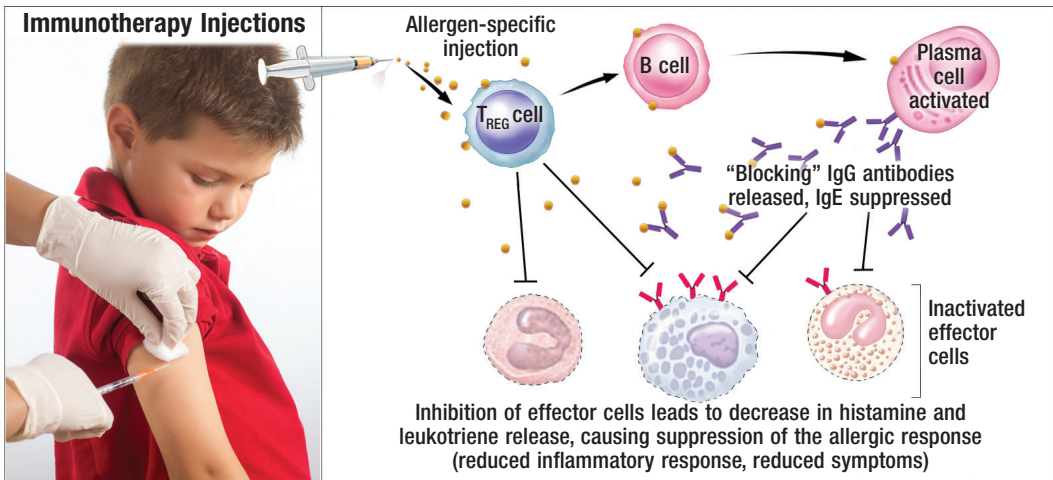


Allergy Immunotherapy

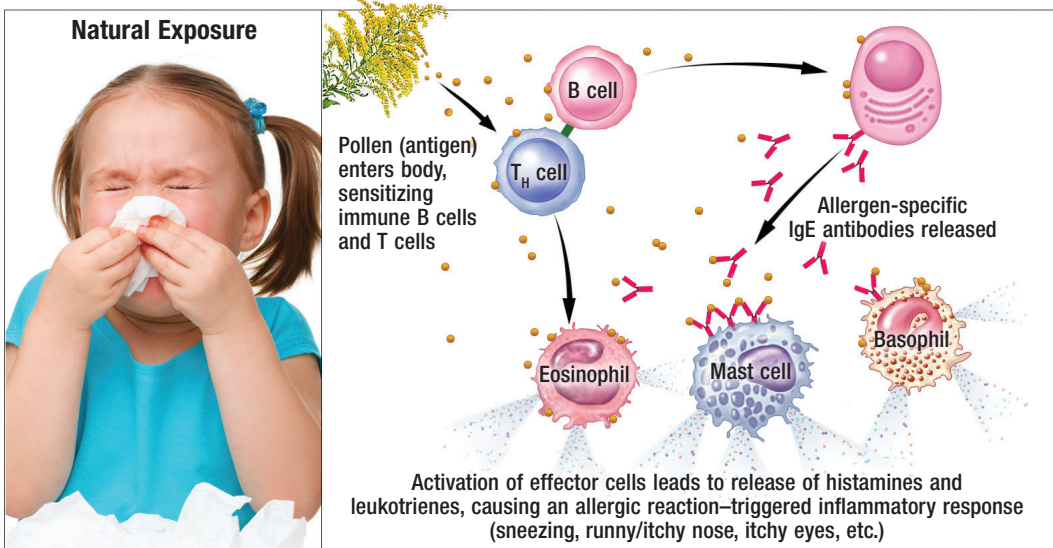
Immunotherapy Injections



The diagram illustrates the mechanism of immunotherapy. An allergen-specific injection is administered. This leads to the activation of a T_{REG} cell and a B cell. The T_{REG} cell inhibits the T_H cell. The B cell produces "Blocking" IgG antibodies, which suppress the release of IgE. This results in inactivated effector cells (Eosinophil, Mast cell, Basophil), leading to a decrease in histamine and leukotriene release, and thus suppression of the allergic response.

