



Canolfan Ymchwil Canser Cymru
Wales Cancer Research Centre



Ymchwil Iechyd
a Gofal Cymru
Health and Care
Research Wales



2019-20 Annual Report



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The Wales Cancer Research Centre is funded by Welsh Government through Health and Care Research Wales.

This report has been compiled with input from our public and patient involvement group.

INTRODUCTION

“Our vision is to work with cancer patients and other partners to develop and deliver research excellence that benefits the health and welfare of people in Wales and beyond.”

The Wales Cancer Research Centre is funded by the Welsh Government and is a key part of Health and Care Research Wales’ infrastructure.

We perform and support cancer research of the highest quality, which builds on Wales’ international research reputation, with a clear focus on collaboration, innovation and improved patient outcomes.

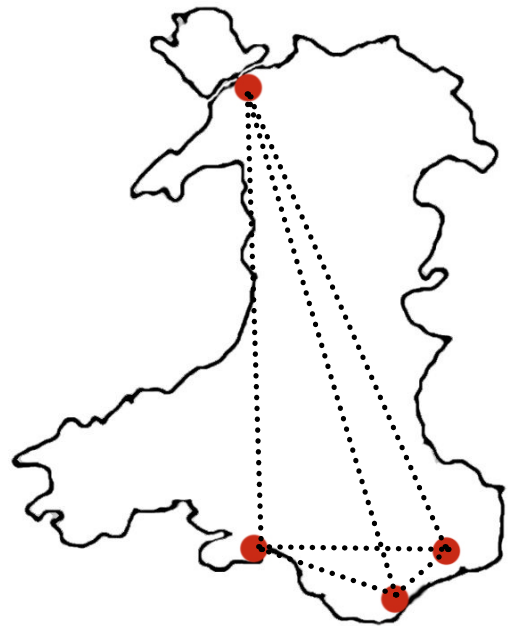
Our vision is to work with cancer patients and other partners to develop and deliver research excellence that benefits the health and welfare of people in Wales and beyond.

We fund 27 full and part-time posts and aim to improve collaboration in cancer research by bringing these staff and their colleagues together across Wales. Our researchers

fulfill a broad range of roles including research nurses, academics, clinicians and biomedical scientists.

An External Advisory Board guides the centre in its work. It includes eight UK experts from across the cancer research spectrum and ensures that our research is of the highest quality and internationally relevant.

The centre has recently received £5 million funding renewal from the Welsh Government, through Health and Care Research Wales, to continue our research until 2023.



Above: locations of our staff across Wales

OUR PARTNERS



FOREWORD



This report marks the successful completion of the first five years of the Wales Cancer Research Centre and the commencement of our second quinquennium of funding from the Welsh Government, via Health and Care Research Wales. In the following pages, we reflect on our achievements so far in bringing benefit to the patients and population of Wales, which will form the basis of our future success.

A recurring compliment from our members, our Lay Research Partners and external observers is that the centre has brought together the cancer research community in Wales, as never before. Our pioneering Multi-Disciplinary Research Groups have co-ordinated the efforts of clinical and non-clinical researchers. High-quality collaboration and communication with colleagues across three Welsh universities and four NHS Wales organisations has enabled us to create the Wales Cancer Partnership: a new umbrella under which all cancer research organisations in Wales can work together.

We have also brought our researchers closer to their community through our widely-praised Public and Patient Involvement and Engagement activities. Our dedicated team of Lay Research Partner volunteers ensure that our research is relevant to the needs of patients, their families and our community, while our award-winning public engagement activity has ensured that our research is accessible to all.

WCRC has also succeeded in its task of contributing to the wealth of the nation, as well as its health, providing a considerable return on the public's investment. We have brought in millions of pounds of additional research funding, including from commercial partners, and created dozens of extra jobs, as detailed in the following pages.

Looking forward, our recent successes give us confidence that, despite challenges such as the current coronavirus pandemic, we will continue to strengthen cancer research in Wales. We will maintain our strategic leadership role – our members have made major contributions in the development of individual cancer research strategies within both academic and NHS partner organisations, and we will continue our collaboration with the Wales Cancer Network and Wales Cancer Alliance in developing the first all-Wales cancer research strategy, due for completion in the coming year.

A major goal for our next five years will be to develop a sustainable future for cancer research in Wales. Key to

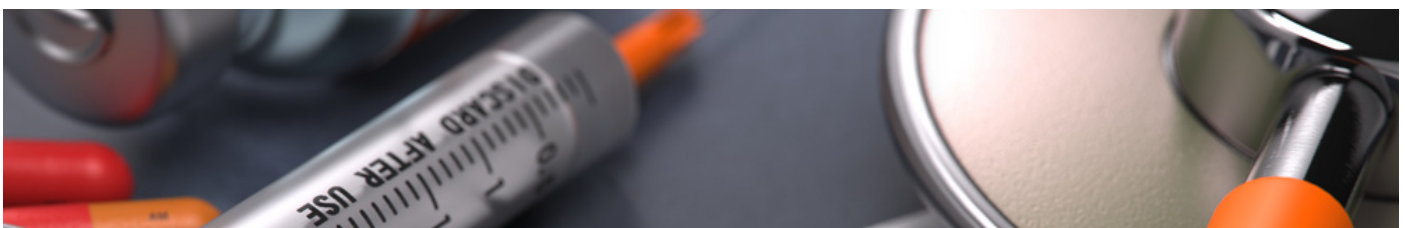
this will be investment in the next generation of cancer researchers, for example through continuation of our innovative Future Leaders in Cancer Research scheme.

We look forward to continuing collaboration with our existing partners, and particularly with Wales Cancer Bank. Our nurturing of the Bank, over the last five years, has been a major contributor to its success in being awarded its own, independent funding for the next five years.

On behalf of the centre's Executive Committee, it is important to acknowledge with enormous gratitude the debt that we owe to our researchers and support staff, to our many stake-holders and to our External Advisory Board. Finally, we should thank our outstanding coordinating team, which has done so much to bring together our network of partners and, through them, all the successes that you will read about in the following pages.

I hope you enjoy reading this report and that it might perhaps inspire you to get involved in future, to whatever extent you can, in our important work in reducing the burden of cancer for patients, their families and carers, and our community, in Wales and beyond

Prof. John Chester
Director



DIRECTOR
Prof John Chester




PUBLIC & PATIENT INVOLVEMENT

LAY LEAD
Dr Jim Fitzgibbon




ACADEMIC LEAD
Prof Annmarie Nelson




COMMUNITY

THEME LEAD
Dr Anthony Byrne




CLINICAL

THEME LEAD
Prof John Staffurth




TRANSLATIONAL

THEME LEADS
Dr Richard Clarkson




Prof Richard Adams



PRE-CLINICAL

THEME LEAD
Prof Julian Sampson



WORK PACKAGE LEADS


Cancer Genetics & Genomic Instability
Prof Duncan Baird




Stratified Medicine
TBA





Trials Through to Practice
Dr D Mark Davies



Dr James Powell



Palliative & Supportive Care
Prof Annmarie Nelson & Prof Simon Noble


Cancer Immunology
Prof Awen Gallimore




Novel Therapeutics & Model Systems
Prof Andrew Westwell




Early Phase Trials
Dr Robert Jones



Dr Steve Knapper



Screening, Prevention & Early Diagnosis
Dr Kate Brain



Signalling & Stem Cells
Dr Andy Tee



Integration & Informatics
Prof David Ford



WALES CANCER RESEARCH CENTRE LEADERSHIP TEAM

LAY SUMMARY

The Wales Cancer Research Centre is conducting excellent research to improve treatments, clinical decision making and quality of life for patients. Cancer is a disease no one wants to face, yet one in two of us will develop it in our lifetime. In Wales alone, around 120,000 people are currently living with cancer, and this figure is set to almost double in the next fifteen years.

