

QUORUM SENSING/SIGNALING INHIBITION: EFFECTIVE SUPPRESSION OF DEVICE-ASSOCIATED INFECTIONS

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Introduction: Most infected surgical prostheses are colonized by either Methicillin Resistant Staphylococcus aureus [MRSA] or Methicillin Resistant Staphylococcus epidermidis [MRSE]. Traditional antimicrobial drugs—administered as device coatings or systemically are becoming increasingly less effective at preventing or treating device-infections. RNAlII Inhibiting peptide [RIP] is a 7 amino-acid peptide that blocks 'quorum sensing/signaling', i.e. it is a quorum-signaling inhibitor [QSI]—a new 1st of class antimicrobial.

Methods: RIP has been studied in multiple, controlled rodent models—either as a topical coating on implanted prostheses or systemically. It has been studied as a preventative and as a 'rescue' or therapeutic agent in comparative trials vs antibiotics including vancomycin, imipenem, and ciprofloxacin. It has been studied 'alone' and in combination with systemic antibiotics.

Results: RIP has reduced or prevented microbial colonization in all 'preventive' studies. When used concomitantly with antibiotics RIP has successfully eliminated microbes in 'bacteremia' models, 'central venous catheter' models, 'ureteral stent' models, and in 'bone cement' models. In all of these studies the same antibiotic and all other antibiotics failed to eliminate the infection.

Conclusion: RIP shows great promise as an effective new agent—particularly in association with traditional antibiotics to prevent and/or to treat MRSA/MRSE device-infections Phase I/II human trials are in development.