

Cefiderocol and Mortality Outcomes in Carbapenem-Resistant *Acinetobacter baumannii* Infections, a Narrative Evidence Review.

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Introduction

Carbapenem-resistant *Acinetobacter baumannii* represents a global health problem due to its limited therapeutic options and high associated mortality. Cefiderocol, a novel siderophore cephalosporin derived has emerged as a potential treatment for infections caused by multidrug resistant Gram-negative bacteria such as *Acinetobacter baumannii*, however, its microbiological activity, clinical performance, and resistance patterns remain heterogeneous across different studies (1-3).

Materials and Methods

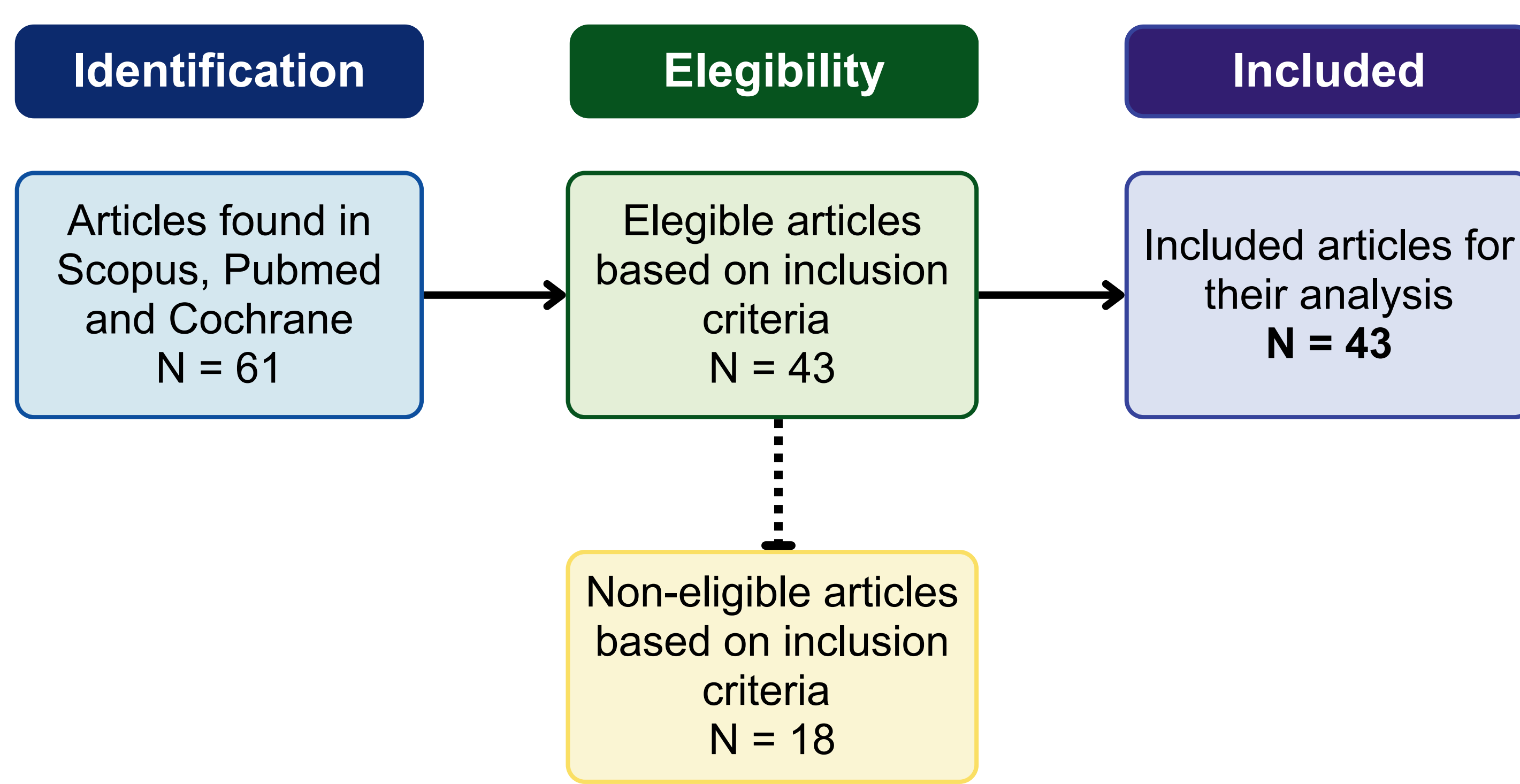


Fig 1. Flowchart of the identification, eligibility and the final inclusion of articles retrieved from the databases.

