## ABSTRACT


### A DRY POWDER INHALER AND SYSTEM FOR DRUG DELIVERY

A breath-powered, dry powder inhaler, a cartridge, and a pulmonary drug delivery system are provided. The dry powder inhaler can be provided with or without a unit dose cartridge for using with the inhaler. The inhaler and/or cartridge can be provided with a drug delivery formulation comprising, for example, a diketopiperazine and an active ingredient, including, peptides and proteins such as insulin and glucagon-like peptide 1 for the treatment of diabetes and/or obesity. The dry powder inhaler is compact; can be provided in various shapes and sizes, colors, and comprises a housing, a mouthpiece, a cartridge placement area, and a mechanism for opening and closing the medicament cartridge. The device is easy to manufacture, provides a pre-metered single unit dose, it is relatively easy to use, and can be reusable or disposable.

Fig. 12