
Sanfilippo
Children's Foundation
Annual Update 2022
Jobe, Age 7

Our Purpose

To drive research for a world without Sanfilippo Syndrome

By funding research, raising awareness and advocating for improved outcomes, we empower families now and find a cure for tomorrow.

What is Sanfilippo?

Sanfilippo is a genetic condition that causes fatal brain damage. It is a type of **childhood dementia** and most patients never reach adulthood.

Over time, brain cells fill up with waste that the body is unable to process. As the brain gets progressively damaged, children experience severe hyperactivity, disordered sleep, loss of speech, cognitive decline, cardiac issues, seizures, loss of mobility, and finally death, usually before adulthood.

There is currently no treatment or cure available to children diagnosed with this devastating disease. Researchers around the world are working hard to develop effective treatments, with several clinical trials already completed or underway.

Isla, Age 13

Our Research

With your help we've committed just over $5.9 MILLION to 34 PROJECTS in the search for treatments and a cure for Sanfilippo

In 2022, four new research projects commenced. All were co-funded with our international partners, with a total research commitment from Sanfilippo Children's Foundation of $329,700

2020

Project to discover and validate new biomarkers for Sanfilippo
to facilitate diagnosis and clinical care, and to improve the translation of therapies.

Project to explore a secondary enzyme deficiency identified in Sanfilippo
to better understand the disease.

2022

Project to further explore disease mechanisms and drugs that target the behavioural symptoms of Sanfilippo
following on from previous funding.

Project to collect cells from patients with attenuated (slower progressing) Sanfilippo syndrome
for inclusion of these patients in further research projects including Brain in a Dish (see page 8).

* includes projects with Primary Investigators based in Australia, Italy and Canada

Callum, Age 5

4 new projects commenced*

Our Research

We aim to maximise the impact of our funds by identifying research that has the potential to deliver the greatest benefits and outcomes for our families.

- we are making progress!

We currently have 19 active projects and initiatives that have received funding from Sanfilippo Children's Foundation. Several of these are nearing completion with one project completed in 2022 (below), and four new projects receiving funding.

"Development of Pharmacological Chaperones for MPS IIIB" saw computer-based modelling and screening identify 31 potential chaperone drug candidates for Sanfilippo type B. Two generously-donated Sanfilippo type B skin cell lines were processed and cultured in the lab before they were used to test 12 of the drug candidates identified. Several of these compounds showed promise as potential chaperones in initial tests, and further analysis via more sensitive techniques is ongoing to validate these results. The team will continue to explore these leads with the aim of developing chaperone drugs that could one day treat patients with Sanfilippo type B.

Secondary deficiency of neuraminidase 1 in neurological mucopolysaccharidoses: mechanism and pathological implications
Chief investigator: Prof. Alexey Pshezhetsky; collaborators: Prof. Domenico Garozzo (Italy) and Prof. Herbert Hildebrandt (Germany)

A greater understanding of the disease process in Sanfilippo can open future therapeutic avenues and improve patient care.

Prof. Alexey Pshezhetsky, based at the University of Montreal and Ste-Justine University Hospital Center, has received an Incubator Grant to investigate the role of the NEU1 enzyme in Sanfilippo.

Prof. Pshezhetsky and his team have identified a 'secondary deficiency' of NEU1 in Sanfilippo type C mice and patient brain samples, which may contribute to the Sanfilippo disease process. The team will confirm whether NEU1 deficiency contributes to the neurological symptoms of Sanfilippo. Then, they will investigate how the deficiency arises and the impacts of the deficiency on brain cell function.

This project is co-funded by the Sanfilippo Children's Foundation, Fundacja Sanfilippo (Poland), Sanfilippo Initiative (Germany), and the H.A.N.D.S. consortium (Portugal, Spain, France).

Discovery and validation of translational biomarkers for Sanfilippo childhood dementia
Chief investigators: A/Prof. Jan Kaslin with Dr Nicholas Smith, Dr Louise O'Keefe & Prof. Kim Hemsley

Biomarkers are an essential tool that will help to diagnose patients, understand disease prognosis, and develop therapies.

Associate Professor Jan Kaslin from the Australian Regenerative Medicine Institute, Monash University, will lead a multidisciplinary team of researchers to discover and validate biomarkers for Sanfilippo.

The team will collect and analyse patient blood samples and samples from animal and cell models to identify potential biomarkers. The potential candidates will then be validated in fruit fly and zebrafish Sanfilippo models previously established by researchers in this project. Biomarkers identified in this translational grant could be fast-tracked into the clinic to benefit patients and their families.

