

mRNA EXPRESSION PATTERNS OF MITOCHONDRIAL COMPLEX II ISOFORMS IN SRI LANKANS

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Human mitochondrial complex II (succinate-quinone oxidoreductase: SQR) is conventionally known to play an important role in cellular energy metabolism as a component of the Krebs's cycle and the aerobic respiratory chain. It consists of four subunits, Fp, Ip, CybL, and CybS. In 2003, two isoforms of the human complex II were identified which differed in the Fp subunit composition (Fp I and Fp II). Tyr 586 and Val 614 of type I Fp are replaced with Phe 586 and Ile 614, respectively in type II Fp. However, Tyr 586 and Val 614 are conserved among other mammalian complex IIs. According to previous studies done on commercially available total RNA, Fp I expression has predominated in normal human tissues. In contrast, Fp II expression has predominated in certain cancer tissues. It is a well-known fact that organisms such as *A. suum* use two distinct isoforms of the mitochondrial complex II to function efficiently under normoxic and hypoxic environments. Therefore, it is plausible to speculate that human mitochondrial complex II isoform with predominant expression of Fp II is adapted to function under tumour microenvironments. Since the reported differences in Fp expression patterns are based on commercially available RNA and commercially available cancer cell lines, it is essential to confirm them using normal and cancer cells from different human populations. In the present study, we analyzed the mRNA expression of Fp I and Fp II in normal tissues from Sri Lankans. Restriction fragment length polymorphism of RT-PCR product of Fp mRNA was used to observe the expression level of Fp subunits. In accordance with the previous findings on commercially available RNA, our results revealed that normal heart, lungs, kidney, liver and pancreas tissues from Sri Lankans has a predominant expression of Fp I. Studies are in progress to analyze the Fp expression pattern in cancer tissues.

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