We are building on, and extending, ground-breaking research which has contributed to a doubling in cancer survival in the last forty years. Now half of all cancer patients survive for ten years or more. We are working hard to do even better.

We employ 27 members of staff at all levels of research, including nurses, doctors and laboratory researchers. Together they carry out research at every stage, from understanding the scientific basis of cancer to developing treatments that improve the health and wellbeing of individual cancer patients.

For instance:

- ◆ We are developing new treatments in the laboratory with a focus on genetics, immunotherapy, stem cell research and drug development.
- ◆ We are moving discoveries from the laboratory into the NHS clinical setting with the aim of improving care for current and future patients. We're helping scientists, using samples donated by patients, to understand cancer better for improved patient treatment, diagnosis and quality of life.
- ◆ We are giving more patients in Wales the chance to take part in early phase clinical trials using the latest cutting-edge treatments.
- ◆ We are helping ensure better support for patients in end of life care
- ◆ We are focusing on screening, prevention and early diagnosis to combat cancer in the community.

Even with all these successes, our work is only partly done. Tackling cancer is a huge, global challenge, but we're successfully treating more cancers than ever before. We believe that, by working together, within Wales and internationally, we will meet the challenge.

We hope that the work of the Wales Cancer Research Centre, leading in several areas and collaborating effectively in others, will continue to play its part in helping us reach our goal.

Public, Patients & Carers

At every stage of our work we aim to involve the public, carers and patients in our research. We believe that they are not just the focus of our research, but should be active participants, working with researchers to plan, manage, carry out and publicise our work. We have appointed, trained and provide on-going support to a team of six members of the public who work with research staff across the centre. In the last year they have ensured that the research we conduct is relevant, they have contributed to trial recruitment and improved the process for informed consent for tissue donors.

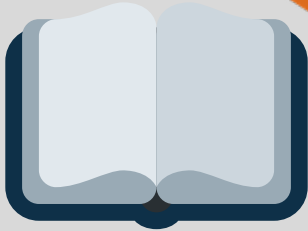
We regularly engage with the public to increase knowledge about the importance of cancer research, and how it is conducted in Wales. We organise events and bring our research to museums, festivals and busy public spaces. This allows the public direct access to our researchers through talks, activities and hands-on tours of our research sites. Our engagement work has impacted on young people's interest in studying science, public knowledge of personalised medicine and improved public awareness of clinical trials.

If you are a member of the public who is interested in getting involved in our research, please email us on WCRC@Cardiff.ac.uk or call 02921 848970.





OUR RESEARCH IN NUMBERS



494 publications
over five years

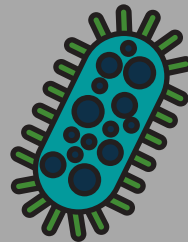
332 funding
applications
submitted ... 52% of
these were accepted



£53m We have brought in £53m of
research funding in five years



We have generated
the equivalent to
97 full time jobs



10,628 biological samples
collected by the Wales
Cancer Bank. 24% of these
were used in research.

224

Projects and studies undertaken



100 public
engagement events
held over the last
five years



For every £1 of
funding, we have
generated £7

199 opportunities for
members of the public
to get involved in
research in the last five
years



TIMELINE: KEY MOMENTS

2015

Wales Cancer Research Centre launches

Wales Cancer Bank hosts samples for largest clinical trial in the world, Add-Aspirin

£1.2m programme grant for immunology

Development of drug to reverse spread of malignant breast cancer cells

ProtectT trial found that monitoring is as effective as surgery and radiotherapy for prostate cancer

First public engagement event in partnership with Techniquist

FIESTA trial results presented at ASCO

DNA repair conference in Bangor

2016

CHHiP trial: increasing dose of radiotherapy reduces number of treatment sessions needed

2017

£486k grant for a health check project aimed at improving early diagnosis

Velindre and Cardiff & Vale UHB's first joint cancer trial

Welsh patients among first in the world to access PARADIGM 2 trial

New telomere test more effective at predicting survival in blood cancer patients

2018

Event at the Welsh Assembly to celebrate 10,000th STAMPEDE patient

Launch of the All Wales Cancer Nurses and AHPs Research Network

TRAIL finds new treatment for advanced cancers resistant to anti-hormone therapy

2019

Work begins on Cancer Research Strategy for Wales

Tell Me More clinical trial awareness campaign

Tackling early lung cancer detection in high-risk communities

FAKTION trial doubles time breast cancer is controlled

Our researchers take on challenges to combat COVID-19

£1.4m grant to combat cancer using viruses

£1.8m grant to develop prognostic telomere tests

£514k to develop test using salmonella to detect bowel cancer

2020

OUR THEMES

Pre-Clinical research

Our pre-clinical research involves laboratory studies that define the mechanisms of cancer development and progression. We identify potential diagnostics and treatments that can then be researched and delivered as routine clinical practice to improve patient outcomes.

Work in this theme streamlines and accelerates the translation of scientific advances into more effective, safer and more personalised cancer care. The theme covers the following topics:

- ◆ Cancer genetics and genomic instability
- ◆ Cancer immunology
- ◆ Signalling and stem cells

This stage of research takes the first essential steps towards the development of any new treatment.

Translational research

Translational research involves bringing discoveries from the lab bench to the bedside and back again.

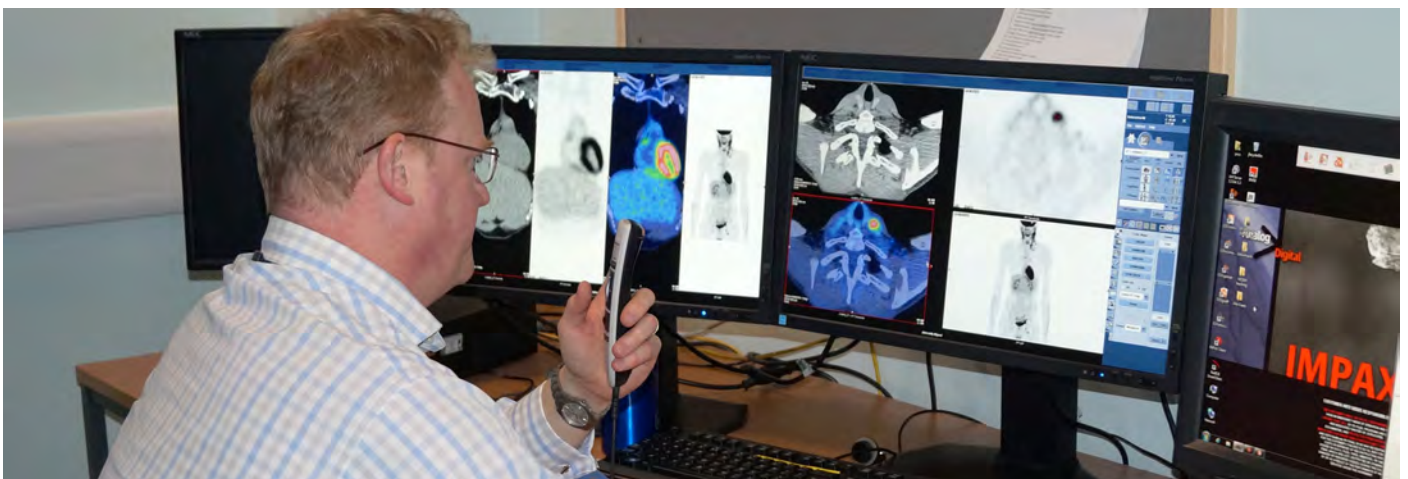
This theme “translates” findings into therapies for patients, and enables scientists, using samples from patients, to understand cancer better.

