

Poster 10

## Siderophore-antimicrobial adjuvant conjugates as a strategy to fight antibacterial resistance

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### Abstract

**Background:** The levels of drug resistance to traditional antibiotics have been dramatically increasing constituting a threat to global health.[1] For this reason, the pursuit of alternative strategies to the discovery of novel antibacterial agents is a priority.[2] Emerging approaches include the development of target-directed compounds through the conjugation of antibiotics with moieties that will improve antibacterial activity.[2] A promising example is the conjugation of antibiotics with siderophores/siderophore mimetics able to hijack iron transport systems of bacteria acting as “Trojan Horses” [3, 4]. **Objective:** In this work, we aimed to synthesize conjugated molecules between siderophores/siderophore mimetics and antimicrobial adjuvants to obtain dual action compounds. Future goals also include the evaluation of the antibacterial activity and synergism potential of the compounds as well as the assessment of their effect on common resistant models. **Methods/Results:** Siderophore mimetics were synthesized through a variety of synthetic pathways. Then, two sequential coupling reactions were performed to connect the antibacterial adjuvant, the linker moiety and the siderophore or the siderophore mimetic. Structural elucidation of the compounds was obtained by nuclear magnetic resonance techniques (NMR). **Conclusions:** Siderophore-antimicrobial adjuvant conjugates described in this work were successfully synthesized and are expected to reveal potential as a novel approach to fight antimicrobial resistance.

**Keywords:** siderophores; antimicrobial adjuvants; drug resistance

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