Results

The integrated evidence demonstrates that cefiderocol exhibits relevant *in vitro* activity against *Acinetobacter baumannii*. *In vivo* studies indicate that cefiderocol retains bactericidal activity against susceptible isolates and that combination therapy, particularly with ampicillin/sulbactam, may enhance antimicrobial efficacy. Clinical and observational evidence evaluating mortality was limited. The available observational study reported mortality rates comparable to those previously described for carbapenem-resistant *Acinetobacter baumannii* infections, with no statistically significant difference between cefiderocol monotherapy and combination therapy.

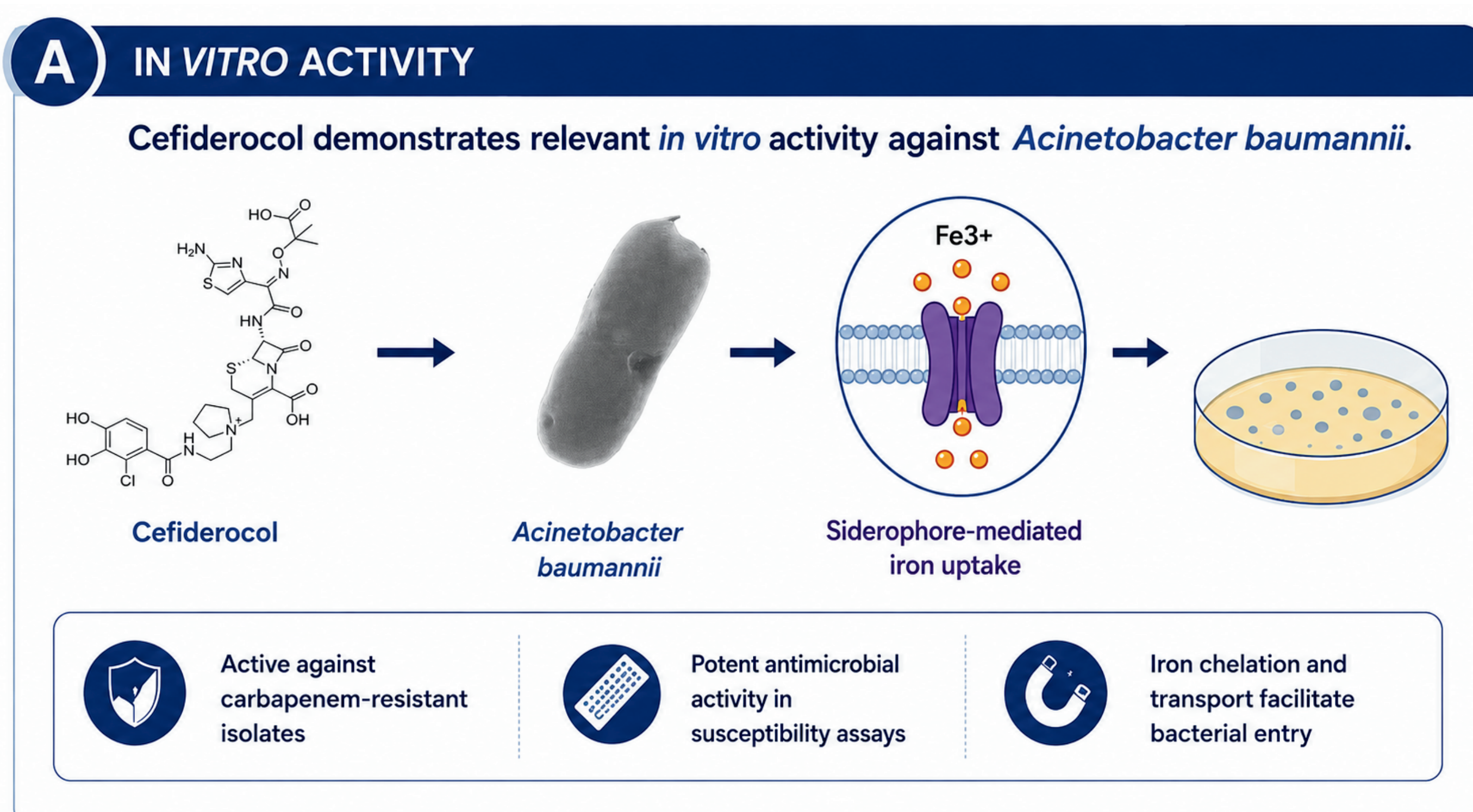


Fig 2. Mechanisms and *In vitro* antimicrobial activity of cefiderocol against Carbapenem-Resistant *Acinetobacter baumannii*

