

Abstract Submitted  
for the MAR07 Meeting of  
The American Physical Society

**Measurement of the adhesion and elasticity of single cells using a novel micropipette-based technique** MARIE-JOSEE COLBERT, ADAM N. RAEGEN, CECILE FRADIN, KARI DALNOKI-VERESS, McMaster University — Numerous biological processes have to go through cell adhesion, which makes the fundamental study of the adhesion of cells on solid substrates a key research topic in cellular biophysics. We will present our work on the elasticity and adhesion of a single liposome on a substrate. A vesicle is held at the end of a micropipette mounted on a micromanipulator and put into contact with a surface. We developed a technique to directly measure adhesion using the spring-constant of an L-shaped micropipette when pulling the vesicle from the substrate. The deflection is used to determine the adhesion force of cells as well as a cells elasticity. Since the force applied on the cell is known at every moment of the experiment, this technique enables dynamical measurements. The links between the adhesion strength and the surface tension will also be discussed.

Kari Dalnoki-Veres  
McMaster University

Date submitted: 19 Nov 2006

Electronic form version 1.4