Abstract

Neoplastic diseases belong at present time among the most frequent causes of premature death in industrialized countries. Discovery of novel approaches to their therapy is highly warranted. Recent results point to the requirement of mitochondrial respiration for tumor progression. This is linked primarily to recent discovery of horizontal transfer of mitochondrial transfer from the host to cancer cells with damaged mitochondrial DNA. This is a needed for the recovery of mitochondrial respiration, a prerequisite for tumor progression. It has appeared that the rate of respiration necessary for tumor progression differs in individual types of tumors. This hypothesis, which is refer to as 'oxidative phosphorylation addiction', however, needs to be verified. It could serve as the basis for proposing of novel therapic strategy for neoplastic diseases, using compounds that directly affect mitochondrial respiratory complexes.

Key words: mitochondria, oxidative phosphorylation, horizontal transfer of mitochondrial DNA, neoplastic pathologies, mitochondrially targeted anti-cancer agents