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Abstract

Delivery of drugs to the lungs via dry powder inhaler (DPI) is a promising approach for the treatment of both local pulmonary conditions and systemic diseases. Though DPIs are widely used for the pulmonary deposition of potent bronchodilators, anticholinergics, and corticosteroids, there is growing interest in the utilization of this delivery system for the administration of high drug doses to the lungs, as made evident by recent regulatory approvals for anti-microbial, anti-viral and osmotic agents. However, the formulation of high dose DPIs carries several challenges from both a physiological and physicochemical standpoint. This review describes the various formulation techniques utilized to overcome the barriers associated with the pulmonary delivery of high dose powders.