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Cloning of cDNA encoding human placental protein 12 (PP12): binding protein for IGF I and somatomedin

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By N-terminal sequence comparison it was shown that the placental protein 12 (PP12)(1) is homologous to the IGF I (insulin-like growth factor) and somatomedin binding protein (2-4). Starting with an antibody raised against PP12 we have screened cDNA libraries from human placenta. Two cDNA clones were identified with an open reading frame encoding a hydrophobic leader peptide consisting of 25 aa and the mature protein of 234 aa (MW 25 270). The MW and the amino acids composition are in good agreement to the data of Bohn and Kraus. The protein sequence shows no N-linked glycosylation site. The cDNA encodes 18 Cys-residues, which may explain the wide discrepancy in the reported MW of the PP12 protein (25 200 to 34 000). The N-terminal protein sequence is identical to the sequence of Baxter et al., but different in residues 11 and 12 to Koistinen et al. . The 5′ nontranslated region of PP12 cDNA extends 150 nt. The stop codon at position 928 is followed by 566 nt of untranslated region including the poly(A) addition site AATAAA 18 nt upstream of poly(A). The size of PP12 cDNA (1511 nt) agrees with a band of 1600 nt in northern blot analysis (not shown).

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        10                  30                  50                  70                  90                 110
CCCATCCAGCGAGCATCTGCCGCCGCGCCGCCGCCACCCTCCCAGAGAGCACTGGCCACCGCTCCACCATCACTTGCCCAGAGTTTGGGCCACCGCCCGCCGCCACCAGCCCAGAGAGCA
       130                 150                 170                 190                 210                 230
TCGGCCCCTGTCTGCTGCTCGCGCCTGGAGATGTCAGAGGTCCCCGTTGCTCGCGTCTGGCTGGTACTGCTCCTGCTGACTGTCCAGGTCGGCGTGACAGCCGGCGCTCCGTGGCAGTGC
                              M  S  E  V  P  V  A  R  V  W  L  V  L  L  L  L  T  V  Q  V  G  V  T  A  G  A  P  W  Q  C
                                                                                                                  -1 +1
       250                 270                 290                 310                 330                 350
GCGCCCTGCTCCGCCGAGAAGCTCGCGCTCTGCCCGCCGGTGTCCGCCTCGTGCTCGGAGGTCACCCGGTCCGCCGGCTGCGGCTGTTGCCCGATGTGCGCCCTGCCTCTGGGCGCCGCG
A  P  C  S  A  E  K  L  A  L  C  P  P  V  S  A  S  C  S  E  V  T  R  S  A  G  C  G  C  C  P  M  C  A  L  P  L  G  A  A

       370                 390                 410                 430                 450                 470
TGCGGCGTGGCGACTGCACGCTGCGCCCGGGGACTCAGTTGCCGCGCGCTGCCGGGGGAGCAGCAACCTCTGCACGCCCTCACCCGCGGCCAAGGCGCCTGCGTGCAGGAGTCTGACGCC
C  G  V  A  T  A  R  C  A  R  G  L  S  C  R  A  L  P  G  E  Q  Q  P  L  H  A  L  T  R  G  Q  G  A  C  V  Q  E  S  D  A

       490                 510                 530                 550                 570                 590
TCCGCTCCCCATGCTGCAGAGGCAGGGAGCCCTGAAAGCCCAGAGAGCACGGAGATAACTGAGGAGGAGCTCCTGGATAATTTCCATCTGATGGCCCCTTCTGAAGAGGATCATTCCATC
S  A  P  H  A  A  E  A  G  S  P  E  S  P  E  S  T  E  I  T  E  E  E  L  L  D  N  F  H  L  M  A  P  S  E  E  D  H  S  I

       610                 630                 650                 670                 690                 710
CTTTGGGACGCCATCAGTACCTATGATGGCTCGAAGGCTCTCCATGTCACCAACATCAAAAAATGGAAGGAGCCCTGCCGAATAGAACTCTACAGAGTCGTAGAGAGTTTAGCCAAGGCA
L  W  D  A  I  S  T  Y  D  G  S  K  A  L  H  V  T  N  I  K  K  W  K  E  P  C  R  I  E  L  Y  R  V  V  E  S  L  A  K  A

       730                 750                 770                 790                 810                 830
CAGGAGACATCAGGAGAAGAAATTTCCAAATTTTACCTGCCAAACTGCAACAAGAATGGATTTTATCACAGCAGACAGTGTGAGACATCCATGGATGGAGAGGCGGGACTCTGCTGGTGC
Q  E  T  S  G  E  E  I  S  K  F  Y  L  P  N  C  N  K  N  G  F  Y  H  S  R  Q  C  E  T  S  M  D  G  E  A  G  L  C  W  C

       850                 870                 890                 910                 930                 950
GTCTACCCTTGGAATGGGAAGAGGATCCCTGGGTCTCCAGAGATCAGGGGAGACCCCAACTGCCAGATATATTTTAATGTACAAAACTGAAACCAGATGAAATAATGTTCTGTCACGTGA
V  Y  P  W  N  G  K  R  I  P  G  S  P  E  I  R  G  D  P  N  C  Q  I  Y  F  N  V  Q  N

       970                 990                 1010                1030                1050                1070
AATATTTAAGTATATAGTATATTTATACTCTAGAACATGCACATTTATATATATATGTATATGTATATATATATAGTAACTACTTTTTATACTCCATACATAACTTGATATAGAAAGCTG
      1090                1110                1130                1150                1170                1190
TTTATTTATTCACTGTAAGTTTATTTTTTCTACACAGTAAAAACTTGTACTATGTTAATAACTTGTCCTATGTCAATTTGTATATCATGAAACACTTCTCATCATATTGTATGTAAGTAA
      1210                1230                1250                1270                1290                1310
TTGCATTTCTGCTCTTCCAAAGCTCCTGCGTCTGTTTTTAAAGAGCATGGAAAAATACTGCCTAGAAAATGCAAAATGAAATAAGAGAGAGTAGTTTTTCAGCTAGTTTGAAGGAGGACG
      1330                1350                1370                1390                1410                1430
GTTAACTTGTATATTCCACCATTCACATTTGATGTACATGTGTAGGGAAAGTTAAAAGTGTTGATTACATAATCAAAGCTACCTGTGGTGATGTTGCCACCTGTTAAAATGTACACTGGA
      1450                1470                1490                1510
TATGTTGTTAAACACGTGTCTATAATGGAAACATTTACAATAAATATTCTGCATGGAAAAAAAAAAAAAAA
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