

# International Conference and Exhibition on Biosensors & Bioelectronics

May 14-16, 2012 Embassy Suites Las Vegas, USA

## Antimicrobial peptide arrays for pathogen capture, identification and microbial forensics

**Charlene M. Mello and Joshua R. Uzarski**

Army Natick Soldier Research, Development and Engineering Center, USA

Identification of pathogenic bacteria and their related endotoxins is critical to the biodefense, forensic, medical and food safety industries. Current approaches rely on immunocapture or nucleic acid based detection technologies which suffer from the need for amplification by cell culture or the inability to determine cell viability. More recently, antimicrobial peptides (AMPs) have received considerable attention as an alternative for pathogen sensing.<sup>[1-3]</sup> We have employed self-assembled monolayers of oligo(ethylene glycol)-containing alkanethiols on gold for peptide immobilization due to their well-known resistance to non-specific adsorption of biomolecules. The role of peptide structure, density, and immobilization orientation on binding of lipopolysaccharide (LPS) molecules isolated from different bacterial species will be discussed. In addition, discrimination of LPS extracted from the same bacterial species grown under different conditions will be demonstrated.

### Biography

Mello received her Ph.D. in 1991 from the University of Massachusetts, Lowell. She is currently the technical lead for Biological Sciences at the U.S. Army Natick Research, Development and Engineering Center. In addition, Dr. Mello holds a Visiting Scientist appointment at MIT and is an Adjunct Professor in the Departments of Chemistry and Bioengineering at the University of Massachusetts, Dartmouth. Her research interests have centered on the interaction of proteins and peptides with themselves and other systems in their surroundings; research results have been presented in over 75 technical articles in scientific journals, nine patents, and numerous technical presentations.

Charlene.Mello@us.army.mil