MOLECULAR MECHANISMS INVOLVED IN THE HEART HYPERTROPHY OF ATHLETES

ANATOLI PETRIDOU

ARISTOTLE UNIVERSITY OF THESSALONIKI

Abstract One of the main adaptations to chronic exercise is cardiac hypertrophy, which is characterized as physiological and is also known as “athletic heart”. The purpose of the present review is to define the molecular mechanisms, which lead to the development of the athletes’ cardiac hypertrophy. Initially, two kinds of cardiac hypertrophy have been studied, the pathological one and the physiological. Although there are some data on the possible mechanisms involved in the development of pathological cardiac hypertrophy, there is not a clear view of the molecular mechanisms clarify some aspects of the physiological cardiac hypertrophy. The present review exhibits the role of the transforming growth factor 1, atrial myosin light chain 1, the sympathetic nervous system, calcineurin, the calcium system, the sex hormones, and the peroxisome-proliferator activated receptor α. Further research is needed on the molecular mechanisms involved in the development of cardiac hypertrophy of the athletes.

Key-words: Cardiac Hypertrophy, Exercise, Molecular Mechanisms, Pathological Hypertrophy, Physiological Hypertrophy.

Adress for correspondnce: Anatoli Petridou, Aristotle University of Thessaloniki, 541 24 Thessaloniki, Tel. 2310992237,
E-mail: apet@phed.auth.gr