ANTI-APOPTOTIC PEPTIDES

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Technology description

Innovation: MU researchers have developed a novel therapy to stabilize atherosclerotic plaques and prevent cardiovascular disease (CVD) deaths due to acute vascular events. The inventors have generated promising in vitro data and are currently working on in vivo animal studies. As this therapy positively affects DNA repair and prevents apoptosis, additional applications in the treatment of neurodegenerative disorders is expected.

Background: Cardiovascular disease is the number one cause of death globally, causing the loss of approximately 17.7 million lives in 2015. Of these deaths, approximately 7.4 million and 6.7 million were due to coronary heart disease and stroke respectively. Deaths due to CVD have increased annually over the last decade; a trend that is projected to continue for the foreseeable future. The global market for CVD is estimated to grow from ~$129 billion in 2015 to ~$146 billion by 2022, with treatment for acute coronary incidents representing at least $30 billion of that market in 2022. Medical treatment for atherosclerosis is currently restricted to preventative life-style changes, lipid lowering drugs, and control of risk factors. Atherosclerotic plaque stability is a critical determinant of clinical events. Currently, there is no efficient therapy targeting atherogenesis-induced plaque destabilization. Our novel therapy offers an alternate approach to anti-atherosclerotic therapy by targeting and preventing the critical step of plaque destabilization. As our therapy works by activating DNA repair and preventing apoptosis, applications could extend past cardiovascular disease to treatment of other diseases including those neurodegenerative disorders.

Application area

Anti-apoptosis drug targeting vascular smooth muscle cells, stabilization of atherosclerotic plaques and decreased incidence of acute coronary events. Anti-DNA damage drug targeting oxidative stress-related DNA damage from reactive oxygen species in cardiovascular and neurodegenerative disorders.

Advantages

Novel therapeutic strategy. - Market analysis shows inherent need for alternatives to current drug therapies. Novel technology to prevent and treat atherosclerosis, a key determinant in advanced CVD -

Atherosclerotic plaque stabilization is a gap in current CVD care. Potential applications exist for anti-apoptotic therapies in other diseases. - Numerous neurodegenerative diseases such Alzheimer's, Parkinson's and Huntington's exhibit apoptosis of nerve cells.

Institution

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