

## 2007 Ohio Student Research Forum

Wright State University  
Dayton, OH

**RESEARCH ABSTRACT FORM**

**TITLE:** Measurement of Cell Forces Using a Polymer Cantilever Sensor

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Cellular mechanics are involved in a number of biological processes including cell adhesion, spreading, motility, and signal transduction. The ability to measure forces generated by adherent cells is an important factor in understanding the influence of cell mechanics on cell behavior. In addition, measuring cell forces could lead to additional insight into disease states and drugs that affect cell mechanics. We have developed a polymer cantilever sensor for measuring spatially and temporally resolved mechanical forces generated by adherent cells. The summer research project will primarily involve measurement of cantilever deflections caused by cells and conversion of the deflections into force vectors. As part of the primary project, the student will learn basic cell culture techniques for mammalian cells. Microfabrication processes including photolithography, soft lithography, and polymer micromolding will also be involved. In addition, microscopy, micromanipulation of biological materials, and image analysis will be performed.