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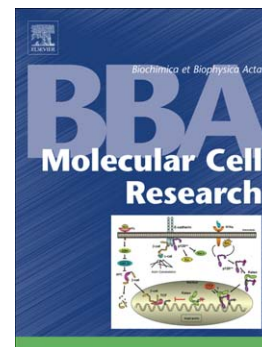
Putting together the clues of the everlasting neuro-cardiac liaison

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Putting together the clues of the everlasting neuro-cardiac liaison

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Abstract

Starting from the late embryonic development, the sympathetic nervous system extensively innervates the heart and modulates its activity during the entire lifespan. The distribution of myocardial sympathetic processes is finely regulated by the secretion of limiting amounts of pro-survival neurotrophic factors by cardiac cells. Norepinephrine release by the neurons rapidly modulates myocardial electrophysiology, and increases the rate and force of cardiomyocyte contractions. Sympathetic processes establish direct interaction with cardiomyocytes, characterized by the presence of neurotransmitter vesicles and reduced cell-cell distance. Whether such contacts have a functional role in both neurotrophin- and catecholamine-dependent communication between the two cell types, is poorly understood.

In this review we will address the effects of the sympathetic neuron activity on the myocardium and the hypothesis that the direct neuro-cardiac contact might have a key role both in norepinephrine and neurotrophin mediated signaling.

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Introduction

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