

# Changes in $\beta$ -adrenergic receptors of rat heart and adipocytes during volume-overload induced cardiac hypertrophy

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Modification of cardiac  $\beta$ -adrenergic receptors ( $\beta$ -AR), resulting from the stimulation of the sympathetic nervous system, is one of the most important factors in the generation of cardiac hypertrophy and heart failure. In this research, we propose the utilization of adipocytes as an alternative to the use of predominantly  $\beta$ 2-AR subtype containing circulating lymphocytes for the convenient assessment of cardiac failure in the experimentally, volume-overload induced heart hypertrophy in rats. Using this model, we measured  $\beta$ -AR both in the heart and adipocytes of male rats 2, 7, 21 and 56 days after creating an aorta-cava fistula. Whereas an increase (58%) in cardiac  $\beta$ -AR density from day 7 to 21 was followed by a decrease in this measurement (30%) on day 56 [changes expressed as percentage of controls; no significant changes in  $\beta$ -AR affinity (Kd) were recorded at any of the time interval studied], adipocytes  $\beta$ -AR density showed a progressive increase starting on day 21 (87%) which continu