

**North Carolina Section of the American Chemical Society
ACS Polymer Discussion Group**



Thursday December 14, 2006

University Club: North Carolina State University

*Social Hour: 5:30 PM

**Dinner: 6:00 PM

Program: 7:00 PM

Development, Characterization, and Function of Electrospun Nanocomposites for Tissue Engineering

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Abstract:

Nanocomposites for tissue engineering scaffolds were fabricated by the electrospinning process. Multi-walled carbon nanotubes were incorporated into the electrospun scaffolds, and validated through microscopy analysis to be dispersed and aligned inside the polymeric nanofibers. Mechanical and electrical properties were determined for electrospun polymer/ MWNT systems and the electrical conductance was optimized at a loading level of 1 wt%. Cell studies showed that adipose-derived human mesenchymal stem cells (hMSCs) were able to adhere and proliferate for two weeks in culture on the scaffold. DNA quantification indicated that hMSCs grown on the nanocomposite scaffold yielded a higher number of cells. Microscopy indicated that the cells grown on the novel material were aligned and formed a confluent construct due to an increase in the number of focal points for cell adhesion. This work has demonstrated the feasibility and efficacy of developing novel nanocomposite materials for use as tissue engineering scaffolds.

* Social hour will consist of a cash bar.

** Contact Russell Gorga at (919) 515-6553 or regorga@ncsu.edu (email preferred) for dinner reservations by noon on Wednesday December 13, 2006, to guarantee a reservation for dinner. If you are unable to make a reservation by that time, check with Russell regarding the availability of places. Dinner is \$15 for Members and \$8 for students. Reservations are *not* required to attend the seminar without dinner.