



breakthrough cancer research

ANNUAL REPORT

2023





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CHAIRMAN'S

REPORT

It is with immense pride that I reflect on the achievements of Breakthrough Cancer Research in 2023. This year has seen further progress as we continue to lead the way in funding cutting-edge cancer research, while also strengthening our governance and ensuring we deliver impact in a challenging economic landscape.

Our financial health remains strong, with a surplus of €190,795, allowing us to expand, with confidence, our research commitments and secure future investments. Importantly, our new four-year strategic plan launched this year provides a clear roadmap for growing our research capacity and amplifying the difference we can make for people affected by poor-prognosis cancers. It is also noteworthy that we continue to expand our fundraising channels and activities in support of our patient-centric research ambitions into the future.

Our focus on collaboration remains at the heart of our work. This year, we have been proud to launch initiatives like the All-Ireland Cancer Network (AllCaN), which reflects our commitment to bringing together the brightest minds across the island of Ireland to tackle, primarily, poor prognosis cancers. Our ability to fund 13 new research projects shows that even in times of uncertainty, our supporters' dedication enables us to push boundaries and fund vital, patient-centred research.

I would like to extend my deepest thanks to our dedicated Board, Scientific Advisory Committee, Patient Panels, staff, and most importantly, to our donors and volunteers. It is your passion and generosity that drive everything we do. Together, we are transforming cancer research and creating a future where more people survive cancer.

Sincerely

Michael McMahon



MICHAEL MCMAHON

CHAIRMAN



2

Five for the Fight Fellowship



700,000

Views of TV Ad during one Rugby World Cup ad break

50



Active PPI Panelists

5400+

people in 4 virtual challenges

STEP SWIM HIKE RUN

CHIEF EXECUTIVE

REPORT

2023 was a year of extraordinary progress for Breakthrough Cancer Research. Throughout the year, our internal team refrain was “Best Year Ever” and it certainly turned out to be that. Thanks to the unwavering support of our volunteers, researchers, supporters and partners, we not only exceeded €3 million in income for the first time but also continued to expand our research portfolio. This year, we invested over €2.5 million into cutting-edge research, targeting poor-prognosis cancers - €1.6 million direct funding, and an additional €878,515 through joint funding programmes. Together, we are creating life-changing outcomes for people with cancer.

This year alone we launched 13 new projects aimed at developing better prevention strategies, new innovative therapies and improving cancer care. One standout initiative was the start of AllCaN Oesophageal, our inaugural All-Ireland Cancer Network, supported by our €1 million investment that brings together six major academic institutions, industry partners, two health systems, two national registries, and other charity support, to improve survival in oesophageal cancer. You can read more about it on page 8-9. This all island network embodies the spirit of collaboration that drives our mission to make more survivors of cancer through research.

Through our documentary “Biseach ón Ailse”, six episode Podcast and our Cancer Conversations series we continued to raise awareness, and share stories of survival, and our partnership with ambassador Chloe Mustaki inspired thousands. In 2024, we will build on these successes, growing our impact and working tirelessly to bring us closer to our vision of 100% survival for 100% of cancers.

But none of this would have been possible without you. Every step forward is thanks to your dedication and belief in the power of research to transform lives. Whether you participated in our events, made a donation, or shared our mission, your contribution is invaluable. As we look to 2024 and beyond, we are excited about what we can achieve together. There is much more work to be done, but with your continued support, we can make even more breakthroughs and ensure that no one faces cancer without hope.

Thank You

Orla Dolan, CEO



ORLA DOLAN

CHIEF EXECUTIVE



2000+
NEW followers
on our social
channels




28
people
raised over

€100K
in our 1st Camino trip



28
Research
Publications
(Discoveries)

1200 
Cycled the ROKCC
#TeamBreakthrough

RESEARCH

INTRODUCTION

We are driving a new research strategy, launched in 2023, which builds on immense success already delivered, to shape a plan which will not only expand on our already ambitious approach, but enable greater impact for people diagnosed with low survival cancers. We increased our focus to channel greater investment into seven specific low survival cancers, which are responsible for nearly half of all cancer deaths in Ireland annually (also in Europe and the US). We embrace our leadership role in targeting greater research investment to those cancers which have not yet seen that improvement.

€2.5M

Investment
in Research



All-Ireland
Cancer
Research
Network for
Oesophageal
Cancer



165

Researchers
Funded



28

Research
Publications
(Discoveries)



33

Conference
Presentations



4

Irish Research
Council Grant
Awards

6



Research Awards

OUR FIRST ALL-IRELAND CANCER RESEARCH NETWORK IS LAUNCHED

We urgently need more research to improve the survival rates and as part of our strategy are creating and funding All-Ireland Cancer Research Networks (AllCaN) to make significant advances in our 7 target cancers. The first of these, AllCaN-Oesophageal, launched on World Cancer Day 2023 and is being led by Prof. Jacintha O’Sullivan (Trinity St. James’ Cancer Institute) and co-led by Prof. Helen Coleman (Queen’s University Belfast) and links six major academic institutions across the island of Ireland - Trinity College Dublin, Queen’s University Belfast; University College Cork; Royal College of Surgeons in Ireland, University College Dublin and University of Galway, with health agencies in Northern Ireland and the Republic of Ireland and industry. They share decades of collective experience in Oesophageal Cancer and Barrett’s Oesophagus (a significant risk factor for oesophageal cancer).

Oesophageal Cancer is one of the biggest cancer challenges with a 5-year survival rate of just 24% in the Republic of Ireland (*NCRI) – only 1 out of every 4 people diagnosed will survive 5 years. In Northern Ireland, the survival rate is even less at 19% (*NICR). Northern Europe, and specifically the UK and Ireland,



are where the highest incidence rates of oesophageal adenocarcinoma (OAC) are reported. By combining data and resources across Ireland, AllCaN will uniquely identify appropriate prevention strategies, lifestyle interventions and novel diagnostic platforms and therapeutics through enhanced understanding of the Barrett’s Oesophagus to Oesophageal Cancer (BO-OAC) progression. Importantly, early detection will lead to better survival outcomes for patients.

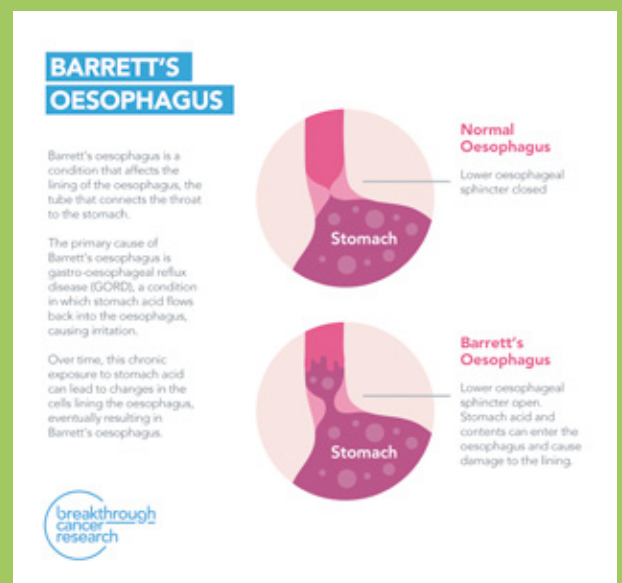


This unique cross-border collaboration of researchers across two health jurisdictions will enable for the first time the sharing of data from the Northern Ireland and Republic of Ireland Barrett's Oesophagus registries (over 34,000 patients) to answer important epidemiological studies using one of the largest platforms available worldwide for studying this disease. With AllCaN, it will be possible to identify if potential inequalities exist across demographics, healthcare systems and patient outcomes and how

lifestyle factors and medications influence reflux symptoms and progression. Lifestyle interventions will be tailored to reduce symptoms and improve quality of life (including mental health and wellbeing). The collaboration with industry will help ensure that discoveries that could help identify people at risk of progressing to Oesophageal Cancer or who will benefit from a particular treatment, progress quicker into the clinic.

SPECIFIC AllCaN-OESOPHAGEAL PROJECTS:

- Monitor the number of patients being diagnosed with Barrett's oesophagus and oesophageal cancer, and for the first time make North/South comparisons that combine Barrett's registries in Northern Ireland and the Republic of Ireland (including over 34,000 patients), and cancer registries. AllCaN will examine if there are any inequalities according to where people live, their age and sex, and whether different healthcare systems on the island influence patient outcomes.
- Investigate lifestyle factors and medications in patients with reflux and Barrett's oesophagus, to determine their importance in progression to oesophageal cancer.
- Work with partners in primary care (GPs) to evaluate potential prevention strategies.
- Conduct exercise and dietary counselling interventions to help improve body composition, without increasing reflux symptoms in patients with Barrett's oesophagus and examine how these interventions improve outcomes for patients after oesophageal cancer surgery.
- Assess the impact of living with Barrett's oesophagus or oesophageal cancer on mental health and wellbeing.
- Identify biomarkers in patient oesophageal tissue to predict which Barrett's oesophagus patients are at low or high risk of developing cancer.
- Better understand how controlling inflammation can boost responses to treatments.



“ I am unlucky to have Barrett's oesophagus, but I am lucky to know I have it. Awareness is the key with any condition. The sooner found the better. To have an all-Ireland cancer register is unbelievable. The possibilities it opens are endless. Imagine the day we can tell everyone with oesophageal cancer that there's a lifestyle plan or treatment that will contain and control the disease and enable them to live with it and improve their quality of life.

John Clarke ”

John was diagnosed with Barrett's oesophagus at age 33, and is a Public Patient Involvement (PPI) representative for AllCaN.

PPI TRAININGS & INVOLVEMENT

50 
Active PPI Panelists

On April 24th, 2023, we held a Public Patient Involvement (PPI) one day training workshop with 16 PPI representatives – seven of whom joined us for the first time.

'I am always in awe of our researchers and couldn't be more proud of your 4 representatives after giving their talks. Amazing people that give me so much hope. Could listen to them talk all day – secretly I would love to be in the labs with them as it amazes me what goes on and so much knowledge they have. These young people have very promising careers ahead. May their good works continue to thrive. Thanks again for a very informative day.' – A PPI Representative

The event was an introduction to PPI and cancer research, where we explained what PPI is, why it's important, and how it can benefit both researchers and patients.

