

# VISION SCIENCE RESEARCH SEMINAR 2022-2023

## Development of antimicrobial contact lenses - from laboratory to clinic and back again



### Dr. Mark Willcox

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**Thursday, February 23 | 6:30 pm  
Online**

**ABSTRACT** Contact lens wear is generally safe and provides excellent vision. However, contact lens wear is associated with the risk of developing ocular surface infection and inflammation, and in severe cases, the infection can result in loss of vision. Various antimicrobial contact lenses have been developed in the laboratories of academics and industry. We have developed antimicrobial contact lenses containing silver, selenium, furanones and cationic antimicrobial peptides (AMP). My lecture will review the research progress of these lenses, focussing mostly on the AMP lenses, from conception through the laboratory and preclinical tests to the latest information on clinical testing of an antimicrobial contact lens. Insights into the pathways will be discussed and the pitfalls that have been encountered. The journey has not always been linear or smooth but has resulted in some of the first published clinical testing of antimicrobial peptide-coated contact lenses in humans.

**BIOGRAPHY** Mark is a medical microbiologist, an expert in the area of infections of medical devices. His laboratory focuses on the development of novel antimicrobials that have applications as antibiotics and disinfectants. They also develop new antimicrobial coatings that can be used for coating of medical devices to reduce associated infections. They have taken several of these through to pre-clinical testing, and antimicrobial contact lenses through to Phase III clinical trials. His research also includes the study of microbial pathogenesis, and mammalian tissue responses to microbes and biomaterials. They have established several animal and cell-based models for studying biomaterial infections. These research studies have led to the publication of 15 patents and over 520 peer reviewed papers. He has trained over 30 post-doctoral scientists and 70 post-graduate (PhD) students.

**Contact for Vision Science Seminar Series:**

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