

Nucleotide sequence of cDNA encoding subunit VIIa of rat liver cytochrome c oxidase

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Mammalian cytochrome c oxidase (COX) is composed of three catalytic, on mitochondrial DNA encoded subunits, and ten nuclear encoded subunits, which have been ascribed a regulatory function (1). At least three nuclear encoded subunits occur in tissue-specific isoforms (VIa, VIIa and VIII). The liver- and heart-type cDNA has been described for rat subunit VIa (2) and bovine subunit VIII (3). The liver-type cDNA for COX subunit VIIa was described from bovine (4) and human (5). The bovine cDNA gene probe was used to isolate an incomplete cDNA for subunit VIIa (liver-type) from a rat heart cDNA library in lambda gt11 (Genofit). This cDNA was used as a probe to identify the full-length cDNA from a rat total fetal cDNA library in lambda gt11 (see below). The deduced amino acid sequence of the mature polypeptide is 83% identical to the bovine liver COX VIIa (4) and 73% identical to the human liver COX VIIa (5), but only 63% identical to bovine heart COX VIIa (R.S. Seelan and L.I. Grossman, unpublished results). A 23 amino acid sequence (underlined) precedes the mature polypeptide.

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GGCCGCCGATTTTTGGCGTTCAGTAGTCGCGGTTGGTGGGTAACAACAGCTAAG  -1
M L R N V L A L R O I A O R T I S T T S
ATGCTGCGGAATGTGCTGGCCCTTCGTCAGATTGCCAGAGGACCATCAGCACCCTCA  60
R R H F E N K V P E K Q K L F Q E D N G
CGAAGGCATTTGAAAACAAAGTCCAGAGAAGCAAAGCTGTTTCAGGAGGATAATGGG  120
M P V H L K G G T S D A L L Y R A T M L
ATGCCAGTTCATCTGAAAGCGGGACATCTGATGCCCTCCTTTACAGGCCACAATGCTT  180
L T V G G T A Y A I Y M L A M A A F P K
CTGACAGTTGGTGGAAACAGCGTATGCCATCTATATGTTAGCTATGGCTGCATCCCAAG  240
K Q N *
AAGCAGAACTGACGTCGTCATCCAGTCCACATGGTTCAGTTTCATTCAGTCCGCGAT  300
GGACCAGGAACCTGATGAATAACTGAACTCTTCTATGGGGATCAATATTTATTGATGTG  360
ATTAACCTGCCACCAATAAAGCAGTCCCTAACCATTAATAAAAAAAAAA  404

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