

# ABSTRACT

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**Title of Diploma Thesis:** Western blot analysis of ICAM-1 and P-selectin protein expression in aorta of mice with high soluble endoglin levels

**Background:** Detection and subsequent evaluation of the expression of adhesion molecules ICAM-1 and P-selectin in aorta of two groups of transgenic mice differing by levels of human serum endoglin that were fed a special high fat and cholesterol diet.

**Methods:** We used six-month-old female transgenic mice capable of expressing of human endoglin, which was able to be determined after cleavage in the circulation (Soluble endoglin - sENG) by the use of an ELISA assay. Therefore, we were able to divide the mice into two groups - an experimental group (high levels of sENG) and a control group (very low sENG levels). For 3 months, both groups were given a special high fat and cholesterol diet. Biochemical analysis (total cholesterol levels), and Western blot analysis of molecules ICAM-1 and P-selectin in the homogenate of mouse aortas were carried out.

**Results:** Biochemical analysis of total cholesterol in the blood revealed statistically no significant differences in the measured values between both groups of mice. Western blot analysis demonstrated a significantly increased expression of the adhesion molecule ICAM-1 by 90 % and the adhesion molecule P-selectin by 47 % in comparison with the control group.

**Conclusions:** The results of this study suggest a potential share of increased levels of serum endoglin in combination with cholesterol diet to increased expression of

inflammatory markers in mice aorta, and thus a possible effect on the endothelium in terms of an induction of inflammation.

**Keywords:** endothelial dysfunction, inflammatory response, ICAM-1, P-selectin, soluble endoglin