



Non-Steroidal Oral Therapy for Asthma

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Applications

Asthma treatment and potential treatment of other constrictive lung disorders.

Target Problems

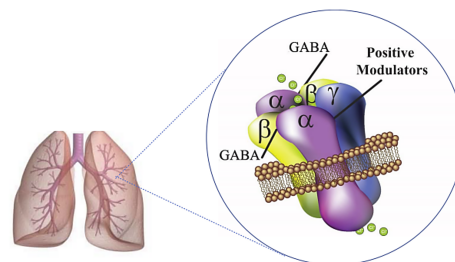
Asthma involves both airway inflammation and tightening of the airway muscles, making breathing difficult. Current treatments often rely on inhalers, corticosteroids, or adrenergic agonists, which can present safety, effectiveness, and patient-compliance challenges. There is a need for convenient, effective treatments that address both major features of asthma without relying on steroids or inhalers.

Solution

Researchers at the University of Wisconsin-Milwaukee and Columbia University have developed orally available small-molecule therapeutics that target GABA_A receptors in the lung. By targeting receptors found on airway smooth muscle and immune cells, these compounds are designed to reduce both airway constriction and inflammation. The lead compound, MIDD0301, offers a potential non-steroidal and non-inhaled treatment option for asthma.

Key Benefits

- **Oral administration** may improve convenience and adherence
- **Dual action** targets both airway constriction and inflammation
- **Non-steroidal approach** avoids corticosteroids and adrenergic agonists
- **Targeted activity** is designed for lung tissue with limited brain exposure
- **Preclinical efficacy** demonstrated in established asthma models



About this Technology

This technology includes small-molecule positive allosteric modulators that selectively target GABA_A receptors expressed on airway muscle and immune or inflammatory cells. The lead compound, MIDD0301, relaxed airway muscle and reduced airway hyperresponsiveness, inflammatory cells, and inflammatory cytokines in preclinical asthma models. Preclinical studies also demonstrated oral availability, lung exposure, and no detectable brain exposure or related motor impairment.

Stage of Development

Preclinical stage with a lead compound identified and pharmacokinetic, efficacy, ADME, and repeat-dose safety studies completed in animal models.

Partnering Opportunity

We are seeking development partners from pharmaceutical companies, biotechnology firms, and respiratory drug development organizations to support continued preclinical and clinical development.

Intellectual Property (IP)

Issued U.S. Patents [9,879,020](#), [12,054,491](#), and [11,447,495](#). Protected and managed by the UWM Research Foundation.

Lead Inventor

- [Leggy Arnold](#), UWM Professor, Chemistry & Biochemistry, Milwaukee Institute for Drug Discovery Director
- [James Cook](#), UWM Professor Emeritus, Chemistry & Biochemistry
- Douglas Stafford, Previous Director of the Milwaukee Institute for Drug Discovery