Current Antimicrobial products do not meet the demand for more effective and sustainable protection.

Solution

- Proprietary compositions of matter & methods of use for creating durable antimicrobial surfaces (walls, furniture, equipment, clothing, bedding, construction products.)
- Low-cost compounds are embedded in surface structure of materials during manufacture or applied as durable coatings.
- Effective against:
  - Bacteria (Gram positive & Gram negative)
  - Fungi
  - Viruses
- Methods of Use:
  - Surface treatment achieved by embedding, coating, attaching compounds to materials of interest
  - Compounds kill microbes by disrupting cell walls, non-metabolite, non-antibiotic: does not induce resistant mutations
  - Broad-spectrum efficacy
  - Long-lasting: not consumed by its AM action
  - Water-resistant: do not wash off
  - Low-cost
  - Non-toxic & environmentally friendly: metal-free
- Surface treatment achieved by embedding, coating, attaching compounds to materials of interest

Applicable Surfaces

Surface Treatment by attachment, embedding, or coating

<table>
<thead>
<tr>
<th>Natural &amp; Synthetic Fibers</th>
<th>Polyols</th>
<th>Surfaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural fibers</td>
<td>Polyols</td>
<td>Wound Dressings</td>
</tr>
<tr>
<td>Cotton</td>
<td>Gels</td>
<td>Fabric supplies (scrubs, linens, masks)</td>
</tr>
<tr>
<td>Silk</td>
<td>Paste</td>
<td></td>
</tr>
<tr>
<td>Wool</td>
<td>Coatings</td>
<td></td>
</tr>
<tr>
<td>Polyester</td>
<td>Other</td>
<td>Medical Instruments, device, implants</td>
</tr>
<tr>
<td>Nylon</td>
<td>Melts</td>
<td></td>
</tr>
<tr>
<td>Cellulose</td>
<td>Plastics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glass</td>
<td>Surfaces</td>
</tr>
<tr>
<td></td>
<td>Wood</td>
<td></td>
</tr>
</tbody>
</table>

Advantages

- Compounds kill microbes by disrupting cell walls, non-metabolite, non-antibiotic: does not induce resistant mutations
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- Long-lasting: not consumed by its AM action
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- Low-cost
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- Surface treatment achieved by embedding, coating, attaching compounds to materials of interest

Target Markets

- Medical Instruments, device, implants
- Surfaces
- Wound Dressings
- Fabric supplies (scrubs, linens, masks)
- Medical
- Textiles / Fabric
- Construction / Bldg
- Prints
- Consumer Products
- Sports
- Cosmetics

Comparison to Competitors

- Microban
  - Styrene ethylhexyl acrylate – linking to cationic lipid (Microban®)
  - Licenses/partnerships based on trademark and use of compounds
  - Downside: Washes off easily (hydrolyses)
- Aegion
  - 3-trimethoxy silyl propyl dimethyl octadecyl ammonium chloride (Microban®)
  - Licenses/partnerships based on trademark and use of compounds
  - Downside: Washes off easily
- Halosource
  - Thiol and its derivative chitosan and N-halamine (prolongs chlorine's effect)
  - Licenses/partnerships based on multiple trademarks and compounds
  - Downside: Consumed during its antimicrobial action
- AgION
  - Silver ion based Technology
  - Licenses/partnerships based on use of compounds
  - Downside:
    - Caused alioction irritation (US Marine uniforms)
    - Easily washed out of fabrics

Team

- Acting CEO: Gary Innocenti
  - President/CEO, Prismatic Dyeing and Finishing, Newburg, NY
- Others interested in marketing / management
- Technologist: Dr. Robert Engel
  - Prof of Chemistry and Biochemistry, Queens College, CUNY
- Dr. Jamie Lee Rizzo
  - Professor, Pace University
- Dr. Karin Malkonian
  - Associate Professor, Long Island University

ANTIMICROBIAL SURFACES: A Broad Market Opportunity

Robert Engel
Chemistry and Biochemistry, Queens College, CUNY