

Host Responses to Implantable Devices

GUEST SPEAKER

Prof James M. Anderson
Department of Pathology
Case Western Reserve University

When: **6th August 2010, 10.00 a.m. to 11.00 a.m.**
Where: **Institute of Microelectronics, Singapore**
11 Science Park Road Singapore Science Park II Singapore 117685

Abstract

The use of biomaterials in tissue engineering, regenerative medicine, and nanomedicine offers new challenges in the determination of biocompatibility (safety) of these respective medical devices for ultimate clinical application. Given the complex characteristics of these new medical devices, the host defense system including inflammation (innate immunity), acquired immunity, and wound healing responses must be considered in the determination of biocompatibility (safety) and efficacy (function). Of special interest is the long-standing foreign body reaction and fibrous capsule development that occurs following implantation of biomedical polymers and devices. Studies in our laboratory have focused on developing a mechanistic understanding of the effect of biomaterial surface chemistry on the formation and activity of monocytes, macrophages, lymphocytes, and foreign body giant cells in the foreign body reaction. Correlative in vitro and in vivo studies have identified certain surface chemistries that facilitate a reduction or enhancement of the foreign body reaction, respectively, at material/tissue interfaces. Our ultimate goal is to identify biological design criteria that will prove useful in the development of new biomaterials for tissue engineering and nanomedicine applications.

Speaker Biography



James M. Anderson, M.D., Ph.D. is Professor of Pathology, Macromolecular Science, and Biomedical Engineering at Case Western Reserve University in Cleveland, Ohio. In addition to his teaching and research activities, Dr. Anderson is a practicing pathologist in the Department of Pathology at the University Hospitals of Cleveland where his activities are focused on clinical implant retrieval and evaluation. He is a member of the Institute of Medicine of the National Academies (2003) and the Association of American Physicians (2008). In 2006, he received the Honoris Causa (Honore Doctor of Philosophy degree) from the University of Geneva, Switzerland, and the Chugai Mentoring Award from the American Society for Investigative Pathology. He is a Past-President and has received the Founders Award from both the Society for Biomaterials and the Controlled Release Society. Dr. Anderson is Editor-in-Chief of the *Journal of Biomedical Materials Research-Part A* and is also Chair of the ISO-10993-Part 1, Biological Evaluation of Medical Devices Part 1: Evaluation and Testing Within a Risk Management System Committee. In 2005, Dr. Anderson received the Elsevier Gold Medal Award for the Most Significant Overall Contribution to Biomaterial Science by an Individual from 1980 to 2005. He has been the recipient of a MERIT Award (Method to Extend Research in Time) from the National Institutes of Health, Heart, Lung, and Blood Institute, 1993-2003. Dr. Anderson's research activities range from the clinical evaluation of medical devices and prostheses to inflammatory cell interactions with biomaterials, prostheses, and medical devices.

Registration

Pre-registration is required. Closing date is 4th August 2010. To register, please log on:

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