The first four Musgrave Breakthrough PhD Scholars (2019-2022): Fiona O'Connell (Trinity St. James's), Fiona Crotty (Trinity St. James's), Patricia Flynn (University College Cork), and David Hackett (Trinity St. James's) presented their research at the event.

We also gave an overview of our research priorities, such as improving survival rates for poor prognosis cancers, developing new therapies, and harnessing big data. We then had a lively discussion with the participants, who asked questions, shared their stories, and gave us valuable feedback on our research.



PHD CANCER RESEARCH

SCHOLARS 2023

Clodagh Murphy was awarded the 2023 Musgrave PhD Scholar in partnership with Breakthrough Cancer Research. Clodagh will undertake her PhD in the laboratory of Prof. Liam Gallagher in University College Dublin.

Non-small cell lung cancer (NSCLC) has a 5-year survival rate of 15%. It is necessary to identify new therapies for these patients, but also to develop tools which can predict how a patient's tumour is likely to progress, allowing us to best utilise existing therapies.

Clodagh wants to address the lack of personalised and targeted therapies available for non-small cell lung cancer. Her project investigates targets in the tumour in the form of long non-coding RNA or lncRNA.

These are tiny RNA molecules with specific jobs in human cell functions. Some of those functions may influence disease progression.

First, RNA therapeutics called antisense oligonucleotides (ASOs) can target these lncRNAs. ASOs are already approved for use in rare diseases and clinical trials in oncology are promising. Their imminent approval could revolutionise cancer treatment. Secondly, lncRNAs may also serve as a way to identify disease severity and help to determine the best treatment.

Prof. Gallagher has already developed a prognostic biomarker panel for breast cancer, so the laboratory is ready to bring such a panel from bench to bedside.

Finally, studies suggest a relationship between therapeutic targets and the immune system, our natural defence against disease. This project will also investigate the relationship between lncRNA targets and key players of the immune system. That may give insight into how the disease works.

2
PhD scholarships

Clodagh Murphy



Musgrave
PhD Scholar in
partnership with
Breakthrough Cancer
Research

Ciara Gavin



Breakthrough
Cancer Research
PhD Scholar

Oesophageal cancer is one of the hardest to treat cancers worldwide. And here in Ireland, fewer than 1 in 4 patients will survive five years after diagnosis.

Ciara Gavin is working with principal investigator Dr. John Mackrill in UCC. Their goal: understanding and treating oesophageal cancer better. To make proteins, our cells convert their genes into mRNA. We call this process 'gene transcription'. And unfortunately, cancer can change gene transcription within cells for their own survival.

We can group our genes into categories, including 'calcium toolkit genes'. These genes use calcium to communicate within the cell. Changes to cellular calcium can cause cancer cells to grow

faster, survive longer, and spread throughout the body.

But what if we could reverse these changes?

Dr. John Mackrill's lab found that people with oesophageal cancer whose tumours overproduce certain calcium toolkit genes have a better chance of survival. Ciara will investigate two of these genes in cell models of oesophageal cancer.

We don't yet understand why or how these genes might improve survival in people with oesophageal cancer. But Ciara wants to learn how these genes might relate to oesophageal cancer development and whether they can be targeted for treatment.

5 FOR THE

FIGHT

CANCER

RESEARCH

FELLOWS 2023



Five for
the Fight
Fellowship

Dr. Claire
Robinson

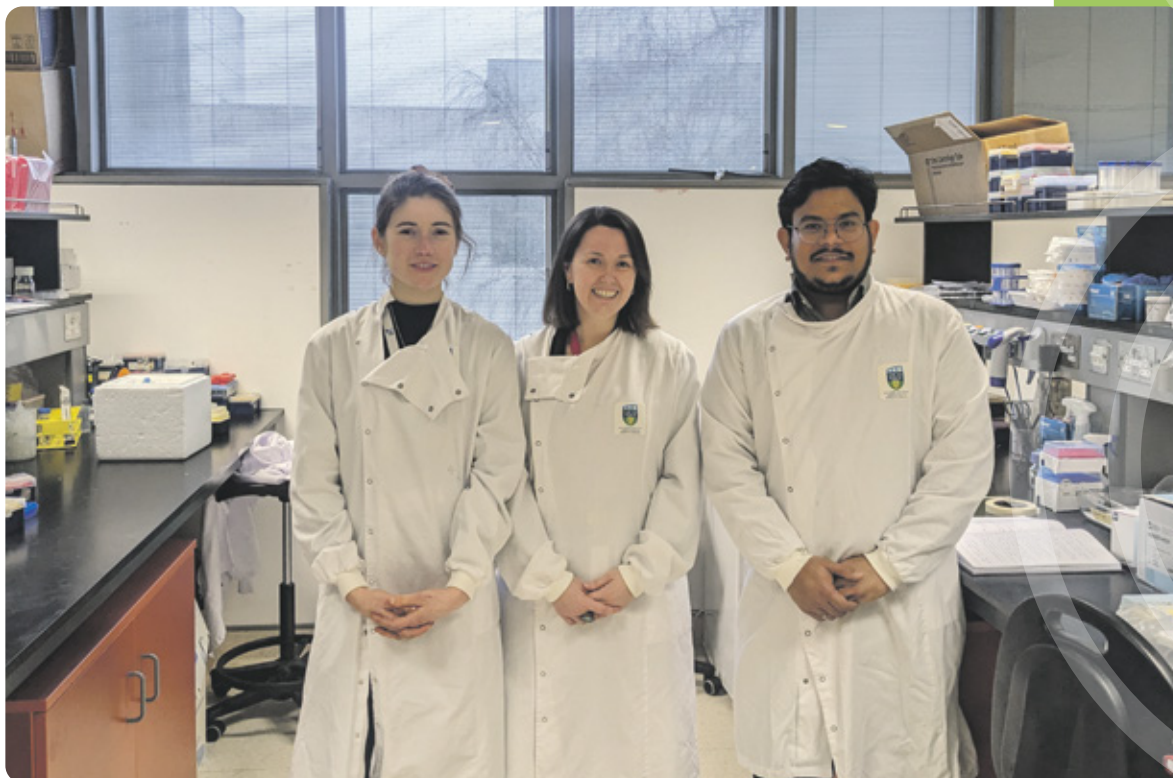


Dr. Claire Robinson, in University College Dublin was awarded the 5ForTheFight Cancer Immunology Research Fellow in partnership with Breakthrough Cancer Research. Pancreatic ductal adenocarcinoma, the most common form of pancreatic cancer, features a highly immunosuppressive tumour microenvironment.

Imagine a tumour where lots of 'messages' are sent telling cancer cells and other cell types in the tumour what to do and when to do it. In a tumour, these 'messages' are called secreted factors. And

they're continually sent, often telling immune system cells to stop working. Of course, our immune cells, in this case, natural killer cells, are critically important. And if they're told to stop working, cancer cells can reproduce and overwhelm the body.

Dr. Robinson will look for new ways to change the information these 'messages' or secreted factors deliver so they no longer stop natural killer cells from working. Her research will focus on inhibiting a particular protein (called IRE1) in the tumour to change the messages that are sent.



Dr. Cathriona Foley



'Colorectal cancer rates are on the rise in young adults. Considering bowel cancer screening begins at 60 years of age in Ireland, more patients may present with later stages of the disease in the years ahead. This research is important to develop a new therapy to treat and prevent metastasis of colorectal cancer'

Dr. Cathriona Foley

In 2023, Dr. Cathriona Foley, in University College Cork was awarded the 5ForTheFight Colorectal Research Fellow in partnership with Breakthrough Cancer Research. Dr. Foley will investigate methods to eliminate Minimal Residual Disease Post-Operatively in Patients with Excised Colorectal Cancer Tumours.

Surgery to remove the cancer can be lifesaving for patients with solid tumours. But too often individual cancer cells remain, hiding from protective immune cells. They grow into lawless tumours without efficient immune cell policing.

Surgical tumour removal also damages healthy tissue, causing inflammation. But tools to reduce inflammation may make immune cells incapable of finding and killing cancer cells left behind after surgery.

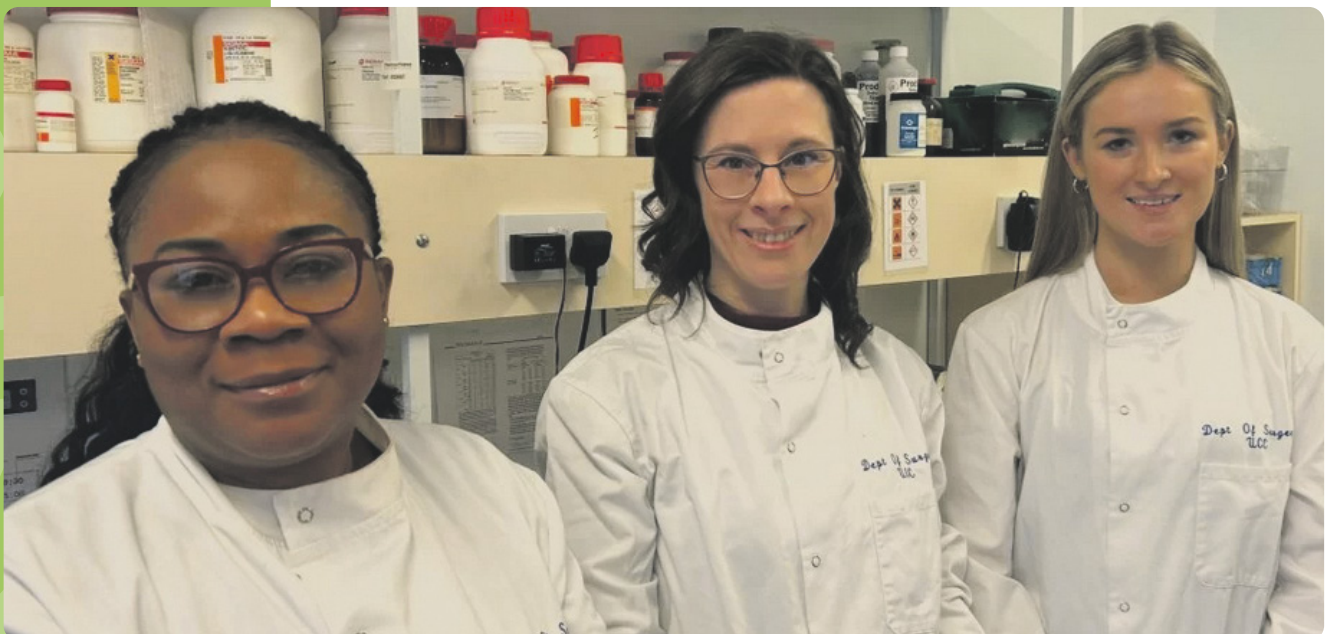
It's a puzzle. But Dr. Foley, along with Dr. Anthonia Ekperuoh and Amy Walsh, PhD student, who

joined Dr. Foley's team through the 5 For The Fight Colorectal Research Fellow in partnership with Breakthrough Cancer Research, aim to solve it.