The project is funded by the Sanfilippo Children's Foundation, Cure Sanfilippo Foundation (USA) and Fundacja Sanfilippo (Poland).

New therapeutic strategies for the treatment of behavioural symptoms in MPS-IIIA
Chief investigator: Dr Elvira De Leonibus

The behavioural symptoms of Sanfilippo remain one of the most challenging aspects of the disease.

Dr Elvira De Leonibus at the Telethon Institute of Genetics and Medicine (TIGEM) in Italy has received funds to further investigate the behavioural symptoms of Sanfilippo.

The project will explore how heparan sulfate in Sanfilippo disturbs brain cell growth and development, including the development of the dopamine system that is important in aspects of behavioural symptoms. They will also continue to focus on a class of drugs that target the dopamine system in the brain. Drugs will be administered to type A mice and behavioural tests undertaken, with the effects of chronic treatment and new dose regimens examined.

This project is funded by the Cure Sanfilippo Foundation (USA), Sanfilippo Fighters (Italy) and Sanfilippo Children's Foundation, and extends work funded in a 2018 incubator grant.
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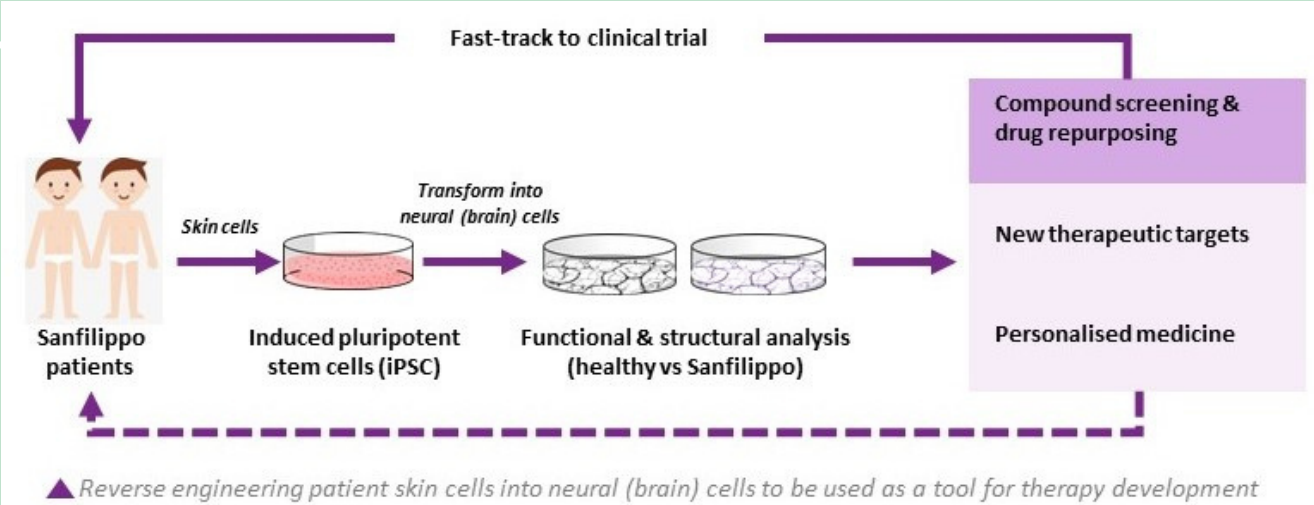
Brain in a Dish Update

The Brain in a Dish project began in July 2019 with the aim to grow cells in the laboratory from children with Sanfilippo Syndrome that model the disease in the brain. The researchers are comparing the appearance and function of the Sanfilippo cells to cells from healthy children and will use them to screen a panel of drugs to identify potentially effective therapies.

The team is making excellent progress. Skin samples have been collected from 5 Sanfilippo & 5 age-matched healthy children. All of these skin samples have now been converted into stem cells, immature brain cells and fully mature brain cells.

All quality control checks on the cells have been successfully completed, giving the team confidence that the cells accurately represent the properties of human brain cells.



Data is now being collected on all of the neurons to build up a full picture of how the Sanfilippo brain cells differ from the healthy cells in terms of appearance under the microscope, their shape and number of connections between the cells, their electrical activity and their molecular characteristics.

This set of features will provide enormous insights into the disease processes at play in the brains of children with Sanfilippo and will form the basis for an 'assay' or test that will allow the team to measure the effects of the panel of drugs to be tested.

