HEIDI REICHERT AND QING WANG, Dept. of Computer Sciences, Mathematics and Engineering, Shepherd University, Shepherdstown, WV, 25443. Modeling the Effects of An Anti-CTLA-4 Antibody Therapy on Metastatic Melanoma.

CTLA-4 is a co-inhibitory molecule that functions to regulate T cell activation. Antibodies that block the interaction of CTLA-4 with its ligands B7.1 and B7.2 can enhance immune responses, including anti-tumor immunity. CTLA-4 blockade has demonstrated benefits in treatment of metastatic melanoma. Prior research has found that antitumor immunity can be enhanced through the blocking of CLTA-4. More recently, efforts to combine anti-CTLA-4 antibodies with other forms of cancer treatment like radiotherapy and chemotherapy have proven to be successful. This study has thus focused on the modeling and analyzing the effects of anti-CTLA-4 antibody therapy on tumor growth using impulsive differential equations and mathematics analysis. This project is supported by the NIH Grant P20GM103434 to the West Virginia IDeA Network for Biomedical Research Excellence.