the brain cancer centre
MANY MINDS. ONE FOCUS.

Founded by
Carrie's Beanies
4 Brain Cancer

The Brain Cancer Centre Annual Report

Many Minds. One Focus.

1 January 2024 to 31 December 2024

Contents

Brain cancer is a devastating illness. Currently there is no cure. We need to change this.

Survival rates have barely changed in 30 years.

80% of patients diagnosed with brain cancer will die within 5 years.

One Australian is diagnosed with brain cancer every 5 hours.

Brain cancer kills more kids in Australia than any other disease.

Brain cancer kills more people under 40 than any other cancer.

Our impact

$30 Million

Committed to research and clinical trials

World First

Launched a world first clinical trial Brain POP

60 Researchers

Working together to find new treatments

13 Projects

Funded research projects and clinical trials

17 Partnerships

Bringing together collaborative partnerships from across Australia

Establishing a world-class centre of excellence in brain cancer research.

Leveraging phenomenal talent, infrastructure and experience, The Brain Cancer Centre has committed over $30 million to fund highly impactful, collaborative research projects and clinical trials.

Bringing together the best medical research minds from around Australia and the world.

This is just the beginning.

Our Collaborators

The Florey Advancing Brain Research
Mark Hughes Foundation Centre for Brain Cancer Research
Menzies Institute for Medical Research
Monash University
murdoch children's research institute
RHH Royal Hobart Hospital
Peter Mac Peter MacCallum Cancer Centre Victoria Australia
The Royal Children's Hospital Melbourne
The Royal Melbourne Hospital
Telethon Kids Institute
Telethon Kids Cancer Centre
The University of Adelaide
The University of Melbourne
The University Of Queensland Australia
VCCC Alliance Overcoming cancer together
WEHI brighter together

Sam McGuane

Celebrating a Year of Collaboration, Unity, and Advancement

As The Brain Cancer Centre enters its fourth year of operation, we are filled with pride and excitement about the incredible progress we've made. This year has truly embodied 'Many Minds. One Focus.' with a united effort towards the singular goal of transforming outcomes for brain cancer patients.

We welcomed Professor Misty Jenkins and Dr Jim Whittle as Co-Heads of Research Strategy in late 2023. They have been instrumental in the early success of our collaborative model, advocating for multi-institutional investments and placing a strong emphasis on bringing high-quality, science-led projects into the BCC, driven by collaborative and generous research teams. Their combined expertise and experience will be key to driving the next phase of the BCC's research strategy.

As we look ahead, the future of the BCC is both inspiring and demanding. With the solid foundation we've built, we are well-positioned to deepen collaborations and develop a comprehensive plan to achieve our vision: that one day, no lives will be lost to brain cancer. In parallel, we will focus on establishing a sustainable revenue model to ensure the long-term viability of our research and initiatives, enabling continued impactful progress for brain cancer patients.

We extend our heartfelt thanks to BCC donors and supporters for their unwavering support of our vision. Together, our efforts continue to shape the future of brain cancer research and improve outcomes for those affected by this devastating disease.

Within this report, you'll find a snapshot of the key achievements from the 2024 research year – a testament to the dedication and hard work of both our BCC researchers and consumers.

Thank you for your philanthropy and continued belief in our mission. Together, we are not only making The Brain Cancer Centre a reality but also pushing the boundaries of what's possible in brain cancer research.

Best wishes,

Sam McGuane

Chief Executive Officer, The Brain Cancer Centre

Professor Misty Jenkins and Dr Jim Whittle

Co-Heads of Research Strategy - Building Stronger Collaborations

As we reflect on our first year as Co-Heads of Research Strategy, we are proud of the progress we've made in building a dynamic and collaborative research environment. Our efforts have been focused on uniting talented individuals from diverse fields to create a robust network of expertise that stretches across the Parkville biomedical precinct, throughout Australia, and internationally.

At the heart of this endeavour is an exceptional team of nearly 100 researchers, complemented by a dedicated group of consumers with lived experience. Supporting early career researchers and PhD students continues to be a focus, as their creativity and dedication will pave the way for future breakthroughs.

A significant aspect of our work has been strategically positioning our research ecosystem to capitalise on our areas of specialty, while addressing critical gaps in both Australian and international brain cancer research. In this effort, we would like to acknowledge the invaluable contributions of our independent Research Advisory Committee. Their expert guidance has been instrumental in ensuring that our work not only aligns with the Centre's mission and vision but also strengthens our role in advancing the field on a global scale.

In 2024, we held two significant conferences—the International Brain Tumour Research Summit and the BCC Funded Program Conference—bringing together our talented researchers and global experts. These events provided a unique platform for sharing unpublished data and fostering collaborative discussions to accelerate breakthroughs in the field.

As we look to the year ahead, we are eager for the challenges and opportunities it will bring as we work to refine and enhance our research strategy. The path forward is filled with potential, and we remain dedicated to ensuring that our collective efforts will drive significant progress toward fulfilling our mission, together.

Kind regards,

Professor Misty Jenkins AO
Laboratory Head, WEHI

Dr Jim Whittle
Laboratory Head, WEHI
Medical Oncologist, Peter MacCallum Cancer Centre

The year at a glance:
1 January 2024 to 31 December 2024

the brain cancer centre
MANY MINDS. ONE FOCUS.
Founded by Carrie's Beanies 4 Brain Cancer

112 local, national and international **collaborations** are ongoing, a 45% increase from 2023

12 formal **partnerships** are ongoing, with 8 developed in 2024

6 clinical trials based on BCC research

26 papers were published in internationally respected scientific journals in 2024

126 scientific presentations were delivered, a 56% increase from 2023

90 researchers are now part of the BCC, a 25% increase from 2023, including 24 early career post-doctoral researchers and 19 students

32 consumers have contributed to programs across the BCC, a **28% increase** from 2023

$8,298,668 revenue - In 2024, **$3,256,786** in research grants received with an additional **$1,541,882** in donations and **$3,500,000** from CB4BC

Since the opening of The Brain Cancer Centre, **$47,766,197** has been leveraged from the initial donation of **$10,000,000** from **CB4BC**

