
QI DENG, York University

Modeling the Interaction of Cytotoxic T-lymphocytes and Oncolytic Viruses in a Tumor Microenvironment

Oncolytic virotherapy has become a promising approach in treating cancer. In this talk, we will discuss a mathematical model, which is developed to understand the interaction among immune cells, Oncolytic viruses, and tumor cells. The basic reproductive number (R_0) is derived, and the local and global dynamics of the system are analyzed in terms of R_0 and another related threshold R_0^E . The theoretical results suggest that the system have periodic solutions and bifurcations. Numerical simulations further show that the immune response plays an obstructive role on virotherapy, and once the immune cell proliferation rate exceeds a threshold, the tumor will escape.