“Antimicrobial Silicone”

VCU #11-78

Applications

- Prevent hospital acquired infections
- Medical applications
- Urinary catheters
- Intubation tubes
- Cerebral shunts
- Contact lenses

Advantages

- Reduce antimicrobial-resistant organisms
- Stable in air

Inventors

Kenneth Wynne, Ph.D.
Souvik Chakrabarty
William Broaddus, M.D., Ph.D.

Contact

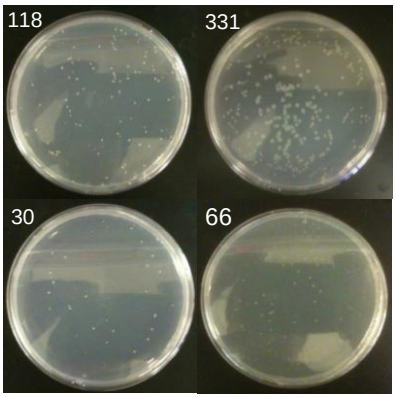
Afsar Mir
Licensing Associate
miraq@vcu.edu
Direct 804-827-2213

Market Need

Infection acquired from health care environments is one of the leading medical complications in hospitals. Studies have shown that almost 6% of patients admitted to hospitals acquire infections and the number of such cases is increasing. The most common hospital acquired infections include urinary tract infections, surgical wound infections and those associated with intravascular cannulas. The mode of transmission of these infections is mostly by physical contact with infected medical devices. *Staphylococcus* aureus, *Pseudomonas aeruginosa* and *Escherichia coli* are the most common bacterial isolates that gives rise to these infectious diseases. It has been observed that most of the bacterial strains develop resistance to antibiotics over a period of time, which ultimately leads to surgical wound infection and catheter related sepsis.

Technology Summary

This is an antimicrobial silicone that is formed by incorporating a surface modifying antibacterial additive into polydimethylsiloxane (PDMS) coatings and objects. The addition of the additive makes the polymer effective at killing bacteria on contact without releasing biocide. Studies have demonstrated that this polymer is 99% effective against Gram(-) (*P. aeruginosa*, *E. coli*) and Gram(+) (*S. aureus*) bacteria. Moreover, preliminary results indicate good stability in air over several months. Thus, this polymer can be used on medical devices to reduce antimicrobial-resistant organisms and prevent hospital acquired infections. Figure shows results of biocidal tests showing the control (top) and .5% modified PDMS (bottom).



Technology Status

Patent pending: U.S. Rights are available.
This technology is available for licensing to industry for further development and commercialization.