Our Brand At Work – 2024

Fundraisers

Lachie's Story

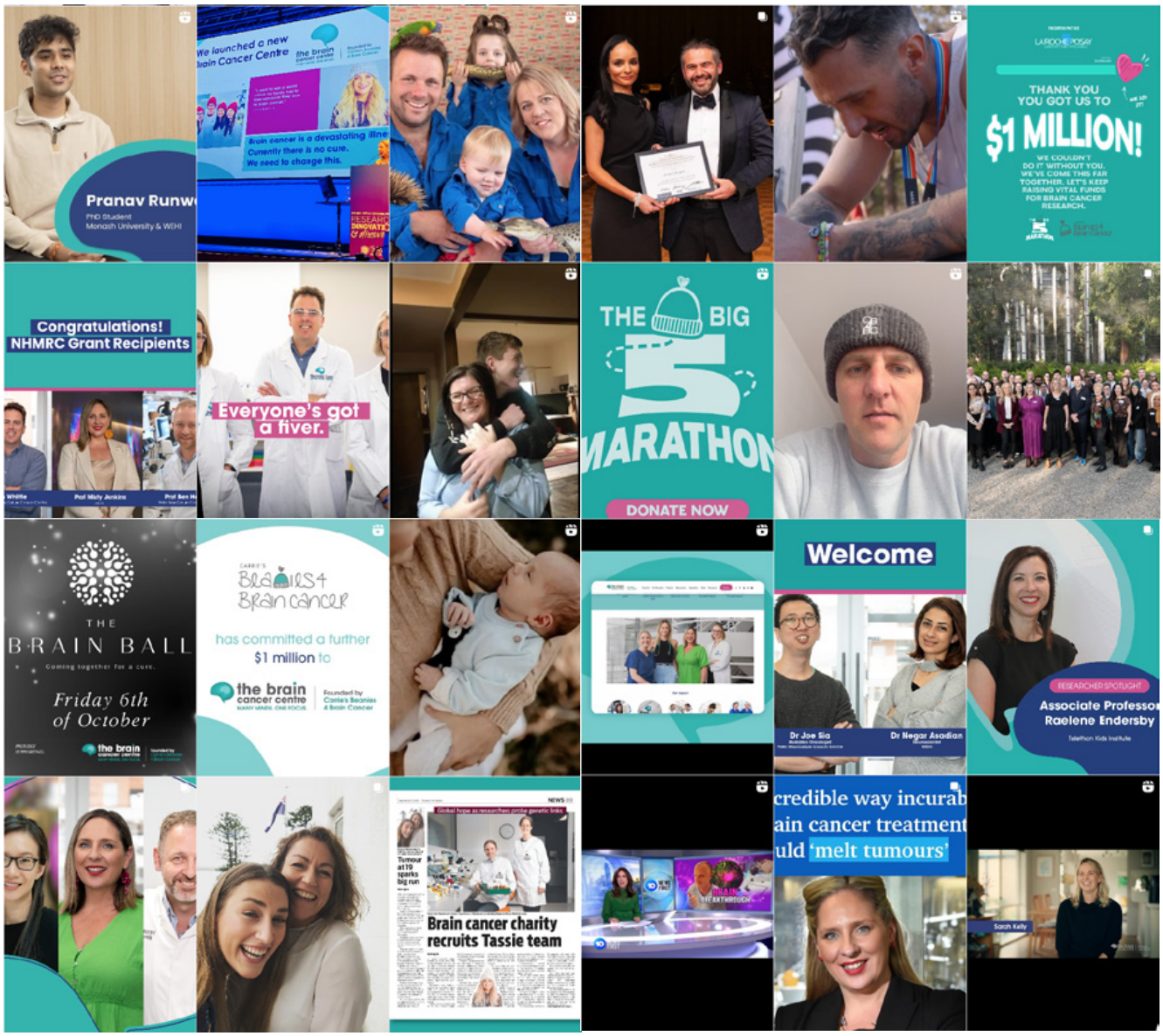
Max's Cast for a Cure

Andrew hikes for Brain Cancer Research

Daisy's Day on The Green

Hugo's Legacy

On our Socials



The International Brain Tumour Research Summit - February 2024

This one-day event brought together leaders, experts, and innovators to discuss and explore the latest developments, challenges, and opportunities in brain cancer research. The Summit was hosted by a consortium of like-minded organisations committed to advancing this research, including:

The Brain Cancer Centre
Children's Cancer Foundation
Isabella and Marcus Foundation
Mark Hughes Foundation Centre for Brain Cancer Research at the University of Newcastle
The Robert Connor Dawes Foundation

The Brain Cancer Centre Funded Program Conference - May 2024

A dedicated conference for researchers funded by the BCC, facilitated networking and strengthened collaborations to reduce duplication and propel our work forwards.

Research Updates – 1 January 2024 to 31 December 2024

Professor Kate Drummond
The Royal Melbourne Hospital

Professor Peter Gibbs
WEHI

Dr Lucy Gately
WEHI

BRAIN - Brain Tumour Registry Australia: Innovation and TraNslation

BRAIN is a major, long-term expansion of ACCORD, the brain cancer database originally established at The Royal Melbourne Hospital to support clinical and translational research into brain cancer. The BRAIN program aims to gather and connect information from doctors, researchers, and patients to improve the understanding and treatment of brain cancer. The goal is to find better ways to diagnose the disease early, develop new treatments, and improve the lives of patients and their families.

BRAIN dramatically increases the reach of our clinical data collection efforts in Australia. By linking data from multiple sources, the BRAIN program creates a valuable resource for research and patient care. This groundbreaking initiative is unique nationally and internationally, both in the amount of data it collects and the wide range of experts it brings together. However, its greatest value comes from the many research projects it supports and the solid foundation it creates for future discoveries and research progress.

The BRAIN registry collects clinical information on patients diagnosed with a brain tumour, including how they present, details about their tumour, and information regarding their treatment and outcomes in the routine clinical practice setting. The registry officially opened in 2019, and since then, historical data on 5,700 patients has been migrated from The Royal Melbourne Hospital ACCORD database, with some records dating back as early as the year 2000. New patients have been added to the registry each year, and there is now a total of 9,555 patient records captured in the registry.

Research highlights

There were several research highlights for the BRAIN registry program for 2024. These include:

- An update to the registry to include additional fields for the entry of genetic data from patients that have undergone genetic testing. This additional data will be invaluable to researchers in improving diagnosis of disease, individualising patient treatment, and improving health outcomes.
- Four new sites were opened in 2024, bringing the total to 16 sites.
- The BRAIN registry steering committee reviewed and approved applications from five researchers to access registry data for the purposes of their brain cancer research. This will allow these researchers to leverage this data to increase impact for patients.
- There were four research articles published in scientific journals from studies using data collected and recorded in the registry.

Goals for 2025

2025 will be an exciting year for the BRAIN registry, with plans in motion to expand the registry both nationally and internationally. The registry will soon open at several sites in NSW, with Western Australia to follow. There has also been some early engagement with institutions in Asia and Canada. We also anticipate further registry trial activity to increase trial opportunities for patients and improve clinical outcomes.

Professor Guillaume Lessene
WEHI

Professor Ben Hogan
Peter MacCallum Cancer Centre

Associate Professor Joseph Nicolazzo
WEHI

Associate Professor Kym Lowes
WEHI

Associate Professor Jeff Mitchell
WEHI

Dr Anne K Lagendijk
Institute for Molecular Bioscience, University of Queensland

Dr Gabby Watson
WEHI

Blood Brain Barrier Program

This ambitious program is focused on tackling the critical challenges posed by the natural blood-brain barrier (BBB), which frequently prevents therapies from reaching cancers in the brain. The BBB program aims at developing solutions to bring potent anti-cancer medicines across the blood-brain barrier. This multidisciplinary program comprises three streams:

Stream 1: Focused on uncovering new biological mechanisms at the BBB that can be leveraged to increase permeability to anti-cancer therapies. This work lays the foundations for an ambitious genetic screen to identify new genes that control the development of the normal BBB.

Stream 2: Delivers various molecular tools designed, in a Trojan Horse-like manner, to trick cells into allowing brain cancer drugs across the BBB and the brain-tumour barrier, in order to reach otherwise inaccessible cancers in the brain.

Stream 3: Establishes systems and workflows to evaluate the potential of various cell types to model important aspects of the human BBB in a dish. Once built, this tool would be like a 'discovery engine' for identifying new therapies, drawing on the drug discovery capabilities of the team.

Research highlights

- We have developed new methods to measure our peptide-based Trojan Horses in biological matrices using advanced techniques. These methods are now being used in other projects to track how peptides spread in the body at the Monash Institute of Pharmaceutical Sciences (MIPS).
- The BBB program has developed new Trojan Horses that hold potential for IP protection and further therapeutic development.

Goals for 2025

Stream 1: We aim to (1) apply new live imaging tools to develop a drug screening pipeline to measure the ability of different drugs to cross the BBB; and (2) validate these potential drugs in brain cancer models for future blood-tumour barrier studies.

Stream 2 : We aim to (1) assess BBB transport of our peptide and nanobody Trojan Horses using our in vitro BBB assays and in healthy mice; (2) link potent anti-cancer compounds to our Trojan Horses in various ways and assess BBB transport in vitro; and (3) measure anti-cancer efficacy of the molecular Trojan Horses linked to potent anti-cancer compounds in glioblastoma patient derived neurospheres, and assess on-target toxicity on normal brain cells called astrocytes.

Stream 3: We aim to refine our assays that mimic the BBB, including developing a 3D model that incorporates bioengineered vasculature, and a 3D micro-fluidic model that incorporates the BBB vessel architecture and an associated cancer organoid.

The aim of this work is to enable identification of the best approaches to tackling the BBB, and potential drugs that may improve treatment of brain cancer.

Professor Misty Jenkins
WEHI

Brain Cancer Centre Immunotherapy Program

Through its innovative research, the BCC Immunotherapy Program presents a personalised approach to the development and translation of advanced immunotherapies for brain cancer. The mature program focusses on designing bespoke Chimeric Antigen Receptors (CARs) to enhance T cell immunotherapy for brain cancer, with the aim to realise bringing cell therapies into the clinic.

The overarching vision for the next five years is to spearhead groundbreaking advancements in immunotherapy, revolutionising the treatment landscape for brain cancer while unravelling the fundamental principles of rational and safe CAR T cell design.

