB2_Virus	GCAATGAAATACCCAATCAGTGTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAAT	240
MO_PB2_NCB1	GCAATGAAATACCCAATCAGTGTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAAT	240
MO_PB2_pHW2000	GCAATGAAATACCCAATCAGTGTGACAAAAGGATAACAGAAATGGTTCCGGAGAGAAAT	240

MO_PB2_Virus	GAACAAGGACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTA	300
MO_PB2_NCB1	GAACAAGGACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTA	300
MO_PB2_pHW2000	GAACAAGGACAAACTCTATGGAGTAAAATGAGTGATGCTGGATCAGATCGAGTGATGGTA	300

MO_PB2_Virus	TCACCTTTGGCTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAGTACGGTCCACTAC	360
MO_PB2_NCB1	TCACCTTTGGCTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAGTACGGTCCACTAC	360
MO_PB2_pHW2000	TCACCTTTGGCTGTGACATGGTGGAAATAGAAATGGACCCGTGACAAGTACGGTCCACTAC	360

MO_PB2_Virus	CCAAAAGTATACAAGACTTATTTTGACAAAGTCGAAAGGTTAAACATGGAACCTTTGGC	420
MO_PB2_NCB1	CCAAAAGTATACAAGACTTATTTTGACAAAGTCGAAAGGTTAAACATGGAACCTTTGGC	420
MO_PB2_pHW2000	CCAAAAGTATACAAGACTTATTTTGACAAAGTCGAAAGGTTAAACATGGAACCTTTGGC	420

MO_PB2_Virus	CCTGTTCAATTTAGAAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCTTGTCAT	480
MO_PB2_NCB1	CCTGTTCAATTTAGAAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCTTGTCAT	480
MO_PB2_pHW2000	CCTGTTCAATTTAGAAATCAAGTCAAGATACGCCGAAGAGTAGACATAAACCTTGTCAT	480

MO_PB2_Virus	GCAGACCTCAGTGCCAAGGAGGCACAAGATGTAATTAGGAAGTTGTTTTTCCCAATGAA	540
MO_PB2_NCB1	GCAGACCTCAGTGCCAAGGAGGCACAAGATGTAATTAGGAAGTTGTTTTTCCCAATGAA	540
MO_PB2_pHW2000	GCAGACCTCAGTGCCAAGGAGGCACAAGATGTAATTAGGAAGTTGTTTTTCCCAATGAA	540

MO_PB2_Virus	GTGGGAGCCAGGATACTAACATCAGAAATCACAAATTAACAATAACTAAAGAGAAAAAGAA	600
MO_PB2_NCB1	GTGGGAGCCAGGATACTAACATCAGAAATCACAAATTAACAATAACTAAAGAGAAAAAGAA	600
MO_PB2_pHW2000	GTGGGAGCCAGGATACTAACATCAGAAATCACAAATTAACAATAACTAAAGAGAAAAAGAA	600

MO_PB2_Virus	GAACTCCGAGATTGCAAAATTTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTT	660
MO_PB2_NCB1	GAACTCCGAGATTGCAAAATTTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTT	660
MO_PB2_pHW2000	GAACTCCGAGATTGCAAAATTTCTCCCTTGATGGTTGCATACATGTTAGAGAGAGAACTT	660

MO_PB2_Virus	GTCCGAAAAACAAGATTCTCCAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTT	720
MO_PB2_NCB1	GTCCGAAAAACAAGATTCTCCAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTT	720
MO_PB2_pHW2000	GTCCGAAAAACAAGATTCTCCAGTTGCTGGCGGAACAAGCAGTATATACATTGAAGTT	720

MO_PB2_Virus	TTACATTTGACTCAAGGAACGTGTTGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGG	780
MO_PB2_NCB1	TTACATTTGACTCAAGGAACGTGTTGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGG	780
MO_PB2_pHW2000	TTACATTTGACTCAAGGAACGTGTTGGGAACAAATGTACACTCCAGGTGGAGAAGTGAGG	780

