

Nucleotide sequence of cDNA for human aldose reductase

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The sequence of human foetal liver aldose reductase cDNA obtained from a λ gt10 library is presented. This cDNA encodes a protein of 316 amino acids with a 45 bp 5'-non coding region and a 356 bp 3' non coding region. Aldose reductase is of wide clinical interest in that inhibitors may prevent the complications associated with diabetes mellitus. The cDNA clone was identified using oligonucleotides based on rat lens(1) cDNA and bovine lens protein sequence(2). Aldose reductase constitutes one member of the aldo-keto reductase enzyme family. The data herein confirm recent assignments of sequence to various members of this NADPH-dependent carbonyl oxidoreductase superfamily(3).

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1 GAAGGCCCAAGCTACTGGGCGGGGCTGGGGAGCCAGCAGCCATGGCAAGCGGCTCTCTGCTCAACAGCGGCGCAGATGCCCATCTGGGGTTGGTAACCTGGAAGTCCCTCCA 120
      H A S R L L L N H G A K H P I L G L G T W K S P P
121 GGGCAGTCTAGTGAAGCGGCTGAAGGTGGCCATTGACTGGGTAACCGCCACATGAGCTGTGCCCATGTGTGACAGAAATGAGTGGGGGGTGGCCATTGAGGAGAAGCTCAGGAG 140
      G Q V T E A D V K V A I D V G Y R H I D C A H V V Y Q H E N E V G V A I Q E K L R E
241 CAGGTGGTGAAGGTGAGGAGCTCTTCATGCTGAGCAAGCTGTGGTGCAGCTACCATGAGAGGGGCTGGTGAAGGAGGCTGCCAGAGACACTCAGGGAGCTGAGCTGAGCTAGCTG 160
      Q V V K R E E L F I V S K L W C T Y H E K G L V K G A C Q K T L S D L K L D Y L
361 GACTCTACTTATTTCAGTGGCCGACTGGCTTTAAGCGCTGGGAGGAAATTTTTCCATTGGATGAGTGGGCAATGGTTGCCAGTGCACCAACATCTGGCACAGTGGGGGCGCAG 180
      D L Y L I H W P I G F K P G K E F P L D E S G N V V P S D T I N I L D T W A A M
481 GAGAGCTGGTGGATGAGGGCTGGTGAAGCTATTGGCATCTCCAACTTCAACCATCTCCAGGTGGAGATGATCTTAACAAACCTGGCTTGAAGTAAAGGCTGACGTTAACAGATT 200
      E E L V D R G L V K A I G I S H F N H L Q V E N I L N K P G L K Y K P A V N Q I
601 GAGTCCACCCATATCTCACTCAGGAGAGTAAATCCAGTACTGCCAGTCCAAAGGCATGGTGGTGAACCGCTACAGGCCCTTGGCTCTCTGACAGGGCTGGGGCAAGCGGAGGAC 220
      E C H P Y L T Q E K L I Q Y C Q S K G I V V T A Y S P L G S P D R P W A K P E D
721 CCTTCTCTCTGGAGATCCAGGATCAAGGGGATCCAGGCCAAGCACAATAAACTACAGGCCAGGCTGATCCGGTTCCCATGCGAGAGAACTGGTGGTGAATCCCAAGTCTGTG 240
      P S L L E D P R I K A I A A R H N K T T A Q V L I R P P M Q R N L V V I P K S V
841 ACAGCAGAAAGCATTGCTGAGACTTAAAGTCTTTGACTTTGAACTGAGCAGCCAGGATATGACCACTTACTAGCTACACAGGAAGCTGGAGGGTCTGTGCTTGTGTGAGCTGTACC 260
      T P E R I A E H F K V F D F E L S S Q D M T L L S Y N R N W R V C A L L S C T
961 TCCACAGGATTAACCTTCCATGAAGATTTTGAAGCTGTGGTGGCTGCTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGGTGG 280
      S H K D Y P P H E E F *
1081 TGTCACTAGCAGTGGGACAGCAAGCTGAGTGGCCAGGAGGGGCTGTAGCTTGAATGTTGGATCTCAGAGCGGCTCTAGTAGAGTAGAAGTCTCTCCAGCTTTGCTTGGCTTT 1200
1201 CTTTCTACCTCTGGGGAAAGTACAGCTGAATACCTTTCTGTGCCAAGAGAGGCAAAATCTACAGGCTCAAAATAGTGGCCAAAGGTTGAGTTTGTACTGCTTGGAGCTGGAAT 1320
1321 CTTTTCAGCAGACTCTCTTTTGGCTCAAAATAAAGTGTCTTTTGTGAAAAAAA 1375

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