

BIOENGINEERING

PRESENTS

Biofilms in Enterococcal and Streptococcal Infections



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2101 ENGINEERING V

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ABSTRACT:

The Gram-positive bacteria *Enterococcus faecalis* and *Streptococcus pyogenes* are opportunistic pathogens associated with a wide range of infections. While *E. faecalis* infections are often associated with bacterial biofilms and are polymicrobial in nature, the role of *S. pyogenes* biofilms in infection is not well described. The goals of our research are to understand the molecular mechanisms by which *E. faecalis* and *S. pyogenes* interact with other bacterial species and the host in the context of these often polymicrobial, biofilm-associated infections. In this talk, I will present work demonstrating how *E. faecalis* promotes *E. coli* virulence in polymicrobial wound infections, as well as how *S. pyogenes* hijacks host stress responses to promote biofilms-associated necrotizing skin infections.

BIOGRAPHY:

Kimberly Kline earned her BA in Biology from St. Olaf College in Northfield Minnesota, and received an MPH in Biostatistics and Epidemiology and PhD in Microbiology and Immunology from Northwestern University in 2005. Kline went on as a postdoctoral fellow at Washington University in St. Louis and at the Karolinska Institute in Stockholm Sweden. During her training, Kline was an American Heart Association Fellow and Carl Tryggers Fellow. Kline has received multiple awards for her contributions to the field of microbiology, including a NIH K99 Career Development Award in 2011, the Singapore National Research Foundation Fellowship in 2011, and the ICAAC Young Investigator Award from the American Society of Microbiology in 2014.

Since 2011, Kline has been an assistant professor of Microbiology at Nanyang Technological University in Singapore and a principal investigator at the Singapore Centre for Environmental Life Sciences Engineering, where she leads an international team of 20 research scientists. Research interests in the Kline lab center around 2 themes: 1) molecular mechanisms of cell-wall associated virulence factor assembly in Gram positive pathogens, and 2) pathogenesis of polymicrobial infections, with an emphasis on those involving *Enterococcus faecalis*. The Kline lab employs a variety of model systems for these studies including in vitro mammalian cell-associated biofilm models, and mouse models of gut colonization, ascending and catheter-associated urinary tract infection, and wound infections