

Abstract Submitted  
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**Molecular Imaging System for Monitoring Tumor Angiogenesis** ESRA AYTAC, MEHMET BURCIN UNLU, None — In cancer, non-invasive imaging techniques that monitor molecular processes associated with the tumor angiogenesis could have a central role in the evaluation of novel antiangiogenic and proangiogenic therapies as well as early detection of the disease. Matrix metalloproteinases (MMP) can serve as specific biological targets for imaging of angiogenesis since expression of MMPs is required for angiogenesis and has been found to be upregulated in every type of human cancer and correlates with stage, invasive, metastatic properties and poor prognosis. However, for most cancers it is still unknown when, where and how MMPs are involved in the tumor angiogenesis [1]. Development of high-resolution, high sensitivity imaging techniques in parallel with the tumor models could prove invaluable for assessing the physical location and the time frame of MMP enzymatic activity. The goal of this study is to understand where, when and how MMPs are involved in the tumor angiogenesis. We will accomplish this goal by following two objectives: to develop a high sensitivity, high resolution molecular imaging system, to develop a virtual tumor simulator that can predict the physical location and the time frame of the MMP activity. In order to achieve our objectives, we will first develop a PAM system and develop a mathematical tumor model in which the quantitative data obtained from the PAM can be integrated. So, this work will develop a virtual tumor simulator and a molecular imaging system for monitoring tumor angiogenesis. 1.Kessenbrock, K., V. Plaks, and Z. Werb, MMP:regulators of the tumor microenvironment. *Cell*, 2010. **141**(1)

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None

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