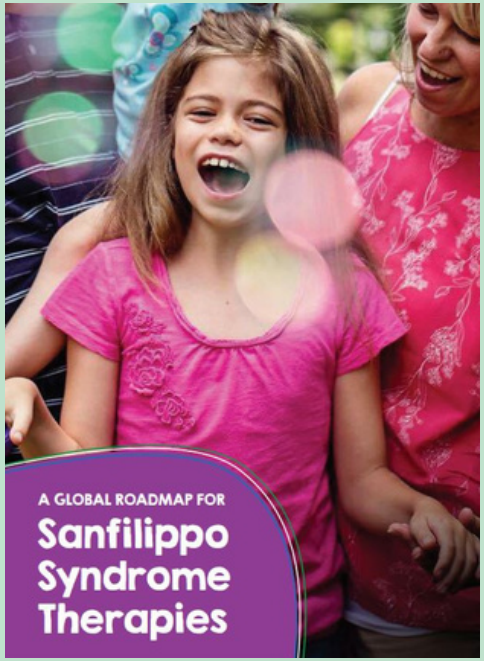
Over the remainder of 2022, the team will finalise the data collection on these features and design the drug screening assay. Drug screening will commence in 2023.

Capitalising on this platform, with the support of a grant from Perpetual, we have also collected cells from individuals with slower progressing (attenuated) forms of Sanfilippo for inclusion in this and other Sanfilippo research projects

Major Milestones

Global Roadmap

February 2022 marked a huge milestone in the fight against Sanfilippo syndrome with the release of the Global Roadmap for Sanfilippo Syndrome Therapies. Sanfilippo Children's Foundation developed the Roadmap in collaboration with our international sister organisations and drawing on the expertise of clinicians, researchers, industry leaders, and families from around the globe. The Roadmap has a single purpose - to focus research efforts towards effective therapies and better outcomes for families affected by Sanfilippo syndrome. Our priority now is to translate the Roadmap into action to drive global efforts and the rapid delivery of much-needed solutions for families.

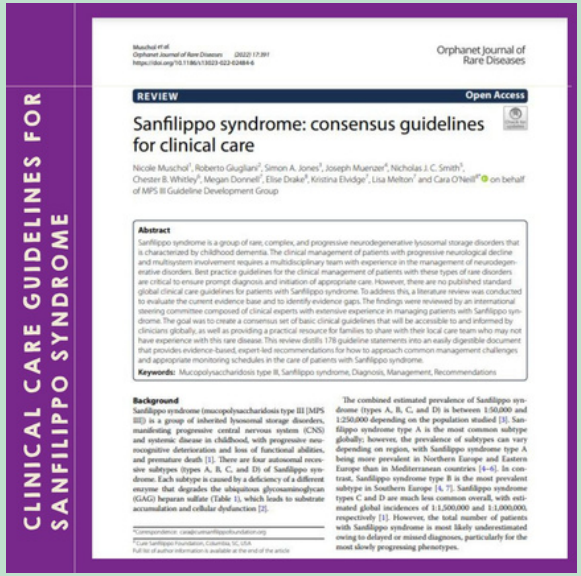


The Symposium

The 2022 Solving Sanfilippo Symposium, held in Adelaide in April, was a great success, bringing together over 50 Australian and international researchers, clinicians, and parents to discuss Sanfilippo syndrome. Minds were focused on the key issues by mum of three, two of whom have an attenuated form of Sanfilippo, Jillian O'Grady who shared their difficult diagnosis experience and the urgent need to broaden research and trials for all subtypes, including attenuated. Researchers presented their work on therapy development for neurological symptoms, early diagnosis and prognostic tools, and management of symptoms. There was a deep and collaborative discussion on how Australia can contribute to the implementation of the Global Roadmap - early diagnosis and newborn screening were seen as critical to accelerate the successful development and access to therapies.

Clinical Care Guidelines

November 2022 saw the culmination of many years of effort by Cure Sanfilippo Foundation, USA, and Sanfilippo Children's Foundation, with the publication of the first-ever global consensus clinical care guidelines for Sanfilippo Syndrome. This publication takes away the guesswork for clinicians and families, providing clear guidance on Sanfilippo Syndrome-specific care, management and monitoring of disease-related changes. Developed with an international expert steering committee and incorporating the patient perspective throughout, the publication in a scientific journal means that the healthcare providers can trust this document as a reliable source of information on the management of Sanfilippo endorsed by medical and scientific professionals in the field. Visit our website to download the Clinical Guidelines.



