Human MUC5B Promoter-Reporter Construct

Published date: March 14, 2017

Technology description

Mucins are a family of high molecular weight glycoproteins secreted by epithelial cells lining various organs such as the nasal cavity, esophagus, lungs, and eyes. Mucins are a major component of mucus, and serve an important role in protecting and lubricating epithelial surfaces. There are at least twelve mucin genes in humans, with mucin 5B (MUC5B) and mucin 5AC (MUC5AC) being the main components of human airway secretions. The regulation of expression of these genes, particularly MUC5B, is critical for normal airway function. Aberrant expression of the MUC5B gene is linked to excessive mucus secretion and is closely correlated with the pathogenesis of various airway diseases. For example, MUC5B is one of the major components in mucus obtained from patients suffering from cystic fibrosis and asthma. Therefore, inhibition of MUC5B gene expression has therapeutic potential for the treatment of these diseases.

Researchers at the University of California have constructed and characterized a reporter construct under the control of the MUC5B promoter. This construct contains all of the regulatory elements that are involved in the regulation of MUC5B expression. In addition, the reporter gene included in this construct allows a very simple and easy assay to determine the promoter activity of MUC5B in response to various treatments and is amenable to high throughput screening. Therefore, this construct will be useful for screening drug candidates for inhibition of MUC5B expression.
Method for Inhibition of MUC5B Expression

Additional Information

Related Materials

Characterization of human mucin 5B gene expression in airway epithelium and the genomic clone of the amino-terminal and 5'-flanking region. Am J Respir Cell Mol Biol. 2001 Nov;25(5):542-53.

Related Technologies

Disease Markers: Mucin 5B Monoclonal Antibodies

Mucin-Specific Monoclonal Antibodies

Additional Technologies by these Inventors

Mucin-Specific Monoclonal Antibodies

Disease Markers: Mucin 5B Monoclonal Antibodies
Controlling Tumor Growth And Malignancy
Suppression Of Allergic Lung Inflammation And Hyperactivity

Application area

Can be used to identify compounds that regulate MUC5B expression
May be useful in the development of therapeutics for airway diseases such as cystic fibrosis, chronic bronchitis, bronchial pneumonia, and asthma

Advantages

The new MUC5B promoter-reporter construct provides the basis for a simple assay to test for compounds that regulate MUC5B expression.

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