

## Novel inhalation formulations of polymyxins

**Track Code:** 2020-ZHOU-68990

**Categories:**

- Pharmaceuticals

**Keywords:**

- Acinetobacter baumannii
- Aerosol Performance
- Antibacterial
- bioaerosols
- Biopharmaceutical Manufacturing
- Cell Biology
- Cell Targeting
- cell therapy
- Chemistry and Chemical Analysis
- Colistin
- Cystic Fibrosis
- Drug Development
- Drug Manufacturing
- Drug Resistance
- Dry Powder Inhaler
- Industrial Crystallization
- Klebsiella pneumonia
- Lung Infection
- Medicinal Chemistry
- Multi-drug Resistant Bacteria
- Patient Care
- Pharmaceutical Analysis
- Pharmaceuticals
- Pharmacology
- Polymyxin
- Pseudomonas aeruginosa
- Pulmonary
- Respiratory Infection

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 formulations developed by Purdue researchers create a powerful therapeutic option with better antibacterial killing and much-reduced toxicity than the currently used inhaled polymyxin B and colistin. Furthermore, the Purdue dry powder formulation shows promise as an inhaled therapy, with satisfactory stability and high aerosolization performance. These innovative inhalation formulations promise 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
- Improved safety

**Potential Applications:**

- Pharmaceuticals
- Biomedical
- Medicine

**People:**

- Zhou, Qi (Project leader)
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- Li, Jian

**Intellectual Property:**

**Application Date:** May 3, 2021

**Type:** PCT-Gov. Funding

**Country of Filing:** WO

**Patent Number:** (None)

**Issue Date:** (None)

**Application Date:** July 2, 2020

**Type:** Provisional-Gov. Funding

**Country of Filing:** United States

**Patent Number:** (None)

**Issue Date:** (None)

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