Our People

Our team is made up of passionate people committed to driving research towards a world free of Sanfilippo Syndrome.

They bring a collective wealth of energy, enthusiasm and expertise to our cause.

Our Team

Victoria Bowring - CEO (until July 22)
Kerren Hosking - CEO (from Nov 22)
Emma Kirkman - Fundraising Manager
Dr. Lisa Melton - Head of Research
Danielle Cini - Research Program Coordinator
Erene Keriakos - Bookkeeper

Our Board

Megan Donnell - Founder/Director
Angeline Veeneman - Director
Mark Arnold - Director
Alison Butt - Director

Our Scientific Advisory Board

Professor Ian Alexander (Chair)
Professor Kim Hemsley
Dr. Nicholas Smith
Dr. Michel Tchan
Professor Sarah Spencer
Associate Professor Karin Borges
Dr. Jana Vukovic

Ronin, Age 7

Our Community

With thanks to the generosity of our community - Sanfilippo families, sponsors, donors and philanthropists - we have been able to fund over $5.9 million of research to strive for a world without Sanfilippo.

Ethan & Ronin Lloyd

Ethan and Ronin are energetic and loving young boys. In 2021 they were both diagnosed with Sanfilippo Syndrome. Coming from families with no known genetic conditions, the diagnoses were particularly shocking.

Both boys are absolutely loveable 'cuddle bugs'. They just have such a happy disposition and are so sweet and caring. Ethan has very limited speech but just wants to give everyone a hug. Ronin's superpower is his absolute conviction that he can do anything. He's just a loveable and happy-go-lucky kid, and he has a great laugh.

The future is not what we thought, we're at a stage where the disease hasn't progressed, but when I look at other children with Sanfilippo, I think, that's where our boys are going, and that will bring me to tears — all the time.

Ollie Schimanski

After years of Ollie having seemingly innocuous symptoms the puzzle was solved, with a terrible diagnosis. We were devastated to be told he has Sanfilippo.

Ollie is one of (maybe) 3 kids in NZ who suffers from the syndrome. And it's not all doom and gloom - Ollie is still the same amazing little monkey, we just understand him better and he continues to blow us away with his pure joy for life. He adores his big sister (who is not affected) and loves tractors, motorbikes, mountain biking and "hammer nailing".

We are hoping for a clinical trial, but at this moment, there are none for Ollie's subtype. And while we wait, we want to raise money for The Sanfilippo Children's Foundation which has been set up to drive research into this disease. We, along with many others, hope for a world without Sanfilippo Syndrome.

Callum O'Reilly

Callum was 4.5 years old when he was given the devastating diagnosis of Sanfilippo Syndrome. It's heart-breaking to watch this disease take a little more from Callum each day. He's lost his favourite words and he can no longer recite his favourite books. He struggles to play with his peers and he is beginning to really struggle with his mobility.

Despite the heartbreak we feel about everything he's going through, each day with him brings us all so much joy. Even though he's being constantly affected by this horrible disease, he's still the same silly, happy, and active child that we've always known and loved. He loves music and is a hilarious dancer, and he loves the beach and playing in the waves.

No family should have to experience the heartbreak that we and all the other affected families have to endure every day, knowing our children are suffering from an incurable and terminal illness. We fundraise for the Sanfilippo Children's Foundation because we're hopeful for a better future for all children affected by Sanfilippo.

IN MEMORIAM

In 2022 we sadly said goodbye to the following much-loved members of our Sanfilippo Community. We would like to dedicate this edition of our Annual Update to these beautiful people and their families.

Jordan Smith 2004 - 2022

Marie Arida 1997 - 2022

Peter Chalouhy 2008 - 2022

Lucas Tiefel 2014 - 2022

A note from our Family Ambassador

It's difficult to describe in words how devastating it is to receive a Sanfilippo diagnosis for your child. In 2019, my husband, Brendan, and I were delivered this news twice over – for our son, Rory, and daughter, Anna.

Rory and Anna are two of the most resilient kids you could meet and are fighting Sanfilippo with ferocity of two lions. But without a treatment soon, I am all too aware that this beast will take over their mind and body and they will be robbed of a future.

Like all parents of children with Sanfilippo, Brendan and I are living life with a constant sense of urgency – urgency to provide Rory and Anna with all the wonderful life experiences a kid could hope for; an urgency to fundraise so researchers can continue to make progress towards the discovery of treatment or cure; and an urgency to get that treatment into all of our kids before it's too late.

