A NOVEL MATRIX METALLOPROTEINASE EXPRESSED ON INVASIVE TUMOR CELL SURFACE.

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A variety of studies have indicated that degradation of the extracellular matrix surrounding tumor cells is an essential event for invasion and metastasis. In particular, 72-kDa type IV collagenase (gelatinase A) over-expressed in tumor tissue is implicated in this process (Liotta, L.A., Cell, 1991). The enzyme is synthesized by tumor tissue fibroblasts and by tumor cells in some cases, and secreted as a latent form which requires proteolytic activation to function. Thus, the activation of pro-gelatinase A on the tumor cell surface is the crucial control point of the invasive potential of these cells and the putative molecule responsible for this process has been a hotly disputed issue (Stetler-Stevenson, Annu. Rev. Cell Biol. 1993).

From preliminary studies by many other research groups, this putative trigger for invasion is thought to have characteristics such as a membrane protein expressed in a tumor specific manner, a member of a metalloproteinase family, and an activator of pro-gelatinase A.

We have isolated a complementary DNA from human placenta cDNA library that encodes a new member of matrix metalloproteinase (MMP) family. The most striking feature of the product is its potential transmembrane domain at the C-terminus. Expression of the product, its localization and the relevance to the putative pro-gelatinase A activator on the tumor cell surface will be discussed.