MO_PB2_Virus	AATGACGATGTTGACCAAAGCCTAATTATTGACGCCAGGAACATAGTAAGAAGAGCCGCA	840
MO_PB2_NCB1	AATGACGATGTTGACCAAAGCCTAATTATTGACGCCAGGAACATAGTAAGAAGAGCCGCA	840
MO_PB2_pHW2000	AATGACGATGTTGACCAAAGCCTAATTATTGACGCCAGGAACATAGTAAGAAGAGCCGCA	840

MO_PB2_Virus	GTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAAATTGGCGGG	900
MO_PB2_NCB1	GTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAAATTGGCGGG	900
MO_PB2_pHW2000	GTATCAGCAGATCCACTAGCATCTTTATTGGAGATGTGCCACAGCACACAAATTGGCGGG	900

MO_PB2_Virus	ACAAGGATGGTGACATTCTTAGGCAGAACCCTGACTGAAGAACAAGCTGTGGATATATGC	960
MO_PB2_NCB1	ACAAGGATGGTGACATTCTTAGGCAGAACCCTGACTGAAGAACAAGCTGTGGATATATGC	960
MO_PB2_pHW2000	ACAAGGATGGTGACATTCTTAGGCAGAACCCTGACTGAAGAACAAGCTGTGGATATATGC	960

MO_PB2_Virus	AAGGCTGCAATGGGTTTGAGAAATCAGCTCATCCTTCAGCTTTGGTGGATTTACATTTAA	1020
MO_PB2_NCB1	AAGGCTGCAATGGGTTTGAGAAATCAGCTCATCCTTCAGCTTTGGTGGATTTACATTTAA	1020
MO_PB2_pHW2000	AAGGCTGCAATGGGTTTGAGAAATCAGCTCATCCTTCAGCTTTGGTGGATTTACATTTAA	1020

MO_PB2_Virus	AGAAACAAGCGGGTCATCAGTCAAAAGAGAGGAAGAAGTGCTTACAGGCAATCTCCAAACA	1080
MO_PB2_NCB1	AGAAACAAGCGGGTCATCAGTCAAAAGAGAGGAAGAAGTGCTTACAGGCAATCTCCAAACA	1080
MO_PB2_pHW2000	AGAAACAAGCGGGTCATCAGTCAAAAGAGAGGAAGAAGTGCTTACAGGCAATCTCCAAACA	1080

MO_PB2_Virus	TTGAAAAATAAGAGTACATGAGGGGTATGAGGAGTTACAATGGTGGGAAAAGAGCAACA	1140
MO_PB2_NCB1	TTGAAAAATAAGAGTACATGAGGGGTATGAGGAGTTACAATGGTGGGAAAAGAGCAACA	1140
MO_PB2_pHW2000	TTGAAAAATAAGAGTACATGAGGGGTATGAGGAGTTACAATGGTGGGAAAAGAGCAACA	1140

MO_PB2_Virus	GCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCTCATAGTGAGTGGAAAGGACGAA	1200
MO_PB2_NCB1	GCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCTCATAGTGAGTGGAAAGGACGAA	1200
MO_PB2_pHW2000	GCTATACTCAGAAAAGCAACCAGGAGATTGGTTCAGCTCATAGTGAGTGGAAAGGACGAA	1200

MO_PB2_Virus	CAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTCACAAGAGGATTGCATGATA	1260
MO_PB2_NCB1	CAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTCACAAGAGGATTGCATGATA	1260
MO_PB2_pHW2000	CAGTCAATAGCCGAAGCAATAATCGTGGCCATGGTGTTCACAAGAGGATTGCATGATA	1260

MO_PB2_Virus	AAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAAATCAGCGGTTGAACCCCATG	1320
MO_PB2_NCB1	AAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAAATCAGCGGTTGAACCCCATG	1320
MO_PB2_pHW2000	AAAGCAGTTAGAGGTGACCTGAATTTCGTCAACAGAGCAAAATCAGCGGTTGAACCCCATG	1320

