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Poster abstract submission

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Poster title

First-in-class peptides targeting a novel Streptococcus pneumoniae intervention point (Ami-AliA/AliB permease)

Poster abstract

Background: Pneumococcal meningitis, caused by Streptococcus pneumoniae, has a mortality rate of up to 50% and causes long-term damage to the brain and / or hearing in up to 50% of survivors. Damage is largely due to an excessive inflammatory response, exacerbated by bacteriolytic antibiotics that cause the release of bacterial toxins. There is a high unmet medical need for non-bacteriolytic antimicrobials as alternative / adjuvant therapeutic options.

Our solution: An 11-amino acid peptide, originally discovered in the secretome of Klebsiella pneumoniae, named V11A, inhibits growth of S. pneumoniae in a bacteriostatic and species-specific manner, following uptake via the Ami permease. V11A reduces growth of S. pneumoniae in human cerebrospinal fluid. In an infant rat model of pneumococcal meningitis, V11A reduced the number of S. pneumoniae bacteria in cerebrospinal fluid and blood, and reduced the concentration of inflammatory cytokines in CSF.

Conclusion: Our results support the potential of therapeutic peptide to reduce the bacterial burden and mitigate the inflammatory response in pneumococcal meningitis. Alterbiotix is using this discovery to pioneer a new class of non-antibiotic therapeutics that target S. pneumoniae through a unique mechanism: selective uptake via the Ami permease.

Research topic Microbiology