



## *Technology Available for License*

### **Quaternary Ammonium Complex Provides Superior Broad-Spectrum Antimicrobial Activity**

**Binding biocide to soluble dendrimers targets and disrupts the cell wall providing a new approach to controlling household, industrial, and medical microorganisms.**

#### **Soluble Multi-functional Biocide Complex**

Montana State University and Queens College of the City of New York researchers have bound a quaternary ammonium biocide to a soluble, biodegradable, nano-scale dendrimer that enables the manufacture of customized antimicrobials that adhere to and destroy the microbial cell wall. Concentrating the biocide complex at the cell wall produces superior antimicrobial efficacy compared to traditional applications of quaternary ammonium in solution. **Destroying the cell wall has shown to provide a broad-spectrum antimicrobial that is highly effective in controlling known antibiotic resistant microorganisms.**

#### **Applications**

Any traditional biocide applications, particularly those using quaternary ammonium salts, have the potential to be significantly improved by this new nano-scale biocide compound. The soluble and biodegradable properties of the quaternary ammonium dendrimer complex provides the potential to apply the biocide in medical applications.

Potential applications of the quaternary ammonium biocide complex include:

- Antimicrobial surfaces for industrial, hospital, food processing, and household uses
- Development of surfaces resistant to bacterial contamination by bioterrorist attack
- Antibiotics or medical implant anti-biofilm coatings

#### **Benefits**

- Broad-spectrum efficacy
- Control of microorganisms known to be resistant to current antibiotics
- Microorganisms cannot easily develop resistance to the quaternary ammonium dendrimer
- Water soluble and biodegradable
- The dendrimer binding capacity can be customized to meet application requirements
- Provides up to a four-log reduction in viable cells

#### **Technology Transfer and Development Status**

A patent is pending and research is ongoing.

#### Contact for licensing or further details

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