Novel Inhalation Formulation of Antimicrobials

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- Medical/Health
- Pharmaceuticals

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- Aerosol Performance
- Antimicrobial Synergy
- Colistin
- Dry Powder Inhaler
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- Meropenem
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- Spray Drying

Antimicrobial therapy via the inhalation route has attracted increasing momentum for the treatment of lower respiratory systems. Inhalation therapy improves drug concentration on airway surfaces with reduced systemic exposure. Typically, the inhaled drug particles produced by the traditional jet-milling approach are highly cohesive and have poor flowability and aerosolization performance. Addition of excipients, such as lactose particles, may improve the aerosolization of cohesive powders; however, for high-dose drugs, like antibiotics, the addition of excipients may increase the inhalation powder mass that needs an excessive number of inhalations to complete the dose and a bulky inhaler to accommodate the large dose.

Researchers at Purdue University have developed a novel inhalation formulation which shows superior antibacterial activity. Incorporation of this formulation is evidenced by an almost two-fold increase in aerosol delivery efficiency expressed as fine particle fraction. The synergistic antimicrobial activities and the increased aerosolization performance from this formulation will not only improve patient compliance by reducing the inhaled powder mass and minimizing local adverse effects, but will also have the potential to achieve superior therapeutic efficacy.

Advantages:
- Enhanced antimicrobial activity
- Reduces inhaled powder mass
- Minimizes local adverse effects

Potential Applications:
- Dry powder inhalers
- Respiratory infections
- Antimicrobial therapy via inhalation

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**Intellectual Property:**

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