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Poster abstract submission

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Poster title

TUNIPEPS: Hypermodified antimicrobial peptides from marine tunicates as a blueprint for next-generation therapeutics

Poster abstract

Antimicrobial peptides (AMPs) are widely touted as a possible solution to the antibiotic resistance crisis. However, significant obstacles in terms of efficacy, stability, and production cost will need to be overcome before AMP therapeutics truly become clinically and technologically feasible. Already-known ordinary AMPs, consisting of only proteinogenic amino acids are unlikely to address all these challenges. Here we present our findings on a highly unusual, post-translationally modified AMP family, produced by marine invertebrates, the tunicates, which might yield the biochemical blueprints for the next generation of peptide therapeutics. Unlike most known families of AMPs, these genomically encoded peptides are often intrinsically disordered, with a modular architecture and an array of unique amino acids: hydroxy- and dihydroxy-Arg/Lys, DOPA/TOPA, and bromotryptophan, coupled with C-terminal amidation or oxidative decarboxylation. Currently, we are in the process of identifying, testing, and optimizing the candidate enzymes responsible for these modifications, with the aim of unlocking a semi-synthetic or fully biotechnological production of chemically improved AMPs.

Research topic

Biological therapeutics

If you wish to submit a graphic with your abstract you can upload it here.