MO_PB2_Virus	CATCAGCTTTTAAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTTTTCAGAATTGGGGAATT	1380
MO_PB2_NCB1	CATCAGCTTTTAAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTTTTCAGAATTGGGGAATT	1380
MO_PB2_pHW2000	CATCAGCTTTTAAAGGCATTTTCAGAAAGATGCGAAAGTGCTTTTTTCAGAATTGGGGAATT	1380

MO_PB2_Virus	GAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATATGACCCCAAGCAC	1440
MO_PB2_NCB1	GAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATATGACCCCAAGCAC	1440
MO_PB2_pHW2000	GAACACATCGACAGTGTGATGGGAATGGTTGGAGTATTACCAGATATGACCCCAAGCAC	1440

MO_PB2_Virus	GAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAATACTCCAGTACA	1500
MO_PB2_NCB1	GAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAATACTCCAGTACA	1500
MO_PB2_pHW2000	GAGATGTCAATGAGAGGAATAAGAGTCAGCAAAATGGGTGTGGATGAATACTCCAGTACA	1500

MO_PB2_Virus	GAGAGGGTGGTGGTTAGCATTTGATCGGTTTTTGAGAGTTCGAGACCAACGCGGGAATGTA	1560
MO_PB2_NCB1	GAGAGGGTGGTGGTTAGCATTTGATCGGTTTTTGAGAGTTCGAGACCAACGCGGGAATGTA	1560
MO_PB2_pHW2000	GAGAGGGTGGTGGTTAGCATTTGATCGGTTTTTGAGAGTTCGAGACCAACGCGGGAATGTA	1560

MO_PB2_Virus	TTATTATCTCCTGAGGAGTCAAGTAAACACAGGGAAACAGAGAGACTGACAATAACTTAT	1620
MO_PB2_NCB1	TTATTATCTCCTGAGGAGTCAAGTAAACACAGGGAAACAGAGAGACTGACAATAACTTAT	1620
MO_PB2_pHW2000	TTATTATCTCCTGAGGAGTCAAGTAAACACAGGGAAACAGAGAGACTGACAATAACTTAT	1620

MO_PB2_Virus	TCATCGTCAATGATGTGGGAGATTAAACGGTCCTGAGTCGGTTTTTGGTCAATACCTATCAA	1680
MO_PB2_NCB1	TCATCGTCAATGATGTGGGAGATTAAACGGTCCTGAGTCGGTTTTTGGTCAATACCTATCAA	1680
MO_PB2_pHW2000	TCATCGTCAATGATGTGGGAGATTAAACGGTCCTGAGTCGGTTTTTGGTCAATACCTATCAA	1680

MO_PB2_Virus	TGGATCATCAGAAATTGGGAAGCTGTCAAATTCATGGTCTCAGAATCCTGCAATGTTG	1740
MO_PB2_NCB1	TGGATCATCAGAAATTGGGAAGCTGTCAAATTCATGGTCTCAGAATCCTGCAATGTTG	1740
MO_PB2_pHW2000	TGGATCATCAGAAATTGGGAAGCTGTCAAATTCATGGTCTCAGAATCCTGCAATGTTG	1740

MO_PB2_Virus	TACAACAAAATGGAATTGAACCATTTCAATCTTTAGTCCCTAAGGCATTAGAGGCCAA	1800
MO_PB2_NCB1	TACAACAAAATGGAATTGAACCATTTCAATCTTTAGTCCCTAAGGCATTAGAGGCCAA	1800
MO_PB2_pHW2000	TACAACAAAATGGAATTGAACCATTTCAATCTTTAGTCCCTAAGGCATTAGAGGCCAA	1800

MO_PB2_Virus	TACAGTGGGTTTGTGAGAACTCTATTCCAACAATGAGAGATCTACTTGGGACATTTGAC	1860
MO_PB2_NCB1	TACAGTGGGTTTGTGAGAACTCTATTCCAACAATGAGAGATCTACTTGGGACATTTGAC	1860
MO_PB2_pHW2000	TACAGTGGGTTTGTGAGAACTCTATTCCAACAATGAGAGATCTACTTGGGACATTTGAC	1860

