- Hay fever

Health

Hay fever relief minus the side effects

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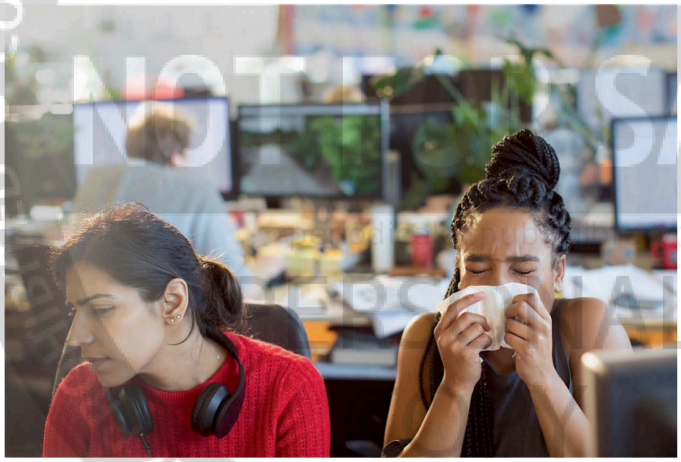

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PEOPLE with hay fever could one day get a "molecular shield" that blocks pollen from entering the lining of the nose, and is unlikely to cause the side effects seen with standard treatments.

Hay fever is an allergic reaction that occurs when pollen binds to molecules called IgE antibodies in the lining of the nose, mouth and eyes, triggering inflammation that causes symptoms such as sneezing. Current treatments aren't always effective and often have side effects, such as drowsiness.

To find an alternative, Kaissar Tabynov at the Kazakh National Agrarian Research University and his colleagues extracted an antibody from mouse blood that isn't involved in allergic reactions, but still binds to the main allergen in mugwort pollen, a major cause of hay fever. This binding blocked the allergen from attaching to IgE antibodies in a lab dish. "It acts like a molecular shield," says Tabynov.

To see if this reduces irritation, the researchers induced mugwort pollen allergies in 10 mice. A week later, they put a droplet of liquid containing the antibody into the noses of half the mice, doing so a total of three times over five days. The remaining animals were given droplets of saline solution. An hour later, the mice were exposed to mugwort pollen at levels similar to those that people are exposed to during peak hay fever season.

Inflammation caused by pollen allergy triggers symptoms like sneezing

After the final droplet, the mice given the antibody rubbed their noses 12 times, on average, over 5 minutes, versus 92 times in the saline group (*Frontiers in Immunology*, doi.org/pvxw).

Examining nose tissue samples showed that the antibody reduced inflammation. This also showed that the treatment had effects deeper within the body, not just where the droplets were applied. "Our study is the first to demonstrate that an allergen-specific monoclonal antibody can be applied intranasally to achieve both local and systemic protection in the context of plant pollen allergies," says Tabynov.

Although the researchers didn't measure potential side effects, they don't expect the approach to cause the adverse events seen with oral hay fever drugs, because it works at the site of allergen entry. ▮

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