Nucleotide sequence of hns encoding the DNA-binding protein H-NS of *Salmonella typhimurium*

Maren Marsh and David R.Hillyard*
Department of Pathology, University of Utah Medical Center, Salt Lake City, UT 84132, USA

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The organization of the bacterial nucleoid depends on chromosomal association with a family of DNA-binding proteins (1). The 15.4 kDa, heat stable protein H-NS purified from *E. coli* has been shown to bind tightly to dsDNA (2). Using an oligonucleotide probe derived from sequence of the *E. coli* hns gene (3), we have cloned the *Salmonella* hns gene from a MudP phage (4) which packages DNA from the region of 34 minutes on the *Salmonella* chromosome. Comparing the *Salmonella* and *E. coli* sequences below, 30 conservative base changes are seen. Seven amino acid substitutions are confined to the C-terminal half of the protein and result in a net increase of one negative charge for the *Salmonella* protein.

REFERENCES

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ACGAGAACGT ATCAGAGATG ACGTGCAGAT AGTCGTATTC ATCATGATAA AATGTGACCT  60
 T AT  AG  AG CT  AAG GTC TCAGCC TA  ATAATC    CCC            A
GACTCCTAAA TTTTTAGCGA CAGACGGTGA GTATCCCCCC CGCCAATAAG CTCTTTTTTG  120
  A AGG   G     A CT   CGT C  C  A AT AT G GTGT  AT   GG  A A GC
TGCGGTGCCT CAAGCAAAAT TTAAGTTGAG ATAATTAAAA CGTGTGCTTA ATAAAGCGTA  180
C   TCTTT   T   T  T     T AAA      T   TTG GCG CA AA        AAC
ATTTTGAATT CCTTACATTC CTGGCTATTG CACAACTGAT TTATCGCCTA TTATTAGCTC  240
                                                      C  C C
                                          M  S  E  A  L  K  I  L
AACAAACCAC CCCAATATAA GTTTGAGATT ACTACA  ATGAGCGAAGCACTTAAAATTCTG  300

 N  N  I  R  T  L  R  A  Q  A  R  E  C  T  L  E  T  L  E  E  M
AACAACATCCGTACTCTTCGTGCGCAGGCAAGAGAATGTACTCTGGAAACGCTTGAAGAAATG    363
                                       A  T        G
 L  E  K  L  E  V  V  V  N  E  R  R  E  E  E  S  A  A  A  A  E
CTGGAAAAATTAGAAGTTGTCGTTAATGAGCGTCGTGAAGAAGAAAGCGCTGCTGCTGCTGAA    426
                          C  A     C              G
 V  E  E  R  T  R  K  L  Q  Q  Y  R  E  M  L  I  A  D  G  I  D
GTGGAAGAACGCACTCGTAAACTGCAACAGTATCGTGAAATGTTAATTGCCGACGGCATTGAC    489
  T     G           G    G  A     C      C G  C  T     T
 P  N  E  L  L  N  S  M* A  A  A* K  S  G  T  K  A  K  R  A  A*
CCGAATGAACTGCTGAATAGCATGGCTGCCGCTAAATCCGGTACCAAAGCTAAACGCGCAGCT    552
    C             C T       T      T                T  TCAG
 R  P  A  K  Y  S  Y  V  D  E  N  G  E  T  K  T  W  T  G  Q  G
CGTCCGGCTAAATATAGCTATGTTGACGAAAACGGTGAAACTAAAACCTGGACTGGCCAGGGT    615
       A          C             C                          C
 R  T  P  A  V  I  K  K  A  M  E* E  Q  G  K  Q* L  E* D  F  L
CGTACACCGGCTGTAATCAAAAAAGCAATGGAAGAACAAGGTAAGCAACTGGAAGATTTCCTG    678
       A                      T  G        ATCC  C  C
 I  K  E*
ATCAAGGAA TAATTTACTT CCTGGATGCT TAAAATCCCG CCGCTGGCGG ATTTTTTTTG   737
   C                                        AGC
CCTGAGTTCT CCGCTGACGC CCCCAGGCAT AAAAAAAGCG CCGGATTTAC CAGCGCTTCT  797
   ------------------------------------------------------------
GTTAAAAATT TATACGTCGT TACTTCTT                                     825
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*indicates position of amino acid differences between *Salmonella* and *E. coli*.

* To whom correspondence should be addressed