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Analysis of Bj fibroblasts mitochondrial respiratory chain function under glucose starvation and exposure to different doses of rotenone: Implications for neurogenerative diseases

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Abstract

Certain neurodegenerative diseases, such as Parkinson and Alzheimer, are characterizing by an impairment in mitochondrial function and biogenesis, which may lead to pathological changes in the central nervous system. From this putative link stems a growing interest in changes to the mitochondrial electron transport chain and the ensuing energy dysfunction in neuronal cells and connective tissue cells under normal and pathological conditions. Fibroblasts involved in the formation of microenvironments of different types of specialized cells from the nervous system and their dysfunction may contribute to the pathogenesis of disease as well. In this regard, we have obtained stressful conditions of human dermal fibroblasts approximating of the pathological phenotype observed in Parkinson's disease. Was studied the expression and activity of the protein complexes of the mitochondria respiratory chain including translocase TOM20 under inhibition of NADH dehydrogenase and maintaining of oxidative stress.

Keywords

Bj cell line, Mitochondrial diseases, OXPHOS, Parkinson's disease, Rotenone, TOM20