Inhibition of effector cells leads to decrease in histamine and leukotriene release, causing suppression of the allergic response (reduced inflammatory response, reduced symptoms)

Natural Exposure



The diagram illustrates the natural allergic reaction. Pollen (antigen) enters the body, sensitizing immune B cells and T cells. This leads to the activation of a T_H cell and a B cell. The T_H cell activates the B cell, which releases allergen-specific IgE antibodies. These antibodies bind to effector cells (Eosinophil, Mast cell, Basophil), causing their activation and the release of histamines and leukotrienes, leading to an allergic reaction.

Activation of effector cells leads to release of histamines and leukotrienes, causing an allergic reaction—triggered inflammatory response (sneezing, runny/itchy nose, itchy eyes, etc.)

Long-Term Treatment to Eliminate Allergic Symptoms

Eyes that are itchy, red, and watery, sneezing, runny nose, and nasal congestion are common symptoms in people who have allergies. Allergy symptoms develop when the body's defense mechanisms trigger a hypersensitive immune response to a substance, resulting in an allergic reaction. Allergic asthma can also occur upon exposure to allergens. Seasonal allergies is the term used to describe allergies that flare up during the time of year when allergens are highly concentrated in the environment. Common seasonal allergens include pollen from grasses, trees, and weeds. When temporary treatment with antihistamines is not enough, immunotherapy is a long-term solution for allergy sufferers.

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Immunotherapy Works by Desensitizing the Body to Allergens

The two primary methods used to relieve allergy symptoms are antihistamine use and immunotherapy. Antihistamines are a temporary measure. These medications can be OTC or prescription, and some may cause drowsiness. For relief, antihistamines must be taken up to several times per day.

Suitability of Immunotherapy

Unlike antihistamine treatment, immunotherapy works by making the body less sensitive to an allergen so that allergic symptoms are less likely to develop. A doctor must first perform tests to determine whether the patient's symptoms are due to allergy, and if so, which specific allergens are causing the symptoms.

Immunotherapy does not provide immediate relief of allergy symptoms. Over a period of time, however, it can help eliminate allergic symptoms and even lessen the need for asthma medication.

Allergy Shots

Until recently the only available immunotherapy for allergies, this method requires frequent shots. Initially, during the build-up phase, shots containing very small doses of allergens tailored to the individual patient are given once or twice a week for a few months. This is followed by a maintenance dose administered once every 2 weeks for several months, and finally a dose given once monthly for 3 or more years. The specific schedule for allergy shots depends upon the patient's sensitivity and his or her response to immunotherapy. Allergy shots must be administered by a healthcare provider (HCP), followed by a 20- to 30-minute supervised stay in the HCP's office, because of the small risk of a severe allergic reaction to the allergen injected.

Sublingual Immunotherapy (SLIT)

With the advent of SLIT, doses of certain allergens (grasses and ragweed) can now be taken in sublingual tablet form. These products are not oral tablets in that they are not designed to be immediately swallowed, but instead are absorbed into the body by slowly dissolving under the tongue. They are useful only for patients who are allergic to the specific grasses or ragweed included in the tablets. Three prescription products are currently available: Oralair, Grastek, and Ragwitek. Oralair, which contains five kinds of grass pollen, is approved for patients aged 10 to 65 years. Grastek, made from timothy grass pollen, is for those aged 5 to 65 years. Ragwitek contains short ragweed and is for those aged 18 to 65 years.

The first dose of any SLIT product must be administered under a doctor's supervision in case of a serious reaction within the first 30 minutes. If no reaction occurs, the tablets are then taken once daily at home, starting 3 or 4 months before the grass or ragweed allergy season begins and continued throughout. Individuals taking SLIT tablets must be trained to use an injectable epinephrine device (e.g., EpiPen, Auvi-Q, and others) in the event of a serious anaphylactic reaction. Symptoms of anaphylaxis include rapid heartbeat; trouble breathing, swallowing, or talking; flushed or itching skin; or gastrointestinal symptoms such as cramping, nausea, vomiting, or diarrhea. An epinephrine injection halts the symptoms of anaphylaxis.

Although it benefits some people, SLIT is not suitable for everyone with allergies. A doctor can determine whether a person with allergy symptoms is a good candidate for SLIT.



With immunotherapy, small doses of allergen administered over a period of time are used to relieve or eliminate the patient's allergy symptoms.