Regulation of Brain Natriuretic Peptide and Catecholamines for the Treatment of Cardiovascular Diseases

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Description:
The present invention describes methods for treating heart diseases by pharmacological manipulation of intrinsic cardiac adrenergic cells. The activation or inhibition of delta-opioid receptors or selective beta.2-adrenergic receptor agonist in these cells can help regulate catecholamine synthesis and release in these cells. Thus drugs directed towards these receptors can be used in the treatment of heart diseases including acute and chronic congestive heart failure, as well as acute and chronic coronary artery disease. The present invention also describes a method of treating acute decompensated congestive heart failure using delta-opioid receptor agonists or selective beta.2-adrenergic receptor agonists to stimulate endogenous production of brain natriuretic peptide. This invention also provides a novel strategy for protection against myocardial ischemia through the specific activation of delta-opioid receptors or selective beta.2-adrenergic receptor agonists exclusively expressed by intrinsic cardiac adrenergic cells in human heart. The activation of intrinsic cardiac adrenergic cells by delta-opioid receptor stimulation enhances endogenous catecholamine release, which subsequently stimulates myocardial alpha 1-adrenoreceptors achieving myocardial protection in patients suffering from myocardial ischemia due to coronary artery disease.


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