If we could give cancer patients additional immune cells, resilient to inflammation reducing tools, we could promote better immune cell policing of rogue cancer cells. And it would prevent the return of tumours following surgery.

Their research will develop ways to grow a type of immune cell known as a $V\delta 1 \delta\gamma$ Tcell from the blood of any healthy donor. Those immune cells could be given to any colorectal cancer patient, preventing the return and spread of cancer after surgery.

This research has the potential to develop an enhanced $V\delta 1$ cellular immunotherapy. During surgery, it would be delivered into the tumour excision site to prevent colorectal cancer recurrence and metastasis.



LEVERAGING OUR INVESTMENT FOR MORE RESEARCH

Breakthrough Cancer Research looks to leverage its research investment by partnering with Irish government funding agencies and in 2023 Breakthrough was the (Charity) Enterprise partner for four successful Irish Research Council Enterprise Partnership Awards. These were awarded to: Dr. Sofia Dominguez in Dublin City University, Dr. Aidan O'Dowling in University College Dublin, Shaun Hartigan in University College Cork and Ellen Tracey in Maynooth University.

OUR FOUR NEW RESEARCH PROJECTS FUNDED THROUGH IRC'S ENTERPRISE SCHEME



BREAKING BARRIERS IN PANCREATIC CANCER TREATMENT

Pancreatic cancer is surrounded by dense tissue, called stroma. Its stiffness encourages the cancer to grow and spread. It also forms a barrier to prevent chemotherapy drugs from reaching the cancer cells.

Today, surgery is the only potential cure for pancreatic cancer. But, because the symptoms are non-specific, patients are usually diagnosed with advanced cancer. Only one in five have tumours suitable for surgery. Chemotherapy can be given to patients before surgery, in an attempt to shrink the tumour. This is called neoadjuvant chemotherapy.

Dr. Aidan O'Dowling, a surgeon currently working with principal investigator Prof. Tom Gallagher in UCD and St. Vincent's University Hospital, will seek to understand what chemotherapy drugs

could be used, as neoadjuvant therapy, to shrink the tumour before surgery.

Their research aims to characterise the tissue response to neoadjuvant therapy. Then they hope to develop lab-based tumour models using patient tissue that can predict the observed drug responses. Consenting patients will give tissue from biopsy and surgery. Aidan will measure the mechanical properties of this tissue and how they change in response to neoadjuvant therapy. This will assist in providing personalised approaches to treatment in the future by identifying patients who will respond well to chemotherapy.



Dr. Aidan O'Dowling
Pancreatic Cancer,
UCD

HOW A MUTATION IN A SPECIFIC PROTEIN MAY HOLD THE KEY TO EARLY CANCER DIAGNOSIS

Most ovarian cancer is detected too late. By then, the cancer has spread to other organs. And its symptoms are non-specific, making it quite difficult to diagnose.

Right now, there are no specific methods to detect the disease in its early stages.

More than 90% of people with the most common form of ovarian cancer have a mutation in a cell protein called p53. This protein keeps our cells in check, preventing them from growing and dividing out of control. Mutations in p53 stop it from working properly.

Shaun Hartigan is a PhD student working with principal investigator Dr. Kellie Dean in UCC, and will examine what happens to a group of RNA molecules when p53 doesn't work correctly in ovarian cancer. We believe understanding how these mutations affect RNA molecules will identify warning signs that cancer has started. It may also help tell us how cancer responds to medicines.

And though this project is specific to ovarian cancer, mutations in p53 are found in many cancer types. The results of this project may lead to finding cancer at its earliest and most treatable stage, helping many people.



Shaun Hartigan
Ovarian Cancer,
UCC

FINDING NEW WAYS TO TARGET OVARIAN CANCER



Ellen Treacy
Ovarian Cancer,
Maynooth University

One reason ovarian cancer is so lethal is that it's often diagnosed late, with 80% of people presenting at an advanced stage. Current treatment involves surgery and chemotherapy. But for 70% of patients, the cancer returns. Then the course of treatment is more chemotherapy. But eventually, the chemotherapy stops working. We call this 'drug resistance'. At that point, patients face treatment options with very poor success rates.

We need better solutions.

Ellen Treacy is a PhD student who is determined to do just that. Working with

Dr. Marion Butler in Maynooth University, she wants to find new treatments for patients who develop drug resistance. And in her research, she's found that drug-resistant ovarian cancer cells grow more slowly when treated with drugs that block a particular protein from working. Her research has found higher levels of this protein in tumour biopsies.

To move this research closer to the clinic, Ellen plans to use ovarian cancer models. Her goal is to learn whether using drugs that block this and another protein from working could reduce tumour masses.

COULD TINY TOOLS HAVE MASSIVE IMPACT ON PANCREATIC CANCER TREATMENT?

During the last decade, new treatment approaches have developed specially adapted therapies. These are used when surgery, chemotherapy, and radiotherapy aren't enough and come with adverse effects.

Dr. Sofia Dominguez, a post-doctoral researcher in Dublin City University, working with principal investigator Prof. Silvia Giordani, will look towards nanomedicine for answers. Nanomedicine is a sub-field of medicine that applies nanotechnology and nano-sized tools. These nano-sized tools are being explored to see if they can allow

more stable delivery of cancer-killing drugs directly to the tumour.

Sofia will investigate if specific nanosized tools can better deliver cancer-killing drugs to pancreatic cancer cells. These are pure carbon nano-onions (CNOs), tiny shells which are small enough to travel the circulatory system. CNOs are minimally toxic to the system. If CNOs can deliver the drugs directly, less would be needed, promising improved treatment results with fewer short and long-term side effects.



Dr. Sofia Dominguez
Pancreatic Cancer,
DCU

IMPACT

FIRST-OF-ITS-KIND SERVICE GLOBALLY TO IMPROVE QUALITY OF LIFE FOR SURVIVORS OF BREAST CANCER

EmmaJude Lyons was awarded the Irish Research Council Enterprise Partnership Scheme with Breakthrough as the partner in 2021. In the laboratory of Prof. Leonard O’Sullivan, EmmaJude was investigating the use of 3D printing in the design and manufacture of bespoke prosthesis for cancer patients.

Imagine the comfort of having a breast prosthesis that is custom-made for you, using 3D scanning and printing technology? The breast prosthesis, developed from this research will be individually suited to each patient.

In this project, EmmaJude, is creating bespoke breast prostheses for women post-mastectomy using state of the art digital manufacturing in Limerick. This research led to a new pilot service, a successful collaboration between the Rapid Innovation Unit at University of Limerick (UL), the Symptomatic Breast Care Unit at University Hospital Limerick (UHL), and the Mater Private Network’s Mid-Western Radiation Oncology Centre.

It is a first of its kind service globally using 3D scanning and printing to improve the quality of life for survivors of breast cancer. The pilot service will enable women who have undergone a complete mastectomy to avail of bespoke prostheses produced onsite at the point of care.

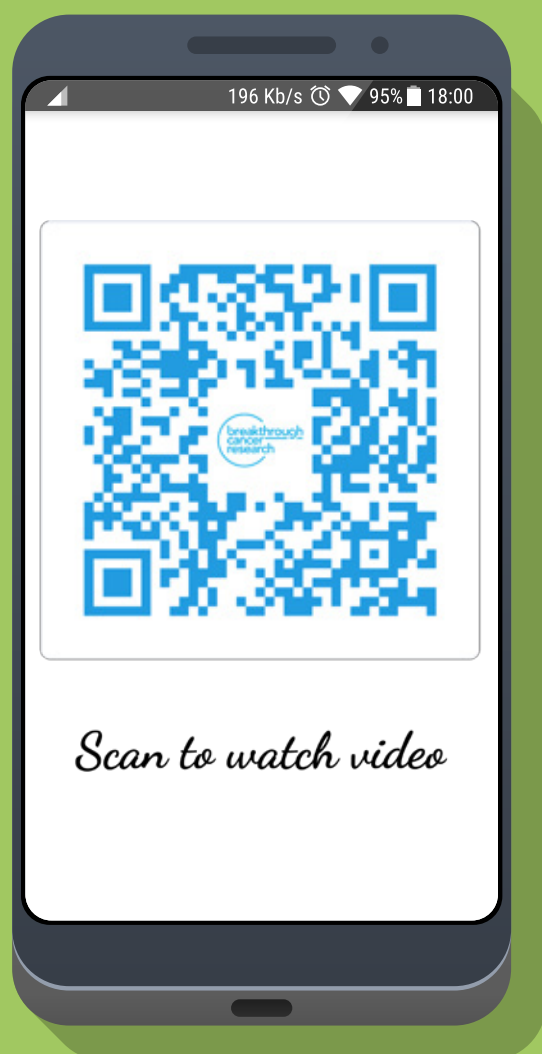


The pilot project, was awarded funding through the Public Service Innovation Fund by the Public Service and the Department of Public Expenditure NDP Delivery and Reform, and was officially launched at an event in UHL on Wednesday, May 17th 2023.



