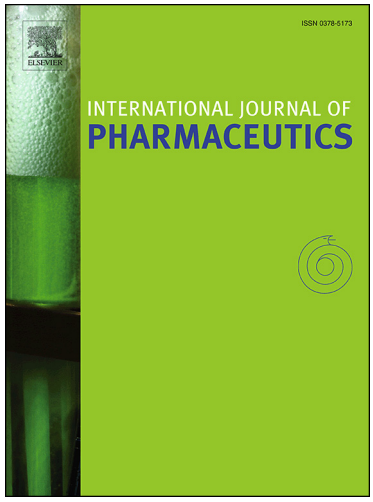

High dose dry powder inhalers to overcome the challenges of tuberculosis treatment

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High dose dry powder inhalers to overcome the challenges of tuberculosis treatment

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ABSTRACT

Tuberculosis (TB) is a major global health burden. The emergence of the human immunodeficiency virus (HIV) epidemic and drug resistance has complicated global TB control. Pulmonary delivery of drugs using dry powder inhalers (DPI) is an emerging approach to treat TB. In comparison with the conventional pulmonary delivery for asthma and chronic obstructive pulmonary disease (COPD), TB requires high dose delivery to the lung. However, high dose delivery depends on the successful design of the inhaler device and the formulation of highly aerosolizable powders. Particle engineering techniques play an important role in the development of high dose dry powder formulations. This review focuses on the development of high dose dry powder formulations for TB treatment with background information on the challenges of the current treatment of TB and the potential for pulmonary delivery. Particle engineering techniques with a particular focus on the spray drying and a