# Possibility of Inhibition of TNF-α/NF-kB Signaling Pathway Activation in Myocardium and Reverse Cardiac Hemodynamics in Chronic Ischemic Heart Disease

**Galenko-Iaroshevsky PA[1], Sukoyan GV[2*], Ionov DI[1], Zelenskaya AV[1] and Khvitia NG[2]**

*[1]Department of Pharmacology, Kuban State of Medical University, Krasnodar, Russian Federation*

*[2]Department of Molecular and Clinical Pharmacology, International Research Centre of Introduction of New Biomedical Technology, Tbilisi, Georgia*

[*]**Correspondence author:**

heart itself or it is of peripheral origin secondary to gastrointestinal congestion. In this study, we investigate the dependence between changes in redox-potential, NAD/NADH and TNF-α/NF-kB signaling pathways on experimental cardiac hypertrophy and inẑammatory response in myocardium, which is regarded as a risk factor of irreversible form of CHF, and eẌcacy of various therapeutic action to reverse this deterioration in CHF caused by long-term aortic stenosis in rabbits.

## Material and Methods

All animal experiments and procedures received institutional approval and were conducted in conformity with the “Guiding Principles in the Care and Use of Animals” of the American Physiology Society and the “Guide for the Care and Use of Laboratory Animals” published by the National Institutes of Health (NIH publication No. 85-23, revised, 1985.

All animals were secured under speciẐc pathogen free conditions according to the Federation of European Laboratory Animal Science Associations guidelines in humidity- and temperature-controlled environment, with a 12 h light and 12 h dark cycle. Chinchilla rabbits (2.5-3.0 kg) had free access to food and water ad libitum. Aнer 7 days of adaptation, all animals randomized into two groups: control and main. Hе rabbits were kept in a daylit environment, in specially designed housed (animal room) at a mean temperature 20°C, humidity 40-70%, lighting 12 h per day for at least 1 week before the experiments. Animals were fed commercial laboratory rabbit food pellet and allowed drink tap water ad libitum before the experiments. Hree month анer induced cardiac hypertrophy by leн descending coronary artery stenosis (banding (ligation) up to one third of the original size under sterile conditions [3,4]) the symptoms of CHF has

| Parameters/Group | Control I | CHF | | |
|---|---|---|---|---|
| | | Control II | +Traditional Therapy | +Adenocin[È] |
| IL-1Ç, pg/mg protein | 3.4 Ñ 0.8 | 24.5 Ñ 1.8*** | 20.3 Ñ 1.7***# | 5.8 Ñ 1.4[##xx] |
| IL--[ˢ] | | | | |

Carvedilol, a beta-blocker and particularly α-1 receptor blockers containing an antioxidative property, inhibits T cell activation *via* downregulating NF-kB activity. Chronic administration of metoprolol during three years slows the progression of intima media thickness in humans and alters the grey scale of carotid plaques and decrease serum levels of proinẑammatory cytokines [22,23]. On the chronic canine model of multivessel ischemic cardiomyopathy with leи ventricular dysfunction, was shown that myocardial interstitial ẑuid occurred greater attenuation of leukocytosis and had higher IL-10 level with carvedilol compared to metoprolol, aиer 3 months of treatment resulted in better resting global and regional function as well as better regional function at stress compared to metoprolol. ACE- inhibitors,

11. Fujita-Sato S, Ito S, Isobe T, Ohyama T, Wakabayashi K, et al. (2011) Structural basis of digoxin that antagonizes RORgamma t receptor