



Acoustic Measurement and Control of Pharmaceutical Sprays



Researchers at the University of North Carolina at Chapel Hill have developed a means to correlate acoustic measurements to spray formation, using that relationship to characterize output spray behavior. The technology uses real-time algorithms to impart disruptive energy to the orifice delivering the spray -- in this way the technology can modulate spray formation with the intent of controlling size, distribution, and overall energy.

Benefits

- Enables targeted delivery for local or systemic drug delivery to the lungs
- Provides continuous throughput spray-drying within narrowly defined output parameters (e.g., mass delivered, size of particles)



For More Information

If you would like more information about this technology or UNC - Chapel Hill's technology transfer program, please contact:

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The Technology

Control of the drug delivery and performance aspects of pharmaceutical products is critical for safety and efficacy and as such, pharmaceutical products are among the most highly regulated products in the world. This need to control drug delivery characteristics has increased in recent years with the development of increasingly potent active pharmacological agents (e.g., proteins, peptides, nucleic acid biotech therapies, etc.) and the narrowing of the therapeutic window of these agents.

Researchers at UNC developed a method of modulating a pharmaceutical compound spray to be delivered to a patient from an inhaler device. The UNC method involves analyzing a selected characteristic of a pharmaceutical compound spray utilizing acoustic measurement and then controlling the selected characteristic by applying acoustic excitation to the pharmaceutical compound spray in accordance with the acoustic data developed.

Pharmaceutical device applications for this technology include inhalers, nasal sprays, and spray driers. Researchers have also suggested that the technology could be extended to carburetors and fuel injectors.

Opportunity

UNC's Office of Technology Development seeks to stimulate development and commercial use of UNC-developed technologies. UNC is flexible in its agreements, and opportunities exist for joint development, academic or commercial licensing (exclusive, non-exclusive, and field-of-use), publishing, or other mutually beneficial relationships. For this technology, the following intellectual property has been published: US patent application 20080121228.