Abstract Submitted for the TSF11 Meeting of The American Physical Society

Nano-Bio-Mechanics of Neuroblastoma Cells Using AFM LYN-DON BASTATAS, JAMES MATTHEWS, Physics, Texas Tech University, MIN KANG, School of Medicine, Texas Tech University, SOYEUN PARK¹, Physics, Texas Tech University — We have conducted an *in vitro* study to determine the elastic moduli of neurobalstoma cell lines using atomic force microscopy. Using a panel of cell lines established from neuroblastoma patients at different stages of disease progress and treatment, we have investigated the differences in elastic moduli during a course of cancer progression and chemotherapy. The cells were grown on the hard substrates that are chemically functionalized to enhance adhesion. We have performed the AFM indentation experiments with different applied forces from the AFM probe. For the purpose of the comparison between cell lines, the indentations were performed only on cell centers. The obtained force-distance curves were analyzed using the Hertz model in order to extract the elastic moduli. We have found that the elastic moduli of human neuroblastoma cells significantly varied during the disease progression. We postulate that the observed difference might be affected by the treatment and chemotherapy.

¹Corresponding Author

Lyndon Bastatas Physics, Texas Tech University

Date submitted: 09 Sep 2011

Electronic form version 1.4