1135-35-2183 **Jianjun Paul Tian*** (jtian@nmsu.edu), 3625 Santa Sabina Ave, Las Cruces, NM 88012.

Mathematical modeling of PDGF-driven glioma reveals the infiltrating dynamics of immune cells into tumors. Preliminary report.

Although tumor-infiltrated immune cells consist of a significant component of many cancers and their role remains elusive, an understanding of how the infiltration of immune cells into tumors is regulated is important. Based on our recent experimental results about mutant IDH1 gliomas, we propose a mathematical model for the infiltrating dynamics of immune cells into tumors. Our model distinguishes wtIDH1 gliomas and muIDH1 gliomas by different values of the maximum of chemoattractant production rate. Our model reveals how wtIDH1 tumors reach death volume earlier than muIDH1 tumors do, and shows that as tumor volume increases in both types of gliomas in time, the net increasing rate of immune cells infiltrated into the tumor increases while the percentage of immune cells infiltrated into the tumor decreases. Our model predicts that the wtIDH1 tumor mice will survive longer if the immune cells are blocked, and for more aggressive glioma mice, there is little difference in their survivals between wtIDH1 and muIDH1 tumor mice. Our computation shows if the chemotactic coefficient and the chemoattractant production rate decrease, tumor mice will gain longer survivals. This is a joint work with B. Nin, X. Zeng, F. Szulzewsky, S. Holte, P. Maini, E. Holland. (Received September 25, 2017)