New surface may kill antibiotic-resistant staph bacteria with fluorescent light

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The prevalence of methicillin-resistant Staphylococcus aureus (MRSA) infections is well known, causing an estimated 19,000 deaths and $3-4 billion in healthcare costs per year in the U.S. What is less well known is that this increased infection and resistance rate has not been met with a simultaneous development of novel antimicrobial and antibiotic agents; in fact, only three classes of antibiotics have been developed since the 1950s.

To address this need, scientists at the University of New Mexico are working on a new type of antimicrobial surface that is inhospitable to MRSA but won't harm people or animals. Their results will be presented today at the AVS 57th International Symposium & Exhibition, which takes place this week at the Albuquerque Convention Center in New Mexico.

The new polymer-type material, "conjugated polyelectrolyte" (CPE) with an arylene-ethynylene repeat-unit structure, has been effective at killing Gram-negative bacteria, enabling its use in a wide range of potential applications. For instance, certain "light-activated" CPEs are inert toward bacteria in the absence of light, and display bacteria-killing activity with the addition of light. This opens up many potential applications, including the possibility of using these polymers as antibacterial countertops that may be sterilized using regular fluorescent lights.

Until recently, it was unknown if the CPEs would exhibit similar

biocidal activity toward mammalian cells. In-vitro testing performed on these CPEs at the University of New Mexico is an important first step in determining whether they are harmful to humans at concentrations envisioned in potential applications. In a poster presented today at the AVS Conference, Kristin Wilde will present the results.

More information: The paper, "In Vitro Cytotoxicity Studies of Antimicrobial Conjugated Polyelectrolytes" is at 6:00 p.m. on Thursday, October 21, 2010. ABSTRACT: www.avssymposium.org/Open/Sear … aperNumber=BI-ThP-14

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