

Composites with Ivacaftor and Colistin for Cystic Fibrosis and Bacterial Lung Infection Treatment

Track Code: 2020-ZHOU-68954

Categories:

- Micro & Nanotechnologies
- Pharmaceuticals

Keywords:

- Aerosol Performance
- Bactericidal
- Cystic Fibrosis
- Dry Powder
- Formulation
- freeze drying
- Gram-Negative
- Inhaler
- Medicine
- Micro & Nanotechnologies
- Pharmaceuticals

Intravenous and oral antibiotics are not always effective for lung infections due to limited drug exposure at the infection site and bacterial resistance.

Researchers at Purdue University have developed a novel combination therapy of polymyxins for treating bacterial lung infections. Polymyxins have often been used as the last-line resort for infections caused by multi-drug resistant Gram-negative ‘superbugs’; but Inhaled polymyxins can cause toxicity in the lungs. The novel formulation developed by Purdue researchers creates a powerful therapeutic option with better antibacterial killing and much-reduced toxicity than the polymyxins alone. The Purdue dry powder formulation shows promise as an inhaled therapy, with satisfactory stability and high aerosolization performance. This innovative inhalation formulation promises a life-saving option for patients suffering from bacterial lung infections, including people infected by multidrug-resistant *Pseudomonas aeruginosa*, *Acinetobacter baumannii* and Enterobacterales.

Advantages:

- Enhanced efficacy
- Decreased drug resistance
- Decreased toxicity

Potential Applications:

- Pharmaceuticals
- Biomedical
- Medicine

Related Publication:

Inhalable Nanocomposite Microparticles with Enhanced Dissolution and Superior Aerosol Performance

Mol. Pharmaceutics, Published online July 24, 2020

<https://doi.org/10.1021/acs.molpharmaceut.0c00390>

People:

- Zhou, Qi (Project leader)
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