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Coagulation factor IX regulates cell migration and adhesion *in-vitro*

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Coagulation factor IX is thought to circulate in the blood as an inactive zymogen before being activated in the coagulation process. The effect of coagulation factor IX on cells is poorly understood. This study aimed to evaluate the effects of intact coagulation factor IX and its cleavage fragments on cell behavior. A431 cells (derived from human squamous cell carcinoma), Pro5 cells (derived from mouse embryonic endothelial cells), Cos7 cells and human umbilical vein endothelial cells were utilized in this study. The effects of coagulation factor IX and its cleavage fragments on cell behavior were investigated in several types of experiments, including wound healing assays and modified Boyden chamber assays. The effect of coagulation factor IX depended on its processing; full length coagulation factor IX suppressed cell migration, increased adhesion to matrix and enhanced intercellular adhesion. In contrast, activated coagulation factor IX enhanced cell migration, suppressed adhesion to matrix and inhibited intercellular adhesion. An activation peptide that is removed during the coagulation process was found to be responsible for the activity of full length coagulation factor IX and the activity of activated coagulation factor IX was localized to an EGF domain of the coagulation factor IX light chain. Full length coagulation factor IX has a sedative effect on cells, which is counteracted by activated coagulation factor IX *in-vitro*. Thus, coagulation factor IX may play roles before, during and after the coagulation process.

Biography

Chiaki Hidai has received MD in 1986 from Hokkaido University, Japan. He has worked as a House Officer and a Specialist Trainee of Cardiology in Tokyo Women's Medical University and worked as a Postdoctoral fellow in Vanderbilt University in USA. He has received his PhD from Tokyo Women's Medical University in 1997. He was an Assistant Professor in Tokyo Women's Medical University from 1994-2000 and currently working as an Associate Professor in Nihon University School of Medicine from 2000.

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