

The complete nucleotide and deduced amino acid sequence of the gene encoding the major inner capsid protein, VP7 of US bluetongue virus serotype 17

Timothy F.Kowalik¹, Joseph K.-K.Li^{1, 2,*}, Ronald Y.Chuang³, Roy H.Do⁴ and Bernie I.Osburn⁵

¹Department of Biology and ²Molecular Biology Program, Utah State University, Logan, UT 84322-5500, ³Department of Medical Pharmacology, ⁴Department of Biochemistry and Biophysics and ⁵Department of Veterinary Pathology, University of California, Davis, CA 95616, USA

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The major inner capsid protein, VP7, is encoded by segment S1 of Bluetongue virus (BTV) and confers group-specificity (1). The complete nucleotide sequence of the double-stranded RNA (dsRNA) S1 segment of US BTV-17 has been determined from a full-length cDNA. This clone was generated by a modified polymerase chain reaction (2) and inserted into pUC18. Nucleotide sequences of both strands were obtained using Sequenase (3) and the terminal sequence confirmed by direct dsRNA sequencing (4). The S1 gene was determined to be 1156 bp in length and has homologies of 95.8% and 77.1% with the S1 segments of BTV-10 and 13 respectively (4, 5). The plus sense RNA has a 5' noncoding region of 17 bases and a 3' noncoding region of 89 bases preceded by a UAA translation termination codon. Segment S1 of BTV-17 encodes a protein (VP7) of 349 amino acids.

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GUUAAAAUCUAUAGAGAUGGACACUAUCGCGCAAGAGCACUCACUGAUGGAGCAUGGCUACGCUUCAAGAG
      M D T I A A R A L T V M R A C A T L Q E
GCAAGAAUUGUGUUGGAAGCCAAUGUGAUGGAAAUUCUGGGGAUUGCUAUAUAGGUACAUGGACUUAUCUCUACGA
      A R I V L E A N V M E I L G I A I N R Y N G L T L R
GGAGUGACGAUGCGCCCAACCUUGUAGCACAAGAAUAGAGAUGUUUUUUGUGUUUGGAUUGAUGGUCUGUCUGCU
      G V T M R P T S L A Q R N E M F F M C L D M M L S A
ACUGGGAAUAAUUGCGGACCGAUUUCGCCAGACUAUACUCAACAUAUGGCUACGAUUGGUGUGCUAGCAACACCGGAA
      T G I N V G P I S P D Y T Q H M A T I G V L A T P E
AUACCUUUUACAACGGAAGCGCGGAUUGAAUAGCUCGAGUGACUGGGGAGACUUCGCAUUGGGGGCCAGCGCGUCAG
      I P F T T E A A N E I A R V T G E T S T W G P A R Q
CCUUAUGGUUUUUCUUGAAACUGAGGAAACCUUCCAACCGGGAGAUGGUUCAUGCGCGCGCUCAAGCAGUAAACU
      P Y G F F L E T E E T F Q P G R W F M R A A Q A V T
GCAGUAGUGUGCGGUCGCGAUUGAUUCAGGUGUCACUCAAUGCUGGAGCGAGGGGAUGUACAACAGAUUUUCAG
      A V V C G P D M I Q V S L N A G A R G D V Q Q I F Q
GGUUGCAUUGAUUUAUUAUUAUUAUUGUGUGGAGGAGAAUCGAAAACUUUGCGAUGGCGCAAGGUAAUUCACAA
      G R N D P M M I Y L V W R R I E N F A M A Q G N S Q
CAAACUCAAGCGGGUGACUGUCAGUGUUGGUGAGUUGACAUAGGGGCGGGAUGCAUUAUAGCGAGGGUAGGCGAG
      Q T Q A G V T V S V G G V D M R A G R I I A W D G Q
GCCGCGCUGCAGUGCAUUAACCAACACACAGAAUGCGAUGGUGCAAUACAGCUUGUGUUCUAUUAUUAUGGAAU
      A A L H V H N P T Q Q N A M V Q I Q V V F Y I S M D
AAGACUUUAACAGUACCCCGCAUUGACUGCUGAGAUUUUUAUGUUUACAGCUUCAGGGAUACACAUUGGCAUGGG
      K T L N Q Y P A L T A E I F N V Y S F R D H T W H G
CUAAGAAGCGCAUUAUUAACAGAACACACUGCCAAACAUUGCCACCAAUUUUCCCAACCAACAGUAGAGAUAGU
      L R T A I L N R T T L P N M L P P I F P P N D R D S
AUCUUAACUCUCCUACCUUUAUCAACACUUGCUGAUGUUACACUGUUUUAAGGCGGAAUUGCGAUUCACGGCGUA
      I L T L L P L S T L A D V Y T V L R P E F A I H G V
AAUCCGAGCCAGGGCGCUCACAGUGCUAUGGACGCGCGCCUUAUGUGUAAUCCACUUAUGCACGGGUGUGGUA
      N P M P G P L T R A I A R A A Y V
CAUAGCGGUGUGUGGUGGAAUUAUGUAAACCGUCUCUUAAGAUUACAUUAC

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* To whom correspondence should be addressed