

Yangjin Kim

UNIVERSITY OF MICHIGAN

e-mail: yangjink@umd.umich.edu

The role of the microenvironment in tumor invasion: a mathematical model

Glioma cells tend to migrate from the primary tumor into the surrounding tissue. We develop a mathematical model which includes the role of adhesion and mechanical interaction between glioma cells and collagen network. Simulation results show cell migration behavior through the extracellular matrix using information from the complex fibrous structure. We also take into account the intracellular signals at each cell site for this cell migration through the ECM. We consider the detailed mechanical interactions between cells and between a cell and the collagen fibers in addition to reaction-diffusion of molecules.