

1065-92-77

**Doron Levy\*** (dlevy@math.umd.edu), Department of Mathematics, University of Maryland,  
College Park, MD 20742. *On the Dynamics of Cancer Stem Cells and Drug Resistance.*

Often, resistance to drugs is an obstacle to a successful treatment of cancer. In spite of the importance of the problem, the actual mechanisms that control the evolution of drug resistance are not fully understood. In this talk we present our recent results on mathematical models for studying cancer stem cells and their role in developing drug resistance. We derive a new estimate of the probability of developing drug resistance by the time a tumor is detected. We then combine our mathematical results together with clinical and experimental data on chronic myelogenous leukemia to propose answers to open problems regarding the dynamics of hematopoietic cancer stem cells. This is a joint work with Cristian Tomasetti. (Received August 31, 2010)