Over the past 3 years, it has been a pleasure to personally meet with many researchers who are dedicating their lives to finding a treatment for Sanfilippo. I know that they also share our sense of urgency and want nothing more than seeing our kids live the healthy, happy, full life they deserve.

To all my fellow parents and carers of children with Sanfilippo from across the world – thank you for sharing your children and stories with me. Even with the weight of the world on your shoulders, you continue to open up your lives to help educate and provide support to fellow families, spread awareness of this disease, and raise important funds for research to keep progressing. Your resilience and determination is beyond inspiring.

Together, I know we can achieve our goal – a world without Sanfilippo Syndrome.
- Jillian O'Grady, Mum to Rory, Anna & Juliet (pictured)

Stepping Up

We were amazed and humbled at the number of families, carers, friends and colleagues who stepped up to support each other and Sanfilippo Children's Foundation in an unusual and challenging year.

Steps 4 Skye

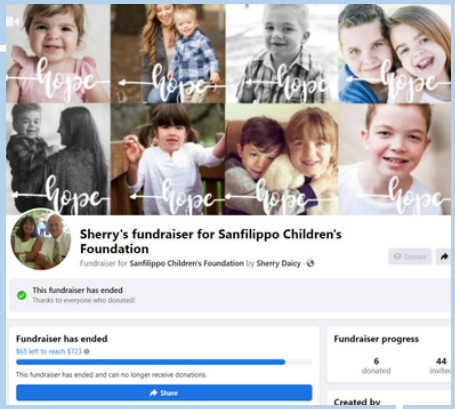
In August, the Steps for Skye team including two amazing carers, Teghan Henderson and Bree Pellow, had another great year - they had the largest number of participants yet and raised over $41,000. This brings the total over 3 years to $80,000. We are so grateful to everyone who donated and raised money in 2022.

5km a day in May

In May we had over 1,250 people register for our inaugural 5km a day in May virtual event. Collectively our supporters covered 193,750km - that is 4.8 times around the world. All while raising money and awareness for Sanfilippo syndrome. Such a massive achievement from an amazing group of supporters. We are really excited to see this event grow bigger and better in 2023.

Beach2Beach Fun Run

After many postponements, we finally got to meet in person for the first time since 2019 for the Beach2Beach community fun run on Sydney's Northern Beaches. We had many of our Sanfilippo families and their communities attend, and Sanfilippo Children's Foundation took first place in the Top Teams Challenge.



Community Fundraising

Throughout the year we had many wonderful people in our Sanfilippo Community running their own fundraisers. These included plant sales, golf days and birthday Facebook fundraisers. We are so grateful to everyone who donated and raised money in 2022. These funds will be used to drive vital research into treatments.

every little bit counts

A Heartfelt Thankyou

We are so grateful to the following **Trusts, Foundations & Organisations** for the significant ongoing support of our research and also to those who wish to remain anonymous.

- Coca-Cola Australia Foundation
- Commbank Foundation
- Petersen Family Foundation
- Ha Ke Na Foundation
- Perpetual Impact Philanthropy
- ASX Refinitiv Charity Foundation
- Lehane Giving Fund
- Humpreys Newsagency
- HTR Group
- Advanced Disability Management

Sanfilippo Children's Foundation wishes to acknowledge our endless appreciation to the following individuals and organisations for providing **Pro-bono Professional Services.**

- Jane Ann Gray, PWC - Legal Services
- Bentleys NSW - Auditing
- Cris Mahony, Little Love Photography
- Hilary Wardhaugh, Hilary Wardhaugh Photography

We would also like to thank our **Board of Directors** and **Scientific Advisory Board Members** for the time, knowledge and expertise that they so generously give to our organisation. All members of these Boards participate in a completely voluntary capacity and are the foundation of our success.

Meckenzie, Age 15

Our Financials

Giving is not just about making a donation. It is about making a difference.

