عنوان مقاله:

Generation of reactive oxygen species by alpha-synuclein fibrils and oligomers

محل انتشار:

پانزدهمین همایش بیوشیمی فیزیک ایران (سال: 1397)

تعداد صفحات اصل مقاله: 1

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خلاصه مقاله:

The formation of toxic oligomers and fibrils is the hallmark of Parkinson"s disease (PD) pathology. In PD, the procedure of aggregation of distinct protein such as alpha-synuclein from monomers to oligomeric intermediates and amyloid fibrils is accounted as the disease-causing agent of toxic mechanism. Mitochondria are a major source of ROS (reactive oxygen species) within most mammalian cells. This ROS production contributes to mitochondrial damage in a range of pathologies and is also important in redox signalling from the organelle to the rest of the cell. Furthermore, the interaction and internalization of toxic aggregated alpha-synuclein to mitochondrial membrane can cause major impairments in this organel. Subsequently, mitochondrial dysfunction may lead to increased oxidative stress and consequent cytotoxicity. Therefore, the present study was undertaken to compare and contrast the percentage of ROS production as a consequences of the interaction of alpha-synuclein amyloid aggregates, produced in the absence and presence of dopamine, with rat brain mitochondria. The ROS production was evaluated by 2,7-dichlorofluorescein diacetate (DCFH-DA), which readily diffuses into cells. Our results obviously demonstrated both fibrils and oligomers of alpha-synuclein induce ROS generation.

کلمات کلیدی:

Parkinson disease, Alpha-synuclein, Mitochondria, Free radicals