1038-92-63 **Peter Hinow*** (hinow@ima.umn.edu), University of Minnesota, 114 Lind Hall, Minneapolis, MN 55455. *A Spatial Model of Tumour-Host Interaction: Application of Chemotherapy.*

We consider chemotherapy in a spatial tumor model that takes into account interactions between the tumor and stromal cells and the extra-cellular matrix. When no treatment is applied it reproduces typical dynamics of early tumor growth. The initially avascular tumor reaches a diffusion limited size and initiates angiogenesis through the release of VEGF. This stimulates endothelial cells to migrate towards the tumor and establishes a nutrient supply. To this model we apply cytostatic treatment in form of a VEGF-inhibitor, which reduces proliferation and chemotaxis of endothelial cells. This treatment has the capability to reduce tumor mass, but more importantly, inhibiting chemotaxis is the more important of the two effects the drug has. Further, we considered the application of a cytotoxic drug that targets proliferating cells. The drug is treated as a diffusible substance entering from the blood vessels. We show that depending on the characteristics of the drug it can either reduce the tumor mass significantly or accelerate the growth of the tumor. This seems to be due to interplay between the stromal and tumor cells and highlights the importance of considering chemotherapy in a spatial context. This is joint work with Philip Gerlee, Sandy Anderson, Lisa McCawley, and others. (Received January 24, 2008)