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The novel fluoroquinolone finafloxacin protects mice against an inhalational exposure to *Burkholderia mallei*

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Burkholderia mallei **is the causative agent of glanders, a disease primarily of solipeds. It is a zoonotic pathogen and is highly infectious by the aerosol route. In humans, it is almost always fatal in the absence of antibiotic therapy and is classified as a Tier 1 bio-threat agent by the US Centers of Disease Control and Prevention. Due to the rarity of human infections, there is limited data on the efficacy of different antibiotic regimes. The purpose of this study was to assess the efficacy of finafloxacin against an inhaled challenge of *B. mallei* using a Balb/c mouse model of glanders. Finafloxacin is a novel member of the fluoroquinolone class of antibiotics that demonstrates the unique property of having greater activity under acidic conditions. We have previously demonstrated that finafloxacin can protect mice against an inhaled challenge of the related pathogen *B. pseudomallei,* the causative agent of melioidosis. This protection was superior to that provided by co-trimoxazole, an antibiotic commonly used in the treatment of melioidosis. In this study, mice were infected with an aerosol of *B. mallei*. Treatment with finafloxacin or co-trimoxazole was initiated 24 hours post-infection and survival and bacterial colonization were determined up to 65 days post-infection. Finafloxacin and co-trimoxazole both offered significant and comparable protection in comparison to the vehicle controls. Neither antibiotic provided complete protection as relapse of infection was observed at days 26 and 23 for finafloxacin and co-trimoxazole, respectively. However, finafloxacin provided improved bacterial control during the early stages of the infection (following the determination of bacterial load in organs at days 1 and 15 post infection) and reduced bacterial dissemination during late-stage infection (day 65). In summary, these data demonstrate the utility of finafloxacin as a promising therapeutic for glanders.**

Biography

Adam Whelan completed his PhD in Vaccinology and Immunology of Bovine Tuberculosis at Imperial College London. He has worked as a Research Scientist at UK Government Agencies concerned with infectious diseases of relevance to the veterinary, and more recently, biodefense research communities. He has published more than 63 papers in reputed journals and is currently the Technical Lead on a UK MOD funded antimicrobial therapy programme of work.

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