As different people have different outcomes from cancer treatments, it is important that we identify how best to treat patients in a tailored way.

Our work ensures the benefits of research are translated into clinical trials for patient benefit. We aim to ensure that the right patients receive the right treatment at the right time and work closely with pre-clinical researchers to identify ways of treating patients with more effective and less toxic treatments.

This work is undertaken in close collaboration with the Wales Cancer Bank and the Centre for Trials Research. Its two main focuses are:

- ◆ Novel therapeutics & model systems
- ◆ Stratified medicine



Clinical research

Clinical research involves implementing the findings of pre-clinical and translational research. This is the first stage where new treatments are tested in patients. Our clinical theme covers two areas:

- ◆ Early phase clinical trials
- ◆ Trials through to practice

This theme advances knowledge in clinical cancer treatment while providing wider and timely access to newly emerging treatments for patients in Wales. We aim to increase recruitment to clinical trials across a range of cancer types and ensure that the benefits of trials are moved through into routine practice in the NHS.

Community research

The Community Cancer Research Theme builds on existing strengths of methodological innovation and grant capture across all areas of cancer care.

Our Palliative and Supportive Care research differs from others as it focuses on patient and carer, rather than disease related outcomes. Our multidisciplinary team researches across all care settings and is establishing a repository of existing research evidence. We engage with clinical teams and policy makers to speed findings straight into practice, and continue to develop high-quality public and patient engagement.

Our Integration and Informatics work provides digital information systems to underpin the activities of the centre, including data management for clinical trials research and best use of tissue samples donated by patients for research.

Our Screening, Prevention and Early Diagnosis research aims to improve understanding of the motivations and behaviours which result in inequalities in uptake of screening programmes, particularly in high-risk, harder-to-reach groups. Through this research we aim to improve screening outcomes and expedite diagnosis, as soon as symptoms occur.



KEY ACHIEVEMENTS

CANCER RESEARCH STRATEGY FOR WALES

As a nation, we produce some of the world's leading cancer research. We aim to strengthen our research through the development of a Cancer Research Strategy for Wales.

Developing a national strategy will unite the diverse areas of cancer research conducted here and bring more effective cancer treatments to patients as fast as possible. Cancer research strategies have been developed across the UK, and Wales is proud to add to the great work that has been done in this area.

We are working together with partners across Wales to deliver a strategy to improve research for patients

The Cancer Research Strategy for Wales is being developed as a document for professionals to use to steer us towards better outcomes for cancer patients. The strategy is being developed in collaboration, bringing together over a dozen different research organisations to enable a consistent approach across the nation.

Work to date has been focused on bringing key people together

in two working groups of the Strategic Oversight Board (SOB) and the Cancer Research Executive Writing (CREW) Group to support the identification of priorities and generate the strategy.

We have successfully completed our formal consultation period where we received strong engagement and comments from the research community. The feedback we have received has been extremely helpful in developing the next phase of our drafting as we look to reflect the opinions of the community in Wales. Redrafting of the strategy document is under way and we are looking forward to working with Welsh Government as we develop the final document for the end of the year.

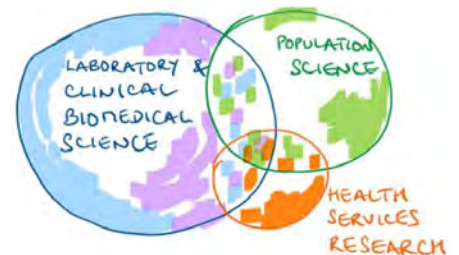
We have identified four Grand Challenges to develop cancer Research in Wales:

- ◆ Within 10 years, our research will deliver innovations that, when implemented, will reduce healthcare inequalities in Wales.
- ◆ Within 10 years our research will deliver at least one novel cancer intervention that will be

implemented worldwide.

- ◆ Within 10 years, Wales will be a leading collaborator in multicentre research, and there will be a trebling of the number of research partnerships between scientists in Wales and beyond.
- ◆ All cancer patients in Wales will be offered the opportunity to take part in research.

To support the achievement of these aims we have identified three broad domains:



We believe it is where these domains intersect that Wales can develop a research niche which will give greatest patient benefit.



FAKTION TRIAL RESULTS: BREAST CANCER KEPT UNDER CONTROL FOR TWICE AS LONG

Millions of patients with incurable breast cancer could benefit from Welsh-led research. The research shows that, by combining investigational therapy with a standard treatment, patients may expect that their cancer will be controlled for twice as long.

Involving 140 patients from 19 hospitals across the UK, the cancer trial called FAKTION is sponsored by Velindre University NHS Trust. It is jointly led by Dr Rob Jones, who co-leads our early phase trials research, and Dr Sacha Howell from the Christie NHS Foundation Trust and University of Manchester.

The 140 patients had all been diagnosed with incurable breast cancer amenable to hormone treatment, known as oestrogen receptor positive cancer.

One of the patients, Susan Cunningham, a retired doctor from Cardiff, was first diagnosed with breast cancer in 2005. She joined the trial in 2017 after she discovered her cancer had spread and was incurable. She said, "Being on a trial has given me great hope for the future. It's meant that I have been relatively well for the past two years. Initially I thought I wasn't going to see my grandchildren but now I have hope that I am going to survive an awful lot longer and see my family grow."

Dr Rob Jones said, "The incremental

benefit from capivasertib is highly significant and the trial involves patients with a very common form of breast cancer. In the UK for example 55,000 new cases of breast cancer occur each year and about three quarters are oestrogen receptive positive breast cancers. That equates to millions of patients around the world that potentially are going to get benefits from this breakthrough."

Oestrogen receptive positive breast cancer can be treated by drugs that interfere with the action of oestrogen or the oestrogen receptor. Although these drugs are often effective for a while, the cancer can frequently become resistant and the drugs stop working.

In the trial, researchers investigated whether they could reverse or delay resistance to hormone therapy in post menopausal women whose cancer had spread by adding capivasertib to existing therapy. Capivasertib is an investigational, targeted therapy which neutralises a cellular protein (called AKT) that has been shown to cause resistance to hormone therapy. Capivasertib was combined with fulvestrant, a hormone therapy which is used to treat secondary breast cancer.