This comprehensive research program involves:

Aim 1: Establishment of a pipeline of novel target antigen discovery.

Aim 2: Generation and functional testing of CAR T cell therapies for adult and paediatric high-grade glioma (HGG).

Aim 3: Investigation of the brain tumour microenvironment through immune profiling.

Aim 4: Generation of novel paediatric preclinical models to test therapy in physiologically relevant settings.

This strategic and targeted design approach to the development of CARs will be a major step towards the successful translation of CAR T cells for the treatment of brain cancers. These CAR T cells will then be able to be utilised either alone, or in combination with other therapies, to treat this deadly disease.

Research highlights

The Brain Cancer Centre Immunotherapy Program has made substantial progress in 2024, achieving key milestones that have advanced both adult and paediatric glioma therapies.

We completed spatial proteomics on 64 paediatric brain tumours, thanks to our excellent clinical collaborations and access to biobanks across the country. We have progressed our work by collecting matched primary and relapsed adult GBM samples that are undergoing cell surface and spatial proteomics, in collaboration with the Brain Cancer Research Lab and other BCC researchers.

Using cutting-edge techniques that allow scientists to closely examine cells and tissues, we have established a platform to create detailed images of the brain, enabling us to investigate immunotherapy responses in real time. This data is instrumental for guiding combination therapy strategies to combine with the CAR T cell program.

Goals for 2025

The 2025 CAR T cell therapy program seeks to advance preclinical models of CAR T cell therapies for paediatric and adult high-grade gliomas (HGG). Leveraging our identification of novel targets in 2024, we will now optimise CAR T cell safety and efficacy and develop strategies to overcome immunosuppressive barriers within the brain tumour microenvironment. Leveraging cutting edge techniques such as intravital microscopy, spatial proteomics, and whole-brain imaging, the program aims to generate actionable insights into the cellular and molecular dynamics of CAR T cells in glioma.

Associate Professor Oliver Sieber
WEHI

Professor Peter Gibbs
WEHI

Brain Cancer Organoids Program

Organoid technology enables the growth of tumour samples from patients with brain cancer in the laboratory as miniature replicas, providing a breakthrough platform to understand brain cancer biology and discover new treatments. The Brain Cancer Organoids Program is focused on leveraging organoid technology to enhance personalised treatment selection for patients, accelerate new therapy development, and ultimately drive improvements in patient outcomes. The program aims to:

1. Establish a biobank of patient-derived organoids for brain cancer to drive research into patient-focused therapeutics.
2. Develop organoid-based diagnostic drug tests to inform treatment selection.
3. Leverage organoids to identify new treatment options for brain cancer patients.

The brain cancer organoid technologies and resources developed by this program are being utilised across basic research, drug discovery and immunotherapy development projects led by researchers of the wider Brain Cancer Centre.

Research highlights

In 2024, our research team expanded the CB4BC organoid biobank to 88 patients, recruited from three metropolitan hospitals with comprehensive clinical data collection via the BRAIN registry. We have established standardised processes to grow organoids and verify that these appropriately mimic the histology and molecular make-up of the original tumour. We have developed a pipeline for testing of organoids for responses to standard-of-care and investigational drugs including temozolomide, lomustine and regorafenib.

To identify new drug combinations for brain cancer, we have developed 3D cell line-based spheroid assays that are amenable to high-throughput screening. To date, this has resulted in the identification of three candidate drugs which significantly enhance tumour cell killing when combined with regorafenib. Our organoid resource has supported the work of multiple Brain Cancer Centre researchers, including studies of promising new classes of anti-cancer agents (BH3 mimetics, metabolic inhibitors) and evaluation of immunotherapies. A manuscript comparing different types of patient-derived tumour models (organoids, neurospheres) is under review.

Goals for 2025

In 2025, we will continue to grow the CB4BC translational organoid platform in conjunction with our hospital partners and the BRAIN registry for use by the wider Brain Cancer Centre community. With an expected recruitment of over 30 patients, we will formalise our multi-site processes for organoid generation, combined with semi-automated organoid drug testing and comprehensive data collection via a clinical registry. With our collaborators, we will continue to develop multi-model workflows for drug and immunotherapy discovery.

To enhance clinical translation, therapeutic candidates will be advanced through stepwise testing in models with increasing biological complexity. We will further expand our efforts in new drug combination discovery. This will leverage our new 3D cell line-based spheroid model for high-throughput screening, followed by systematic validation in organoid models. In addition, our team will continue development of breakthrough organoid diagnostics by evaluating the accuracy of organoid drug testing for prediction of therapeutic responses to improve patient care.

Dr Sarah Best
WEHI

Dr Saskia Freytag
WEHI

Dr Jim Whittle
WEHI

Brain Cancer Research Laboratory

The Brain Cancer Research Laboratory (BCRL) is co-headed by a fundamental biologist (Dr Best), a bioinformatician (Dr Freytag) and a clinician (Dr Whittle), to bring a multidisciplinary focus to brain cancer research. The laboratory was established in 2021 and draws upon these complementary strengths to deliver a synergistic program of research, including:

Theme 1: Investigate the tumour and its microenvironment using spatial technologies to design better treatments.

Theme 2: Understand how tumours change in response to treatment and time to help target tumour progression at early stages.

Theme 3: Establish genetically engineered mouse models to study glioma development.

Theme 4: Identify new treatment options, particularly combination therapies, through the development of patient derived models and high throughput drug screening.

Theme 5: Develop novel clinical trials for patients with brain cancer.

Research highlights

The BCRL expanded in research breadth in 2024, welcoming radiation oncologist Dr Joe Sia to develop a Neuro-Oncology Translational Radiobiology (NOTR) program investigating radiation in brain metastases through clinical trials and modelling in the laboratory, securing a Tour de Cure grant for this research. Significant research programs were finalised and submitted for publication, including part of the Brain-POP clinical trial “AnHeart” that tested a mIDH inhibitor, safusidenib, in low grade glioma patients. We identified drug activity in the brain tumours of treated patients and developed hypotheses regarding how drug treatment may lead to response or resistance in patients, which was a significant collaborative effort within and beyond the lab (Drummond et al., in revisions).

We have developed enabling pipelines to establish our larger programs, which were submitted for publication in 2024. This includes methodology to develop 3-dimensional models of multi-omic data from glioma patient samples, Spatial Multi-omics Integration (SMINT) and the integration of spatial metabolomics and transcriptomics information (SpaMTP). In preparation for larger drug screening programs using patient derived models, we performed a systematic investigation of four new models using two methods – neurospheres (PDN) and organoids (PDO) in a collaborative project with the Sieber Laboratory. This comparison established PDNs as an effective platform for drug screening. Together, these pipelines are the foundations for large programs in the lab, which will be progressed in 2025.

Goals for 2025

Having established our key foundations, in 2025 we are prepared to delve into the biology of the resources we have developed. Key targets include finalising the “Venture Project” outcomes, which will involve the bioinformatic investigation of key features in six low grade glioma 3-dimensional multi-omic tumours. Additionally, we are investigating the features of low grade gliomas that have progressed over time to high grade glioma, using matched patient cohorts collected over time. This study will help us better understand tumour progression in the early stages of disease.

As a laboratory, in 2025 we will be building expertise in rapid diagnostic techniques to establish a new program of research in 2026, and establishing and strengthening our national collaborations through the submission of large MRFF and Ideas Grants schemes. Clinical trials (i.e. PRIME, GIANT) will open in 2025, with BCRL leading translational research to investigate efficacy and activity in the brain.

Professor Mark Rosenthal
Peter MacCallum Cancer Centre

Professor Kate Drummond
The Royal Melbourne Hospital

Associate Professor Jordan R Hansford
SAHMRI

Associate Professor Jayesh Desai
Peter MacCallum Cancer Centre

Dr Jim Whittle
WEHI

Dr Claire Phillips
Peter MacCallum Cancer Centre

Brain-POP Program

Brain-POP is a world first perioperative, comprehensive, longitudinal treatment study in brain cancer. For decades, the development of new treatments for brain cancer has been hindered by clinical trial designs that have not addressed two fundamental questions:

1. Do drugs effectively reach the tumour?
2. Do they produce the expected anticancer effect?

With a $16M investment from the Victorian Government, Brain-POP has been conducting innovative clinical trials in the perioperative setting. By collecting tumour samples both before and after treatment, researchers are able to answer these critical questions, accelerating the development of new drugs in clinical settings. The program leverages the expertise and resources of the BCC and its precinct partners to deliver personalised treatments and improved outcomes for Victorian patients, including paediatric, adolescent, and adult populations.