Dr. O'Sullivan, a senior research fellow at UL and lead on the project, said

“There was significant limitations’ to existing, standard breast prostheses. The ability to provide bespoke prostheses, regardless of shape and size, to perfectly match the residual breast is a significant improvement over the current standard of care for women who have undergone a mastectomy,”



Dr. O'Sullivan explained.

“There is a need for a renewed focus on quality of life and the application of user-centric design to develop innovative solutions for these patients. We have an incredibly talented PhD researcher, EmmaJude Lyons, who is funded by Breakthrough Cancer Research, who has taken this project from concept to advanced prototypes in a few short months.”

ACCESS AND PROVISION OF CAR-T THERAPIES IN IRELAND

CAR-T therapy is a type of cancer immunotherapy which aims to use cells from a patient's own immune system as part of the therapy. Immune cells called T-cells are removed from the patient's body, and modified externally so that they can target and kill cancer cells more effectively. The modified T-cells are then reinfused, or put back into the patient's body to treat the cancer. Where the treatment is successful, in some cases, it has led to cancer going into remission – where such patients were previously terminally ill with no other clinically indicated treatment options. While there are side effects associated with CAR-T therapies, including some which can prove fatal, clinical teams are developing strategies to reduce these risks, and to optimise the management of such side effects.

Researchers and Breakthrough Cancer Research called on the government and NCCP to develop a national strategy to achieve more sustainable and affordable pathways to increase the availability of life-saving advanced treatments like CAR-T therapies, a new frontier in cancer therapies, for patients across Ireland.

Currently, a number of types of CAR-T therapies are approved at a European level for the treatment of certain (blood) cancers such as lymphoma, leukaemia and myeloma, in certain contexts. However, research in the field suggests CAR-T therapies may have potential to treat other types of cancers, and other conditions in the future. Accordingly, the numbers of patients who may benefit from such therapies may significantly increase over time.

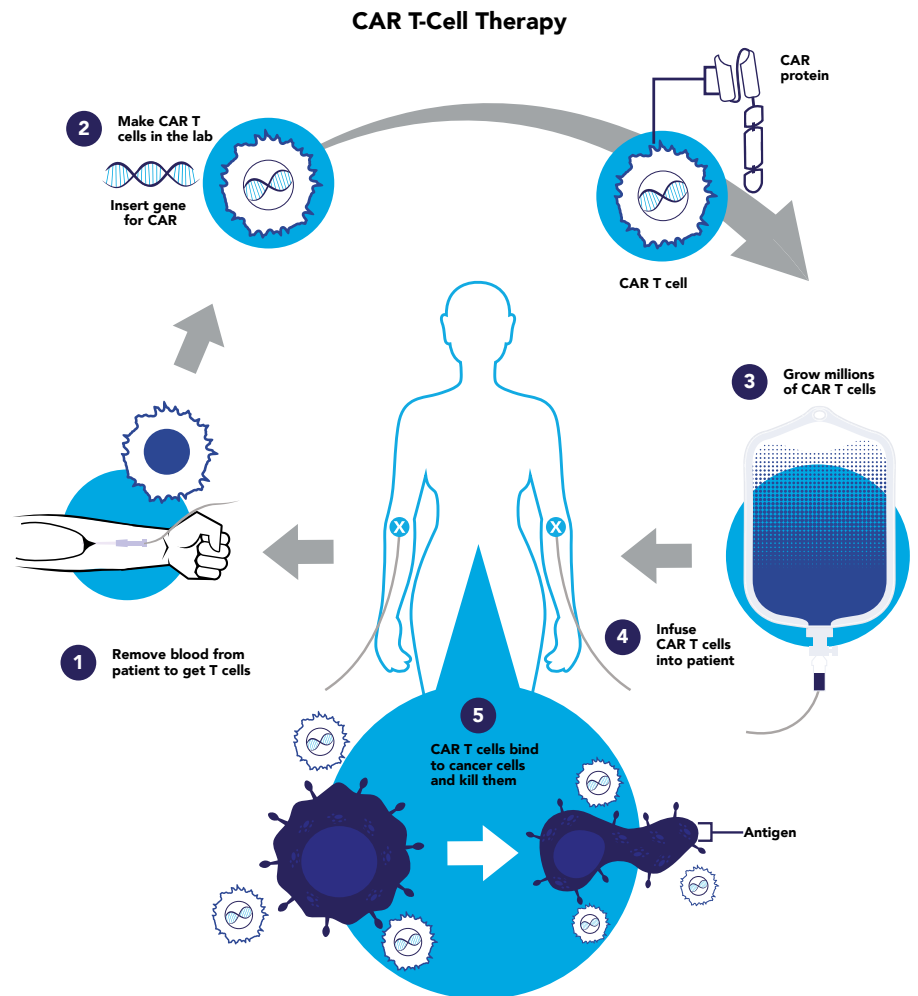
In December 2021, St. James's Hospital carried out the first adult CAR-T therapy in Ireland and to date, 46 adult patients have undergone CAR-T cell therapy here. CAR-T cell therapy is available for specific types of blood cancers for patients who have failed multiple lines of therapy. The provision of CAR-T services for paediatric patients commenced in Ireland in 2022 at Children's Health Ireland, Crumlin. This therapy has been transformative for many of these patients. Prior to this, patients for whom such therapies were clinically indicated needed to travel abroad to access CAR-T therapies.

However, there are remaining challenges for patients in accessing CAR-T therapies in Ireland as not all therapies approved by the European Medicines Agency are available in Ireland. Importantly, there are significant challenges around providing CAR-T therapies within national public health systems, including the high costs of such therapies when provided under commercial pathways.

In 2023 Breakthrough Cancer Research partnered on a new report which says that it is vital that a national strategy is developed around the provision of CAR-T therapies in Ireland which considers the current landscape and the pathways that can be used to provide such therapies in a more affordable manner in the future, so that increased access to these therapies based on patients' clinical needs can be delivered.



National Report on CAR-T



The report 'Access and Provision of CAR-T Therapies in Ireland for Cancer Care: The Current & Future Landscape, Opportunities and Challenges: Legal, Ethical and Broader Policy Considerations' was written by a team of researchers from Maynooth University, led by Professor Aisling McMahon (School of Law and Criminology, Maynooth University) and joined by Alanna Kells and Sinéad Masterson. This research was conducted as part of the Irish Research Council funded, 'Patients' Access to Advanced Cancer Therapies: Ethics and Equity of Access' (PAACT) project (Professor Aisling McMahon, Principal Investigator) and was conducted in collaboration with Dr. Frances Drummond, Breakthrough Cancer Research.



Dr. Frances Drummond, Research Manager, Breakthrough Cancer Research and Prof. Aisling McMahon, Maynooth University

The study looked at the current landscape for access to such therapies in Ireland, and the issues impacting the availability of advanced cancer immunotherapies, in this case CAR-T therapies, for cancer patients in Ireland. It outlines ten main policy recommendations, and the report including these recommendations have been sent to the Department of Health and the NCCP.

Pat Byrne, from Co. Westmeath, one of the first people to receive CAR-T treatment in Ireland, said:

'Receiving the CAR-T therapy was the best 11 minutes of my life. The treatments I was receiving previously had stopped working. I feel very fortunate to have received CAR-T treatment. While I did experience some side effects, I was well prepared for these by my amazing team in St. James.'

My recovery has been steady. I am now in remission, and I am particularly delighted that there is no requirement for any other medications. I am also delighted that since



having CAR-T therapies I have been able to travel abroad to see my family. I would like to see this treatment being available to all who need it. I am aware there is amazing research ongoing in the field. As CAR-T therapy continues to develop and perhaps in the future this could be a first line treatment.'

Pat Byrne

BREAKTHROUGH

CANCER RESEARCH

2023 SUMMER

SCHOLARSHIPS



The summer scholars program supports talented third level students and fosters innovation in the field of cancer research. Three Scholarships were awarded this year.



Natalia Bednarz



Yingru Zhou



Nina Carlos-De Clercq

Diagnosing Ovarian Cancer Sooner

Principal Investigator:
Dr. Jean McBryan
(Royal College of Surgeons in Ireland)

Ovarian cancer often goes undetected until it's too late. Some of the current diagnostic tests are not very accurate or reliable. Natalia will learn if a specific circular RNA can be detected in blood samples from ovarian cancer patients. This could lead to a new blood test that could detect the disease early without the need for a biopsy.

Using Nanoparticles to Deliver Targeted Cancer Treatments

Principal Investigator:
Prof. Silvia Giordani
(Dublin City University)

Chemotherapy can damage healthy cells and cause side effects. Yingru's project aims to find a better way to deliver chemotherapy drugs to cancer cells using carbon nanoparticles — tiny particles that can carry drugs directly to the cancer cells. If successful, this study could help us make a new kind of chemotherapy that requires less drugs and increases survival rates.

