Antimicrobial Biomaterials: principles and Limitations

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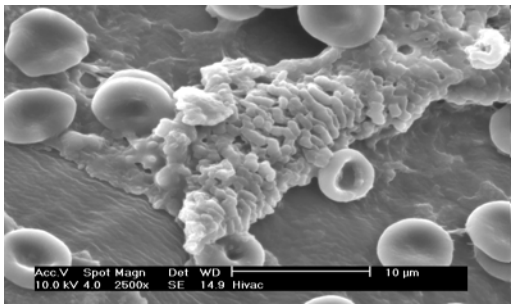
Abstract

Biomaterials are widely used as implantable devices such as catheters and joint replacements. Infection is a serious problem and conventional preventative measures are not always effective. Antimicrobial biomaterials seem to be the answer, but despite positive laboratory evaluation, few have been successful in clinical use. The pathogenesis of Biomaterials – Related Infection (BRI) will be presented and the challenges facing antimicrobial biomaterials will be discussed. The principles on which clinical success depends will be explored and some examples of success and failure will be given.



Biography

Roger Bayston is Associate Professor and head of the Biomaterials – Related Infection Group in the School of Clinical Sciences at the University of Nottingham. He trained in Sheffield and developed an early interest in surgical infection, publishing a paper constituting the first report of a biofilm infection in a medical context in 1972 while still a trainee in pathology. He was awarded MMedSci for research into the causes of infection in neurosurgery, and PhD in antimicrobial biomaterials in 1979. He left Sheffield University to become Lecturer and later Senior lecturer in Medical Microbiology at the University of London, Great Ormond Street Children's Hospital and The National Hospital for Neurology in Queen Square, London. While in London he took MRCPath and studied for MSc in Clinical Microbiology "to keep up to date". He left London for Nottingham in 1993 and re-established his research group. He was awarded FRCPath in 1996. The research focus of the group is on pathogenesis of BRI, and its prevention particularly by means of antimicrobial biomaterials. Several patents have resulted and one invention has been used in approximately 125,000 cases worldwide with a significant reduction in infection.

Roger is President of the international Society for Research into Hydrocephalus and Spina Bifida, Chair of a Medical Advisory Committee for a national medical charity, and Chair of the British Society for Antimicrobial Chemotherapy Neurosurgical Infections Group.