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(54) Title: MICROCRYSTALLINE DIKETOPIPERAZINE COMPOSITIONS AND METHODS

(57) Abstract: Disclosed herein are DKP microcrystals made by an improved method where they do not irreversibly self-assemble into microparticles. The microcrystals can be dispersed by atomization and re-formed by spray drying into particles having spherical shell morphology. Active agents and excipients can be incorporated into the particles by spray drying a solution containing the components to be incorporated into microcrystalline diketopiperazine particles. In particular, the microcrystalline particle compositions are suitable for pulmonary drug delivery of one or more peptides, proteins, nucleic acids and/or small organic molecules.



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