Fighting Glioblastoma with Immune Cells

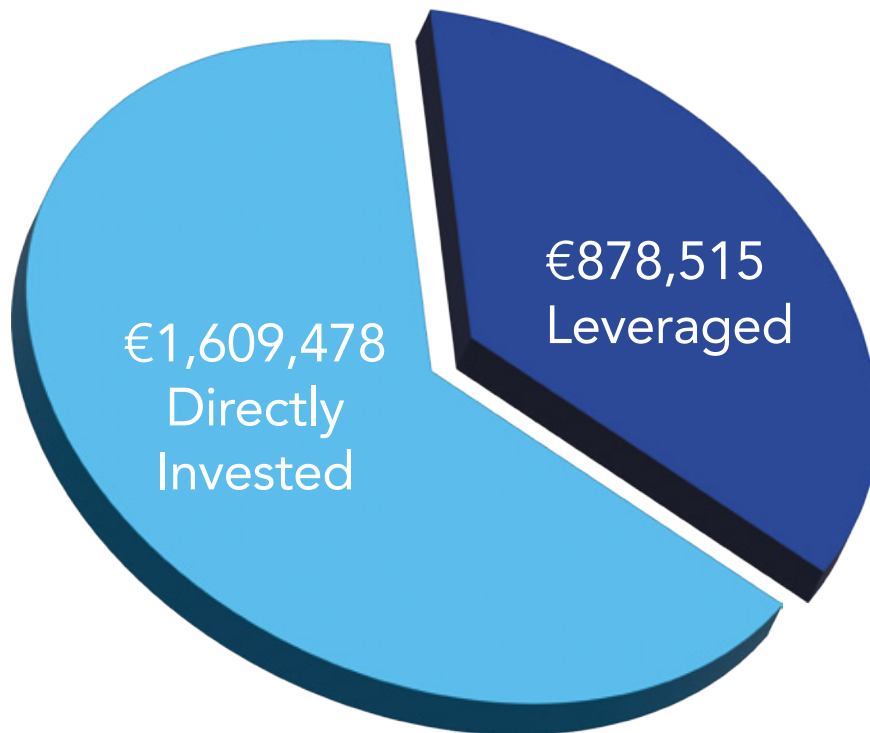
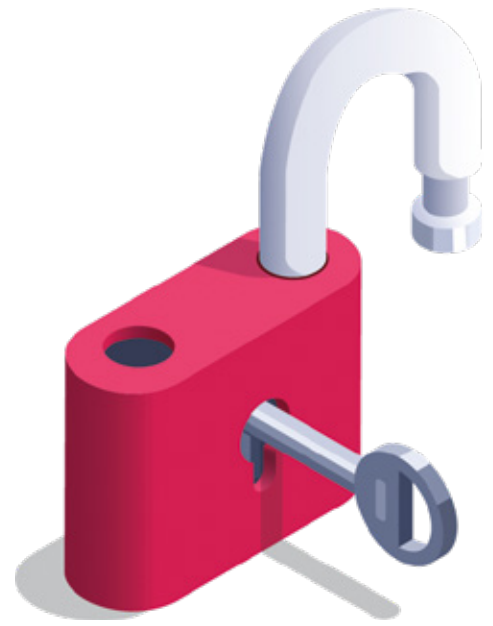
Principal Investigator:
Dr. Cathriona Foley
(University College Cork)

Glioblastoma is an aggressive type of brain cancer. To protect the patient's function, surgeons try to avoid harming healthy brain tissue during surgery. Some tumour cells are often left behind and grow back. Nina will study how to make a type of immune cell called **Vδ1 γδ T** cells more effective. Her research could lead to a new treatment option combining surgery with immune cell therapy.

LEVERAGING YOUR SUPPORT FOR RESEARCH

In 2023 Breakthrough successfully leveraged research funding through partnering in co-funding schemes led by national and international organisations. This shrewd approach unlocks greater research investment, helping funds raised go even further.

Specifically in 2023 we invested €1,609,478 directly into research while leveraging an additional €878,515 for projects which aligned with our research strategy and priorities which resulted in a total investment €2,487,993.



COMMUNICATION



INTRODUCTION

Communication plays a crucial role in Breakthrough Cancer Research's activities; it bridges the gap between complex scientific concepts and public awareness and understanding. This ensures that people can grasp the significance of advancements, make informed decisions about their health, and engage in meaningful discussions. Effective communication also helps to dispel myths, can reduce fear, and foster trust.

1st



Official Brand Ambassador

3

Cancer Conversations





1st 

6 Part Podcast series on
Gynaecological Cancers

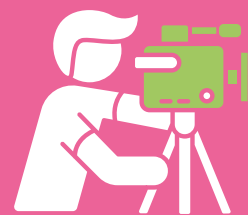
1st 

Documentary
on

TG4

4

New BTS Researcher
Videographers
Trained & Appointed



CANCER

CONVERSATIONS

As part of our 'Cancer Conversations' series, people with a personal experience of cancer, either themselves or through a loved one, chat with some of the talented researchers we are working with.

This year we filmed two of these conversations – one with Niamh Dobbs O'Reilly, who received a diagnosis of Glioblastoma (a type of brain cancer), who met with Patricia Flynn, PhD student, and Dr. Collette Hand of University College Cork, to discuss Glioblastoma and the research that is being carried out.

In this video, Niamh told us about the importance of knowing that there is ongoing research into Glioblastoma and the hope that this gives to people. Patricia explained her research project on retinoic acid (a chemical compound produced in our bodies from vitamin A) and its role in influencing the growth of Glioblastoma.



Avril Deegan and Prof. Owen Smith

In the second conversation, Avril Deegan, PhD student and survivor of childhood leukaemia, met with Prof. Owen Smith, Consultant Paediatric Haematologist, to discuss childhood cancers. Avril and Owen explored the advances that have been made in treatments for childhood cancers and the importance of Avril's research into survivorship and the complexities of making the transition from finishing treatment back to everyday life.



*Niamh Dobbs O'Reilly, Patricia Flynn
& Dr. Collette Hand*

Niamh told us about the importance of knowing that there is ongoing research into Glioblastoma

TG4 DOCUMENTARY

Breakthrough Cancer Research featured in a new documentary this year that highlighted impactful breakthroughs in cancer research in Ireland that are making more survivors.

Biseach ón Ailse, is a powerful documentary exploring innovative breakthroughs in cancer research in Ireland, backed by Breakthrough, was broadcast by TG4 in June of 2023.

In a heart-warming meeting of the minds, broadcaster, journalist and cancer survivor Evelyn O'Rourke brought two fellow cancer survivors face-to-face with dedicated cancer researchers to uncover the life-changing impact of cancer research. In this documentary, Evelyn met with Caitríona Greene and Ann Marie O'Sullivan, both cancer survivors who shared their personal stories of hope and resilience.



From left to right: Caitríona Greene, Evelyn O'Rourke and Ann Marie O'Sullivan

The moving documentary showed how research creates breakthroughs and breakthroughs make more cancer survivors. Behind that simple equation hides innovation and science but it is the end result that helps people to get back to living, and creating memories and moments that would not

have been possible were it not for cancer research.

This is a story of hope and perseverance, and a tribute to the remarkable individuals who are working tirelessly to find new, better, kinder, smarter treatments and diagnostics for people with cancer.

In 2021, Caitríona, a teacher from Donegal was diagnosed with cancer and while undergoing treatment discovered she was pregnant. Caitríona did 10 rounds of chemotherapy before giving birth to her beautiful daughter. Caitríona says,

“ You have to trust the research and think about the women who came before me who didn't have research. I think about the first pregnant woman to receive chemotherapy who didn't have research. She did that so women like me could sit in that chair and know that I was doing the right thing. ”

Ann Marie O'Sullivan was the first person in Munster to receive a new treatment (TCH-P) when she was diagnosed with cancer at the start of the COVID pandemic in 2020. The treatment was successful and she remembers the hope her medical team gave her.

Researchers Triona Ní Chonghaile and Maitiú Ó Murchú highlighted how more people are surviving cancer in Ireland today thanks to investment in research and why there is a critical need for more research into poorer prognosis cancers.



From left to right: Maitiú Ó Murchú, Ann Marie O'Sullivan, Evelyn O'Rourke, Caitríona Greene and Triona Ní Chonghaile

PODCAST

This year, for the first time, we sponsored a new podcast series on gynaecological cancers, which represent 12% of all female cancers. It was launched by The Irish Society of Gynaecological Oncology (ISGO) as a valuable resource for patients undergoing treatment for gynaecological cancers.

Hosted by G.P., Dr. Doireann O’Leary, and sponsored by Breakthrough Cancer Research, the podcast series shared the stories and first-hand experiences of people who have had a cancer diagnosis. They were joined by healthcare professionals, who provide expert advice, and the podcasts also delved into cutting-edge research and advancements, which aim to improve survival and treatment options.

Episodes include topics focused on specific cancers like ovarian cancer (in particular PARP inhibition) and gestational trophoblastic disease, to topics which bridge all cancer types including experience of palliative care

services.

People shared their stories of being diagnosed with a genetic cancer syndrome and what this meant for them and their family as well as patient and public involvement in research. Also explored were the psychological and psychosexual consequences of cancer treatment.

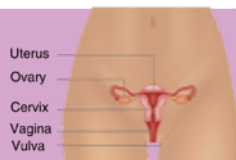
In the Republic of Ireland, over 1,400 gynaecological cancers are diagnosed annually with 591 diagnosed annually in Northern Ireland, representing over 12% of female cancers. Symptoms of gynaecological cancer may include: abnormal vaginal bleeding or discharge, feeling full too quickly, bloating or difficulty eating, pelvic pain or pressure, abdominal or back pain, a more frequent need to urinate, constipation, itching, burning, pain or tenderness of the vulva and changes in vulval colour or skin. If you have been experiencing any of these symptoms for 3 weeks or more please visit your healthcare provider.

“
The podcasts also delved into cutting-edge research and advancements
”



Gynaecological Cancer Awareness

Symptoms	Cervical Cancer	Ovarian Cancer	Uterine Cancer	Vaginal Cancer	Vulvar Cancer
Abnormal vaginal bleeding or discharge	◆	◆	◆	◆	
Feeling full too quickly or difficulty eating		◆			
Pelvic pain or pressure		◆	◆		
More frequent or urgent need to urinate and/or constipation		◆		◆	
Bloating		◆			
Abdominal or back pain		◆			
Itching, burning, pain, or tenderness of the vulva					◆
Changes in vulva colour or skin, such as a rash, sores, or warts					◆



EPISODE GUIDE

To access the series, please visit Dr. Doireann's Podcast wherever you get your podcasts.

EPISODE 1

The Lived Experience of Genetic Testing. Krista tells her story of having preventative surgery after learning she had a BRCA gene mutation. Kat tells us about her experience of Ovarian and Endometrial (Uterine) cancers and Lynch Syndrome.

EPISODE 2

Ovarian Cancer and PARP Inhibitors: Dr. Dearbhaile Collins, Consultant Medical Oncologist explains medications called PARP Inhibitors, a recent breakthrough in ovarian cancer treatment. Jenny tells us of her experience of living with ovarian cancer and taking a PARP Inhibitor.