Over a five-year period, the program focuses on:

1. Establishing key infrastructure to support clinical trials and brain cancer research.
2. Launching six clinical trials targeting adult and paediatric brain cancer, as well as brain metastases.
3. Expanding access to personalised cancer care for Victorian brain cancer patients.
4. Increasing the volume of data requests to the BCC registry (BRAIN).
5. Enhancing the reputation, investment, and sponsorship of Victorian brain cancer clinical trials and research.

Research highlights

At the end of year two, the program has now well established the feasibility of perioperative clinical trials and personalised care in brain cancer. Important highlights this year include:

- Preliminary analysis of patient samples and data from the first clinical trial. This has proven drug penetrance and effect on the tumour. A participant experience survey has also confirmed the acceptability of the perioperative trial design to patients. Furthermore, analysis revealing previously unreported action on the surrounding cells presents opportunities for further investigation.
- Presentation of trial results to international audiences at several international meetings. This subjects our research to peer review, an essential part of ensuring scientific rigour, but also provides a platform to enhance the reputation of and attract investment to Victoria's brain cancer research ecosystem.
- Personalised care being delivered in the clinic for Victorian brain cancer patients, through genomic tumour testing and targeted treatment, where available.
- Further progress in establishing a bank of new brain cancer models, which can be used to test new drugs in the lab and investigate markers of drug response or resistance.
- Industry sponsors engaging with Brain-POP partners at PMCC and RMH to complete feasibility evaluations and initiate new commercially funded clinical trials.

Professor Andreas Strasser
WEHI

Dr Professor Anne Voss
WEHI

Dr Diane Moujalled
WEHI

Cell Death and Cancer Program

The aim of the Cell Death and Cancer Program is to improve outcomes for brain cancer patients by exploring the therapeutic potential of tumour cell death-inducing drugs. There are many different cell death-inducing drugs, such as BH3-mimetics that promote a type of programmed cell death called apoptosis, or those that induce ferroptosis, a newly discovered form of cell death.

The team aims to evaluate the potential of using these cell death-inducing drugs in combination with temozolomide, a standard-of-care chemotherapy, to boost their efficacy. Importantly, activating two or more different cell death mechanisms in tumour cells is expected to be a powerful strategy to treat glioblastoma (GBM) and other brain cancers.

Research highlights

In 2024, exciting progress was made in developing new treatments for glioblastoma (GBM), an aggressive brain cancer. The team worked on creating drug combinations that target specific molecules on cancer cells. These combinations showed promise in killing GBM cells without harming healthy brain cells. We are now refining these treatments to make them even better at targeting tumours, with plans to test them in more advanced models. We also identified certain factors in GBM cells that could explain why some treatments don't work, helping to find new ways to overcome treatment resistance.

Further studies tested a drug called BAY-2402234, which can penetrate the brain, in combination with other drugs like the MCL1 inhibitor, S63845, or the BCL-XL inhibitor, A1331852, both cell death-inducing drugs. These combinations showed potential in fighting different types of brain cancer cells in lab tests. The team also explored how certain proteins in the cells affect how they respond to these treatments, finding important clues about how to improve cancer therapies. Early animal studies with BAY-2402234 showed it could slow tumour growth, giving hope for future testing with more treatment combinations.

Goals for 2025

The prognosis for many brain cancer patients remains dire, and current treatments can harm healthy tissues, reducing patients' quality of life. This highlights the urgent need for better, more tolerable treatments that do not affect healthy tissue. Our research focuses on testing new combinations of drugs that could be used alongside standard treatments. We aim to find the best ways to dose these new drug combinations, so they have fewer harmful side effects compared to treatments like radiation and chemotherapy. The goal is to identify drug combinations that provide the best therapeutic benefits while minimising harm, which will help guide future clinical trials.

Dr Owen Marshall
Menzies Institute for Medical Research

Professor Rosemary Harrup
Royal Hobart Hospital

Professor Joanne Dickinson
Menzies Institute for Medical Research

CNS Cancers Tasmania Program

Brain cancer is a devastating disease with few treatment options. Our research aims to uncover the changes in our genetic material that cause these tumours. By studying Tasmanian families with a history of brain cancer, we hope to identify inherited genetic changes linked to the disease and test these in fast-acting animal models. Additionally, we are exploring how changes in gene regulation contribute to cancer and testing drugs that might help prevent or reverse these changes.

Research highlights

Over the past year, our BCC-funded research has made significant progress in understanding the genetic and epigenetic drivers of glioblastoma. We successfully received ethics approval to access all central nervous system (CNS) cancers from the Cancer Registry Tasmania and have commenced linkage into our Tasmanian cancer families. We have also made significant progress in studying the growth of different variants of our glioblastoma (GBM) model, including multiple models of GBM with unmutated IDH, an enzyme associated with GBM and other cancers. Additionally, we developed a "humanised" transgenic fly model with an inducible human mutant IDH1, helping us better understand the disease.

Goals for 2025

Glioblastoma (GBM) remains one of the most aggressive and lethal brain tumours. There is limited understanding of its genetic and epigenetic drivers and few effective treatments. Building on our findings from the past year, our project aims to address these critical gaps, leveraging Tasmania's unique familial datasets, rapid fly models and advanced epigenetic profiling tools to identify new therapeutic targets for GBM. Our team, comprising experts in epigenetics, cancer genetics and oncology, is uniquely positioned to lead this research.

By mapping rare variants linked to brain cancer and screening for dysregulated epigenetic modifiers, our goal is to uncover new genetic and epigenetic drivers of GBM, providing insights into tumour development and progression. Further, we aim to identify effective epigenetic inhibitor drugs, offering a pathway to novel interventions that can be validated in human GBM stem cell and organoid models in future years, and potentially translated into clinical trials.

Professor Kate Drummond
The Royal Melbourne Hospital

Professor Lucy Palmer
The Florey, University of Melbourne

Dr Heidi McAlpine
The Florey, University of Melbourne

Dangerous networking: Brain tumours and the brain

Brain cancer is unique when compared to all other cancers in that it forms in the electrically active brain. Therefore, understanding the infiltration of brain cancer cells into the brain's neural networks is central to our knowledge of this complex and devastating condition. This is an important feature yet to be properly explored in human disease, which may be a contributing factor to the limited success of current treatments as they fail to address this unique characteristic of glioma, a specific group of brain cancers.

Our program seeks to address this by investigating the influence of glioma on the brain, and vice versa. In particular, we study the communication pathway between glioma cells and healthy neurons termed the 'neuron-glioma synapse'. This synapse directly drives tumour proliferation, highlighting the strong need for a neuroscience-based approach to investigate brain cancer. Specifically, knowledge regarding the neuron-glioma synapse is vital to understand how cancer develops and manifests in the human brain, which will hopefully inform development of better diagnostics and more effective therapies.

Research highlights

Our research uses a novel experimental approach to investigate brain cancer, not through mouse models or cell cultures, but by focusing on naturally occurring glioma embedded within brain tissue obtained from consenting patients undergoing surgery to remove brain tumours. In 2024, we recorded direct electrical recordings from neurons and glioma cells in both high- and low-grade gliomas. We found that the fundamental biophysical properties of neurons within glioma-infiltrated cortex differ according to tumour grade, with pyramidal neurons from high-grade glioma being more excitable than those from low-grade glioma. In addition, pharmacologically increasing neural activity led to increased glioma proliferation, suggesting that hyperexcitability of pyramidal neurons in high-grade glioma may drive tumour growth. A manuscript presenting these results is currently under review at Nature Neuroscience.

In 2024, we also performed spatial genomics experiments using the MERSCOPE platform at WEHI. This allowed us to assess the RNA expression in normal cortex and tumour mass samples received from patients with high- and low-grade glioma. We also fostered an important collaboration with WEHI/Brain-POP which led to the novel discovery of the influence of IDH1 inhibitors on the electrical microenvironment. This data was included in a manuscript currently under review at Nature Medicine.

