Therapeutics & Vaccines

Inhibiting Quorum Sensing in Staphylococcus Epidermidis, a Health Care Pathogen

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WARF: P150348US02

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The Wisconsin Alumni Research Foundation (WARF) is seeking commercial partners interested in the first synthetic – and most potent – QS inhibitors reported to date for *S. epidermidis*. These compounds represent powerful tools for modulating virulence and for research into this emerging public health threat.

Overview

Staphylococcus epidermidis is an important Gram-negative bacterial pathogen in hospital-acquired infections, and the most common cause of infections on indwelling medical devices. **The costs related to vascular catheter-related bloodstream infections caused by *S. epidermidis* are estimated at $2 billion annually in the U.S. alone.** Treatment of *S. epidermidis* infection is complicated by multidrug resistance and persistent biofilm formation.

Bacterial quorum sensing (QS) plays a key role in infection, and targeting this system with pharmacotherapies could significantly attenuate virulence.

The Invention

UW–Madison researchers have synthesized a set of potent peptidic modulators of *Staphylococcus epidermidis* quorum sensing. Targeting the AgrC receptor, these compounds include the first universal QS inhibitors active against all known groups of *S. epidermidis*. Others are strongly group- or species-selective and could be applied to selectively modulate either *S. epidermidis* or *S. aureus* quorum sensing.

Applications

- Modulating virulence and inhibiting biofilm growth
- Research tool

Key Benefits

- First and most potent synthetic QS inhibitors of their kind
- *S. epidermidis* infections resist traditional antimicrobial treatment and pose a serious public health burden.

Stage of Development

Several inhibitors have been tested and shown to strongly antagonize or agonize the AgrC-I receptor. Notably, one compound was found to strongly inhibit *S. epidermidis* biofilm growth, with a higher potency and efficacy than the native autoinducing peptide.

Additional Information

For More Information About the Inventors

- Helen Blackwell

Related Technologies

- Find more anti-quorum sensing agents developed by Prof. Helen Blackwell.

Tech Fields

- Therapeutics & Vaccines : Anti-infectives (antibacterials, antifungals, antivirals)

For current licensing status, please contact Rafael Diaz at rdiaz@warf.org or 608-960-9847