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Molecular and cellular characterization of cardiac overload-induced hypertrophy and failure

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Stellingen

1. Integrin stimulation-induced hypertrophy in neonatal rat cardiomyocytes is nitric oxide-dependent (*this thesis*).
2. Activation of nitric oxide synthase-1 in failing right ventricle suggests a role of excessive nitric oxide in the development of failure and activation of MMPs leading to ventricular remodeling (*this thesis*).
3. Reverse left ventricular remodeling following cardiac resynchronization therapy is associated with increased collagen synthesis rate in the first 6 months of follow-up (*this thesis*).
4. Intravenous cell therapy with mesenchymal stem cells from donor rats with pulmonary hypertension reduces right ventricular pressure overload and reverses right ventricular hypertrophy in recipient rats with pulmonary artery hypertension (*this thesis*).
5. Stem cells from rats with pulmonary hypertension reduce pulmonary parenchymal damage, medial hypertrophy of pulmonary arterioles, and right ventricular hypertrophy in rats with pulmonary hypertension (*this thesis*).
6. Both cellular and extracellular factors are involved in the remodeling process and it is the combined action of these factors that give rise to changes in myocardial structure and function (*Deschamps A and Spinale F, Cardiovasc Res 2006*).
7. Currently, our concepts of the remodeling process have evolved to include not only changes in ventricular size and shape, but cellular and molecular remodeling, particularly as the ventricle evolves towards failure (*Manso A et al, Cardiovasc Res 2006*).
8. Current treatments can improve symptoms and reduce the severity of the hemodynamic abnormality of PAH, but most patients remain quite limited, and deterioration in their condition necessitates a lung transplant (*Rabinovitch M, Annu Rev Pathol Mech Di. 2007*).

9. A novel therapeutic strategy is desirable for PAH. Transplantation of autologous endothelial progenitor cells may be beneficial in patients with idiopathic PAH (*Wang X et al, J Am Coll Cardiol 2007*).
10. Few individuals significantly alter the course of history. Fewer still modify the map of the world. Hardly anyone can be credited with creating a nation. Muhammad Ali Jinnah did all three (*Prof. Stanley Wolpert 1927*).
11. If I were to say, "God, why me?" about the bad things, then I should have said, "God, why me?" about the good things that happened in my life (*Arthur Ashe 1943-1993*).
12. The scientific observer of nature is a kind of mystic seeker in the act of prayer (*Muhammad Iqbal 1877-1938*).
13. The woods are lovely, dark and deep,
But I have promises to keep,
And miles to go before I sleep,
And miles to go before I sleep (*Robert Frost 1874-1963*).

Soban Umar

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