

1106-92-1842

Patricia K McCarthy* (patricia.mccarthy@loras.edu) and **Jeremy Burke**. *Cancer Stem Cells in treating Glioblastoma Multiforme Brain Cancer*.

In this talk, we present an extension of the work of Kogan, Forys, and Kronik (Kogan, et al. 2008). Our work incorporates the cancer stem cell hypothesis in the study of treatment of Glioblastoma Multiforme by immunotherapy. We propose an abstract model of nonlinear ordinary differential equations and show existence of coexistence, recurrence, and cure steady states. We perform stability analysis and present sufficiency conditions on treatment parameters to ensure a globally asymptotically stable cure state. We then present a biologically accurate example of the model that showcases the abstract theory. We conclude with numerical simulations that utilize the Dirac delta function to realistically model administration of the immunotherapy treatment. (Received September 15, 2014)