

### ADAMTS1 is a candidate for a unique tool for detecting hypoxic endothelial cells

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ADAMTS1-GFP-transfected human umbilical vein cells (HUVEC) under normoxia, there were few GFP signals, while CMV-GFP-transfected HUVEC showed considerable GFP signals. When HUVEC was stimulated with hypoxia, GFP signals were induced by ADAMTS1-GFP. Interestingly, the GFP signals reached its peak at 3 h under hypoxia stimulation. In vivo experiments, ischemic hind limb model were produced and ADAMTS1-GFP drove GFP signals in the ischemic hind limb. In summary, we have demonstrated that the ADAMTS1 promoter induced the reporter gene expression by hypoxia, and its induction is transient. This is the first report showing the unique acute hypoxia-activated gene expression system.

**A**DAMTS1 (a disintegrin and metalloproteinase with thrombospondin motifs 1) is a member of the matrix metalloproteinase family. We have previously reported that ADAMTS1 was strongly expressed in myocardial infarction and it is a hypoxic early response gene expressed by endothelial cells in a timedependent manner. In this study, we investigated whether ADAMTS1 promoter-driven reporter signal is detectable by acute hypoxia in vivo and in vitro. We constructed the GFP (green fluorescent protein) expression vector (ADAMTS1-GFP) driven by ADAMTS1 promoter and compared it with the constitutive GFP-expressing vector driven by cytomegalovirus (CMV) promoter (CMV-GFP). We delivered ADAMTS1-GFP or CMV-GFP by electroporation and examined whether GFP signals can be detected under the hypoxia. When we cultured

### Biography

Mehmet Zeynel CILEK has completed his Ph.D at Okayama University, Graduate School of Medicine, Dentistry and Pharmaceutical Sciences, Department of Molecular Biology and Biochemistry in December 2010; He is now a post-doctoral research associate at the Okayama University. He has published 5 papers in reputed journals. Reference: 1- **Mehmet Zeynel Cilek**, Satoshi Hirohata, Omer Faruk Hatipoglu, Hiroko Ogawa, Toru Miyoshi, Junko Inagaki, Takashi Ohtsuki, Hiroshi Harada, Shigeshi Kamikawa, Shozo Kusachi, Yoshifumi Ninomiya, AHR, a novel acute hypoxia-response sequence, drives reporter gene under hypoxia in vitro and in vivo, *Cell Biology International*, (2011) 35, 1-8 2- Omer F. Hatipoglu, Satoshi Hirohata, **M. Zeynel Cilek**, Kadir Demircan, Hiroko Ogawa, Toru Miyoshi, Masanari Obika, Ryoko Shinohata, Shozo Kusachi, Yoshifumi Ninomiya, ADAMTS1 Is A Unique Hypoxic Early Response Gene Expressed By Endothelial Cells, *Journal of Biological Chemistry*, 2009, Jun 12; 284(24):16325-33. 3- Keigo Nakamura, Satoshi Hirohata, Takahashi Murakami, Toru Miyoshi, Kadir Demircan, Toshikata Oohashi, Hiroko Ogawa, Kazuya Koten, Kenichi Toeda, Shozo Kusachi, Yoshifumi Ninomiya and Yasushi Shiratori, Dynamic induction of ADAMTS1 gene in the early phase of acute myocardial infarction. *J Biochem (Tokyo)* 2004; 136:439-46.