



SickKids[®]

**FOOD ALLERGY AND
ANAPHYLAXIS PROGRAM**



Phoebe and Paul (above), both living with nut allergies, are among the many Canadian children that the SickKids Food Allergy and Anaphylaxis Program will benefit.

Parents, Amy and Ken, who share in our vision of a world without the threat of allergic reaction, are both champions of the Program.

TO TRANSFORM HOPE FOR FAMILIES LIVING WITH ALLERGY, WE WILL DISCOVER A CURE

For approximately 300,000 Canadian children and their families, constant anxiety and stress over the possibility of an allergic reaction is a part of every day life.

Completely avoiding certain triggers is currently the only definitive way for children living with allergies to avoid a potentially life-threatening reaction. Refraining from all contact with common food allergens—such as nuts, milk and eggs—can be a difficult and worrisome task, however, especially in childhood. SickKids, as a world leader in child health, is determined to transform this reality, and in doing so, significantly enhance the quality of life of those affected by allergies.

That's the impetus behind the **SickKids Food Allergy and Anaphylaxis Program**, a concerted effort that will generate new knowledge and therapies to address the growing burden of allergy. For families, it's an effort that will provide peace of mind in knowing that a child will never again have to live under the constant threat of an allergic reaction.

It's a future we envision for every family affected by allergy, and with your generous support, this will be the future of child health at SickKids.

THERE IS NO BETTER TEAM TO LEAD THE CURE FOR

ALLERGY

Our immunology and allergy experts are the best in Canada and the world, making SickKids a leading force in solving the challenge of allergy. And the answers are within our grasp.

For those who, like us, seek to meet the challenge of allergy, there is no better way to make a more profound impact than by supporting SickKids. Our interdisciplinary approach—bringing together researchers in immunology, genetics, bioinformatics, and stem cells and regenerative medicine from health-care institutions around the world—is uniquely poised to succeed in finding a cure for allergy. Our collaborative research is focused on the following pillars:



DISEASE MODELS

To better understand allergic response, as well as its potential interventions, we will pioneer novel disease models of allergy and anaphylaxis.

POPULATION HEALTH AND GENOMICS

Genomic sequencing of families living with allergies and other immunologic disorders will help identify the genetic basis of allergy to support interventions for those patients with the greatest potential to benefit.

NOVEL THERAPIES

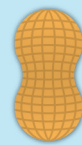
Leveraging these insights, we will develop therapies that prevent or inhibit—either on a genetic or molecular level—allergic reaction and inflammation.

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THE THREAT OF ANAPHYLAXIS

The most severe, potentially life-threatening immunologic response to an allergen is anaphylaxis, which may lead to a narrowing of the airways and restrict breathing. An estimated one to two per cent of the Canadian population is at risk for this allergic reaction.

Below are the most common triggers of anaphylaxis:



NUTS



MILK

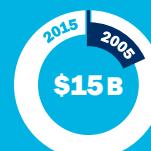


EGGS



INSECTS

It's a threat that affects us all.



In Canada, hospitalizations due to food- and insect-induced anaphylaxis have increased by more than 350 per cent over the past decade. This is a health-care burden that costs Canadian taxpayers more than \$15 billion annually.

THIS IS A FUTURE THAT'S NOT ONLY POSSIBLE: IT'S IMMINENT

Our transformative research depends on the support of those who are equally resolute in their determination to rewrite the future of child health. Together, we will accelerate the momentum of change for families living with allergy.

We're now closer than ever to achieving those major breakthroughs that can transform allergy. Our goal is clear, with our research—just some of our innovative approaches highlighted below—aligned to realize it. All we need now is your generous support: to help catalyze our efforts and translate discoveries into impact for families like yours and the many others that live under the threat of allergy.

A novel therapy to prevent acute anaphylaxis

Investigators: Drs. Yaron Finkelstein, Eyal Grunebaum, Julia Upton, Peter Vadas

We are now poised to render anaphylaxis into a non-life-threatening allergic response, transforming outcomes for those at greatest risk.

Imagine a pill that will effectively inhibit the most severe and potentially life-threatening effects of anaphylaxis. It is a breakthrough that Dr. Vadas—a key partner of the Program and Head of Allergy and Clinical Immunology at St. Michael's Hospital—and his team are on the cusp of realizing.

Based on previous research, the enzyme, platelet-activating factor acetylhydrolase (PAH-AH), is thought to play a critical role in mediating the severity of anaphylaxis in patients. PAH-AH, as a potential pathway to regulating anaphylaxis, is now the focus of efforts to develop new, life-saving treatments.

Oral and skin immunotherapies for nut allergies

Investigators: Drs. Adelle Atkinson, David Hummel, Gordon Sussman, Julia Upton

We are establishing optimal approaches to inducing tolerance for nut allergens for the patients that may benefit most.

Oral and skin immunotherapy for nut allergies have shown great promise in desensitizing patients to nut allergens, with less risk relative to other approaches. These methods involve giving increasing amounts of the food over time either by mouth, under the tongue or through the skin, building a tolerance in

patients that reduces their risk for potentially life-threatening allergic reactions. We are investigating the biomarkers that will allow us to identify which allergy patients would be able to benefit most from these immunotherapy approaches, and how best to translate this knowledge into impact in our communities.

Harnessing epinephrine's mechanism of action

Investigators: Drs. Eyal Grunebaum, Peter Vadas

We are investigating new rescue medications for acute anaphylaxis that are more reliable than epinephrine and with fewer side effects.

The administration of epinephrine during an allergic emergency is a time-sensitive matter. While immediate treatment with epinephrine is effective in inhibiting acute anaphylaxis, it becomes progressively less effective the later it is administered. This poses a worrisome scenario for a child with severe

allergies, whose autoinjector may not always be immediately on hand. In order to improve outcomes for these children, we're investigating how epinephrine's mechanism of action can be harnessed to develop more effective, less time-sensitive interventions.

A low-risk, reliable test for milk allergy

Investigators: Drs. Adelle Atkinson, David Hummel, Julia Upton

We are developing diagnostic tools that will break down barriers to quality of life for families living with milk allergies.

Limited dietary freedom for children with milk allergies is a source of constant anxiety. While many of these children can safely consume baked or processed milk products, they often avoid all foods containing milk out of fear of anaphylaxis, imposing restrictions that limit their quality of life.

SickKids is currently developing a diagnostic test that would reliably determine a child's tolerance for baked milk products, making it possible for families to enjoy greater dietary freedom—and children the opportunity to potentially outgrow their allergy by inducing tolerance to unprocessed milk products.

FUNDING OPPORTUNITIES

Never have we been closer to a world without the threat of allergic reaction. Your investment will help enable discoveries that will transform allergy while building capacity to ensure that families and communities can benefit most.

Be part of the solution.

RESEARCH	CLINICAL CARE	EDUCATION
Food Allergy and Anaphylaxis Program Naming		\$10M ¹
Named Research Initiative \$5M ¹	Named Clinical Initiative \$3M ¹	Named Education Initiative \$2M ¹
Research Director \$1M ¹	Clinical Director \$1M ¹	Education Director \$1M ¹
Research Partner \$500k [∞]	Outreach Partner \$500k [∞]	Education Partner \$500k [∞]
Food Allergy and Anaphylaxis Fellow		\$250k ³
Research Catalyst Partner \$100k [∞]	Clinical Catalyst Partner \$100k [∞]	Education Catalyst Partner \$100k [∞]
Food Allergy and Anaphylaxis Advocate		\$50k [∞]



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