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**Erica M Rutter\*** (erutter1@asu.edu), **Tracy L Stepien**, **Barrett A Anderies**, **Eric J Kostelich** and **Yang Kuang**. *Experimental and Numerical Results for Glioblastoma Multiforme in Murine Brains*. Preliminary report.

Glioblastoma Multiforme (GBM) is a malignant form of brain cancer which is very difficult to treat for several reasons. Firstly, GBM characteristics include not only large proliferation, but also large migration. Secondly, MR images are often used to determine where the cancer is present in the brain. However, what shows on the MR image is not necessarily the full amount of GBM tumor present.

Identical mice were injected with GL261, a GBM-like cell line and imaged over several time points using MR. Despite these controlled experimental conditions, we observed a large variance in the final tumor sizes of the mice (from 10 mm<sup>3</sup> to 60 mm<sup>3</sup>). We formulate several hypotheses to explain this large discrepancy and use a 3D finite difference simple reaction-diffusion model to test these hypotheses. We also experiment with introducing slight complexities into the model, such as stochastic parameterization and density-dependent diffusion, to examine how this affects the results. (Received September 22, 2015)