



FLORIDA INTERNATIONAL UNIVERSITY

Engineering
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Biomedical Engineering
Wallace H. Coulter Foundation
Seminar Series

“Nanotechnology in Regenerative Medicine: - What Have We Learned and Where Are We Going ?

Prof. Thomas J. Webster
School of Engineering and Department of Orthopaedics
Brown University, Providence

MONDAY, MARCH 28, 2011
LECTURE: 1:00 PM - 2:00 PM
ENGINEERING CENTER
ROOM EC 2300
10555 WEST FLAGLER STREET
MIAMI, FL 33174



Abstract: This presentation will summarize studies which have demonstrated enhanced *in vitro* and *in vivo* tissue growth on nanostructured metals, ceramics, polymers, and composites thereof compared to currently-used (nano-smooth) implants. Tissue growth to be emphasized will consist of bone, cartilage, vascular, skin, bladder, nervous system, and other tissues. These results strongly imply that nanomaterials may improve tissue regeneration compared to what is being implanted today. This review will also focus on a fundamental explanation why tissue growth is enhanced on nanostructured compared to conventional tissue engineering materials summarizing a wide range of research efforts, including those which have already received FDA approval for implantation. Thoughts on the necessary future studies for the field of nanotechnology and tissue engineering to progress will also be presented.

Biography: Thomas J. Webster is an associate professor for the Division of Engineering and Department of Orthopaedics at Brown University. His degrees are in chemical engineering from the University of Pittsburgh (B.S., 1995) and in biomedical engineering from Rensselaer Polytechnic Institute (M.S., 1997; Ph.D., 2000). Prof. Webster's research explores the use of nanotechnology in numerous applications. Specifically, his research addresses the design, synthesis, and evaluation of nanophase materials as more effective biomedical implants. He has graduated over 47 post-doctoral students, and thesis completing B.S., M.S., and Ph.D. students. To date, his lab group has generated 8 textbooks, 48 book chapters, 233 invited presentations, at least 343 peer-reviewed literature articles and/or conference proceedings, at least 504 conference presentations, and 24 provisional or full patents. He is the founding editor-in-chief of the *International Journal of Nanomedicine*, has organized 13 conferences emphasizing nanotechnology in medicine, and has organized over 49 symposia at numerous conferences emphasizing biological interactions with nanomaterials. He was also recently selected to chair the 2011 Annual Biomedical Engineering Society Meeting in Hartford.

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