

MEDIA RELEASE

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NUH LAUNCHES SINGAPORE'S FIRST CLINICAL TRIAL OF ORAL IMMUNOTHERAPY FOR PRAWN ALLERGY

Novel study aims to evaluate whether gradual exposure therapy can help patients build tolerance to one of Singapore's most common food allergies

SINGAPORE — For most teenagers, eating out with friends or trying a new dish is an everyday experience. But for 14-year-old Hazel Low, who has lived with multiple food allergies since she was a baby, every meal outside the home requires careful consideration.

Growing up, her family prepared most of her meals at home to ensure they were safe. When eating out, they would carefully check the ingredients in every dish. If they could not be certain that the food was safe, Hazel sometimes had to make do with simple options such as bread or plain rice.

Now, Hazel is hoping that she may one day be able to enjoy some of the foods she has spent her life avoiding.

She is among those interested in participating in Singapore's first clinical trial investigating whether oral immunotherapy can help people with prawn allergy safely build tolerance to the food. The trial, which is set to be launched by the National University Hospital (NUH), could pave the way for a potential new treatment option for thousands of Singaporeans who currently manage the condition through avoidance.

Shellfish allergy is one of the most common food allergies in Singapore, affecting an estimated **90,000 to 150,000 people**. Unlike milk or egg allergies, which many children eventually outgrow, shellfish allergy usually develops during adolescence or adulthood and often persists for life.

Previous Singapore studies found that shellfish allergy affects approximately **5.2 per cent of adolescents**, while shellfish is also the leading cause of food-related anaphylaxis seen in Singapore emergency departments, accounting for **14 per cent of food-induced anaphylaxis cases**.

People with prawn allergy must strictly avoid prawns and foods cooked with prawns, as accidental exposure can trigger reactions ranging from hives and swelling to life-threatening anaphylaxis.

Testing immunotherapy for prawn allergy

The first phase of the trial aims to find out how well prawn oral immunotherapy works and establish its safety, using gradually increasing doses of specially formulated prawn powder, with the aim of helping participants develop tolerance to prawns over time.

Unlike current management, which focuses on avoidance and emergency treatment of allergic reactions, oral immunotherapy seeks to retrain the immune system through carefully supervised exposure to the allergen.

The study plans to recruit **30 participants**, including 20 patients receiving oral immunotherapy and 10 controls. Participants undergoing treatment will receive therapy over approximately eight to 10 months, followed by long-term monitoring for up to two years to evaluate whether any improvement is sustained.

Individuals may be eligible for the study if they:

- have a convincing history of prawn allergy;
- meet the study's clinical eligibility criteria; and
- are willing to attend regular follow-up visits throughout the study period

Dr Lydia Wong, Principal Investigator of the study and Consultant, Division of Paediatric Allergy, Immunology and Rheumatology, Department of Paediatrics, Khoo Teck Puat – National University Children's Medical Institute, NUH, said: "For people living with prawn allergy, avoiding prawn is currently the only effective management strategy. This can be challenging in Singapore, where shellfish is widely used in many local dishes and cross-contamination is difficult to avoid. Through this study, we hope to determine whether oral immunotherapy can safely help patients build tolerance and improve their quality of life."

This investigator-initiated study is led by NUH, which oversees the clinical trial and participant care, in collaboration with the team led by Prof Andreas Lopata, Prof in Health Sciences at the Tropical Futures Institute (TFI), James Cook University, a globally leading research group in shellfish molecular allergology. The TFI team will lead the translational research component of the study, analysing biosamples collected from participants to improve shellfish allergy diagnostics and identify biomarkers associated with treatment response.

Living with food allergies

Hazel's experience illustrates how food allergies can affect everyday life beyond what someone can or cannot eat.

She began showing reactions to various foods after starting solids at around six months old. These included tree nuts, eggs, certain fruits and seafood. While she has since been able to introduce some foods, including eggs, into her diet, she remains allergic to a number of foods, including seafood. Even trace amounts of an allergen can cause symptoms such as an itchy tongue, while more severe reactions have resulted in significant swelling.

As Hazel has grown older, she has learnt to check what goes into her food and identify safer options when eating outside the home. But the impact of her allergies has extended beyond mealtimes. According to her mother, Mdm Claire Tan, Hazel was

recently selected for an overseas school rock-climbing trip, but was eventually unable to participate because of concerns over managing her food allergies while abroad.

"What is normal to other people can seem so far-fetched for her," said Ms Tan. "Her friends and classmates sometimes have to accommodate her because of her allergies. It affects how she lives her life and interacts with other people."

When Hazel learnt about the NUH trial, she was keen to explore the possibility of participating. Her mother said Hazel has often asked what prawns taste like while watching her family enjoy seafood, and hopes that she might one day be able to join them.

"She is curious about the food that other people enjoy but she can't eat," said Ms Tan. "If there is a chance for her to overcome her allergy, she wants to try it. Ideally, I hope she can live a normal life and eat what she wants to eat."

Exploring a potential new treatment option

While oral immunotherapy has been studied internationally for allergies such as peanut, milk and egg, evidence for shellfish allergy remains limited. The NUH study will be among the first in the region to investigate this approach for prawn allergy.

Ms Alicia Kang, Principal Clinical Research Coordinator, who is coordinating the trial, said: "We hope this study will also encourage individuals living with prawn allergy to come forward and find out if they may be suitable for the trial. Beyond evaluating a potential new treatment, the study will help us better understand how oral immunotherapy may benefit patients with shellfish allergy."

Chinese Glossary

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About the National University Hospital (NUH)

The National University Hospital (NUH) is Singapore's university hospital. While the hospital at Kent Ridge first received its patients on 24 June 1985, our legacy started from 1905, the date of the founding of what is today the NUS Yong Loo Lin School of Medicine. NUH is the principal teaching hospital of the medical school.

Our unique identity as a university hospital is a key attraction for healthcare professionals who aspire to do more than practise tertiary medical care. We offer an environment where research and teaching are an integral part of medicine and continue to shape medicine and transform care for the community we care for.

We are an academic medical centre with over 1,200 beds, serving more than one million patients a year with over 50 medical, surgical and dental specialties. NUH is the only public and not-for-profit hospital in Singapore to provide trusted care for adults, women and children under one roof, including the only paediatric kidney and liver transplant programme in the country.

The NUH is a key member of the National University Health System (NUHS), one of three public healthcare clusters in Singapore. For more information, visit www.nuh.com.sg

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