GABAA receptor modulators for the treatment of bronchoconstrictive diseases

Technology #cu13064

This technology describes GABAA receptor modulators that both relax airway smooth muscle and attenuate inflammation to treat bronchoconstrictive diseases.

Unmet Need: Therapeutics that rapidly treat bronchoconstriction with reduced side effects

Current therapeutics for bronchoconstrictive diseases, such as asthma and chronic obstructive pulmonary disease, are largely centered on beta-adrenergic agonists and corticosteroids. While often quite effective, these therapeutics suffer from serious side effects and may take weeks to reach peak efficacy. As such, therapeutics that treat bronchoconstriction through alternative pathways may replace or augment treatment of patients who are not responsive to current therapies.

The Technology: GABAA receptor modulators provide an alternative pathway to treat bronchoconstriction

This technology describes compounds that target gamma-aminobutyric acid subtype A (GABAA) receptors with high specificity to relax airway smooth muscle and attenuate inflammation. These compounds specifically target the alpha-4 and alpha-5 GABAA subunits, which were demonstrated to be the only GABAA subunits expressed in human airway smooth muscle. In contrast to current corticosteroid-based therapies, therapeutics that target the GABAA receptors may carry reduced side effects and could be administered through variable routes. In sum, this technology describes a method for treating bronchoconstrictive diseases with fewer side effects that may replace or augment current therapies.

This technology has been demonstrated to selectively relax human airway muscle cells ex-vivo.

Applications:

- Asthma treatment
Reducing lung inflammation
Treatment for chronic obstructive pulmonary disease
Treatment of other bronchoconstrictive diseases

Advantages:

- Selective for specific GABAA receptor subunits
- Reduced potential for CNS effects
- Fewer side effects compared to corticosteroids
- Multiple delivery routes
- Reduces inflammation and relaxes smooth muscle in the lung

Lead Inventor:

Charles W. Emala, M.D.

Patent Information:

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Related Publications:


Tech Ventures Reference:

- IR CU13064
- Licensing Contact: Sara Gusik
Inventors

Charles W. Emala M.D.