

### **233g pH and Salt Responsive Peg Sams on Polyelectrolyte Multilayer**

*Srivatsan Kidambi, Christina Chan, and Ilsoon Lee*

We have engineered a new class of pH and salt responsive self assembled monolayers on polyelectrolyte multilayer (PEMs) films by first developing SAM patterns of m-d-poly(ethylene glycol) (m-dPEG) acid molecules onto PEMs and subsequently removing the SAMs from the PEM surface by treating with salt or low pH solutions. The patterned SAMs on PEMs were created by ionic interactions using microcontact printing ( $\mu$ CP) technique. The m-dPEG acid monolayer patterns on PEMs act as resistive templates, and further deposits of consecutive poly(anion)/poly(cation) pairs of charged particles result in the formation of three-dimensional (3-D) patterned PEM films. The patterned films were characterized by optical microscopy and atomic force microscopy (AFM). The effects of pH and salt on the PEG SAMs were investigated by optical microscopy, reflectance-absorption infrared spectroscopy, and spectroscopic ellipsometry. The PEG patterns were removed from the PEM surface at certain pH and salt conditions without affecting the PEM films underneath the SAMs. The removal of the PEG SAMs and the stability of the PEM films underneath it were investigated via ellipsometry, FTIR and optical microscopy. Future work will focus on using this removable surface to create targeted delivery systems, control cell adhesion and form arrays of proteins and nucleic acids.