47-2020-13933 | A Novel Synthetic Peptide Analogs for Neuroprotection and Myoprotection

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Novel Humanin Analogs for Treatment of Neuroprotection and Myoprotection

Category	Life Sciences and Biotechnology
Keywords	Neuroprotection, Myoprotection, Stroke, Mitochondria dysfunction

Application

Mitochondrial-derived peptides (MDP) signals within the cell are released to the extracellular space to act as cytoprotective factors, playing a key role in the first defense towards cellular stress. The best characterized mitochondrial peptide is the 24-amino acid Humanin. Humanin is a metabolic regulator and plays a cytoprotective role in maintaining mitochondrial function and cell viability under different physiological insults. Humanin was shown to have neuroprotective effects in stroke and cardioprotection in myocardial infarction. Its cytoprotective properties render Humanin as a potential therapeutic agent for both neurological disorders and myocardial infarction.

Our Innovation

Novel synthetic analogs of Humanin, prepared by solid-phase peptide synthesis, were synthesized by the researchers, and showed neuroprotective and cardioprotection effects. The novel peptides were tested in several cellular models and showed a significant dose-dependent neuroprotection. This conferred myoprotective effect towards (Doxorubicin)-induced apo-necrotic cell death insults.

Opportunity

Humanin analog provide a new lead compound for the treatment of neurological insults such as stroke and chemotherapy (Doxorubicin)-induced cardiotoxicity therapy in cancer patients. Doxorubicin, is a part of various chemotherapy drug protocols used in oncology for treating a wide range of tumors, e.g., lymphoma, leukemia and breast cancer. However, Dox treatment is related to some life-threatening side effects including cardiotoxicity and, late onset of congestive heart failure, often limiting its clinical applications. Although a few drugs have been used to reduce Doxorubicin cardiotoxicity no effective treatments for established Doxorubicin cardiomyopathy is presently available. Therefore, there is an unmet clinical need to develop novel myoprotective modalities for prevention and/or therapy of Doxorubicin-induced cardiotoxicity.

Patent Status

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