

## **ABSTRACT**

### **C-REACTIVE PROTEIN EFFECTS ON AORTIC ENDOTHELIUM IN SPONTANEOUSLY HYPERTENSIVE RATS**

**Diploma thesis**

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Endothelial dysfunction and chronic inflammation are factors figuring in pathogenesis of metabolic syndrome. This paper is outlined as a pilot study, which represents basis for further research in the question of C-reactive protein influence on endothelium.

The expression of four proteins previously associated with the development of endothelial dysfunction, was studied using the Western blot method: endothelin-1, heme oxygenase-1, endoglin and phosphorylated nitric oxide synthase. Analysis was carried out on the samples of homogenized rat aortas of transgenic spontaneously hypertensive rats with expression of human C-reactive protein. A standard spontaneously hypertensive rat strain was used as a control group. The detection was made by chemiluminescence substrate on the X-ray films and data were semiquantitatively evaluated by densitometry.

We found increased expression in endoglin levels, valued at 186.3 % contrary to the control group. The expression of phosphorylated nitric oxide synthase was 325.6 % in comparison with the control group. The increase of expression was minimal (109.0 %) in the heme oxygenase-1 levels and the expression of endothelin-1 was surprisingly decreased when compared to control animals (87.4 %). These results should help to determine further research objectives and suggest the impact of C-reactive protein on the endothelium.

**Key words:** C-reactive protein, endothelial dysfunction, metabolic syndrome, nitric oxide, endoglin, heme oxygenase-1, endothelin-1, endothelial nitric oxide synthase, spontaneously hypertensive rat