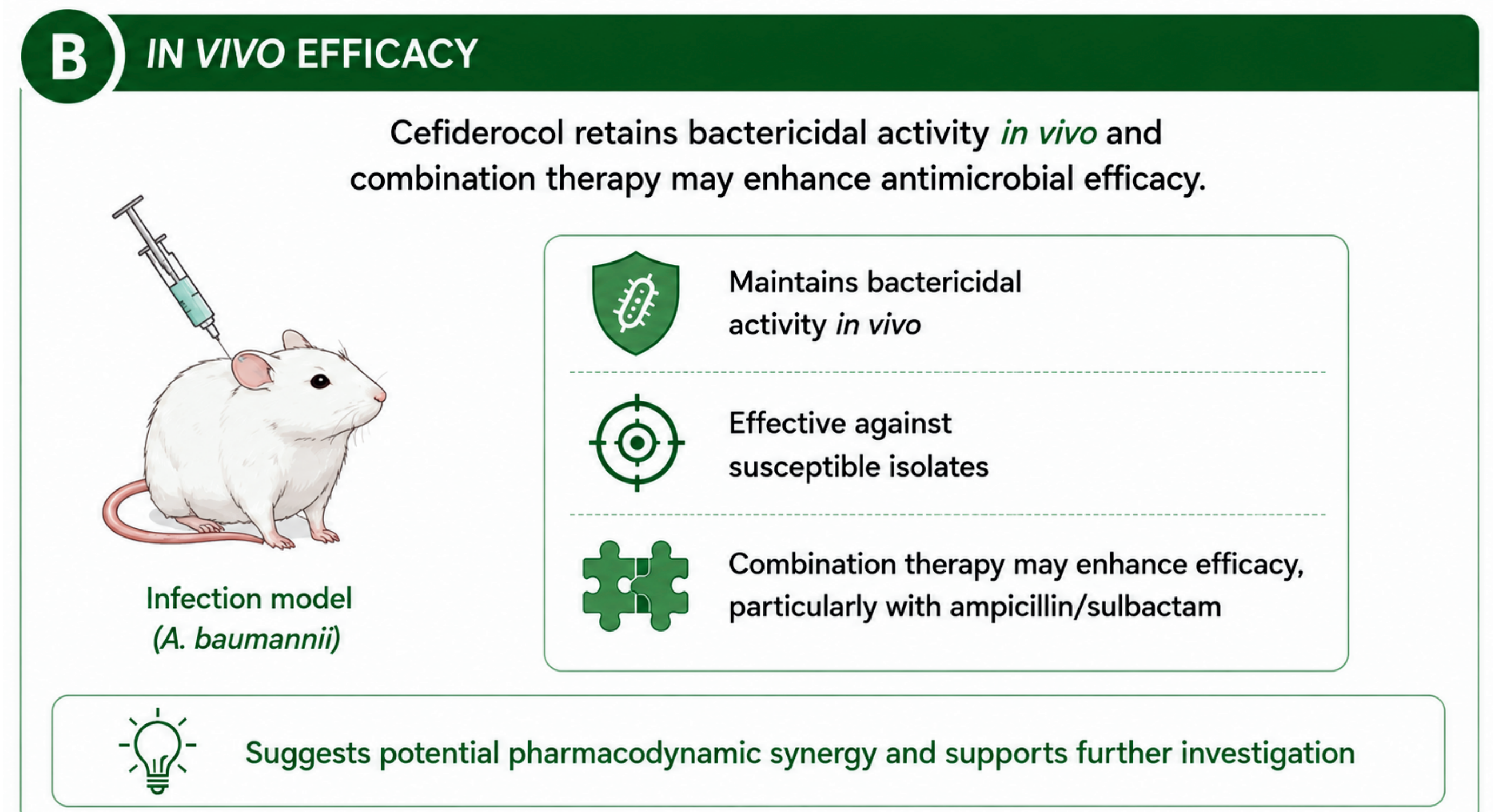


Fig 3. *In vivo* efficacy of cefiderocol against *Acinetobacter baumannii*

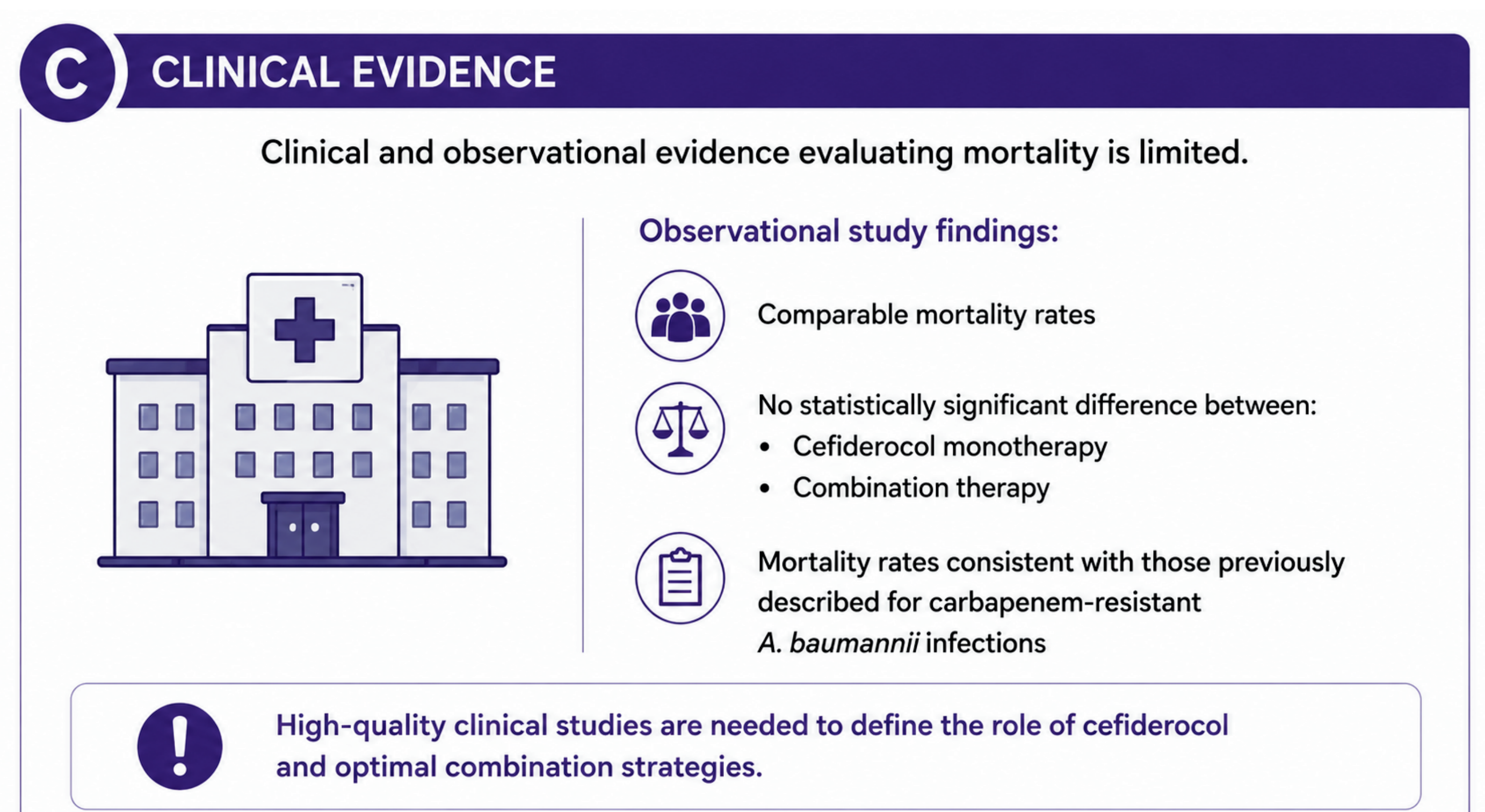


Fig 4. Clinical evidence of cefiderocol against *Acinetobacter baumannii*

Conclusions

Cefiderocol demonstrates consistent *in vitro* and *in vivo* activity against *Acinetobacter baumannii*, including carbapenem-resistant and colistin-resistant isolates; however, clinical evidence evaluating mortality outcomes remains limited. Therefore, while **cefiderocol** represents a **promising option for the treatment of *Acinetobacter baumannii*** infections, its **impact on mortality cannot be definitively established based on current evidence**, highlighting the need for further clinical studies.

References

- Yousefi B., et al. Cefiderocol in combating carbapenem-resistant *Acinetobacter baumannii*: action and resistance. *Biomedicines*. **2024**;12(11):2532. doi:10.3390/biomedicines12112532.
- Onorato L, de Luca I, Monari C, Coppola N. Cefiderocol either in monotherapy or combination versus best available therapy in the treatment of carbapenem-resistant *Acinetobacter baumannii* infections: a systematic review and meta-analysis. *J Infect*. **2024**;88(3):106113. doi:10.1016/j.jinf.2024.01.012.
- Shields RK., et al. Frequency of cefiderocol heteroresistance among patients with carbapenem-resistant *Acinetobacter baumannii* infections and its association with clinical outcomes. *JAC Antimicrob Resist*. **2024**;6(5):dlae146. doi:10.1093/jacamr/dlae146