Angela Casbard, from the Cancer Research UK funded Centre for Trials Research at Cardiff University, said, "In order to look at whether this investigational therapy may be more

effective than standard treatment, patients were randomly assigned to receive either capivasertib in combination with fulvestrant or the standard treatment, fulvestrant, together with a placebo. Neither the treating doctors nor the patients knew who was getting the placebo or capivasertib. This type of randomised trial is the most effective way of comparing two different treatments."

Dr Rob Jones said, "The trial was conceived in Wales and it has been wonderful to work with colleagues in the Centre for Trials Research at Cardiff University and to see so many patients treated on the trial here at Velindre Cancer Centre."

Approximately 70 per cent of patients in the trial had cancer that could be accurately and reliably measured on scans. Careful examination of these scans demonstrated that 41 per cent of patients who received fulvestrant together with capivasertib experienced a significant shrinkage in their cancer compared to 12 per cent of patients who were allocated to fulvestrant and a placebo.

In addition, patients receiving the capivasertib had their cancer controlled for an average of 10.3 months whereas for those who got fulvestrant with the placebo it was 4.8 months. The current trial data also suggests that patients treated with the new combination live for an average of six months longer.

Leaders of the study hope that the research will progress to a phase three trial, where the investigational combination will be tested in a larger number of patients, before any recommendations can be made to take it up as a new standard of treatment on the NHS.



Millions of breast cancer patients could see their disease kept under control for twice as long with this new drug combination



SPOTLIGHT ON: WALES CANCER BANK

Sian's story: How one woman's cancer continues to influence research after death

The work of the Wales Cancer Bank is contributing to research across the world. Every patient who donates to the bank is helping to build momentum against the disease as we tackle cancer together.

On a June day in 2005, at her clinic appointment, a breast cancer patient was approached in her clinic and offered an opportunity to improve care for future cancer patients. On hearing that part of the tumor she was having removed could be used to help develop better treatments for future patients, Sian* was eager to help.

A nurse talked her through the process and she consented to donate blood, a tumor sample and medical data for use in research. Her generous decision that day has contributed to eleven different research projects in four countries, improving treatment for future patients around the world. Her samples have been used to develop blood tests for screening and diagnosis, developed new drugs, taught a computer to recognise tumor cells on a slide, and developed technology to diagnose patients

based on changes in their DNA.

Sadly, Sian passed away in 2013, but through her donation she continues to help in the quest for new knowledge about breast cancer, how to detect it and how to treat it many years after her death; a powerful legacy for anyone to leave behind.

Sian's blood and tissue samples are still stored the Wales Cancer Bank, a biobank which specialises in collecting, processing and storing biological samples that will be useful to researchers. They have been made available to researchers since she first donated her sample in 2005 and so far twenty-seven of her samples have been used in research.

When Sian agreed to donate, the biobank received two pieces of tissue and she gave two extra tubes of blood. Staff from the Wales Cancer Bank work closely with pathologists to make sure the diagnosis and treatment of the patient comes first. Only when there is spare tissue that is not needed by the pathologist can the biobank receive tissue samples.

By careful processing and storage, those four samples have become many more. Dr Alison Parry-Jones, Manager of the Wales Cancer Bank,

explained:

"The tissue we hold will be cut into small pieces and stored in different ways. One portion may be frozen and stored in -80 degree freezers and another put into a wax block. Both of these can later be cut into very thin slices so we maximize the amount of samples available for research. Depending on how thick the original piece of tissue is, we may be able to get 10-100 of these sections from a single piece of tissue. We can also extract DNA from the tumour in these blocks."

One of the researchers who used DNA from Sian's tumour was Professor Duncan Baird, who leads our Cancer Genetics and Genomic Intability research. You can read more about his work on page 22.

Prof Baird said, "Our prognostic tests will allow cancer patients and their clinicians to make informed clinical decisions about their disease, and we are looking forward to making the test available to patients in the near future. This test will make a real difference to patients and without the generosity of people like Sian these advances wouldn't be possible."

*In the interests of confidentiality, we have not used her real name.

BOOSTING CANCER-DESTROYING ABILITY OF THE IMMUNE SYSTEM

More types of cancer could potentially be destroyed by patients' own immune cells, thanks to new research by Cardiff University.

The team of researchers, which is partly funded by the Wales Cancer Research Centre, discovered that increasing the amount of the molecule L-selectin on T-cells can vastly improve their ability to fight solid tumours.

Professor Ann Ager, from Cardiff University's Systems Immunity Research Institute, said: "These results mean that immunotherapy could be used to fight most cancers. This is great news as this type of treatment is more targeted and doesn't damage healthy cells."

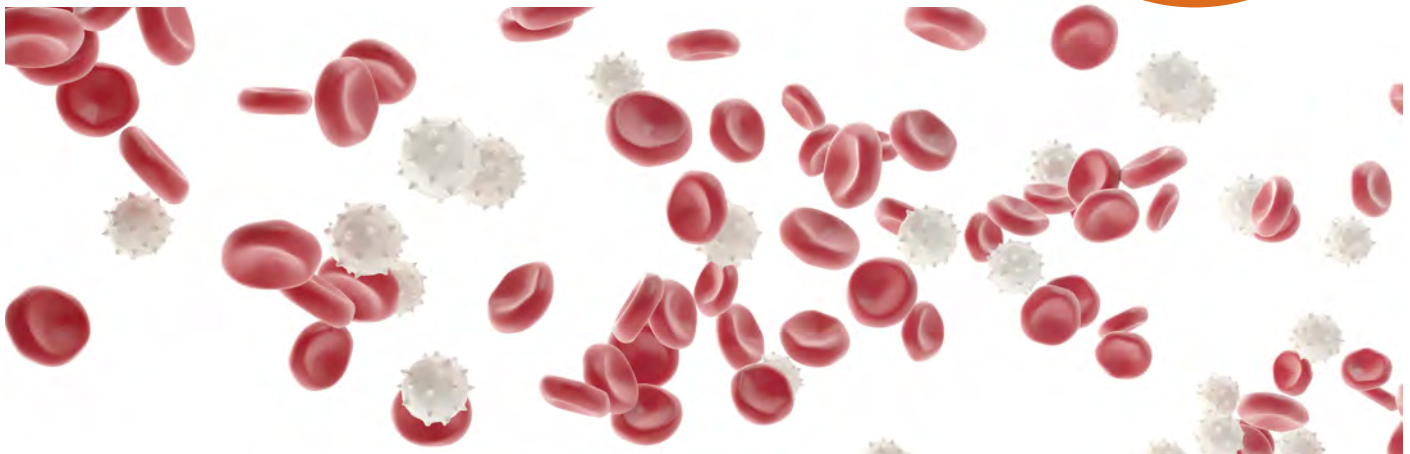
So far, immunotherapy that harnesses a patient's own T-cells

has only been used in the clinic to treat patients with certain types of leukaemia. In these patients, the cancer cells are circulating in their blood, so it's easy for the cancer-targeted immune cells, such as CAR-T cells, to find and attack the cancer cells. It has been much harder to treat solid tumours as the blood flow to them is poor, and the blood vessels inside them are not properly formed.

