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Mammalian Target of Rapamycin (mTOR) Attenuates Pathology in Annonacin-Induced Tauopathy in Mice (Article)

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Abstract

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Tauopathy is a pathological hallmark of many neurodegenerative diseases. It is characterized by abnormal aggregates of pathological phosphotau and somatodendritic redistribution. One suggested strategy for treating tauopathy is to stimulate autophagy, hence, getting rid of these pathological protein aggregates. One key controller of autophagy is mTOR. Since stimulation of mTOR leads to inhibition of autophagy, inhibitors of mTOR will cause stimulation of autophagy process. In this report, tauopathy was induced in mice using annonacin. Blocking of mTOR was achieved through stereotaxic injection of siRNA against mTOR. The behavioral and immunohistochemical evaluation revealed the development of tauopathy model as proven by deterioration of behavioral performance in open field test and significant tau aggregates in annonacin-treated mice. Blocking of mTOR revealed significant clearance of tau aggregates in the injected side; however, tau expression was not affected by mTOR blockage. © 2018, Springer Science+Business Media, LLC, part of Springer Nature.

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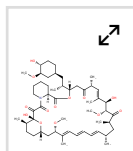
Topic: Tauopathies | Alzheimer Disease | Tau oligomers

Prominence percentile: 99.684



Chemistry database information

Substances



Author keywords

[Autophagy](#) [mTOR](#) [Neurodegeneration](#) [siRNA](#) [Tauopathy](#)

Indexed keywords

EMTREE drug terms: [annonacin](#) [mammalian target of rapamycin](#) [small interfering RNA](#) [furan derivative](#) [lactone](#) [mTOR protein, mouse](#) [small interfering RNA](#) [target of rapamycin kinase](#)

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EMTREE medical terms:

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MeSH:

Animals Autophagy Brain Furans Lactones Male Mice , Inbred C57BL
Neurons Protein Aggregation, Pathological RNA, Small Interfering Tauopathies
TOR Serine-Threonine Kinases

Chemicals and CAS Registry Numbers:

annonacin, 111035-65-5; lactone, 1338-03-0; target of rapamycin kinase, 171715-28-9;

annonacin; Furans; Lactones; mTOR protein, mouse; RNA, Small Interfering; TOR Serine-Threonine Kinases

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