

Allergist discusses recent progress in peanut allergy immunotherapy

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Any parent of a child with a severe peanut allergy knows the peril of a PB&J. For those with the condition, just sitting next to someone eating peanut butter can trigger a life-threatening reaction.

Now, scientists have established the validity of what could become the first oral anti-[peanut-allergy](#) drug. Stanford was one of 66 sites to

participate in a phase-3 clinical trial of the therapy. The results were published Nov. 22 in the *New England Journal of Medicine*. Sharon Chinthrajah, MD, clinical associate professor of medicine and of pediatrics, was the principal investigator at the Stanford site. Chinthrajah is a member of the Sean N. Parker Center for Allergy and Asthma Research at Stanford, which is led by Kari Nadeau, MD, Ph.D., professor of pediatrics.

Participants in the trial ingested a dose of a peanut-derived [immunotherapy drug](#) called AR101 each day. They began with a small dose and gradually increased the amount, conditioning their immune systems to tolerate peanut proteins. The goal was to dampen the [immune response](#)—which can result in swelling, itching and difficulty breathing—so it would no longer be life-threatening.

In a [conversation](#) with science writer Hanae Armitage, Chinthrajah discussed the trial in more depth, highlighting the value it brings to those with peanut allergies, and how it advances allergy research overall.

1. What's the main thing that parents of children with severe peanut allergies should understand about the outcome of the trial?

Chinthrajah: Two out of three patients who were treated with daily AR101 oral [immunotherapy](#) were able to tolerate two peanuts after one year of therapy. Now, this isn't a permanent cure, but taking roughly the equivalent of one peanut every day can change a patient's and family's quality of life. AR101 has the potential to be the first FDA-approved therapeutic for [peanut allergy](#), paving the way for more treatment options and greater access.

2. Do you think allergy immunotherapies could ever

fully cure a food allergy?

Chinthrajah: As researchers, we continue to investigate the mechanisms behind the pathogenesis of [food allergy](#) and potential therapeutic options in the quest for an approach to permanently change the immune system so that it no longer reacts to [food](#) in an abnormal way. Although we don't yet have a cure, the field of food allergy research has made leaps and bounds over the last decade, and we hope that momentum will only increase.

3. The majority of participants in the study were children and adolescents, with only a small subset of adults. Is age a factor in the efficacy of allergy immunotherapy?

Chinthrajah: In my experience, I've seen that oral immunotherapy can be successful in all [age groups](#) if participants continue in the desensitization program and adhere to taking a regular dose of the food. However, pilot studies have shown that oral immunotherapy may have more lasting effects on the [immune system](#) if started at an early age. But as you might expect, many questions still remain: How long does an individual have to maintain a daily oral immunotherapy regimen? What is the best maintenance dose? And how long-lasting are the effects of oral immunotherapy?

4. What do you say to people who may want to try to desensitize themselves or their children to a food allergen on their own?

Chinthrajah: We highly discourage desensitization at home without the guidance of trained allergists and clinical staff. The Parker Center at

Stanford provides tremendous education and training about how to make this a safe process and how to take precautions with dosing. There is still a lot we are trying to understand.

5. Can you speak to some of the other work that's being pursued in food allergy desensitization? Is there ongoing research to see if oral immunotherapy could work for other allergy-triggering foods, like eggs or shellfish?

Chinthrajah: Multiple therapies are currently being explored, such as a phase-3 study investigating a peanut patch that delivers very small amounts of peanut via the skin. Other trials include under-the-tongue immunotherapy with peanut combined with another compound that may stimulate the efficiency of the immunotherapy process. There are also a large number of phase-2 studies showing success in oral immunotherapies for eggs, dairy, wheat, shellfish, tree nuts—even for multi-allergen oral immunotherapy, where patients are treated for multiple food allergens simultaneously.

Our center has investigated combining certain drugs targeting allergic pathways with oral immunotherapies for patients with peanut, milk and multiple food allergies. Our goal is to identify approaches and markers that can help clinicians best deliver safe and efficacious therapy for food-allergy patients, and we're excited to continue applying these principles in studies we're designing for the future.

More information: AR101 Oral Immunotherapy for Peanut Allergy, *New England Journal of Medicine* (2018). [DOI: 10.1056/NEJMoa1812856](https://doi.org/10.1056/NEJMoa1812856)

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