

Novel Drug Combinations Against Multi-Resistant Bacteria

Challenge

- The rising prevalence of antimicrobial resistance (AMR) poses a global threat to public health, creating an urgent unmet need for novel treatment options.
- The use of drug combinations to resensitize resistant strains has emerged as one of the promising means to bypass the stagnant drug discovery pipeline for antimicrobials, but the full potential of drug combinations for treating bacterial pathogens remains underexplored.
- In addition, pharmacokinetic interactions between antibiotics and non-antibiotic drugs are poorly characterized at the level of bacterial physiology.

Intellectual Property

A priority patent application has been filed in 2022.

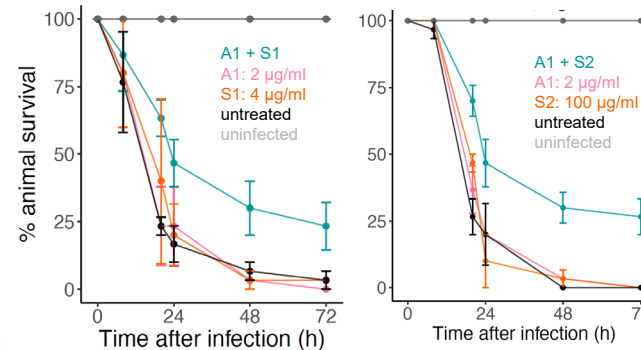
Commercial Opportunity

We offer a technology evaluation program as well as a licensing or collaboration/co-development opportunity.

Technology

- **Novel treatment options** against multi-resistant *S. aureus* (MRSA):

Two novel synergies between non-antibiotic and antibiotic drugs effective *in vitro* and *in vivo* (larvae of *Galleria mellonella*) in clinical isolates of MRSA:

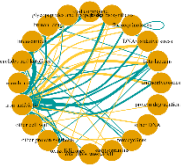


A first non-antibiotic drug (S1) synergizes with a first antibiotic (A1) in MRSA clinical isolates in *in vivo* infection models.

A second non-antibiotic drug (S2) synergizes with the first antibiotic (A1) *in vivo* against an MRSA isolate resistant to tigecycline.

- **A high-throughput screen** of thousands of combinations conducted. Visualized at:

<https://apps.embl.de/combact/>



- **A platform** is available to discover further combinations of antibiotics and non-antibiotic drugs that act synergistically against multi-resistant bacteria.

Further Reading

[Cacace et al.](#), bioRxiv 2022, High-throughput profiling of drug interactions in Gram-positive bacteria

[Combinatorial Screen Explorer](#) (Combact)



Internal EMBLEM Reference

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