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Adsorption Studies with AFM of Human Plasma Fibrinogen on Silicon Surfaces<sup>1</sup> SHEENA GAUSE<sup>2</sup>, WENDY KONG, J.E. (JACK) ROWE, NC State University — Fibrinogen (FGN) plays an important role in the clotting of blood. Human plasma fibrinogen (HPF) is a protein that readily adsorbs on biomaterial surfaces. The purpose of this experiment was to use the Atomic Force Microscope to study the adsorption of HPF molecules or FGN onto several silicon surfaces with different orientations and resistivities. The size of the FGN molecules found to be somewhat different of Si(111), (100) and (110) were compared to the size of the FGN molecules in solution (45 nm in length, the end dynodes measures to be 6.5 nm in diameter, and the middle dynode measures to be 5 nm in diameter. For this study, the CPR (Thermo-microscope) Atomic Force Microscope (AFM) was used to observe the amount of fibringen molecules adsorbed by Si (111) with a resistance of .0281-.0261  $\Omega \bullet cm$ , Si (111) with a resistance of 1  $\Omega \bullet cm$ , Si (100), and Si (110) surfaces. In finding any single fibring molecules, the appropriate image scans and measurements were taken. After collection and analysis of the data, it was found from AFM that the fibringen molecules found on Si (110) mostly resembled fibringen molecules found in solution. The other images showed that the fibringen molecules adsorbed on Silicon substrates is significantly greater ( $\sim 10-20$  %) than those in solution.

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