Professor Ager said: "Knowing that L-selectin is an important homing molecule on T cells, that directs their movement from the bloodstream and into inflamed tissues, we wanted to find out whether increasing L-selectin on anti-cancer T-cells would improve homing to the cancer, and help to destroy it."

"Our results were surprising. While increased L-selectin did improve the ability of T-cells to fight solid tumours it wasn't because of better homing. The modified T-cells entered solid cancers within the first hour and kept accumulating inside the solid cancers over more than a week, suggesting that L-selectin also plays a role in activation and retention of anti-cancer T cells inside cancers."

Increasing the amount of the molecule L-selectin on T-cells can vastly improve their ability to fight solid tumours



BRINGING RESEARCH TO THE SENEDD

On November 27, we joined Cancer Research UK at an event they held at the Senedd to celebrate the excellent research that is conducted in Wales. AMs were invited to speak first hand to researchers working across a variety of fields for the benefit of cancer patients in Wales and beyond. The event culminated with a series of talks from Health Minister Vaughan Gethin, AM Janet Finch Saunders, Executive Director of Policy Sarah Woolnough and researcher Dr Alan Parker.



CURE LEUKAEMIA FUNDING

Cure Leukaemia has announced the 12 centres across the UK that will receive funding from the charity for a three-year period from January 2020 to form the Trials Acceleration Programme (TAP) Network.

One of the chosen centres is the University Hospital of Wales in Cardiff. The hospital has received TAP funding since 2011, when the programme was first established. This is the only Welsh centre within that network and will continue to work closely with colleagues at other centres throughout the UK.

The successful centres were selected from 21 applications by an International Peer Review Panel, chaired by Professor Alessandro Rambaldi from the University of Milan, to receive dedicated specialist research nurse funding for the three-year period from 1st January

2020 to 31st December 2022. Grants of £50,000 per year will be paid to each centre by Cure Leukaemia to support the employment of a research nurse who will work closely with the TAP Hub at the University of Birmingham to deliver practice informing trials in blood cancer.

Building on the successful track record of the TAP programme patients, from a catchment region of 20 million people, will have access to the wave of new drug and cellular therapies which promise to transform the outcomes for patients with blood cancer.

Blood cancer remains the third biggest cancer killer in the UK with approximately 38,000 people diagnosed and 14,000 losing their lives to the disease every year. The funding will give blood cancer patients who have exhausted

standard treatments for the disease hope through recruitment to pioneering new clinical trials. It will also help continue global progress towards finding effective treatments for all forms of blood cancer.

Dr Steve Knapper is a co-lead for our early phase trials research and the lead applicant for this funding. He said, "These funds from Cure Leukaemia will allow us to employ a dedicated trials nurse to work in early phase trials for patients in Wales with blood cancers such as leukaemia, lymphoma and myeloma. These patients will often have exhausted conventional treatment options and participation in these trials will allow them access to promising new treatments."

Funds will allow us to employ a dedicated trials nurse to work in early phase trials for blood cancer patients



PPI Standards

Our research partner Bob McAlister (left) recently cutting the 'logo' cake in London to signify the launch of the



UK Standards for Public Involvement (UKSPI). Bob has been one of only three members of the public on the UK Development Group since 2016. The standards are rather unique in these times as they were jointly developed by the respective health research authorities for Wales, Scotland, England and Northern Ireland. To get them match fit there was extensive consultation with potential users (over 650 detailed responses) and a 12 month period of assessed adoption in 10 research locations. Other researchers

(including some from our centre) trialled the standards on a 'freestyle' basis.

Bob will be assisting the further adoption of the standards within the centre in the coming months. The challenge for the UKSPI will be to ensure that the momentum continues beyond the production phase. For more information about the standards please contact Bob on bobmac76@hotmail.co.uk.

PATENT GRANTED FOR UTERINE CANCER THERAPY

Researchers at Swansea University have been granted a US patent for a potential new treatment to tackle cancer of the uterus. Prof Deya Gonzalez's and Prof Steve Conlan's work has recently been published in the Journal for Immunotherapy of Cancer.

Uterine cancer is the most common female reproductive cancer and eighth most common cause of death by cancer in the UK. The researchers, who are based in the Medical School's Reproductive Biology and Gynaecological Oncology group, have worked closely with partners in order to find new treatments for this condition.

The team discovered that a protein called 'RAGE' is found in excess in cancer cells in the uterus. Higher levels of this protein are associated with poor patient survival. As a result, the team have developed a new treatment that targets the protein using a type of drug called an Antibody Drug Conjugate (ADC).

ADCs are a type of cancer medicine

that make antibodies target specific proteins expressed in cancers. In this case, the antibody has been developed to specifically bind to the RAGE protein. After binding to RAGE, the antibody will enter the cancer cell and release a toxin, causing the cell to die. The healthy cells in the body do not express high levels of the RAGE protein and are therefore unaffected by the treatment, which minimises nasty side-effects.

Swansea University have worked closely with Swansea Bay and Cwm Taf University Health Boards, the Wales Cancer Research Centre, the European Cancer Stem Cell Research Institute, GE Healthcare, ADC Biotechnology and Axis Bio. The team hope that the new findings could lead to a new treatment option for uterine cancer patients.

Professor Deya Gonzalez, principal investigator at Swansea University said: "The combined efforts of all the partners involved in this research has led to the development of a new substance that has the potential to effectively treat cancer of the

uterus with minimum side-effects. We are now focusing on further development of the RAGE-ADC with the hope of it reaching patients who desperately need a new treatment option".

The work carried out on RAGE has been part of a bigger research project called The Cluster for Epigenetics and ADC Therapeutics (CEAT). The aim of CEAT is to tackle gynaecological cancer development and progression.

Professor Steve Conlan, Head of Enterprise and Innovation in Swansea University's Medical School and Strategic Director of CEAT, said: "The development of new and advanced therapeutics, for example our RAGE-ADC, highlights the importance of industrial, academic and NHS collaborations such as CEAT. Together with our partners we continue to further develop this and other ADCs, and are always keen to identify new industrial collaborations to strengthen our research. Also, working with AgorIP at Swansea University to secure our IP, initially through the US patent, and creating a commercialisation strategy, has been very important."

Developing a new substance that has the potential to treat cancer of the uterus with minimum side-effects

TELL ME MORE

Clinical trials are key to delivering new therapies to the NHS and also act as a lifeline to some patients who have stopped responding to standard treatments. According to Macmillan's Patient Experience Survey, only 23% of patients in Wales have been offered information about joining a trial.

Research conducted by Tenovus Cancer Care, under the title 'Tell Me More' suggested that most patients were keen to be told about clinical trial opportunities. We developed a communications campaign to address this, encouraging patients and clinicians to have a conversation about trials.

