Tim Maisch (Ph. D.)

Title: A new trend against Superbugs: The Photodynamic Principle"

Abstract:
Antimicrobial resistance is a serious threat to public health in Europe, leading to mounting healthcare costs, treatment failure, and deaths. The Infectious Diseases Society of America (IDSA) highlights that over the past several years, the number of new antibacterial drugs approved continues to decrease. Bacteria are very good in developing resistance against antibiotics in a short time. The leading bacteria are ***E****nterococcus faecium*, ***S****taphylococcus aureus*, ***K****lebsiella pneumonia*, ***A****cinetobacter baumannii*, ***P****seudomonas aeruginosa* and ***E****nterobacter* species which are called the "ESKAPE" pathogens or superbugs, because they currently cause the majority of hospital infections and therefore effectively "escape" the effects of antibiotics. Therefore new approaches like **p**hotodynamic **i**nactivation of **b**acteria (PIB) will become more important in the future as antimicrobial resistance is expected to continue to increase. This lecture gives a snapshot about the antibiotic resistance threats worldwide. Secondly this lecture summarises the potential candidates of new photosensitizers which are useful for PIB. Thirdly several applications possibilities of PIB will be discussed: Decolonisation of skin by PIB, wound healing, PIB in dentistry, and photodynamic active surfaces.