

1065-34-275

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The Dynamics of Recombinant and Burst Size Effects in Tumor Viro-therapy.

In this work we analyze a mathematical model for cancer viro-therapy with recombinant viruses and with the assumption of logistic growth for the uninfected tumor cell population. In the case of measles viruses such models have been studied mostly from the numerical point of view. On the other hand, for different viro-therapy models that do not quantify the recombinant behavior of the oncolytic viruses it was rigorously shown how the inside-tumor replicability of the virus controls the outcome of the therapy. The inside-tumor replicability of the oncolytic virus is measured by its burst size. We advance the analysis of the therapy with recombinant viruses by studying the connection between the burst size and the stability of the equilibrium states corresponding to therapy failure, partial tumor reduction and tumor eradication (Received September 15, 2010)