

Epilepsy drugs could treat Alzheimer's and Parkinson's

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Researchers in the USA have discovered a potential new function for anti-epileptic drugs in treating neurodegenerative disorders such as Alzheimer's and Parkinson's disease. The study, published in BioMed Central's open access journal *Molecular Neurodegeneration*, found that neurons in the brain were protected after treatment with T-type calcium-channel blockers, which are commonly used to treat epilepsy.

Calcium signaling pathways play a vital role in the survival of neurons in the brain. As age increases, calcium homeostasis can be disrupted in the brain, which may lead to cognitive and functional decline. It therefore raises the possibility that chemicals able to modulate calcium homeostasis could protect neurons.

Jianxin Bao and colleagues, from Washington University, Missouri, USA, were one of the first teams to explore the possible protective effects of blockers for T-type calcium channels. The mechanisms for neuroprotection by these antiepileptic drugs were previously unknown. Bao's team established cell culture models to directly test whether these drugs could preserve neurons in long- and short-term cultures in vitro.

They found that neurons showed an increase in viability after treatment with either L-type or T-type calcium channel inhibitors. Furthermore, neurons in the long-term and short-term cultures were protected, respectively, by L-type and T-type [calcium channel](#) blockers, suggesting that more than one calcium-signaling mechanism exists to regulate long- and short-term neuron survival.

There are presently no effective medications for age-related neurodegeneration. Bao said "Our data provides implications for the use of this family of anti-epileptic drugs in developing new treatments for neuronal injury, and for the need of further studies of the use of such drugs in age-related neurodegenerative disorders."

More information: Neuroprotective effects of blockers for T-type calcium channels, Norelle C Wildburger, Avary Lin-Ye, Michelle A Baird, Debin Lei and Jianxin Bao, *Molecular Neurodegeneration* (in press), www.molecularneurodegeneration.com/

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