PRESS RELEASE

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Continued success for the new anti-infective therapies developed by Hamlet BioPharma

The Journal of Infectious Diseases publishes the paper "Targeting the disease response with NlpD and LytM for effective non-antibiotic treatment of urinary tract infections." This study demonstrates that inhibiting the disease response of the host offers an efficient alternative to antibiotics for the treatment of bacterial infections. By inhibiting the disease response to infection and accelerating bacterial clearance, the drug candidates protect infected tissues from disease, with similar efficacy as antibiotics. *doi.org/10.1093/infdis/jiaq243.*

The paper reveals a promising non-antibiotic approach to treating bacterial infections, by targeting the host's disease response rather than the bacteria themselves. This is shown for urinary tract infections (UTIs), one of the most common bacterial infections worldwide. Researchers from Lund University, in collaboration with Hamlet BioPharma, have demonstrated that bacterial infections can be effectively treated using the bacterial protein NlpD or its peptide LytM - including those caused by antibiotic-resistant bacteria.

This study introduces drug candidates that inhibit the chaotic and excessive immune response that causes the symptoms of disease in infected patients. NlpD and LytM inhibit the disease response by targeting RNA Polymerase II (Pol II), a critical enzyme in the host's transcriptional machinery. By disrupting Pol II's function, these drug candidates suppress excessive responses such as cytokine storms, that drive tissue damage during infection. NlpD or LytM treatment each reduced disease severity and accelerated bacterial clearance, including infections caused by antibiotic resistant bacteria.

The importance of this non-antibiotic treatment approach was recently demonstrated in a groundbreaking clinical study of the IL-1 receptor antagonist anakinra (www.nature.com/articles/s41564-026-02262-1). The new publication in the Journal of Infectious Diseases now adds further drug candidates discovered by the scientists at Lund University that are being developed for clinical use.

''This study is based on extensive infection studies where NlpD and LytM show potent therapeutic effects against disease in mice. The animal models are crucial for the pre-clinical development, to select the right molecules for future use in patients, says Hien Tran, PhD, Lund University.

"Our findings challenge the view that bacterial infections must be treated by killing the bacteria with antibiotics. By identifying the disease mechanism, we can treat infections by targeting the disease, including antibiotic resistant strains", says Ines Ambite, PhD, Lund University.

Links to the publication:

Targeting the disease response with NlpD and LytM for effective non-antibiotic treatment of urinary tract infections. *The Journal of Infectious Diseases*, doi.org/10.1093/infdis/jiag243.

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