Goals for 2025

The goals for our project 'The neuroscience of brain cancer: Investigations into the neuro-glioma synapse' in 2025 are ambitious. In the past few years, we have developed an exciting area of neuroscience-driven research, which we will continue to expand upon in 2025 and beyond. In the next year, we will delve deeper into our previous findings by investigating the cellular mechanisms driving the different excitability in neurons from different glioma classes. By determining the cellular mechanisms driving the increased excitability in high-grade glioma, we aim to provide insight into new targets for future therapies.

In 2025, we will also further explore the heterogenous genetic profile of glioma and how it correlates with cellular electrical properties. We will determine the genetic profile of individual infiltrating glioma cells, network-connected glioma cells and tumour mass cells. These results will be combined with our spatial genomics data to provide a holistic assessment of glioma cellular characteristics that drive infiltration. Using a neuroscience-based approach, our research in 2025 will probe the cellular mechanisms driving glioma proliferation. This research will bring us one step closer to understanding the influence of brain cancer on the tumour microenvironment and identifying new drug targets.

Associate Professor Raelene Endersby
The Kids Research Institute Australia

Professor Nick Gottardo
The Kids Research Institute Australia

Dr Sarah Best
WEHI

Professor Misty Jenkins
WEHI

Developing and characterising unique paediatric brain cancer models to expedite clinical translation

Brain cancer kills more Australian children than any other disease, and survivors face lifelong side effects from toxic treatments. Cancer therapies are typically developed for adults and later adapted for kids. However, this approach neglects the fundamental differences between adult and paediatric cancers, especially in brain cancer, where the disease arises in the context of a growing body and developing immune system. Recognising the unique needs of paediatric patients, we have pioneered innovative, paediatric-specific brain cancer models that closely mimic the environment of childhood cancers.

These models place children at the centre of therapeutic development, setting a new standard in paediatric oncology research. Unlike current models, which fall short in capturing the dynamic and developmental context of paediatric brain cancer, our approach allows for a deeper understanding of how the juvenile immune system interacts with brain tumour cells.

Research highlights

We have expanded new brain cancer models specifically designed to study paediatric cancers, allowing for comparisons with adult cancer models. By using juvenile mice and implanting primary patient samples, we have created a more accurate system for investigating these cancers.

We employed a range of advanced techniques, including flow cytometry, immunohistochemistry, proteomics, metabolomics, and both bulk and single-cell analysis to enable us to explore the detailed behaviour of cells and tissues to better understand how they function and identify potential issues.

With BCC collaborators, we found that the paediatric brain tumour immune system is fundamentally different. Fewer immune cells infiltrate cancers in young mice and those that do reach the tumour have an immature, less effective phenotype compared to adults. We tested different immunotherapies and show paediatric immune cells cannot mount a strong anti-cancer response. We tested several therapies that we found improve the function of paediatric immune cells and are continuing to study their effects to identify new ways to better harness the paediatric immune system.

Goals for 2025

In the short term, we will develop age-specific preclinical models that replicate immunological and biological responses post-surgery. We will produce both adult and paediatric models to examine immune responses to brain cancer surgery, providing an unprecedented view of how the immune system responds to surgical intervention.

Medium term outcomes will investigate the immunological pathways that could be leveraged for targeted interventions in patients recovering from brain cancer surgery. Examination of the post-surgical immune responses in adult patients will solidify our understanding of the wound healing response in the brain.

In the long term, this work will transform paediatric brain cancer treatment by developing immunotherapies uniquely suited to children, rather than simply adapting adult treatments for children. We aim to bring these therapies to clinical trials, improving survival rates and quality of life for children with brain cancer.

Professor
Brandon Wainwright
Frazer Institute - University of Queensland

Engineering immune recognition of paediatric brain tumours

Paediatric brain tumours, including medulloblastoma, are not heavily infiltrated with immune cells due to being in the "immune-privileged" environment of the brain, and also due to their low mutational load and subsequent lack of cancer-specific markers known as 'neo-antigens'.

More generally, immune surveillance of tumours in the central nervous system is thought to be limited owing to the lack of lymphatic drainage. However, characterisation of the meningeal lymphatic network has shed light on previously unappreciated ways that an immune response can be elicited to antigens that are expressed in the brain. When the growth factor VEGFC is introduced into the brain, growth of new lymphatic tissue is stimulated, which increases the immune connection between the brain and the rest of the body.

We aim to test whether treatment with the growth factor VEGFC increases immune recognition of a variety of paediatric brain tumours. This is with the view to improve therapeutic treatment of brain tumours, particularly alongside the use of immunotherapy.

Research highlights

We have developed and characterised ten different mouse models of paediatric brain tumours, with the help of both our lab and generous collaborators. These models represent various tumours, including 5 medulloblastomas, 3 diffuse midline gliomas (DMGs), and 2 ependymomas, each driven by specific patient mutations or tumour types. These models now allow us to study a range of tumour environments, from "cold" tumours with minimal immune cells present, to "hot" tumours with more extensive immune cell infiltrates.

In parallel, we evaluated the effect of the growth factor VEGFC in paediatric brain cancer by delivering VEGFC into the central nervous system using two alternate delivery systems. In both cases, we observed significant lymphatic vessel growth in the dura, an outer protective layer around the brain.

The next step was to assess whether treatment with this growth factor would affect survival in the context of brain cancer. To do this, we used a glioma mouse model to compare control mice that did not receive any treatment, with mice that received VEGFC. After 90 days, mice treated with VEGFC had no tumours, while control mice developed tumours and died. This suggests that VEGFC expression can prevent the growth of the glioma tumour in these mice, representing a promising result that may enable improved therapeutic responses alongside immunotherapy.

Glioma ctDNA-liquid biopsy program

Associate Professor Andrew Morokoff
The Royal Melbourne Hospital

Professor Kate Drummond
The Royal Melbourne Hospital

Dr Jordan Jones
The Royal Melbourne Hospital

Dr Stephen Wong
The Royal Melbourne Hospital

A 'liquid biopsy' of plasma circulating tumour DNA (ctDNA) is a non-invasive method to gather comprehensive genetic information about cancer progression without the need for surgery. However, detecting ctDNA in the plasma of glioma patients has been challenging—until now.

Our program is developing accurate methods to detect ctDNA in the blood via a simple, non-invasive blood test that can catch mutations that are sometimes missed during a surgical biopsy. This program aims to lead directly into a clinical trial that will significantly improve the quality of life for brain cancer patients, reduce the need for repeated surgical biopsies, and help provide more effective, personalised treatments. This means that in the future, we could determine the type of tumour a patient has without the need for brain surgery, predict when a tumour might be growing back early, or know when chemotherapy has stopped working and another drug should be tried. Ultimately, we are working on a blood test that can help choose personalised targeted therapies or confirm eligibility for new treatments, with the goal to improve outcomes for patients.

Research highlights

In 2024, we successfully published two key papers on our work based on the PhD research of neurosurgeon Dr Jordan Jones, in collaboration with researchers from The Brain Cancer Centre. These papers are some of the first in the world to show the potential of diagnosing and monitoring brain cancer through simple blood tests.

Moving on from this work, we have developed a unique custom Glioma ctDNA panel that is currently being tested and commercialised for liquid biopsy in the future. This panel can be used for both blood tests (liquid biopsy) and tissue analysis.

We have also recently submitted a paper on detection of a microRNA serum signature that links to prognosis in glioma. In 2025, using the sequencing panel as well as droplet digital PCR (ddPCR) techniques, we aim to consolidate our liquid biopsy platforms and obtain large-scale data using the large and unique plasma/tissue glioma biobank that we have been collecting at The Royal Melbourne Hospital over the last 4 years, which currently has over 200 patient samples including both low- and high-grade gliomas of all types. We hope that this work will further inform on prognosis and potential treatment strategies for brain cancer patients.

Fellowships and Scholarships

Greg Lange Fellowship

Dr Zachery Moore WEHI

Zac Moore is a research officer within the Brain Cancer Research Laboratory. His research is focussed on establishing a multifactorial drug-identification pipeline centred on glioblastoma. Zac was awarded a three-year fellowship at $150,000 per annum, funded by The Greg Lange Memorial Education Fund in honour of Greg Lange. This fellowship commenced 15 August 2022.

Research highlights

Over the past year, my research has made significant strides in advancing the glioblastoma drug screen that I have generated.

