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Perspective

Transcriptional Phenotypes in Asthma and its Medication

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DESCRIPTION

Airway inflammation and hyper-reactivity are two features of the chronic disease asthma. There are variations in the types of underlying lung inflammation observed in each patient with asthma, as well as differences in the clinical characteristics of the disease (such as its symptoms). Phenotypes are the examples to these variations in asthma. Some phenotypes appeared to be more prevalent in men than in women or in children than in adults. Based on patients, specific asthma phenotypes can be identified to assist allergy, asthma, and immunology specialists Properly regulate the disease.

Allergic asthma is a condition caused by environmental allergies, such as pollen allergy or dust mite sensitivity. Allergic asthma is a most common kind of phenotype present in asthma sufferes. This phenotype is also the one that may be observed the most easily. Testing may be performed out during an asthmatic patient's evaluation to determine if or not individuals have an "allergic phenotype." These tests may include a complete blood count to test for an increase in eosinophils, an allergic type of cell, allergy testing for environmental allergens, blood IgE antibody levels and testing for exhaled nitric oxide. A major component of controlling asthma may involve controlling allergies with allergy medications (antihistamines, nasal steroids), as well as avoiding allergy irritants. Additionally, allergy immunotherapy (allergy shots or sublingual pills) may be recommended.

The less common asthma phenotype known as aspirin-sensitive asthma affects both children and adults. When they take aspirin or a Nonsteroidal Anti-Inflammatory Drugs (NSAIDs), patients with asthma who are sensitive to aspirin will experience an asthma flare-up. Chronic rhinitis (nasal inflammation) symptoms and nasal polyps may also be present in asthmatics. An elevated eosinophil count may also be found through a complete blood count. Leukotriene modifiers and other biological therapies that target the immunologic pathway stimulated by aspirin or Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) may be beneficial to patients with this type of asthma.

An asthma phenotype known as neutrophilic asthma is most frequently observed in severe asthmatics. Obtaining a sputum sample (saliva and mucous coughed up from the respiratory tract) and observing a large number of neutrophil-type cells in the patient's sputum can help an allergy, asthma, or immunology specialist diagnose this type of asthma. The patient's medication regimen may be modified and additional medications, such as macrolide antibiotics, may be recommended if the allergy, asthma, or immunology specialist determines that the patient has this type of asthma.

A type of asthma in which a person experiences a flare-up while exercising is called exercise-induced asthma. If an asthma patient exercises to a certain level, the majority of them will experience an asthma flare-up. The short-acting beta-agonist (albuterol) inhaler that is prescribed to patients with this type of asthma may be used a few minutes before exercise to prevent an attack, or specific medications can be used to treat the condition.

CONCLUSION

In eukaryotes, prokaryotes and viruses, gene expression functions to generate macromolecules which act as cellular major components and exhibit living functions. Transcription, posttranscriptional modification, translation and posttranslational modification are several stages that can be used to regulate its processes. Regulation of gene expression modifies the levels and timing of the production of functional products. An apparent and measurable characteristic is a phenotypic trait, which is the expression of genes in an observable way. The phenotype of an organism probably depends on its genetic makeup and is also influenced by its surroundings during its morphogenesis, including various epigenetic processes.

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