EPISODE 3

Redefining Palliative Care: Dr. Karie Dennehy and Dr. Miriam Colleran, Consultants in Palliative Medicine help us to understand their role and how they support patients and families. Anne shares her own experience of palliative care and ovarian cancer.

EPISODE 4

Psychosexual Impact of Fertility Treatment and Cancer. Dr. Doireann speaks with Tasmin who discusses the impact of fertility and cancer treatment had, and still has, on her relationship. Dr. Yvonne O'Meara, Systemic Psychotherapist and Psychosocial Oncologist, gives expert insight into the psychosexual impact of cancer on relationships.

EPISODE 5

Lived experience of Gestational Trophoblastic Disease: Dr. John Coulter, Consultant Obstetrician, Gynaecological Oncologist and Clinical Lead of the National Gestational Trophoblastic Disease Centre at Cork University Maternity Hospital where he explains Gestational Trophoblastic Disease, also known as 'Molar Pregnancy'. Rachel, who is a patient advocate, shares her own experience of what it is like to have a Molar Pregnancy and the impact it has had on her life.

EPISODE 6

Public and Patient Involvement: PPI is where patients and members of the public get involved in cancer research, working in partnership with healthcare professionals, scientists, allied health, to improve the patient experience and to ultimately make an impact on patient outcomes. In this episode Dr. Doireann speaks with Sharon O'Toole, senior research fellow at Trinity College Dublin working in the area of gynaecological cancer, ISGO Board member and co-founded their patient and public involvement (PPI) group.

Bridget, who is a patient advocate, also explains what motivates her to get involved in PPI projects, how she protects herself psychologically and emotionally whilst advocating for patients.



IDSSI BOOKLETS FOR DYSPHAGIA

This year we were delighted to support Dr. Aoife Ryan, UCC and her team, in the launch of a new series of free cookbooks for people who experience swallowing difficulties during cancer. In doing so Ireland became the first country in the world to produce a series of cookbooks to help cancer patients and survivors with swallowing difficulties (dysphagia).

They are fully compliant with the International Dysphagia Diet Standardisation Initiative (IDDSI) and have been endorsed

by the Irish Nutrition & Dietetic Institute (INDI), the Irish Society of Medical Oncology (ISMO), the Irish Society for Clinical Nutrition & Metabolism (IrSPEN), the National Cancer Control Programme (NCCP) and the Irish Association of Speech & Language Therapists (IASLT). The information and recipes were developed by an exceptional team of registered dietitians and speech and language therapists around the country.

Due to the nature of swallowing difficulties in cancer these books are only available to patients through registered dietitians. Each person must be assessed by their dietitian and then they will be advised as to what level of cookbook is best for them, based on their level of swallowing difficulty.

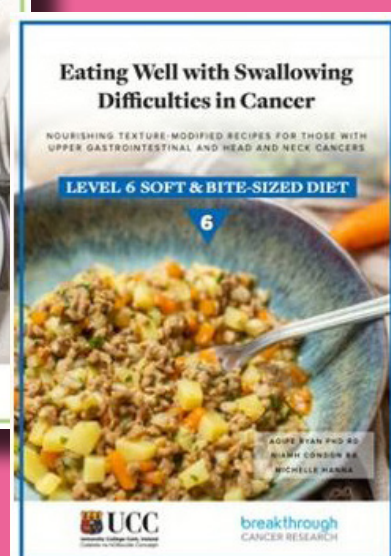
Dr. Aoife Ryan, Senior Lecturer in Nutrition & Dietetics, UCC, who spearheaded the series said, 'We developed this series of books because eating a nutritious diet is essential during cancer treatment and recovery. However swallowing difficulties, caused by the disease or its treatment can often make eating and maintaining a healthy weight a difficult task for people with cancer.

Research has shown that weight loss (that is not intentional) caused by cancer and cancer treatment can reduce a person's

response to treatment, increase treatment-related side-effects and reduce a person's quality of life and overall survival. So, we need to provide those who are having difficulty swallowing with the tools that they need to have a nourishing diet as it is vital for their recovery. The recipes are tasty and nutritionally balanced and are tailored to the person's level of swallowing difficulty.'

This series of cookbooks continues our support in sharing evidence-based information, resources and recipes to support people with cancer who are in active treatment or post treatment.

“ Ireland became the first country in the world to produce a series of cookbooks to help cancer patients and survivors with swallowing difficulties (dysphagia) ”



MYELOMA BOOKLET

Researchers at the Beaumont RCSI Cancer Centre worked with representatives from Multiple Myeloma Ireland, patients and a patient advocate, and identified that increasing awareness about multiple myeloma could bring many benefits.

This increased awareness could empower people to recognise symptoms, seek appropriate medical assistance, potentially reduce the shock of diagnosis, and enhance understanding of long-term options post-diagnosis.

In line with this objective, two RCSI University of Medicine and Health Sciences student researchers, Niamh McAuley and Izabela Drozd, worked with researchers, patients and patient advocates to develop a new, user-friendly booklet about multiple myeloma. Under the guidance of esteemed cancer researchers Professors Siobhan Glavey and Ann Hopkins the 20-page booklet 'Multiple Myeloma in Ireland' aims to make the term multiple myeloma a recognised name and to expedite efforts towards making it a treatable condition.

Researchers from around Ireland contributed insights for the booklet, and these are set out in easy-to-access language for people to learn more about the disease, how it is currently treated and the type of research that will hopefully lead to new treatments in the future.

The distribution of physical copies of the booklet to various locations, including HSE Primary Health Care Centres, GP surgeries, and pharmacies, along with its availability online through platforms such as the websites of the Beaumont RCSI Cancer Centre, Multiple Myeloma Ireland, Breakthrough Cancer Research, and Myeloma Patients Europe, will ensure widespread accessibility.

One of the potential impacts is that patients will engage more widely with research in blood cancers, speeding up processes for understanding disease progression and designing and testing new treatments, and getting new drugs into clinical trials sooner.

The booklet was funded through Breakthrough Cancer Research and the Health Research Board under Health Research Charities Ireland grant.



FUNDRAISING

INTRODUCTION

Fundraising is the enabler for everything that Breakthrough Cancer Research does. We rely entirely on public generosity to directly fuel our ability to invest in essential cancer research. It supports the scientists and healthcare professionals dedicated to this life-saving research who ultimately work towards finding new, better, kinder, smarter treatments and diagnostics for people with cancer. Our fundraising activities also raise awareness about our mission, mobilise communities, and inspire collective action, making every contribution a vital part in making more survivors of cancer.

€3M+
RAISED



100's of volunteers
in 21 counties
participated in 2nd
Annual National
Flag Day



817
Sponsored
a Scientist



10 **NEW**

Corporate Partners

1

Corporate
Partnership
Award



VIRTUAL CHALLENGE FUNDRAISING

Since the introduction of Virtual Fundraising during the pandemic, Breakthrough Cancer Research has benefited from the support of thousands of people around Ireland and beyond, each taking on different challenges to raise funds for cancer research.

The concept is straight forward with simple challenges allowing participants to sign up to each activity over a month for a specific target. Groups of supporters, mobilised for each of these activities in their own communities, while engaging with others online to encourage, inspire and motivate each other along the way.



THIS YEAR WE HAD 4 VIRTUAL CHALLENGES



310,000
Steps in March



Swim 5km in June



Hike 40km in August



Run 90km
in November



Over 5,400 people
took part



Raising Over
€221,500
through Facebook
Fundraising & other
online fundraising
platforms.

EVENTS

WEST CORK LUNCH

The inaugural West Cork Lunch was held in the West Cork Hotel in February. Having moved our signature Gala Ball from February to November, we were fortunate to be able to add a new event to our calendar. The event was a complete success with very special guests Mary Black and Mary Kennedy entertaining a full ballroom with Deirdre O'Shaughnessy performing Master of Ceremonies duties on the day.



WINTER BALL



Now in its second year, the Winter Ball took place in Fota Island Resort on Friday 10th November and was again a wonderful success with over **€60,000** raised on the night. A complete sell out; VIP guests, including cancer survivors and supporters of Breakthrough Cancer Research, and people from across the medical, scientific, academic, corporate and political worlds, donned their tuxedos and ball gowns, to enjoy an evening of entertainment, fine food and dancing into the night. Special Guest Risteárd Cooper ensured our 'Après Dinner' was one to remember.



GOLF FOR BREAKTHROUGH

CANCER RESEARCH

Golf has been a regular source of annual fundraising for Breakthrough Cancer Research. We were delighted to have the return of the Breakthrough Cancer Research Golf Classic at Lee Valley Golf Club, sponsored by the River Lee Hotel and Johnson and Perrott Motor Group, on Friday 26th May. Teams from businesses and supporters filled a busy tee sheet from just after dawn until dusk.



As well as this there were several other golfing fundraisers around the country including the inaugural Dave Earlie Memorial Classic in Milltown Golf Club.

Another unique golf event took place at the Kinsale Golf Club with their ProShop Challenge in memory of Darragh Ryan. Golf Pro Ian Stafford organised the event in memory of his nephew Darragh who had organised the original event as a fundraiser and then sadly passed away from cancer in 2022. Ian recruited ex-Ireland Rugby International Rory Best along with Tour Pro John Murphy and Ger Broderick for a Skins Match.



RING OF KERRY

CHARITY CYCLE

2023

On Saturday 1st July 2023, over 1200 cyclists joined thousands of others to take on the 170km loop of some of the most breathtaking roads in the world. Joining Team Breakthrough's ambassador David Gillick, and the hundreds of volunteers supporting at medical, food stations, and the finish line, these cyclists helped raise an astonishing €306,692.32 for two new projects in oesophageal and breast cancers.



**OVER €1M HAS BEEN RAISED FOR
BREAKTHROUGH CANCER
RESEARCH FROM THIS
EXTRAORDINARY CHARITY CYCLE
OVER THE YEARS. THERE SIMPLY
IS NO OTHER EVENT LIKE IT!**

HOW 25 FUNDRAISERS

RAISED OVER €85,000 ON

THE CAMINO INGLES

In May, a group of 25 fundraisers embarked on a remarkable journey: walking the Camino Ingles, or the English Way, to Santiago de Compostela in Spain. Their

goal was to help us raise funds and awareness for cancer research.



