

**Stony Brook University  
The Graduate School**

Doctoral Defense Announcement

**Abstract**

Elevation of seprase expression and promotion of an invasive phenotype  
by collagenous matrices in ovarian tumor cells

By

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Tumor cells do not constitutively exhibit invasive activity, but rather, can be transiently induced to adhere and form lesions. We report here that the expression of seprase, a dominant EDTA-resistant gelatinase in malignant tumors, is dependent on tumor cell exposure to type I collagen gel (TICg), and this interaction can be simulated by mAb C27, an antibody against  $\beta 1$  integrin that induces cross linking of the integrin subunits. The induced seprase expression of ovarian tumor cells influences their collagen remodeling and invasion capability. Importantly, tumor cells with low seprase expression, due to manipulation by RNA interference, showed a reduction of TICg remodeling in the gel contractility assay, inhibition of tumor cell invasion through TICg as shown by a transwell migration assay, and inhibition of peritoneal membrane lesion formation in an in vivo mouse model. Thus, collagenous matrices in the tumor cell niche induce the expression of seprase and initiate tumor invasion cascades.

**Date:** November 12, 2007

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**Place:** LIHTI Conference Room

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**Dissertation Advisor:** Wen-Tien Chen