Role of GTPases in the Regulation of Mitochondrial Dynamics in Alzheimer?s Disease and CNS-Related Disorders

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Data obtained from several studies have shown that mitochondria are involved and play a central role in the progression of several distinct pathological conditions. Morphological alterations and disruptions on the functionality of mitochondria may be related to metabolic and energy deficiency in neurons in a neurodegenerative disorder. Several recent studies demonstrate the linkage between neurodegeneration and mitochondrial dynamics in the spectrum of a promising era called precision mitochondrial medicine. In this review paper, an analysis of the correlation between mitochondria, Alzheimer?s disease, and other central nervous system (CNS)-related disorders like the Parkinson?s disease and the autism spectrum disorder is under discussion. The role of GTPases like the mfn1, mfn2, opa1, and dlp1 in mitochondrial fission and fusion is also under investigation, influencing mitochondrial population and leading to oxidative stress and neuronal damage.

Alzheimer?s disease

Mitochondria

Mitochondrial dynamics

Neurodegenerative diseases

Oxidative stress

Parkinson?s disease

guanosine triphosphatase

guanosine triphosphatase

Alzheimer disease

cell death

cell population

central nervous system disease

clinical feature

complex formation

disease association

disorders of mitochondrial functions

human

mitochondrial dynamics

mitophagy

nerve conduction

nonhuman

oxidative stress

pathogenesis

Review

risk factor

Alzheimer disease

animal

biological model

central nervous system disease

enzymology

metabolism

mitochondrion

Alzheimer Disease

Animals

Central Nervous System Diseases

GTP Phosphohydrolases

Humans

Mitochondria

Mitochondrial Dynamics

Models, Biological