We worked with Velindre Cancer Centre to deliver:

- ◆ A bilingual video that explains what trials are and encourages patients to ask clinicians to 'tell me more'
- ◆ Lanyards for researchers printed with 'ask me about research'
- ◆ Patient information leaflets
- ◆ Posters on the walls of the hospital
- ◆ A social media campaign
- ◆ Staff training sessions and an early phase trial unit open day



IMPROVING OUTCOMES FOR PATIENTS WITH RARE BOWEL CANCER PREDISPOSITION

Dr Laura Thomas was employed by the Wales Cancer Research Centre as a Research Associate in 2018. Now she has secured support from the ACCELERATE programme through its Clinical Innovation Accelerator (CIA), in partnership with Cellesce Ltd towards a £400k project to further develop her research.

The Inherited Tumour Syndromes Research Group, based in the Cancer Genetics Centre at Cardiff University, looks into improving outcomes for patients with a rare predisposition to develop bowel cancer. Patients with the familial polyposis syndromes; "FAP" and "MAP", have a genetic mutation, which means that they develop a large number of small growths in their bowels, called polyps. Some of these are likely to become cancerous. In fact, their lifetime risk of developing bowel cancer is nearly 100%.

Patients with these mutations will often have their large intestine removed in their late teens in order to avoid the likelihood of developing bowel cancer.

Removing the large intestine comes with

lifelong health complications. These patients will remain at high risk of developing cancer in other areas of their bowel which is more difficult to treat with surgery. Dr Thomas's work is focussing on ways in which we can prevent or treat polyps in this high-risk group of patients and in those with sporadic bowel cancers, for which these genetic syndromes serve as good models.

Dr Thomas said, "As a pre-clinical researcher I have the rare privilege of being able to meet the patients whose tissues we work with. It's fascinating to see the clinical side of things. We are given a small part of the biopsy to take back to the lab to perform our research."

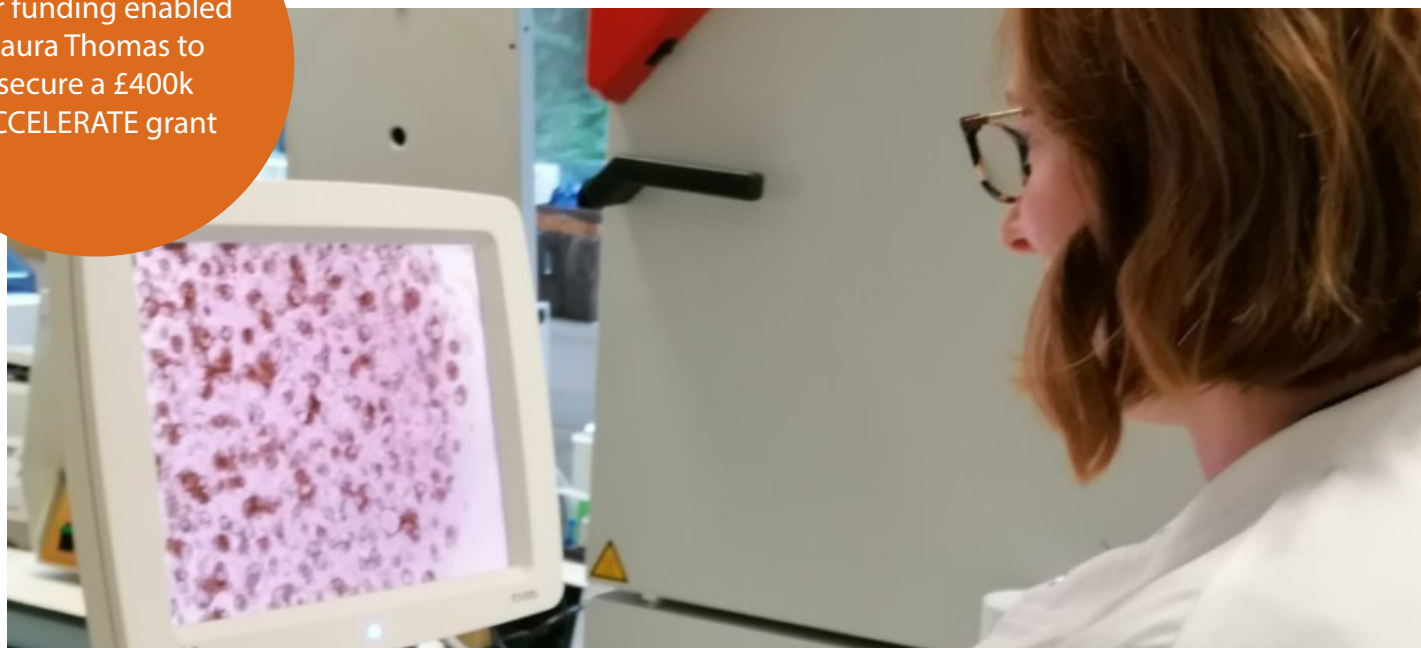
Tissues donated by patients are processed in the lab and the resulting cells cultured in dishes, where they grow into three-dimensional (3D) balls of cells that closely replicate the structure and biology of the original tissue. They are called organoids, or "mini-guts". In this way, a small amount of biopsy material can be expanded manually, to provide sufficient copies for small-scale experimentation. The goal is to use this model, as an accurate representation of what is happening in the body, to study

the genes that are involved in polyp growth.

Manual growth of organoids is very time-consuming and labour intensive. Large numbers of organoids may be needed for some purposes. Cellesce, a biotechnology company resulting from a collaboration between engineers at Bath University and biologists at Cardiff University, has developed a unique bio-process to grow organoids on an industrial scale, to enable pharmaceutical companies, for example, to use them in drug discovery, to identify specific treatments to help FAP and MAP patients. Many potential treatments can be screened in this way to indicate which has the greatest effect on the tumour cells and would potentially be beneficial to patients.

Dr Thomas's team are the first in the world to have comprehensively studied the genetic sequence of polyps in the small bowel in patients with MAP and FAP. They are world-leaders and are putting Wales on the map in their efforts to improve the lives of patients with these mutations.

Our funding enabled Laura Thomas to secure a £400k ACCELERATE grant



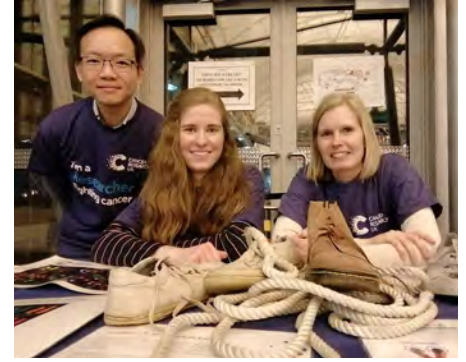
ROGUE CELLS AT TECHNIQUEST

We joined forces with the science museum Techniquest to deliver an evening of interactive activities for adults. The public gained an insight into the breadth of cancer research that happens in Wales and were able to let their inner child loose to play with Techniquest's hands-on exhibits and get stuck into fun science and workshops.

Members of the Wales Cancer Partnership entertained and educated in equal measure through interactive activities. The public were able to chat and ask questions to researchers and have the opportunity to find out more about local research in a fun and interactive way.

Seventeen research groups and cancer organisations joined us for the evening. We presented activities including interactive stalls, DNA extraction in the lab, film screenings, board games, 'crack the cancer code' games, the opportunity to talk to local researchers and a performance by the Tenovus choir.

The event was attended by over 400 guests and involved nearly 70 cancer staff, instilling a sense of community and collaboration.



