Complete cDNA sequence of the human p68 protein

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p68 is a conserved nuclear protein, first identified by its specific immunological crossreaction with the SV40 large tumor antigen (1). Recently, both proteins have been shown to possess RNA helicase activity (2, 3). A full length cDNA (HPz) encoding the human p68 protein was isolated from a λgt11 library. The nucleotide sequence has been determined using the dideoxynucleotide chain termination method (4) and the amino acid (aa) sequence deduced. The cDNA consists of 2309 nucleotides and shows an open reading frame encoding a polypeptide of 614 aa with a Mr. of 69034. The cDNA may cover the 5′ non-coding region of the p68 mRNA but does not represent the complete 3′ end where two polyadenylation signals could be identified. In comparison with a recently published, incomplete aa sequence of the human p68 protein (5) there is 100% homology within the overlapping region.

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  GGGCACCTCATTCATTTCTACCGGTCTCTAGTAGTGCAGCTTCGGCTGGTGTCATCGGTGTCCTTCCTCCGCTGCCGCCCCCGCAAGGCTTCGCCGTCATCGAGGCCATTTCCAGCGA  118
CTTGTCCGCACGCTTTTCTATATACTTCGTTCCCCGCCAACCGCAACCATTGACGCCATGTCGGGTTATTCGAGTGACCGAGACCGCGGCCGGGACCGAGGGTTTGGTGCACCTCGATTT  238
                                                  M  S  G  Y  S  S  D  R  D  R  G  R  D  R  G  F  G  A  P  R  F    21
GGAGGAAGTAGGGCAGGGCCCTTATCTGGAAAGAAGTTTGGAAACCCTGGGGAGAAATTAGTTAAAAAGAAGTGGAATCTTGATGAGCTGCCTAAATTTGAGAAGAATTTTTATCAAGAG  358
 G  G  S  R  A  G  P  L  S  G  K  K  F  G  N  P  G  E  K  L  V  K  K  K  W  N  L  D  E  L  P  K  F  E  K  N  F  Y  Q  E   61
CACCCTGATTTGGCTAGGCGCACAGCACAAGAGGTGGAAACATACAGAAGAAGCAAGGAAATTACAGTTAGAGGTCACAACTGCCCGAAGCCAGTTCTAAATTTTTATGAAGCCAATTTC  478
 H  P  D  L  A  R  R  T  A  Q  E  V  E  T  Y  R  R  S  K  E  I  T  V  R  G  H  N  C  P  K  P  V  L  N  F  Y  E  A  N  F  101
CCTGCAAATGTCATGGATGTTATTGCAAGACAGAATTTCACTGAACCCACTGCTATTCAAGCTCAGGGATGGCCAGTTGCTCTAAGTGGATTGGATATGGTTGGAGTGGCACAGACGGGA  598
 P  A  N  V  M  D  V  I  A  R  Q  N  F  T  E  P  T  A  I  Q  A  Q  G  W  P  V  A  L  S  G  L  D  M  V  G  V  A  Q  T  G  141
TCTGGGAAAACATTGTCTTATTTGCTTCCTGCCATTGTCCACATCAATCATCAGCCATTCCTAGAGAGAGGCGATGGGCCTATTTGTTTGGTGCTGGCACCAACTCGGGAACTGGCCCAA  718
 S  G  K  T  L  S  Y  L  L  P  A  I  V  H  I  N  H  Q  P  F  L  E  R  G  D  G  P  I  C  L  V  L  A  P  T  R  E  L  A  Q  181
CAGGTGCAGCAAGTAGCTGCTGAATATTGTAGAGCATGTCGCTTGAAGTCTACTTGTATCTACGGTGGTGCTCCTAAGGGACCACAAATACGTGATTTGGAGAGAGGTGTGGAAATCTGT  838
 Q  V  Q  Q  V  A  A  E  Y  C  R  A  C  R  L  K  S  T  C  I  Y  G  G  A  P  K  G  P  Q  I  R  D  L  E  R  G  V  E  I  C  221
ATTGCAACACCTGGAAGACTGATTGACTTTTTAGAGTGTGGAAAAACCAATCTGAGAAGAACAACCTACCTTGTCCTTGATGAAGCAGATAGAATGCTTGATATGGGCTTTGAACCCCAA  958
 I  A  T  P  G  R  L  I  D  F  L  E  C  G  K  T  N  L  R  R  T  T  Y  L  V  L  D  E  A  D  R  M  L  D  M  G  F  E  P  Q  261
ATAAGGAAGATTGTGGATCAAATAAGACCTGATAGGCAAACTCTAATGTGGAGTGCGACTTGGCCAAAAGAAGTAAGACAGCTTGCTGAAGATTTCCTGAAAGACTATATTCATATAAAC 1078
 I  R  K  I  V  D  Q  I  R  P  D  R  Q  T  L  M  W  S  A  T  W  P  K  E  V  R  Q  L  A  E  D  F  L  K  D  Y  I  H  I  N  301
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 I  G  A  L  E  L  S  A  N  H  N  I  L  Q  I  V  D  V  C  H  D  V  E  K  D  E  K  L  I  R  L  M  E  E  I  M  S  E  K  E  341
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 W  V  L  N  E  F  K  H  G  K  A  P  I  L  I  A  T  D  V  A  S  R  G  L  D  V  E  D  V  K  F  V  I  N  Y  D  Y  P  N  S  421
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 E  A  N  Q  A  I  N  P  K  L  L  Q  L  V  E  D  R  G  S  G  R  S  R  G  R  G  G  M  K  D  D  R  R  D  R  Y  S  A  G  K  501
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CCAAATATGCACAATGGTATGAACCAACAGGCATATGCATATCCTGCTACTGCAGCTGCACCTATGATTGGTTATCCAATGCCAACAGGATATTCCCAATAAGACTTTACAACTATATGT 2038
 P  N  M  H  N  G  M  N  Q  Q  A  Y  A  Y  P  A  T  A  A  A  P  M  I  G  Y  P  M  P  T  G  Y  S  Q  *                    614
AAATGTCTGTTTTTCATAATTGCTCTTTATATTGTGTGTTATCTGACAAGATAGTTATTTAAGAAACATGGGAATTGCAGAAATGACTGCAGTGCAGCAGTAATTATGGTGCACTTTTTC 2158
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GAAGGCAATGCATGGCCTTCCAATAAAAAAT                                                                                          2309
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