

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Regulating the Tumor Cell Population Dynamics by Controlling the Proliferation Rate** SARAH HIRSCHBECK, MITRA SHOJANIA FEIZ-ABADI, Canisius College — The two-compartment model of cancer cell population dynamics introduces two subpopulations for a tumor (proliferating and quiescent). In previous theoretical models, the interaction of tumor cells with chemotherapeutic drugs is expressed as an additional term which reduces the size of subpopulations because of the killing effect of the drug with different killing rates. We develop a simple mathematical model for a more realistic interaction of anti-cancer drugs with tumor cells. The key assumption used in developing this model is that the anti-cancer drug not only kills the subpopulations but also decreases the proliferating rate of the proliferating subpopulation during the course of therapy. Finally, we present the numerical result for the evolution of the subpopulations based on this model.

Sarah Hirschbeck  
Canisius College

Date submitted: 25 Nov 2006

Electronic form version 1.4