The journey on the world famous Camino de Santiago on the Camino Ingles took six days going from Ferrol to Santiago de Compostela, walking through the lush green landscapes, taking in medieval castles, ancient villages, panoramic views and sampling the local cuisine and culture of the Camino de Santiago.

Most of the group started out not knowing each other, coming together for the first time on this world famous pilgrimage for Breakthrough Cancer Research.

Joining the group was Pamela Deasy, member of Breakthrough Cancer Research's Public and Patient Involvement (PPI) Panel. Pamela is a survivor of pancreatic cancer having being diagnosed in 2018. She was treated with chemotherapy, radiotherapy, and surgery. And in 2019, she got what she called "miracle" news. She was cancer-free!



“

I am so grateful to Breakthrough Cancer Research for giving me hope and a chance to live longer. Walking the Camino was a way of saying thank you and giving back. It was also a personal challenge and a celebration of life.

Pamela Deasy

”



The Camino trip was a huge success, raising over €85,000 for cancer research. This money will help us continue our work to find new treatments for cancers that are currently incurable or hard to treat.

We're so proud of Pamela and all the other walkers who took on this challenge for Breakthrough Cancer Research.

Jon & Kerri Czernal with Pamela Deasy

NATIONAL FLAG DAY ON

WORLD CANCER

RESEARCH DAY

In September 2023, whilst celebrating World Cancer Research Day, volunteers, supporters, schools, community groups and businesses all around Ireland helped raise funds for Breakthrough Cancer Research during our National Flag Day.

Now in its second year, we have been fortunate to see the extraordinary support extend to 21 separate counties and over €59,000 raised from a mixture of bucket collections and tap to donate activities.

We are so grateful to everyone who so generously supported and gave up their time to volunteer to help raise vital funds for cancer research all around the country and hope to again expand this further next year.



OTHER COMMUNITY

EVENTS

Sheep's Head Charity Tractor Run;
Lights of Hope Tractor Run, Bweeng;
Bengour Vintage Tractor Run;
Blackstairs Vintage Club;
Caheragh Threshing.



Caheragh Threshing



*Sheep's Head
Charity Tractor Run*



*Lights of Hope
Tractor Run Bweeng*

LEGACIES: A GIFT

TO THE FUTURE

Making a Will is the best way of ensuring that your wishes are met, and the people and causes you care about are looked after. Many of our supporters, have already chosen to remember Breakthrough Cancer Research in their Will and we are honoured and grateful to each person for including us.

In 2023 we saw a record year for gifts made in Wills and received a special gift of over €300,000, which was left to us in the Will of a wonderful person who cared deeply about cancer research. And this gift will make a tremendous difference in our work.

We're so grateful to all of the people – and their families – who have supported us with gifts large and small in their Wills. We have now received over €1M in funding through similar legacy gifts. In fact, €1 in €10 of our funding now comes from kind donations from forward thinking people who want to make a difference for future generations. People who understand that the research of today are the treatments of tomorrow.

Also in 2023 we created a new animated video on our website as a tool to guide people about how to leave a gift in their Will. This video and other information tools are shared on our website.

www.breakthroughcancerresearch.ie/a-gift-in-your-will



CORPORATE FUNDRAISING

Corporate fundraising has been a key area fuelling the growth of Breakthrough Cancer Research over the last 10 years in some cases adding enough funding for entire projects, Scholarships and PhD programmes.

We have been fortunate to have a great mix of companies who support our work in so many ways. Some make financial donations to specific projects while others empower and support their employees to fundraise for cancer research.

MUSGRAVE

Musgrave continues to build on its incredible support of Breakthrough Cancer Research and other charities since its launch. The fundraiser which started out as a Triathlon back in 2002 has raised over €5.4M over the past 21 years. It has now evolved into a Fun Run and Family Day in Tramore Valley Park.

Musgrave have been funding an annual PhD cancer research scholarship and this year the previous Musgrave PhD scholarship winners presented their work to date to a group of Breakthrough Cancer Research Public and Patient Involvement (PPI) representatives and a Musgrave Gives Back Committee. The funds raised from this year's event will help hire another new cancer researcher working on hard-to-treat cancers.



Family Day in Tramore Valley Park



Members of Musgrave Gives Back Committee with the PhD Scholars they support



QUALTRICS &

5 FOR THE FIGHT

qualtrics^{XM}



Qualtrics 5 for the Fight EMEA, was founded by Qualtrics in December of 2016 as a public charity in the US aimed at fighting cancer and began work in earnest in 2017. Later that year, Dermot Costello, who brought Qualtrics to EMEA, was diagnosed with terminal cancer. At that point, employees at Qualtrics in Dublin stood-up and founded 5 For The Fight EMEA raising funds for Breakthrough Cancer Research. The initiative was created with milestones for hiring researchers, and the aim is to bring the best and brightest scientists together to study cancer. 5 For The Fight wants to make more survivors. Over the past 5-years the EMEA program has raised over €1.3 million for Breakthrough Cancer Research allowing over 10 researchers to be hired in cancer immunology research projects.

Qualtrics have continued their astonishing support of Breakthrough Cancer Research with a number of employee led fundraisers and crowdfunding events.



In 2023, Qualtrics mobilised their team in EMEA to take part in a Global 5km and included Breakthrough Cancer Research at their showcase event, X4, in London, making a donation for each attendee.



GLOBAL COMMUNITY AWARD

The American Chamber of Commerce Ireland awarded their Global Community Award 2023, to the Qualtrics 5 For The Fight EMEA campaign with Breakthrough Cancer Research. This award is presented to an individual, team or organisation that has had a positive societal/community impact.



SALESFORCE

Salesforce Dublin have continued their amazing corporate partnership with Breakthrough Cancer Research with a number of events this year. Following the successes of previous hikes along the Wicklow Way and in loving memory of Carl Dempsey, Colin Doyle, Peter Hurrell and many other friends and colleagues they have lost, a group of over 150 Salesforce Dublin hikers set out hoping for some of the same glorious weather that has coincided with this event in previous years. Instead, wind and driving rain greeted the team as they sheltered temporarily in the tree canopy before summoning all their determination to march on through the 18km route.

As well as the tremendous fundraising around the hike itself, there were several other events organised. These included everything from a cycle from Croatia to Greece, a row-athon, the sale of handcrafted wooden bowls, the sale of Christmas Cards, bucket collections and some other kind donations.

Altogether with some very generous match funding by Salesforce the team raised over

€162,000

for Breakthrough Cancer Research in 2023.



FINANCE





STATEMENT OF FINANCIAL ACTIVITIES

INCLUDING INCOME AND EXPENDITURE ACCOUNT for the year ended 31 December 2023

	UNRESTRICTED FUNDS €	RESTRICTED FUNDS €	TOTAL 2023 €	TOTAL 2022 €
INCOME FROM:				
Legacies	323,471		323,471	122,976
Charitable activities	2,375,318	302,381	2,677,699	2,264,414
Other income	16,670		16,670	(41,704)
TOTAL INCOME	2,715,459	302,381	3,017,840	2,345,686
EXPENDITURE ON:				
Raising funds	637,096		637,096	441,089
Charitable activities	580,471		580,471	526,104
Research costs	1,337,685	271,793	1,609,478	1,530,097
TOTAL RESOURCES EXPENDED	2,555,252	271,793	2,827,045	2,497,290
NET INCOME/(EXPENDITURE) FOR THE YEAR/ NET MOVEMENT IN FUNDS	160,207	30,588	190,795	(151,604)
FUND BALANCES AT 1 JANUARY	413,128	190,086	603,214	754,818
FUND BALANCES AT 31 DECEMBER	573,335	220,674	794,009	603,214

The statement of financial activities includes all gains and losses recognised in the year. All Income and expenditure derive from continuing operations.

BALANCE

SHEET

AS AT 31 DECEMBER 2023

	2023		2022	
	€	€	€	€
Fixed Assets				
Tangible Assets		24,853		28,922
Current assets				
Debtors	99,190	-	68,008	
Cash at bank and in hand	887,629		1,106,378	
	<u>986,819</u>		<u>1,174,386</u>	
Creditors: amounts falling due within one year	<u>(217,663)</u>		<u>(600,094)</u>	
Net current assets		769,156		574,292
Total assets less current liabilities		<u>794,009</u>		<u>603,214</u>
Income funds				
Restricted funds		220,674		190,086
Unrestricted funds		573,335		413,128
		<u>794,009</u>		<u>603,214</u>

GOVERNANCE

Breakthrough Cancer Research is fully committed to openness, transparency and integrity to our donors, supporters, volunteers and funding partners by adhering rigorously to the Triple Lock standards set out by the Charities Institute of Ireland - good fundraising, transparent annual financial reporting and governance. For more information on our Governance go to

www.breakthroughcancerresearch.ie/governance

Our Board of Directors is made up of independent individuals with diverse backgrounds who volunteer their time, expertise and passion to our vision. The Board provides the advisory and governance role for the charity. We do not pay members of our Board, cover their expenses or provide recompense in any other way.

The Board of Breakthrough has formally adopted, is signed up to, and is fully committed to achieving the standards contained within the Statement of Guiding Principles for Fundraising.

THE STATEMENT OF GUIDING PRINCIPLES FOR FUNDRAISING EXIST TO:

Improve fundraising practice

- Promote high levels of accountability and transparency by organisations fundraising from the public
- Provide clarity and assurances to donors and prospective donors about the organisations they support.

We, Breakthrough, have considered the Statement and believe we meet the standards it sets out.

Breakthrough's annual accounts are independently audited every year by Moore Ireland. We prepare our accounts in accordance with Irish accounting standards and with reference to the Statement of Recommended Practice (SORP) for charities.

This is a comprehensive framework that enables us to explain what we aim to do, how we go about it and what we achieve.

