Cystic Fibrosis WA Research Impact Report

Throughout our 50-year history, CFWA has invested significantly in Cystic Fibrosis research, with a particular focus on research based in WA. Incredible commitment from CF researchers, together with generous support from our community, has enabled life-changing advances in treatments and care.

We are excited to further build upon this momentum, with **$2m in grants awarded in 2025** through **The WA Cystic Fibrosis Research Collaborative Program**, which is delivering ongoing benefits for the CF Community. Whilst we celebrate advances in treatment and care, there is still no cure for CF and much more to be done. We continue to work with the community to deliver our vision; **Thriving individuals, families and communities.**

WA Cystic Fibrosis Research Collaborative Program

The WA Cystic Fibrosis Research Collaborative Program is a partnership between the Western Australian Future Health Research and Innovation (FHRI) Fund and Cystic Fibrosis WA (CFWA), in collaboration with Conquer Cystic Fibrosis (CCF). Below are the currently funded research projects:

CYSTIC FIBROSIS Western Australia

Western Australian Future Health Research & Innovation Fund

Conquer Cystic Fibrosis

Project Stream 1: Postgraduate Top-Up Scholarships

Too much of a good thing? A blood test to check and understand the levels of CFTR modulators.

By Sarah Thomas | University of WA | 2025

Cystic fibrosis affects about 90,000 people worldwide. CFTR modulator medicines have transformed treatment by targeting the underlying cause, but patients respond differently, experience varied side effects, and often take other interacting medicines. Despite their impact and cost, these drugs are prescribed at a single standard dose. This study will develop Australia's first accessible blood test to measure CFTR modulator levels, helping doctors tailor doses so patients can achieve the same benefit with fewer side effects. It will also generate vital data to guide future dosing and improve long term- treatment outcomes.

Sarah Thomas is a Medical Scientist at PathWest and a PhD candidate at UWA with over 15 years' experience in pharmacology and toxicology. She specialises in mass spectrometry method development and is passionate about improving pharmacokinetic understanding and translating laboratory methods into meaningful clinical outcomes.

New ways to stop lung infections caused by viruses in people with cystic fibrosis.

By Tayla Conradie | The Kids Research Institute Australia (on behalf of the Centre for Child Health Research, on behalf of The University of Western Australia) | 2025

People with cystic fibrosis are highly vulnerable to respiratory viruses because thick mucus in the lungs traps and retains them. Children are especially at risk, with infections often worsening lung health. This project aims to find proactive treatments that prevent infections and protect long-term lung function. Azithromycin has been shown to reduce inflammation in infants with CF, though the mechanism is unknown. This research will explore how azithromycin affects naturally occurring lung viruses and whether this can help defend against infections. It will also examine nasal bacteria in children to identify ways to predict and prevent future illness.

Talya Conradie is a research scientist and PhD candidate at the Wal-yan Respiratory Research Centre and UWA. With expertise in systems medicine and bioinformatics, her work explores how lung microbial communities influence viral susceptibility in children with cystic fibrosis and how treatments like azithromycin affect the virome and immune system.

Project Stream 2: Research Innovation

Connected Care: Strengthening Communication and Partnerships in Health for West Australians Living with Cystic Fibrosis.

By Dr Maggie Harrigan | Institute for Respiratory Health | 2025

Living with cystic fibrosis remains complex, even with improved treatments. Consistent, patient-centred communication is essential, yet often lacking. To strengthen partnerships in care, the Cystic Fibrosis Foundation and the Academy of Communication in Healthcare created the Partnership Enhancement Program (PEP), now widely used across US CF centres. Australia is adapting this model as PEP-Aus, shaped with input from the CF community to reflect local culture and healthcare needs. It will be piloted across WA hospitals and community teams to assess feasibility and impact, paving the way for national rollout and better support for Australians with CF.

Dr Maggie Harrigan is a Lecturer at UWA and Honorary Research Fellow at the Institute for Respiratory Health. With 18 years of clinical and academic experience, she focuses on improving psychosocial support for adults with CF and co-leads a national team advancing CF care through collaboration and innovation.

Removing the invisibility cloak of the germs with the right phage combination.

By Dr Renee Ng | The Kids Research Institute Australia, on behalf of the Centre for Child Health Research, University of Western Australia | 2025

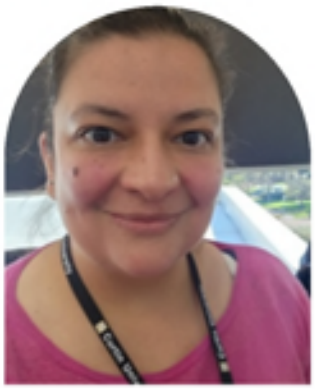
Antibiotic-resistant bacteria are a growing global threat, especially in Australia where antibiotic use is high. In people with cystic fibrosis, some bacteria use "cloaking antibodies" to hide from the immune system, leading to worse health outcomes. These antibodies may also block bacteriophages—viruses that kill bacteria—reducing their effectiveness. This project is the first to examine how bacteriophages interact with cloaked bacteria and to identify phage combinations that can bypass this defence. The goal is to develop a safe, effective therapy that shortens hospital stays, saves lives, reduces healthcare costs, and drives new biotech innovation in Western Australia.

Dr Renee Ng is a WA Early Career Child Health Research Fellow specialising in phage therapy and infectious diseases. She led development of the Phage WA Manufacturing Facility and collaborates nationally to improve phage therapy efficacy, translating complex data into insights that advance disease prevention and public health innovation.