A key aspect to my research is the use of neurospheres, which are cellular models of glioblastoma that I create using patient tumours and grow indefinitely in the laboratory. There are also other models used within the field termed organoids, which are often thought to be the most representative model that exists. In 2024, I was able to finalise and prepare a paper for submission that described the differences between these models. I was able to demonstrate that, despite perceived differences, the neurosphere models I use are near identical in their abilities to mimic tumours as they were within the brain.

Additionally, I submitted a paper with a collaborator at WEHI, which described a novel technique for bulk RNA-seq experiments called TIRE-seq. In this work, I used one of the neurosphere models that I created to demonstrate the effectiveness of this new technique. Furthermore, I was able to generate new data that uncovered new biological insights into how neurospheres respond to drugs. The success of this collaboration has led to me planning experiments to use in the future.

Beyond publications, I also took on a mentorship role, training a new research assistant to support ongoing projects. This has helped streamline workflows and expand our research capacity.

Goals for 2025

A key focus in 2025 is to continue to share my research with the scientific community by publishing in scientific journals. I will be focused on the completion of additional experiments for the two now submitted papers, as well as leading two additional first author publications for projects which are in the final stages of data collection. One will be focused on a software package I have written to help analyse my drug screen data, and the other will be on the first results from the drug screen itself.

In addition, the other major goal will focus on grant writing and obtaining funding to continue my research.

Collaborations: 1 international, 1 Australian, 1 pharmaceutical/commercial

Presentations: 6 domestic (including 4 oral presentations, 1 invited presentation)

Publications: 1 publication, 2 under review.

Dine For A Cure – PhD scholarships

Dine For A Cure is a Melbourne-based committee of volunteers who have all lost loved ones to brain cancer. The group formed in 2011, determined to do something to raise much-needed funding for brain cancer research. To date they have raised over $1.6 million for crucial brain cancer research.

Dine For A Cure is supporting students in The Brain Cancer Centre - the next generation of brain cancer researchers to receive mentoring, training and participation through PhD scholarships. Progress in brain cancer research requires people to drive the breakthroughs and these scholarships support and attract some of the brightest and most promising future leaders, building an ecosystem of researchers to make an impact in the coming decades.

Krishneel Prasad PhD scholar in the laboratory of Professor Misty Jenkins, WEHI

Krishneel commenced his PhD in the Jenkins laboratory in 2023. The focus of his research explores how Chimeric Antigen Receptor T cell (CAR T cell) therapy, an immunotherapy, can be made safer for patients with brain cancer. This therapy utilises a patient's own immune system, their T cells, and engineers them to provide a potent anti-tumour response when re-delivered back into the patient.

Krishneel is applying new innovations in the synthetic biology field so that these engineered T cells must follow pre-defined rulesets prior to tumour killing. Doing so prevents the therapy mistakenly targeting healthy cells and restricts the therapeutic effect to the brain tumour. In addition, CARs that can be regulated using a small molecule drug are also being explored. Achieving this would broaden the suite of brain tumour targeting CAR T cells that can be feasibly designed. Together, engineering a smarter T cell would mean safer immunotherapies for patients.

Leesa Lertsumitkul PhD scholar in the laboratory of Professor Misty Jenkins, WEHI

Leesa commenced her PhD in the Jenkins Laboratory in 2022. The focus of Leesa's PhD is to develop new immunotherapies to treat both adult and paediatric brain cancers. These targeted therapies can be designed to specifically kill cancer cells without harming surrounding healthy tissues. Leesa's research uses patient samples that have been generously donated to research, allowing her to assess these treatments in different experimental models. The goal of her research is to develop more effective and safer treatments for patients.

Pranav Runwal PhD scholar in the laboratory of Associate Professor Joseph Nicolazzo, Monash Institute of Pharmaceutical Sciences & Dr Gabby Watson, WEHI

Pranav commenced his PhD in 2023. The focus of Pranav's PhD is to develop more effective treatments for gliomas, a highly aggressive and common form of brain cancer that often resist conventional treatments. One contributing factor is the blood-brain barrier (BBB), a protective mechanism that shields the brain by limiting the entry of substances from the bloodstream. As a result, when a brain cancer patient receives medication, only a fraction crosses the brain to reach the tumour site.

Pranav aims to develop nanobodies - tiny proteins that specifically target a receptor on the BBB capable of naturally enabling the transport of molecules into the brain. These nanobodies are thus able to take a "Trojan horse" approach enabling them to be efficient transporters of a drug across the barrier and into the brain where the tumour resides.

The Symons Family Charitable Trust – Gregg Symons PhD Scholarship

Dr Oluwaseun Fatunla PhD scholar in the Brain Cancer Research Laboratory, led by Dr Sarah Best, Dr Saskia Freytag, and Dr Jim Whittle, WEHI

Oluwaseun Fatunla is a talented anatomical pathologist from Nigeria with a keen interest in brain cancer stemming from his experience in clinical practice. He started in the Brain Cancer Research Laboratory in October 2022 after receiving a prestigious International PhD Scholar Initiative (IPSI) scholarship to commence a PhD at WEHI.

Oluwaseun's project is focused on identifying the molecular alterations that take place during the progression from low grade to high grade glioma (GBM), which utilises his skills as a trained pathologist. His project aims to reveal specific factors that drive aggressive disease, in order to better understand the mechanisms occurring within these tumours. This will enable him to pursue additional avenues leading to potential future research impacts including early detection and diagnosis of glioma and identification of therapeutic targets to improve treatment and disease outcomes for patients.

In 2024, Oluwaseun made great strides towards his goals, having curated a cohort of samples to answer his research question. He extracted the DNA, coordinated the sequencing and analysed the data himself to evaluate the changes occurring in the genome (methylation alterations) of tumours that will eventually progress to a higher grade and severity, compared to those tumours that recur at the same grade.

In 2025, the final year of his PhD, Oluwaseun will be progressing this work on genomic changes to identify biomarkers that could help pathologists identify early in the course of the disease whether a patient's glioma has the capacity to become aggressive. This research has the potential to be highly impactful to the field.

Presentations: Poster presentation at the Lorne Cancer Conference in February 2024.
Title: Redefining Survival Outcomes in Lower Grade Glioma Using the New WHO Classification System

The Brain Cancer Centre Charity Partners

Thank you to our wonderful charity partners for their passionate and tireless support and for being such a vital part of The Brain Cancer Centre community.

Flicker of Hope Foundation

There is no cure for Neurofibromatosis (NF), a rare genetic disorder that can cause tumours, cancer, epilepsy, disfigurement, blindness and learning difficulties including autism.

In 2018, Con and Anne Petropoulos established the Flicker of Hope Foundation to raise much needed funds to support researchers in their quest to find new treatments and improve the quality of life for those impacted by NF. Their daughter Zoe was diagnosed with NF at 4 months of age. In the cruellest twist of fate, Con and Anne's daughter-in-law, Elizabeth Petropoulos, was diagnosed with NF in late 2019. Sadly, Elizabeth passed away in 2023 from NF related brain cancer, leaving behind her loving husband Nicholas and two small children.

In honour of Elizabeth Petropoulos, the Flicker of Hope Foundation has raised substantial funds to provide a grant to Dr Jim Whittle in the Brain Cancer Research Laboratory to support an NF research project. 'Elizabeth's Legacy' forms the cornerstone funding for this project, focusing on NF2. Jim has brought together a team of experts from WEHI, The Royal Melbourne Hospital and Royal North Shore Hospital to understand why some patients with NF2 develop tumours at different sites in their body and others don't. This project can contribute to the development of new or repurposed targeted therapies, uncover early diagnostic markers, ultimately improving the management and quality of life for people with NF2.

Laurie's Love

In December 2018, the lives of the Pavone family changed forever. Laurence Pavone was just 41 years of age when he was diagnosed with stage 4 brain cancer.

Laurence Pavone was known for his vibrant spirit and deep love for those around him. Determined to make a difference, Laurence and his wife Julie established *Laurie's Love*—a powerful initiative to raise funds for brain cancer research and increase awareness of the profound impact this disease has on individuals and families. Sadly, Laurence passed away just 10 months later, but his legacy of love and giving back lives on.

To date, *Laurie's Love* has raised over $800,000 for brain cancer research. We are proud to welcome them as a partner of The Brain Cancer Centre as we work together towards our shared vision: That one day, no lives are lost to brain cancer.

