

# PHOTOSWITCHABLE LECB LIGANDS AGAINST *PSEUDOMONAS AERUGINOSA*

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The development of multi-drug resistance (MDR) among different bacterial species is one of the global issues affecting humanity and is responsible for hundreds of thousands of deaths annually. The continued consumption of antibiotics, together with the genetic variation and exposure to nosocomial infections have led to the selection and spread of multidrug-resistant bacteria.

In recent years, photopharmacology has emerged as a promising strategy to combat MDR by enabling precise, light-controlled spatiotemporal modulation of the biological activity of photo-switchable compounds<sup>1</sup>. Among different microbial species, *Pseudomonas aeruginosa* is a prominent bacterium involved in acute and chronic lung infections, posing a significant health concern, particularly among hospitalized and immunocompromised patients. The bacterium's capacity to form biofilms, a key factor in the development of MDR, is closely linked to the activity of the virulence factor LecB, a carbohydrate-binding protein with a well-documented role in biofilm formation<sup>2,3</sup>.

In light of all these considerations, this work presents the development of two novel photoswitchable ligands capable of binding and modulating the activity of LecB protein for the treatment of AMR. The design strategy, the chemical synthesis and the photochemical characterization as well as the biological evaluation will be presented and discussed.

## References

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