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# PK/PD of polymyxins against gram-negative 'Superbugs'

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Increasing multidrug-resistance in Gram-negative 'superbugs', in particular *Pseudomonas aeruginosa*, *Acinetobacter baumannii* and *Klebsiella pneumoniae*, is presenting a global medical challenge. There is no novel candidate in the antibiotic development pipeline for these 'superbugs' and no new anti-Gram-negative antibiotic will be clinically available at least in the next decade. Limited therapeutic options have forced infectious disease clinicians and microbiologists to reappraise the clinical application of polymyxins (i.e. colistin and polymyxin B), antibiotics discovered more than 60 years ago. This presentation summarizes recent progress in understanding of the complex pharmacokinetics and pharmacodynamics of colistin and polymyxin B, the interplay between these three aspects and their impact on the clinical use of these two important antibiotics. Recent clinical findings are reviewed, focusing on evaluation of efficacy, emerging resistance, potential toxicities and combination therapy. In the battle against rapidly emerging bacterial resistance we can no longer rely entirely on the discovery of new antibiotics; we must also pursue rational approaches to the use of older antibiotics such as polymyxins.

## Biography

Associate Professor Jian Li received his PhD in 2002 from the University of South Australia (Adelaide, Australia). He is the Group Head of Antibiotic Research at Monash University. He has an internationally recognised track record in polymyxin pharmacology. Dr Li has 72 publications in peer-reviewed journals with 1,217 citations, one PCT application, two provisional patents, one book chapter and 57 scientific presentations. He is an Associate Editor of BMC Microbiology, and a member of editorial boards of three other international journals. Since 2004, Dr Li has attracted >$10M funding from American National Institutes of Health, Australian government and pharmaceutical companies.