MEMBERS OF THE WALES CANCER PARTNERSHIP



£514K AWARDED TO DEVELOP NEW BOWEL CANCER TEST

Scientists in Wales have received £514,000 from Cancer Research UK to develop a new test using bacteria which aims to detect bowel cancer at an early stage.

Prof Paul Dyson at Swansea University and Dr Lee Parry at Cardiff University have discovered that a safe strain of salmonella can be found in the poo of people with bowel polyps.

If left untreated, polyps can go on to develop into bowel cancer over time.

Each year around 2,400 people are diagnosed with bowel cancer in Wales. When diagnosed at its earliest stage, more than nine out of ten people with bowel cancer will survive their disease for five years or more.

The new test being developed by Prof Dyson and Dr Parry, alongside one of our Associate Directors, Dr Sunil Dolwani, is aiming to monitor the salmonella in a patient's poo sample as a way to test if polyps are present.

Prof Dyson, who specialises in molecular microbiology, said: "This type of bacteria can be detected if bowel polyps are present, which may be because polyps provide the right environment for the bacteria to thrive, including nutrients and the ability to hide from the immune system.

Currently, people can be screened for bowel cancer with an at home test, sent to everyone aged 60-74 who's registered with a GP. The test detects minute amounts of blood in poo which can be a sign of bowel cancer.

While the current test helps save lives from bowel cancer, like all screening tests it's not perfect. This new research will explore whether the new test could help to save even more lives.

Dr Parry said: "It's fantastic to have an investment like this which could one day lead to a rapid test to diagnose bowel cancer at an earlier stage, when treatment is more likely to be successful."

The researchers are also looking at how the strain of salmonella could be used to detect the exact location of polyps.

If the research shows this test produces reliable results, there is also the potential to use the test to help diagnose other cancer types including breast and pancreatic cancer.

We're working on a rapid test to diagnose bowel cancer at an earlier stage, when treatment is more likely to be successful.



TACKLING LUNG CANCER IN HIGH-RISK COMMUNITIES



Dr Grace McCutchan, a researcher for the Wales Cancer Research Centre, has recently published her findings on engaging high-risk groups in early lung cancer diagnosis. Her research has revealed that easy to access information delivered by trained and approachable members of the local community may encourage people who have a high risk of developing lung cancer to get medical help with lung symptoms.

Lung cancer is the leading cause of cancer death worldwide. Outcomes are among the poorest for all cancers, with only 13% of lung cancer patients surviving five or more years in the UK. Finding lung cancer early really improves a patient's chances after surgery;

over 80% of patients will survive one year or more when diagnosed at Stage I. Sadly, however, lung cancer is more commonly diagnosed at an advanced, incurable stage. Therefore, we need to understand why people may put off going to the doctor with lung cancer symptoms, and how we can best to support them to seek medical help when symptoms develop.

People who are high risk for lung cancer – current/former smokers, aged 40 years and over, who have a lung condition and live in the most deprived areas of the UK – report taking longer to seek medical help with lung cancer symptoms. Lung cancer is more common and mortality is higher in areas of high socioeconomic deprivation. It has been estimated that each year, socioeconomic inequalities account for 11,700 excess cases of lung cancer and 9,900 potentially avoidable lung cancer deaths in England.

Dr McCutchan conducted interviews with 37 individuals who were high risk for lung cancer from the most deprived areas of the UK (South Wales, North England, North East Scotland). She also conducted focus groups with patients and healthcare professionals to explore how best to support and encourage early help seeking in people who are high risk for lung cancer.

Her research found that some people

thought that doctors wouldn't want to treat them because of perceived stigma against smokers, or because they live in deprived areas and often in difficult circumstances. In the lead up to lung cancer diagnosis, vague symptoms may go unnoticed, or not be considered a legitimate symptom to seek medical attention for, and these symptoms were often misattributed to smoking, aging or other conditions such as their lung condition.

To empower people to get help early with lung cancer symptoms, participants in the study said they needed more information about lung cancer symptoms and why it is important to seek medical help early. They suggested distributing information in different ways and in places where it was easy for people to access, such as local events and posters in community centres. Importantly, the information should be delivered by someone who people can relate to and who won't judge them for their smoking.

Dr McCutchan and her team are currently working with Cwm Taf University Health Board using the findings from this study to develop a campaign to encourage people to seek help when they suspect cancer symptoms. This work has also led to recent funding success with Cancer Research Wales, bringing in £391,331 for a targeted community-based campaign to optimise cancer awareness (TICTOC).



To empower people to get help early with lung cancer symptoms, participants said they needed more information about symptoms and why it is important to seek medical help early

SPOTLIGHT ON: OUR PUBLIC & PATIENT INVOLVEMENT GROUP

Our public and patient involvement group are central to everything we do. They work with our researchers to ensure that the work we do is relevant and valuable. We would not be the organisation we are without them. Here, we introduce you to our wonderful team and the faces behind all their innovative work.



Annmarie Nelson
Academic Lead



Jim Fitzgibbon
Lay Lead



Julie Hepburn
Translational



Sue Campbell
Pre-Clinical



Bob McAlister
Clinical



Jim Elliot
Pre-Clinical



Sarah Peddle
Clinical



Kathy Seddon
Community



UPDATE FROM OUR INCOMING LEAD LAY RESEARCH PARTNER, JULIE HEPBURN

Towards the end of this financial year, Jim Fitzgibbon handed over the mantle of Lead Lay Research Partner to Julie Hepburn. Here, she gives an update on the group's work.

We have established ourselves as a group providing strategic help and advice on public involvement in research and have worked as a 'critical friend' to researchers in the four themes over the last five years. Some of our achievements during this period include:

- ◆ Establishing ourselves as a group with clear aims and objectives and supported by the centre with comprehensive terms of reference, mentorship and guidance.
- ◆ Embedding ourselves within the themes and working closely with the researchers on a wide range of projects.
- ◆ Development of a training package for early stage researchers on the 'who, what and why' of good public involvement.
- ◆ Involvement in the development of the Cancer Research Strategy for Wales and the Cardiff University Integrated Cancer Research strategy.
- ◆ Rolling out the UK Standards for Public Involvement published in November 2019 across the centre.

Now, at the start of our next funding period, is a time for looking back over the last five years, at what has worked well, and less well, and at what changes we might want to make. In order to gather information and find out people's views on this I undertook a review which involved carrying out structured interviews with all the research partners, the theme leads, assistant directors and some workpackage leads.

There was a high level of agreement between research partners and researchers on what was important to retain and/or introduce in the future. The review was discussed at our last group meeting in February when two researchers joined the meeting. Ideas we agreed to take forward included:

- ◆ Retaining the relationships built up so far while incorporating the new programme lead areas into our structure.
- ◆ Developing a Rapid Response group of lay reviewers to respond quickly to request from researchers for pre-funded work. This would be run by the centre's hub team and supported by the Health and Care Research Wales Support Centre and the Welsh Government Enabling Involvement Fund.
- ◆ Further roll-out of the UK Standards for Public Involvement.

