

XI JCET LECTURE, 09.11.2012, 9.00:

The TGF-beta co-receptor Endoglin in atherosclerosis: State of the art

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Endoglin (CD 105, TGF- β receptor III) is a homodimeric transmembrane glycoprotein that plays a regulatory role in TGF- β signaling. The presentation is focused on the role of endoglin in atherosclerosis in both humans and experimental animals. Endoglin expression was demonstrated in atherosclerotic vessels predominantly in endothelial cells and smooth muscle cells in various types of vessels in mice and humans, suggesting its participation in atherogenesis. Endoglin expression was also related to expression of eNOS in endothelium, repair of the vessel wall, plaque neoangiogenesis, production of collagen and stabilization of atherosclerotic lesions. In addition, increased levels of soluble endoglin were associated with hypercholesterolemia, atherosclerosis, acute myocardial infarction and were related to inhibition of TGF- β signaling in the vessel wall. Moreover, soluble endoglin levels were significantly lowered after series of extracorporeal eliminations in patients with familial hypercholesterolemia. Additionally, statin treatment decreased levels of soluble endoglin and increased its expression in aorta beyond lipid lowering effects, which was related to reduced atherosclerosis in mice. We propose that measurement of soluble endoglin might give information about progression of atherosclerotic process or efficacy of therapeutic interventions, which is the task that must be answered in clinical trials.

CURRICULUM VITAE

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born: 20th May 1975

- POSITION:** Head Chief of the Department of Biological and Medical Sciences, Assistant Professor, Charles University in Prague, Faculty of Pharmacy in Hradec Kralove Department of Biological and Medical Sciences, Czech Republic
- EDUCATION:** graduate Charles University in Prague, Faculty of Pharmacy in Hradec Kralove, Ph.D. from Pharmacology and toxicology, Assistant Professor Histology and embryology
- RESEARCH:** experimental atherogenesis, pathology of cardiovascular system, stereological methods, immunohistochemistry
- PUBLICATIONS:** 32x original papers in journals with impact factor, 2 original papers in journals without impact factor, 60 abstracts from conferences and symposiums, 35 lectures in conferences and symposiums. Main resolver of two grant projects.
- AWARDS, TRAVEL GRANTS:** travel grants from Czech atherosclerotic society for participating in XIV International Symposium on Atherosclerosis, Roma, Italy 2006, EAS congress Helsinki, Finland 2007, travel grant from International Atherosclerosis Society for participating in ISA 2009, Boston, USA. The first price award for the best original paper (article) published in 2009 from Czech Atherosclerosis Society.
- MEMBERSHIPS:** Czech Atherosclerosis Society, Czech Histochemical Society, European Atherosclerosis Society