Mark Hughes Foundation

Founded in 2014 by Mark and Kirralee Hughes after Mark's brain cancer diagnosis, the Mark Hughes Foundation (MHF) is a non-profit dedicated to funding research, raising awareness, and supporting brain cancer patients and their families.

In line with its mission, MHF announced in July 2024 a $1 million investment to unite two of Australia's leading brain cancer research centres: the MHF Centre for Brain Cancer Research at the University of Newcastle and The Brain Cancer Centre at WEHI. This powerful collaboration will combine resources and research efforts to accelerate progress toward a cure, with a shared focus on improving outcomes for brain cancer patients. The partnership also includes the creation of a National Collaboration Seed Fund to support joint projects, further reinforcing their commitment to collaborative research and innovation in the fight against brain cancer.

Events

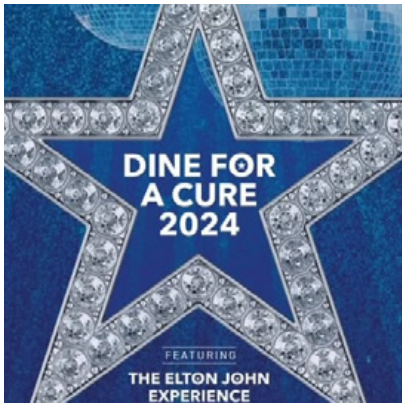
The Brain Ball

The Brain Ball started in early 2021. Emily (being a registered nurse) would always talk to her best friend, Jessie about her work in brain cancer - the patients, their poor outcomes, the vital research and the lack of funding. Jessie wanted to help and suggested, "Let's have a fundraising ball!" And, together, along with friends, Nadine whose father sadly died from brain cancer and Kelly, whose husband Toby was diagnosed with a brain cancer - they created the Brain Ball. The Brain Ball hosts an annual fundraising event with proceeds supporting The Brain Cancer Centre.

In 2024, The Brain Ball raised over $85,000. This donation was directed to research led by Professor Andrew Morokoff (neurosurgeon and researcher) to discover brain cancer biomarkers using a blood test (known as a "liquid biopsy") to help treating clinicians understand the tumour better and predict how it will behave.

Cowboy Hats for Kate

Cowboy Hats for Kate was established in honour of Kate Day, who passed away following a 4-year battle with brain cancer. Kate endured multiple surgeries, radiation and chemotherapy all whilst raising a young family and working on the farm with her husband John. Cowboy Hats for Kate sell their bespoke cowboy hats and other merchandise to raise funds to support vital brain cancer research.



Dine for a Cure

Dine For A Cure is a Melbourne-based committee of volunteers who have all lost loved ones to brain cancer. They came together in 2011, determined to do something to raise much-needed funding for research.

All proceeds from the Dine for a Cure Annual Gala Dinner directly support The Brain Cancer Centre, helping to fund vital brain cancer research. In 2024 alone, the dinner raised $128,679 bringing the total raised to over $1.7 million for brain cancer research.

FITE Brain Cancer Ball

The FITE Brain Cancer hosted their inaugural evening in March 2024 with a Gala night of music and fine dining. Funds raised contributed to The Brain Cancer Centre's mission to advance research and improve outcomes for patients battling this devastating disease.

Phren Gala

In Ancient Greek philosophy, Phren is the location of thought, or contemplation. The Phren Gala Ball, an amazing event, conceived by Imogen Mirmikidis, in honour of her late husband Athan, who sadly lost his battle with brain cancer. Along with the team at the Heyder & Shears catering business they aim to raise awareness and funding for brain cancer research. They have raised over $120,000 to support the incredible researchers at The Brain Cancer Centre.

Collaborations

The power of collaboration accelerates discoveries and will ultimately bring us toward ending brain cancer as a terminal illness. Here is our eco-system of research.

USA / Canada

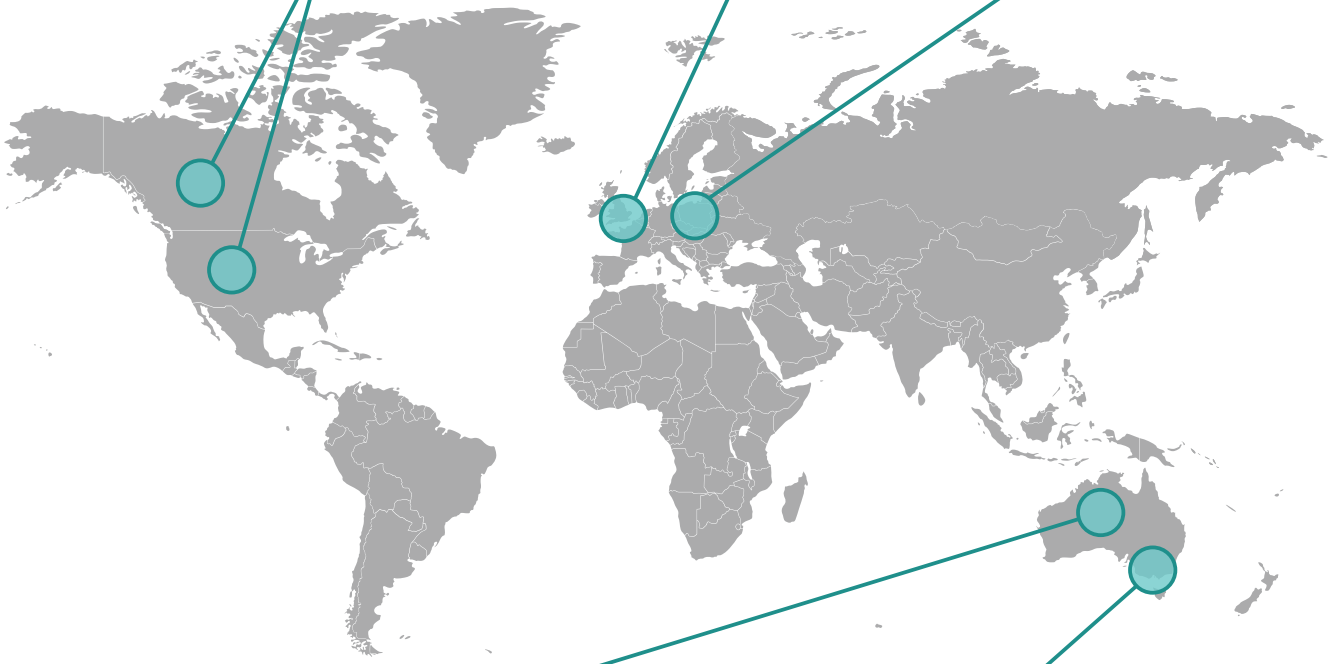
- Allen Institute for Brain Science
- AnHeart Therapeutics / Nuvation Bio
- Cleveland Clinic
- Dana-Farber Cancer Institute x 3
- Duke University x 2
- Genentech
- Harvard Medical School
- The International Consortium on Meningiomas (ICOM)
- Mayo Clinic
- McGill University
- Parse Biosciences
- Twist Bioscience x 2
- University of California San Francisco
- University of Cincinnati x 2
- Yale University

UK

- Cancer Research UK Cambridge Institute
- The Institute of Cancer Research
- University of Leeds

Europe

- EpiQMAx / MoleQlar Analytics
- Miltenyi Biotec
- Oslo University Hospital
- Servier
- Brain Liquid Biopsy Consortium
- University of Erlangen-Nuremberg



Australia (National)

- Brain Cancer Biobanking Australia
- Cartherics
- Cell Therapies
- Children's Brain Cancer Centre
- Children's Cancer Institute
- CSL
- GLIMMER
- Hunter Medical Research Institute x 2
- Mark Hughes Foundation Centre for Brain Cancer Research
- Myrio Therapeutics
- QIMR Berghofer
- Queensland Children's Tumour Bank
- Royal Hobart Hospital
- The Kids Research Institute Australia x 3
- South Australian Health and Medical Research Institute (SAHMRI) x 2
- The University of Newcastle
- The University of Queensland x 4
- University of South Australia x 2
- The University of Sydney
- WEHI

Australia (Victoria)

Metro

- Alfred Health
- Cabrini Health
- Cancer Melbourne
- Epworth Richmond
- Melbourne Health
- Metabolomics Australia
- Monash Health
- Monash Institute of Pharmaceutical Sciences (MIPS) x 3
- Monash University
- Murdoch Children's Research Institute (MCRI) x 2
- Olivia Newton John Cancer Research Institute
- Peter MacCallum Cancer Centre x 3
- The Royal Children's Hospital
- St Vincent's Hospital Melbourne
- Hudson Institute of Medical Research
- The Royal Melbourne Hospital x 8
- The University of Melbourne x 2
- WEHI x 20

Regional

- Ballarat Austin Radiation Oncology Centre
- Barwon Health
- Bendigo Health
- Latrobe Regional Hospital
- South West Healthcare (Warrnambool)

Consumer Engagement

At The Brain Cancer Centre, we believe lived experience is key to making real progress in brain cancer research.

