

# Chemical Engineering: From Materials Engineering to Nanotechnology

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### Assessing the biocompatibility and hemocompatibility of biomaterials


**M**etallic materials are the most widely used for implant devices. However, their usage is always shrouded by the concerns of corrosion, inflammation and thrombus formation that eventually lead to medical complications. This presentation is focused on analytical techniques for assessing biocompatibility and hemocompatibility of implant materials in an attempt to provide an anti-thrombotic interface. Biocompatibility assessment involves electrochemical techniques such as electrochemical impedance spectroscopy (EIS) and potentiodynamic polarization corrosion analysis. Surface characterization includes contact angle measurement, X-Ray photoelectron spectroscopy (XPS), Scanning Electron microscopy (SEM)/Energy dispersive spectroscopy (EDS), Fourier transform infrared spectroscopy (FTIR) and X-ray diffraction

(XRD). Hemocompatibility assessment includes platelet adhesion studies in a closed loop system, cell growth and cytotoxicity analyses.

#### Speaker Biography

Dr. Munroe holds a BS - Chemistry/Physics; M.Phil. - Mineral Engineering, MS -Metallurgical Engineering and Ph.D. - Chemical Metallurgy. Academic positions held include: Department Chairman, Associate Dean, and Director of the Applied Research Center at FIU. He has served as the Major Advisor of 26 doctoral and master's students and a member of 120 graduate dissertation committees. Dr. Munroe has published over 210 Journal articles/Proceedings/Presentations. He has received the FIU Excellence in Teaching award and the Legacy Magazine award for "Top Black Educators", 2016.

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