

Apparatus and method to collect respirable drug particles



THE UNIVERSITY OF
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Medical technology and devices



> TRL 4
> Proof of concept

Problem

Developers of inhaled and nasal medicines need reliable ways to collect respirable drug particles for solid-state and physicochemical analysis. Existing cascade impactors, such as Next Generation Impactors (NGIs), separate particles by aerodynamic size but are primarily designed for particle size distribution testing.

Recovering particles for detailed analysis can be challenging, particularly for fine respirable fractions that are most relevant to drug delivery to the lungs.

There is a need for a method that can selectively collect these particles in a form suitable for downstream analytical testing while maintaining representative particle size selection.

Solution

This invention provides a sample collection approach for aerosolised pharmaceutical products that enables the isolation and recovery of selected respirable particle fractions for downstream analysis.

The technology incorporates a removable collection component within a particle-sizing workflow, allowing target particle populations to be captured efficiently while supporting representative sample recovery.

The approach is applicable to a range of inhaled drug products, including dry powder inhalers, pressurised metered-dose inhalers and nebulised formulations.

The technology is designed for compatibility with established aerosol characterisation platforms, facilitating integration into existing analytical and product development workflows.

Intellectual Property Status

PCT patent filed.

Potential Commercial Applications

The technology could be used by pharmaceutical companies, contract research organisations and analytical laboratories involved in inhaled and nasal drug development.

Applications include solid-state characterisation, formulation development, quality control and performance testing of aerosol medicines.

The collector may be incorporated into existing aerodynamic particle size distribution testing workflows, enabling enhanced sample recovery for analytical techniques such as spectroscopy, microscopy and material characterisation.

Commercial opportunities include standalone collector products, impactor retrofit kits and specialised testing services supporting inhalation drug research, development and regulatory studies.

Inventors

Hak-Kim Chan, Dipesh Khanal

Contact Commercialisation Office

Name: Lulu Xue

Position: Commercialisation Manager

Email: lulu.xue@sydney.edu.au

sydney.edu.au/innovation-and-enterprise