Nucleotide sequence of a cDNA for bovine cytochrome *c* oxidase subunit VIIc

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Cytochrome *c* oxidase, the terminal protein of the electron transport chain, contains thirteen subunits in mammals. Of these, three are encoded by mitochondrial DNA and the remainder by nuclear DNA. The function of the ten nuclear encoded subunits is unknown, but is presumed to modulate the activity of the holoenzyme (reviewed in 1).

We have been isolating selected subunit genes to investigate their function, and here present the sequence of subunit VIIc from a bovine heart cDNA library. The presequence follows the pattern of being positively charged and being potentially amphiphilic if helically arrayed (2). The coding region for the mature protein (starting at •) has a predicted amino acid sequence matching that determined for the bovine heart polypeptide (3).

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1 GAATTCCTCCGCTCTCGGCTCTGGATCTTTCGTAGAGCGTCCAACAGCG
61 CTATGTTGGGACAGAGCATCCGGAGGTTCAACCTCAGTGGTTCGTCGGAGCCACTATG
   M L G Q S I R R F T T S V V R R S H Y
121 AGGAGGGTCCAGGGAAGAATATACCATTTTCAGTGGAAAAACAAGTGGAGATTACTAGCTA
   E E G P G K N I P F S V E N K W R L L A
181 TGATGACTTTGTCTTTGGGTCTGGATTGCTGCACCTTTCTTTATAGTAAGACACCAAC
   M M T L F F G S G F A A P F F I V R H Q
241 TGCTTAAAAAGTAATCCATGAGACAGATAGGAAGAGGAGCATATTAAGAGGTGCAGTCTC
   L L K K *
301 TTAAAGGATCAATCCCTTGAATTC
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References:

1. Kadenbach, B., Kuhn-Nentwig, L. and Büge, U. (1987) *Curr. Topics Bioenerg.* **15**, 113-161.
2. von Heijne, G. (1986) *EMBO J.* **5**, 1335-1342.
3. Buse, G. and Steffens, G.J. (1978) *Hoppe-Seyler's Z. Physiol. Chem.* **359**, 1005-1009.