
Canine endothelin-2: cDNA sequence for the mature peptide

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Endothelin (ET) is one of the most potent vasoconstrictors known to date (1), and its gene and cDNA has been cloned from a wide range of species (1, 2, 3, 4). Recently, Masaki's group has identified 3 subtypes of distinct gene of ET family in human genome (5). ETs deduced from the cloned genes were named ET-1, ET-2 and ET-3, respectively. However, there is no evidence that demonstrates expression of the ET-2 and ET-3 genes. In the course of our studies to detect ETs with a sensitive enzyme-immunoassay (6), we have recognized the possibility that the ET-2 is secreted from several kidney cell lines (7), which led us to identify ET-2 cDNA from a canine kidney cDNA library (Clontech Laboratories, Inc.). An oligonucleotide (45 mer) containing the coding sequence for Lys⁶¹-Asn⁷⁵ of the porcine ET-1 precursor (1) was chemically synthesized and used as a probe. We present here a cloned cDNA sequence that covers putative mature ET-2 identical to the corresponding human ET-2 plus C-terminal extension. Because this sequence is a part of a coding region, there is not enough evidence to prove that it is a true cDNA generated from a mature mRNA. Assuming that the cloned sequence is a true cDNA of canine ET-2, it followed that a precursor of ET-2 is considerably different from that of ET-1 (1,2). Furthermore, it is considered that a splicing of ET-2 mRNA does not occur at the corresponding position in ET-1 (5) and canine big-ET-2 consisting of 26 amino acid residues (Cys¹-Gly²⁶) seems to be generated from the precursor.

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1  GCG CAC GCA GGC AAG GGC CAG GTG GCC GCT GCC CCG GAG CAT CCA GCA   48
   Ala His Ala Gly Lys Gly Gln Val Ala Ala Ala Pro Glu His Pro Ala

49  CCC TCA GCC CGG GCC CGA GGC TCC CAC CTG CGG CCT CGG CGT TGC TCC   96
   Pro Ser Ala Arg Ala Arg Gly Ser His Leu Arg Pro Arg Arg Cys Ser

97  TGC AGC TCC TGG CTC GAC AAG GAG TGC GTC TAC TTC TGC CAC CTG GAC  144
   Cys Ser Ser Trp Leu Asp Lys Glu Cys Val Tyr Phe Cys His Leu Asp

145 ATC ATC TGG GTG AAC ACT CCC GGG TGA GCT CCC GCG GGG ACC CAG GCG  192
   Ile Ile Trp Val Asn Thr Pro Gly STOP

193 GGG                                                                    195

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Amino acid residues corresponding to the ET-2 and canine putative big-ET-2 are indicated by open box and underline, respectively.

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