You can download and view our most recent audited accounts at

www.breakthroughcancerresearch.ie/annual-reports-and-financials

Breakthrough Cancer Research is fully compliant with the Governance Code for Community, Voluntary and Charitable Organisations, and the Charities Governance Code as set out by the Charities Regulator in 2018.

Breakthrough's Charity No: CHY19801

Registered Charity No (RCN): 20077945



CHARITIES
INSTITUTE
IRELAND

2023 TRIPLE LOCKED MEMBER

COMMENTARY

Breakthrough Cancer Research is pleased to confirm that the accounts have been prepared in accordance with the statement of recommended practice (Charities SORP in accordance with FRS 102, effective January 2015). This reporting structure is accepted as best practice in the charity sector. Also, this is reflective of Breakthrough Cancer Research's on-going commitment to good governance and financial transparency.

The reserves for the year are **€794,009** (2022:€603,214). Breakthrough Cancer Research remains in a position to support existing research projects, and to continue to fund research programmes in 2024.

The statement of Financial Activities and Balance Sheet included on page 44 and 45 respectively are an extract from the full statutory financial statement of the company for the year ended December 31st 2023, which are available on our website,

www.breakthroughcancerresearch.ie/annual-reports-and-financials/

Our Board of Directors who served the period were:

Michael McMahon

Breda O'Sullivan

Doreen O'Mahony (Resigned 2 Apr 2023)

Enda Lynch

Jeffrey Long

Angela Gillian (Appointed 2 Mar 2023)

Kasia Whysall (Appointed 2 Mar 2023)

Mark Heap (Appointed 12 Dec 2023)

Secretary: L&P Trustee Services Limited

BANKERS

AIB Bank plc. Western
Road, Mardyke, Cork

AUDITORS

Moore Ireland,
Chartered Accountants
& Statutory Audit Firm
83 South Mall, Cork

SOLICITORS

Ronan Daly Jermyn
2 Park Place, City Gate
Park, Mahon Point,
Co. Cork

APPENDICES





ACHIEVEMENTS

PUBLICATIONS BY

OUR RESEARCHERS

IN 2023



1. **Dowling P, Bazou D.** Identification of Ubiquitination-Associated Proteins Using 2D-DIGE. *Methods Mol Biol.* 2023;2596:83-96. doi: 10.1007/978-1-0716-2831-7_6. PMID: 36378432.
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3. **O'Connell F, Mylod E,** Donlon NE, Heeran AB, Butler C, Bhardwaj A, Ramjit S, Durand M, Lambe G, Tansey P, Welartne I, Sheahan KP, Yin X, Donohoe CL, Ravi N, Dunne MR, Brennan L, Reynolds JV, Roche HM, **O'Sullivan J.** Energy Metabolism, Metabolite, and Inflammatory Profiles in Human Ex Vivo Adipose Tissue Are Influenced by Obesity Status, Metabolic Dysfunction, and Treatment Regimes in Patients with Oesophageal Adenocarcinoma. *Cancers (Basel).* 2023 Mar 9;15(6):1681. doi: 10.3390/cancers15061681. PMID: 36980567; PMCID: PMC10046380.
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POSTER PRESENTATIONS

- Presenter:** O’Gorman P and Nicola Cosgrove

Title: Personalised tumour mutation panels for ctDNA detection from exhaled breath condensate in early-stage lung adenocarcinoma.

Conference: RCSI Research Day
- Presenter:** O’Sullivan J and Simone Marcone

Title: Evaluation of the optimal therapeutic conditions of a novel small molecule compound (pyrazinib) to enhance radiosensitivity in oesophageal adenocarcinoma.

Conference: Breakthrough Cancer Research conference
- Presenter:** Butler M and Jamie Casey

Title: IRAK1 in Ovarian cancer.

Conference: EACR 2023 conference
- Presenter:** Brendan Kennedy and Pendino Marzia

Title: Evaluating Cannabinoid Receptors as a Therapeutic Target for Uveal Melanoma.

Conference: IACR 2023
- Presenter:** Brendan Kennedy and Tonelotto, Valentina

Title: Accelerating the route towards metastatic uveal melanoma diagnosis and treatment: uveal melanoma extracellular vesicles as novel therapeutic targets and biomarkers.

Conference: Extracellular vesicle workshop
- Presenter:** Brendan Kennedy and Tonelotto, Valentina

Title: Exploring The Therapeutic Potential of Ergolide as An Anti-Cancer Agent for Uveal Melanoma

Conference: Showcase of alternative models in disease research available in UCD.
- Presenter:** Claire Donohoe, Jacintha O’Sullivan and Fiona Crotty

Title:

Conference: Poster presentation IACR 2023 conference, and RCSI Millin meeting
- Presenter:** Melissa Conroy and Caroline Marion

Title: Manipulating the miR-31-ATOX1-axis to enhance chemosensitivity of pancreatic ductal adenocarcinoma.

Conference: Inaugural Trinity St. James’ Cancer Institute Research Day.
- Presenter:** Melissa Conroy and Caroline Marion

Title: Investigating the anti-proliferative and anti-metastatic potential of CX3CR1 antagonism in oesophageal adenocarcinoma.

Conference: Irish Association for Cancer Research Conference 2023
- Presenter:** David Hackett

Title: The miR-31-ATOX1 axis modulates chemosensitivity of pancreatic ductal adenocarcinoma

Conference: The European Association for Cancer Research (EACR) Cellular Bases for Patient Response to Cancer Therapies conference in Lyon.

11. **Presenter:** Roisin M Connolly and Katie Johnson
Title: The use of ePROS may be an innovative pathway to monitor the nutrition-related symptoms of cancer survivors.
Conference: ESPEN congress

ORAL PRESENTATIONS

1. **Presenter:** O’Gorman and Nicola Cosgrove
Title: Personalised tumour mutation panels for ctDNA detection from exhaled breath condensate in early-stage lung adenocarcinoma.
Conference: Irish Association of Cancer Research
2. **Presenter:** O’Gorman and Sinead Toomey
Title: Investigation of the Utility of Exhaled Breath Condensate (EBC) as a Liquid Biopsy in the Detection of Spatial Genomic Heterogeneity in Patients with Early-Stage Non-Small Cell Lung Cancer (ESLC).
Conference: Invited Speaker - Irish Lung Cancer Alliance meeting
3. **Presenter:** Jacintha O’Sullivan and Maitiú Ó Murchú
Title: Improving Radiation Treatment by Boosting Oxygen Levels in Oesophageal Cancer.
Conference: Lay Talk for Breakthrough Open Night
4. **Presenter:** Jacintha O’Sullivan and Maitiú Ó Murchú
Title: Boosting Oxygen Diffusion in the Radioresistant Oesophageal Adenocarcinoma Tumour Microenvironment.
Conference: Oral Presentation - Irish Radiation Research Society Meeting
5. **Presenter:** Jacintha O’Sullivan and Maitiú Ó Murchú
Title: Development of an Oxygen-Carrying Perfluorocarbon Nanoemulsion to Boost Oxygen Diffusion and Improve Response to Radiotherapy in Oesophageal Adenocarcinoma.
Conference: IACR Conference 2023.
6. **Presenter:** Claire Donohoe, Jacintha O’Sullivan and Fiona Crotty
Title: Presented at Breakthrough PPI event in Cork
Conference: Breakthrough PPI event
7. **Presenter:** Claire Donohoe, Jacintha O’Sullivan and Fiona Crotty
Title: Explanation of sample processing and immunohistochemistry during the tour of TTMI.
Conference: Lay Talk for Breakthrough Open Night
8. **Presenter:** Claire Donohoe, Jacintha O’Sullivan and Fiona Crotty
Title: Presented at the final meeting of Oesophageal Priority Setting Partnership (PSP) involving PPI
Conference: Final meeting of Oesophageal Priority Setting Partnership (PSP)
9. **Presenter:** Stephen Maher and David Hackett

- Title:** An RNA-based therapeutic for enhancing treatment response of pancreatic cancer?
Conference: TTMI Mini Conference on Translational Medicine with students from Nanyang Technological University Singapore.
10. **Presenter:** Stephen Maher and David Hackett
Title: Manipulating the manipulator! Targeting miR-31 to enhance chemotherapy sensitivity of pancreatic cancer.
Conference: TCD Faculty of Health Sciences Research Blitz
11. **Presenter:** Stephen Maher and David Hackett
Title: Investigating synthetic miR-31 mimics/anti-miRs as a novel therapeutic for enhancing chemotherapy and radiotherapy sensitivity of pancreatic cancer.
Conference: TTMI Conference Post-Graduate Research Blitz
12. **Presenter:** Stephen Maher and David Hackett
Title: Provided a talk to members of the public at the Breakthrough Cancer Public Research Night. Also gave members of the public a tour around the labs at TTMI.
Conference: TTMI, St. James's Hospital
13. **Presenter:** Stephen Maher and David Hackett
Title: Provided a lay presentation at the Breakthrough Cancer Research Public Patient Involvement.
Conference: Breakthrough Cancer Research Public Patient Involvement

PRIZES AWARDED

1. **Researcher:** Pendino Marzia
Award: Shortlisted for the IACR2023 poster prize
2. **Researcher:** Maitiú Ó Murchú
Award: PostGrad Oral Presentation Award, TTMI Conference – 2023, Travel Award (€400) to attend CRYSTAL3 Annual Meeting in Valladolid, Spain - July 2023 and Breakthrough's Social Media Content Creator Award – 2023
3. **Researcher:** Izabela Drozd
Award: She won the Shane O'Neill medal for the work in novel myeloma models of diseases.
4. **Researcher:** David Hackett
Award: Awarded an EACR-Worldwide Cancer Research Travel Grant to attend the European Association for Cancer Research (EACR) Cellular Bases for Patient Response to Cancer Therapies conference in Lyon.





Breakthrough Cancer Research,
Glenlee, Western Road,
Cork, T12F9XD

Phone: + 353 21 4226655
Email: info@breakthroughcancerresearch.ie

www.breakthroughcancerresearch.ie

CHY NO: 19801
Registered Charity No: 20077945