

CHEMICAL, BIOLOGICAL & MATERIALS ENGINEERING

100 E. Boyd, Sarkeys Energy Center, T-335

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The University of Oklahoma

Norman, Oklahoma

2012 – 2013 Seminar Series

DR. ALEXANDER REVZIN

ASSOCIATE PROFESSOR
BIOMEDICAL ENGINEERING
UNIVERSITY OF CALIFORNIA, DAVIS
DAVIS, CALIFORNIA

Will present a seminar on

“MICROPATTERNED SURFACES AND SENSORS FOR ANALYSIS OF LIVING CELLS”

Our laboratory employs microfabrication, surface modification and analytical chemistry to create micropatterned surfaces for cell-based diagnostics and tissue engineering applications. Of particular interest to us is the ability to continuously monitor cellular release of signaling molecules or metabolites at the site of a small group of cells. This seminar will highlight different sensing strategies being pursued for detection of cytokine release, protease activity and reactive oxygen species production by living cells. Detection and monitoring of inflammatory cytokines such as interferon (IFN)- γ and tissue necrosis factor (TNF)- α is being accomplished using aptamer-based electrochemical biosensors. Electrodes functionalized with electroactive peptides are being developed for detection of cell-secreted proteases, for example matrix metalloproteases (MMP)-9. Enzyme based electrodes are used for monitoring hydrogen peroxide release from injured or activated cells. Our vision is, that in not too distant future, these miniature biosensors will be integrated into cell culture models of tissue (e.g. liver) and will be used to study the mechanisms of inflammatory or fibrogenic signals propagation during tissue injury.

THURSDAY, OCTOBER 4, 2012

COOKIES AND COFFEE -- 2:45 P.M.

SEMINAR -- 3:00 P.M.

SARKEYS ENERGY CENTER, ROOM M-204

THIS IS A REQUIRED SEMINAR FOR CHE 5971

Accommodations on the basis of disability are available by contacting the office before the event.