MO_PB2_Virus	ACCACCAGATAAATAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAGCAAGCAGAATG	1920
MO_PB2_NCB1	ACCACCAGATAAATAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAGCAAGCAGAATG	1920
MO_PB2_pHW2000	ACCACCAGATAAATAAGCTTCTCCCTTTTGCAGCCGCTCCACCAAGCAAGCAGAATG	1920

MO_PB2_Virus	CAGTTCTCTTCATTGACTGTAATGTGAGGGGATCAGGGATGAGAATACTTGTAAAGGGGC	1980
MO_PB2_NCB1	CAGTTCTCTTCATTGACTGTAATGTGAGGGGATCAGGGATGAGAATACTTGTAAAGGGGC	1980
MO_PB2_pHW2000	CAGTTCTCTTCATTGACTGTAATGTGAGGGGATCAGGGATGAGAATACTTGTAAAGGGGC	1980

MO_PB2_Virus	AATTCTCCTGTATTCAACTACAACAAGACCATAAAAGACTAACAAATCTCGGAAAAGAT	2040
MO_PB2_NCB1	AATTCTCCTGTATTCAACTACAACAAGACCATAAAAGACTAACAAATCTCGGAAAAGAT	2040
MO_PB2_pHW2000	AATTCTCCTGTATTCAACTACAACAAGACCATAAAAGACTAACAAATCTCGGAAAAGAT	2040

MO_PB2_Virus	GCCGGCACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTG	2100
MO_PB2_NCB1	GCCGGCACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTG	2100
MO_PB2_pHW2000	GCCGGCACTTTAATTGAAGACCCAGATGAAAGCACATCCGGAGTGGAGTCCGCTGTCTTG	2100

MO_PB2_Virus	AGAGGATTTTCTCATTTATAGGTAAGGAAGACAGAAGATACGGACCGCATTAAAGCATCAAT	2160
MO_PB2_NCB1	AGAGGATTTTCTCATTTATAGGTAAGGAAGACAGAAGATACGGACCGCATTAAAGCATCAAT	2160
MO_PB2_pHW2000	AGAGGATTTTCTCATTTATAGGTAAGGAAGACAGAAGATACGGACCGCATTAAAGCATCAAT	2160

MO_PB2_Virus	GAACTGAGTAACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGCAAGGAGACGTG	2220
MO_PB2_NCB1	GAACTGAGTAACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGCAAGGAGACGTG	2220
MO_PB2_pHW2000	GAACTGAGTAACCTTGCAAAAGGGGAAAAAGCTAATGTGCTAATCGGCAAGGAGACGTG	2220

MO_PB2_Virus	GTCTTTCGTAATGAACGAAAACGGGACTCTAGCATACTTACTTGACAGCCAGACAGCGACC	2280
MO_PB2_NCB1	GTCTTTCGTAATGAACGAAAACGGGACTCTAGCATACTTACTTGACAGCCAGACAGCGACC	2280
MO_PB2_pHW2000	GTCTTTCGTAATGAACGAAAACGGGACTCTAGCATACTTACTTGACAGCCAGACAGCGACC	2280

MO_PB2_Virus	AAAAGAAATTCGGATGGCCATCAATTAAATGTTGAATAGTTTAAAACGACCTNNNNNNNN	2340
MO_PB2_NCB1	AAAAGAAATTCGGATGGCCATCAATTAAATGTTGAATAGTTTAAAACGACCTTTTCTTAC	2340
MO_PB2_pHW2000	AAAAGAAATTCGGATGGCCATCAATTAAATGTTGAATAGTTTAAAACGACCTTTGTTCTAC	2340

MO_PB2_Virus	N 2341	
MO_PB2_NCB1	T 2341	
MO_PB2_pHW2000	T 2341	

PB2_NCB1	-----MERIKELRNLMSSQSRTEILTKTTVDHMAI IKKYTSGRQEKNPSLRMKWMM	51
PB2_pHW2000	SESRSIIFSMERIKELRNLMSSQSRTEILTKTTVDHMAI IKKYTSGRQEKNPSLRMKWMM	60