Financial Year 21/22

Income

Our total consolidated income was **$539,423**

Expenditure

Our total expenditure was **$793,599**

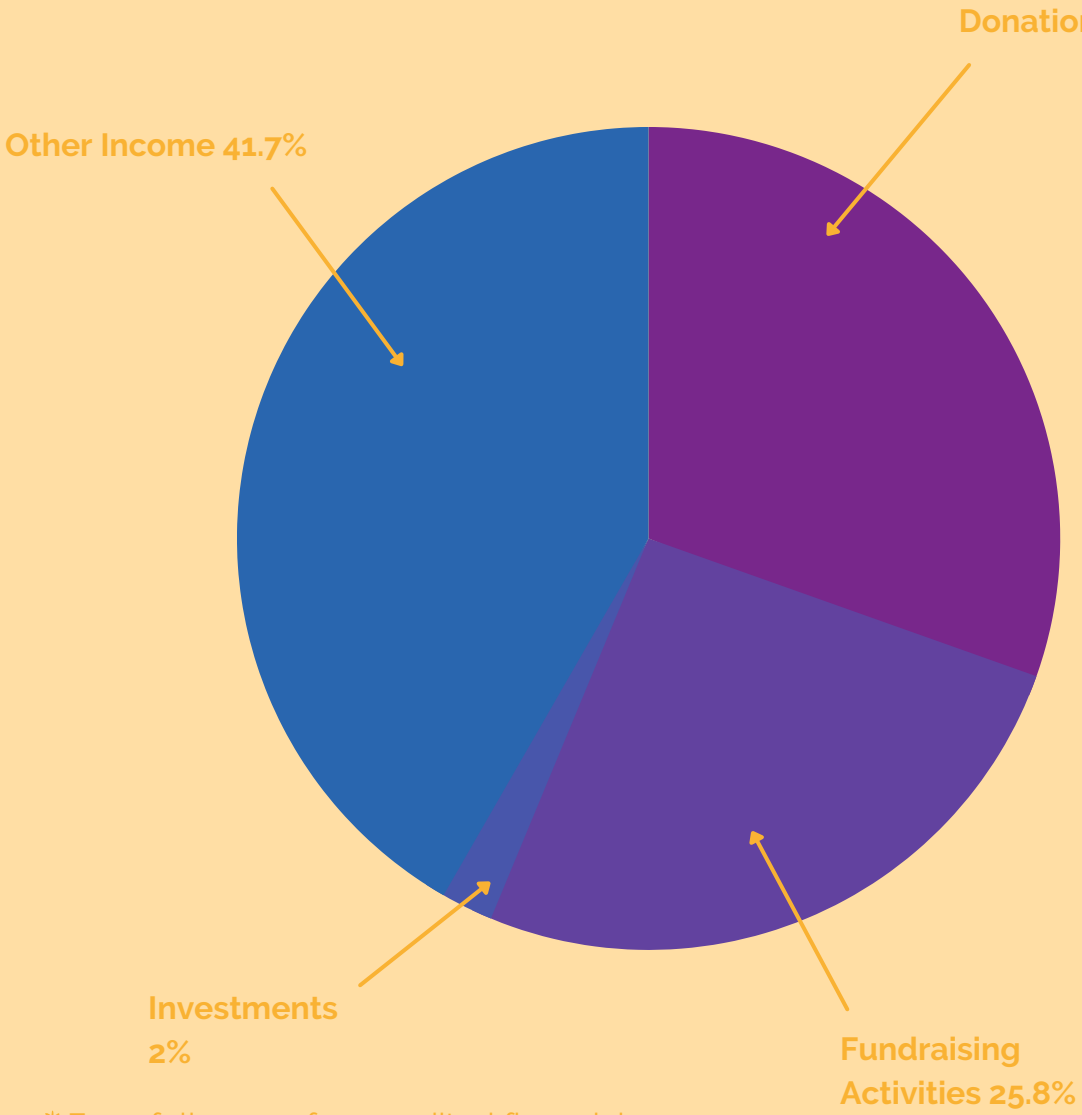
Research & Program Investment

Our investment in research and programs was **$329,700**

Research & Program Committment

Funds allocated to ongoing research and programs is $**381,317**

Income Sources



* For a full copy of our audited financial report please email info@sanflippo.org.au

Financial Year 21/22

Our Gratitude

2022 has been bookended by two major achievements for the Sanfilippo community, with the launch of The Global Roadmap for Sanfilippo Syndrome Therapies at the beginning of the year, and the Sanfilippo Clinical Care Guidelines released in November. These two major works set the scene for more rapid and efficient progress in research and better care and quality of life for families.

We are so grateful to the unwavering generosity and support of our incredible community of researchers, clinicians, donors, sponsors, families, volunteers and fundraisers who allow us to remain committed to our vision and our work here at Sanfilippo Children's Foundation.

Thank you to each and every one of you for believing in us and showing us such incredible support. It is this that drives both our research and the resolve of our team!

We hope 2023 will continue to bring new connections, insights and progress in Sanfilippo research.

With gratitude and hope from the bottom of our hearts,

" The SCF Team "