Project Stream 2: Research Innovation

Tracking Heart and Health Risks in People with Cystic Fibrosis.

By Dr Sunaina Parsons | Institute for Respiratory Health | 2025



New CF medications that target the root cause of the disease have helped people live longer with better lung function. As adults with CF age, however, they face rising risks of cardiometabolic problems, including heart disease and metabolic disorders. Factors such as CF-related diabetes, kidney issues, high- salt diets, and chronic inflammation contribute to this risk. Because people with CF have unique health histories, it's- difficult to measure their true cardiometabolic risk. This project will use innovative methods to assess heart and metabolic health in adults with CF and guide new lifestyle or medical strategies to reduce disease risk.

Dr Sunaina Parsons is a clinician researcher in respiratory and cardiovascular medicine and a consultant with the adult CF service at Sir Charles Gairdner Hospital. Trained in the UK with a doctorate in cardiovascular disease, she has published widely and now focuses on detecting early cardiac risk in people with CF.

Development of a blood test to determine liver disease severity in people with cystic fibrosis.

By Emeritus Professor George Yeoh | The Harry Perkins Institute of Medical Research | 2025

Thanks to medical advances, people with cystic fibrosis (CF) are living longer, but this brings a higher risk of liver disease. When the liver is damaged, stem cells multiply and release biomarkers into the blood. Our earlier work shows this happens in children with CF. Currently, detecting liver damage often requires an invasive biopsy. This research is developing a safer alternative by using blood tests to measure stem-cell biomarkers. This could allow earlier detection, better monitoring and improved treatment without repeated biopsies. Next, this approach will be validated in more patients and additional biomarkers will be identified to enhance accuracy.

George Yeoh [BSc (Hons), PhD] is an Emeritus Professor at UWA and an internationally recognised researcher in liver progenitor stem cells. His work revealed their bipotential nature and presence in multiple liver diseases, highlighting their role in liver repair. He previously held an NHMRC Principal Research Fellowship and trained at leading global institutes.

Project Stream 3: Fellowships

Developing a precision approach to phage therapy in Australia.

By Associate Professor Anthony Kicic | The Kids Research Institute Australia, on behalf of the Centre for Child Health Research, University of Western Australia | 2025

Antimicrobial resistance (AMR) is rising as bacteria adapt to antibiotics, and could cause over 10 million deaths each year by 2050. Australia is especially vulnerable due to high antibiotic use in groups such as people with cystic fibrosis (CF). With no new antibiotics in development, alternative treatments are urgently needed. Our research focuses on bacteriophages—viruses that kill bacteria—and on creating a Good Manufacturing Practice (GMP) pipeline to produce safe, high-quality phage medicines. By validating robust quality-control processes and working with the TGA, we aim to deliver effective treatments that reduce hospital stays, save lives and ease healthcare burdens.

Associate Professor Anthony Kicic is a molecular and cell biologist whose work spans tissue engineering, stem cell biology and airway repair. He founded a stem cell unit, established key laboratory techniques, and now investigates lung-resident stem cells and epithelial dysfunction in respiratory diseases including asthma, cystic fibrosis and lung transplant rejection.

PhageBnB: Finding the right phage to treat cystic fibrosis lung infections anywhere in the world.

By Dr Yuliya Karpievitch | The Kids Research Institute Australia on behalf of the Centre for Child Health Research, University of Western Australia | 2025

Bacterial lung infections are a major cause of health decline in cystic fibrosis (CF), and rising antibiotic resistance is creating fear and uncertainty for many. This project aims to restore confidence in future CF care by developing tools to support the safe introduction of phage therapy—viruses that specifically kill bacteria, even when antibiotics fail. Because each phage must be precisely matched to the infection, Dr Karpievitch is creating an AI system that can identify the right phage in under 24 hours. This technology will power "PhageBnB," a global platform linking phage providers so WA patients can rapidly access effective treatments.

Dr Yuliya Karpievitch is an AI and data science expert advancing biotechnology and antimicrobial innovation. She develops precision-matching tools for next-generation phage therapeutics, improving care for vulnerable groups. Her work integrates clinical microbiology, bioinformatics and machine learning to translate complex biological data into personalised, scalable solutions for infectious disease treatment.

Project Stream 4: Collaborative Grants

Fighting Rare Lung Infections in Cystic Fibrosis with a Promising New Antibiotic

Dr Kak-Ming Ling, in collaboration with Assistant Professor and Infectious Diseases Specialist Dr Dhammika Leshan Wannigama and Professor Hiroshi Hamamoto from Yamagata University, Japan | The Kids Research Institute Australia, on behalf of the Centre for Child Health Research, University of Western Australia | 2025

People with cystic fibrosis (CF) are vulnerable to hard-to-treat lung infections caused by non-tuberculous mycobacteria (NTM), which resist antibiotics and form protective biofilms. Current treatments are lengthy, toxic and often unsuccessful. This project investigates Lysocin E, a promising new antibiotic that targets bacterial energy production. It will examine how CF-derived NTM respond to antibiotics, test Lysocin E's ability to kill bacteria and disrupt biofilms and study its effects on bacterial genes. In collaboration with experts in Japan, this work aims to develop safer, more effective therapies that improve outcomes and quality of life for people with CF.

Dr Kak-Ming Ling is a Senior Research Officer specialising in airway epithelial biology and phage therapy in cystic fibrosis. She leads studies on phage–host interactions in CF mucus and mucin structure and contributes to GMP-compliant phage production. Her work advances precision medicine for chronic respiratory infections.

Thank you to all of our generous donors for making this groundbreaking research possible.