PB2_NCB1	AMKYPITADKRITEMVPERNEQGQTLWSKMSDAGSDRVMVSPLAVTWNRNGPVTSTVHY	111
PB2_pHW2000	AMKYPITADKRITEMVPERNEQGQTLWSKMSDAGSDRVMVSPLAVTWNRNGPVTSTVHY	120

PB2_NCB1	PKVYKTYFDKVERLKHGTFGPGVHFRNQVKIRRRVDINPGHADLSAKEAQDVIMEVVPNE	171
PB2_pHW2000	PKVYKTYFDKVERLKHGTFGPGVHFRNQVKIRRRVDINPGHADLSAKEAQDVIMEVVPNE	180

PB2_NCB1	VGARILTSESQLTITKEKKEELRDCKISPLMVAYMLERELVRKTRFLPVAGGTSSIIYIEV	231
PB2_pHW2000	VGARILTSESQLTITKEKKEELRDCKISPLMVAYMLERELVRKTRFLPVAGGTSSIIYIEV	240

PB2_NCB1	LHLTQGTCWEQMYTPGGEVRNDDVDQSLIIAARNIVRRAAVSADPLASLLEMCHSTQIGG	291
PB2_pHW2000	LHLTQGTCWEQMYTPGGEVRNDDVDQSLIIAARNIVRRAAVSADPLASLLEMCHSTQIGG	300

PB2_NCB1	TRMVDILRQNPTEEQAVDICKAAMGLRISSSFSFGGFTFKRTSGSSVKREEEVLTGNLQT	351
PB2_pHW2000	TRMVDILRQNPTEEQAVDICKAAMGLRISSSFSFGGFTFKRTSGSSVKREEEVLTGNLQT	360

PB2_NCB1	LKIRVHEGYEEFTMVGKRATAILRKATRRLVQLIVSGRDEQSIAEAIIVAMVFSQEDCMI	411
PB2_pHW2000	LKIRVHEGYEEFTMVGKRATAILRKATRRLVQLIVSGRDEQSIAEAIIVAMVFSQEDCMI	420

PB2_NCB1	KAVRGDLNLFVNRRANQRLNPMHQLLRHFQKDAKVLQNWGIEHIDSVMGMVGVLPMTPST	471
PB2_pHW2000	KAVRGDLNLFVNRRANQRLNPMHQLLRHFQKDAKVLQNWGIEHIDSVMGMVGVLPMTPST	480

PB2_NCB1	EMSMRGIRVSKMGVDEYSSTERVVVSIDRFLRVRDQRGNVLLSPEEVSETQGTERLTITY	531
PB2_pHW2000	EMSMRGIRVSKMGVDEYSSTERVVVSIDRFLRVRDQRGNVLLSPEEVSETQGTERLTITY	540

PB2_NCB1	SSSMMWEINGPESVLVNTYQWII RNWEAVKIQWSQNPAMLYNKMEFEPFQSLVPKAIRGQ	591
PB2_pHW2000	SSSMMWEINGPESVLVNTYQWII RNWEAVKIQWSQNPAMLYNKMEFEPFQSLVPKAIRGQ	600

PB2_NCB1	YSGFVRTLFQQMRDVLGTFDTTQIIKLLPFAAAPPKQSRMQFSSLTVNVRGSGMRILVRG	651
PB2_pHW2000	YSGFVRTLFQQMRDVLGTFDTTQIIKLLPFAAAPPKQSRMQFSSLTVNVRGSGMRILVRG	660

PB2_NCB1	NSPVFNYNKTTKRLTILGKDAGTLIEDPDESTSGVESAVLRGFLIIGKEDRRYGPALSIN	711
PB2_pHW2000	NSPVFNYNKTTKRLTILGKDAGTLIEDPDESTSGVESAVLRGFLIIGKEDRRYGPALSIN	720

PB2_NCB1	ELSNLAKGEKANVLIGQGDVVLVMKRKRDS SILTDSQTATKRIRMAIN-----	759
PB2_pHW2000	ELSNLAKGEKANVLIGQGDVVLVMKRKRDS SILTDSQTATKRIRMAIN*C*IV*KRPCFY	777