The Brain Cancer Centre Consumer Program brings together individuals personally affected by brain cancer – including patients, carers, and families – alongside community members passionate about improving outcomes. These 'consumers' partner with us, sharing their insights, perspectives, and experiences to enhance the relevance, quality, and impact of our research.

Sam McGuane (CEO) presenting at the Consumer Round Table in May 2024


Sam McGuane (CEO) presenting at the Consumer Round Table in May 2024

Over the past two years, program has steadily expanded and now includes around 30 active consumers. Each consumer is embedded within research teams to support meaningful, two-way collaboration. Through these partnerships, consumers play a key role in shaping project design, research priorities, trial protocols and communication to the community. Consumers ensure that our research remains relevant, impactful, and attuned to the people it is ultimately designed to help.

Brad's Journey: Partnering for Advancements in Brain Cancer Research

Brad and his family. Centre: Brad and wife Libby; with children Madison and Xavier.

Brad joined The Brain Cancer Centre Consumer Program in 2022 after his own challenging journey with brain cancer.

"I was diagnosed following a seizure while camping on the Murray River. Initially, my surgeon believed the tumour was benign, but further testing revealed it to be an anaplastic astrocytoma with a small focus of glioblastoma", he said.

After undergoing three surgeries, chemotherapy, and radiation treatment, Brad has now been living with the effects of his diagnosis for over eleven years.

"I wanted to be involved in The Brain Cancer Centre Consumer Program to help find better treatments and share what I've found beneficial since my diagnosis. I was keen to be part of a team to help secure grants for further research and help establish resources to support The Brain Cancer Centre".

Since joining the consumer program, Brad was introduced to clinician-researcher Dr Lucy Gately. Brad is part of a team of four consumers who share their lived experience to support Dr Gately's research.

"Working alongside Lucy has been very rewarding. Her research program is facilitating helping people with brain cancer and ultimately finding a cure".

Dr Gately's research focuses on the collection of real-world data from brain tumour patients across Australia, with a strong emphasis on capturing the voices of patients and their families throughout the process. Brad has been able to share his personal perspective to help ensure the research remains truly patient-centred and reflective of real-life challenges.

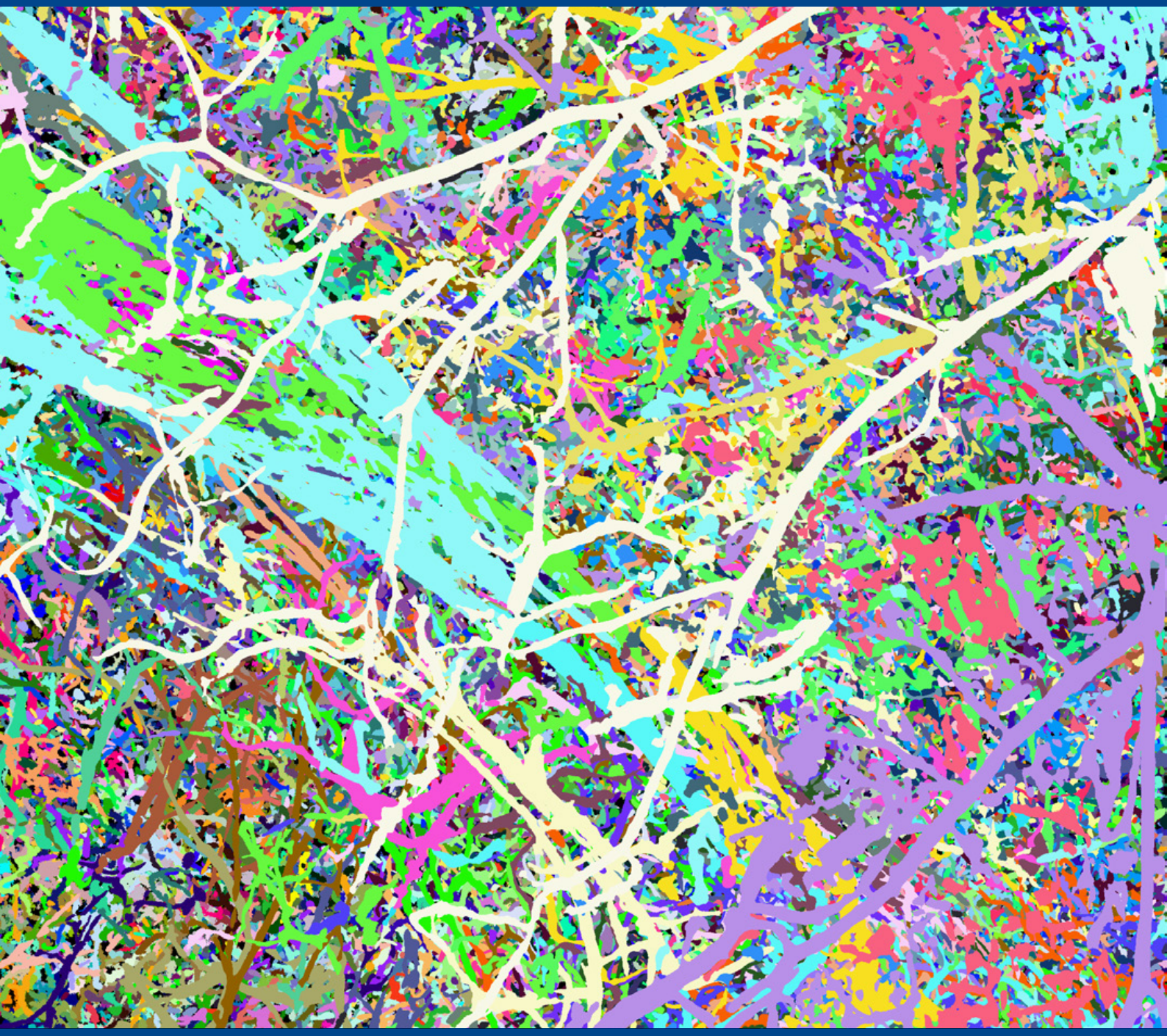
Lucy keeps us updated with the progress of her research and I have enjoyed assisting in reviewing and simplifying grant proposals from a personal perspective", he said.

We would like to extend our heartfelt thanks to Brad and all of the consumers for their expertise, dedication and time, generously given to The Brain Cancer Centre. Their contributions help us to accelerate our vision: that one day no lives are lost to brain cancer.

Ashley Ng and Lachlan Whitehouse

Brainstorm (Pollock Dreaming)

Incredible technology like light sheet microscopy helps researchers see the complex workings of the inside of the brain. While appearing like a tangled, vibrant mess, the blood vessels of the brain are sophisticated, like the chaotic yet intricate artwork of renowned painter, Jackson Pollock. Over 5000 cell types are organised and communicate in the brain. Seeing the brain light up, with each blood vessel labelled a separate colour in a detailed 3D model, helps to decode its complicated spatial environment. Bioimage analysts use this technology to understand diseases and predict treatment responses. Their work also helps analyse new genetic diseases and illuminates new pathways to help cure devastating illnesses like brain cancer.



For queries or to hear more about
The Brain Cancer Centre please contact:

Sam McGuane
Chief Executive Officer
The Brain Cancer Centre

E: mcguane.s@thebraincancercentre.org.au
M: 0417 427 737

www.thebraincancercentre.org.au
BrainCancerCentre
The Brain Cancer Centre
braincancercentre

the brain cancer centre
MANY MINDS. ONE FOCUS.

Founded by
Carrie's Beanies
4 Brain Cancer