- ◆ Further training, particularly for new researchers, on involving the public in their work.
- ◆ Development of methods of recording the impact of public and patient involvement in their strategic roles and in research within the centre.
- ◆ Looking at ways we can develop 'cross cutting' projects across several areas rather than always working within a single group.
- ◆ Further work on increasing diversity of our group in line with recommendations to be published soon by INVOLVE. This will include recruitment of a north Wales member to our group.

Of course, COVID-19 has affected our work in just the same way as it has affected all research work. Some of our ideas will need to be delayed and we are grappling with the changes needed in order to continue working effectively with researchers, some of whom we have so far only met virtually. It is still too soon to know what the long term effects of the virus will be on research funding and on the way we work. For the present however, we will take forward whatever is possible immediately and plan how we may be able to deliver other objectives in stages over future months.



£1.8m FUNDING FOR PREDICTIVE CANCER TESTS

Each year in Wales around 2,800 people are diagnosed with breast cancer and around 1,500 with blood cancers.

Prof. Duncan Baird, Associate Director at the Wales Cancer Research Centre, has been awarded £1.8m from Cancer Research UK to continue his world-leading research which could lead to better treatments for patients with breast and blood cancers. Baird's team will try and find ways to accurately determine how quickly a patient's cancer is progressing. Ultimately, the research could help cancer specialists to identify effective treatments tailored to each patient at an earlier stage.

The research team is specifically focussed on this personalised approach which looks at the correlation between telomeres - protective structures that sit at the end of our chromosomes - and how quickly cancers can develop.

Prof. Baird explained: "Telomeres act in a similar way to the protective plastic tips on the end of shoelaces, preventing chromosomes ends from 'fraying'. Telomeres shorten every time a cell divides to create a new cell and eventually the chromosome ends are left exposed - leading to extensive DNA damage that speeds up cancer progression."

The Cardiff researchers have shown that people who have very short telomeres at diagnosis are much more likely to have a fast-progressing cancer.

Prof. Baird added: "Knowing the speed of cancer progression can help doctors decide on more appropriate treatment measures for the patient."

The Cardiff scientist's work, which has spanned nearly two decades, could provide important new

clinical tools to predict the course of some cancers and their progression, including breast cancer and blood cancers such as chronic lymphocytic leukaemia and multiple myeloma.

Prof. Baird has been funded by Cancer Research UK for fifteen years. The charity's science committee recently noted his work to be "outstanding" and at the forefront of cancer research.

Findings from the lab are subsequently turned into tests that could be used in hospitals as part of a study led by Dr Kevin Norris a Research Associate funded by the Wales Cancer Research Centre and

Bloodwise.

Dr Norris, said: "It is very gratifying to take fundamental discovery science and apply this to clinical work, and to see the potential impact this will have for patients and their families."

The £1.8 million grant will enable Prof. Baird and his research group to continue their cutting-edge research. They are working on bringing the test to people with chronic lymphocytic leukaemia first, but the hope is that people with breast cancer and multiple myeloma in Wales and beyond will also soon benefit from the innovation.



We are finding ways to accurately determine how quickly a patient's cancer is progressing

£1.4m FUNDING FOR CANCER-KILLING VIRUS RESEARCH



Scientists at Cardiff University have been awarded nearly £1.4m in funding by Cancer Research UK to support the development of cancer-killing viruses.

“Oncolytic” viruses are widely seen as the next breakthrough in cancer treatment. They destroy cancer cells but leave healthy cells unaffected.

Dr Alan Parker, who is involved with our translational research, said the funding would help towards moving the research “from bench to bedside”.

“Reprogrammed viruses replicate many thousands of times over inside infected cells, filling them with virus before bursting the cell, releasing thousands more copies of therapeutic viruses. These viruses then infect surrounding tumour cells, repeating and amplifying the

process,” he said.

“Viruses haven’t evolved to infect and kill cancer cells - unfortunately they infect healthy cells, making us ill in the process. Our research has focused on generating ‘smart viruses’ that can discriminate between cancerous and healthy cells.

“Our next challenge is to engineer the virus to make it even more potent and deliver this to clinical trials. This funding from Cancer Research UK will accelerate this process and help us to deliver these exciting new therapies to cancer patients sooner.”

Last May researchers announced they had successfully trained a virus to recognise and destroy ovarian cancer cells.

Reprogramming viruses to target cancer cells is an exciting area of cancer research and has the potential to treat ovarian and breast cancers, and others that are harder to treat like pancreatic and oesophageal.

This project is at the forefront of research using viruses to treat cancer, and is a stepping stone to developing potentially life-saving treatments that could change the outlook for hard to treat cancers, which have seen little improvement for decades.

We are engineering viruses to attack cancer cells.

NEW SARCOMA FELLOWSHIP

The centre is supporting Dr Magda Meissner, a rising stars in cancer research, as she begins a Clinical Trial Fellowship with Cancer Research UK.

Last year Dr Meissner took part in the Future Leaders in Cancer Research, a scheme funded by Cardiff University and coordinated by the Wales Cancer Research Centre. The scheme aims to develop promising early career researchers and set them on a path to future leadership.

Dr Meissner took full advantage of the scheme which gave her the opportunity to take part in the prestigious MCCR workshop, Methods in Clinical Cancer Research, where she developed a trial protocol that was the basis for her fellowship application.

The Cancer Research UK Clinical Trial Fellowship offers her an opportunity to train within the Centre for Trials Research at Cardiff University. The centre has developed a programme of training and practical experience that will allow Dr Meissner to become an independent clinical

researcher able to develop new clinical trial ideas and deliver them as part of a team. As a key element of this programme Dr Meissner has identified two patient representatives to guide the development and delivery of her cancer clinical trials.

Dr Meissner's research interest is in soft tissue sarcomas. Around 3,300 people are diagnosed with these rare cancers each year in the UK and this number has been increasing since 1990. It affects young adults and approximately 60% of patients will survive for five years after diagnosis.

Unfortunately, when the disease spreads to other organs it is more difficult to treat and the five-year survival drops to just 16 percent. After it has spread, chemotherapy only works for around 10 - 30 percent of people and this treatment can cause severe side effects. It is therefore vital to find

drugs which are effective and have fewer side effects.

There is a particular genetic factor (known as STAT3) which is activated in a variety of sarcomas. This transcription factor promotes the spread of cancer to other organs and also contributes to making the cancer resistant to chemotherapy. Sometimes our immune system is able to detect cancer cells and destroy them, but this STAT3 does even more damage by making the cancer cells invisible to the immune system. By blocking STAT3 production, cancer cells can become visible again and be destroyed.

In her work, Dr Meissner seeks to test the safety and effectiveness of a new drug STAT3 inhibitor in combination with Immunotherapy. The treatment will be offered to patients with sarcoma which has spread to other organs and failed previous treatments.

We foster career development for researchers, allowing them to pursue further funding and fellowships.

NURSE & ALLIED HEALTH PROFESSIONAL MEETING

In September, nearly 50 people joined us for the second annual meeting of the Cancer Nurses & AHPs Research Network.

This is a forum where nurses and Allied Health Professionals (AHPs) get together to undertake research in cancer related issues. It links the many nurses and AHPs in Wales doing research in cancer, bringing experienced and emerging researchers together. It is enabling new collaborations, harnessing enthusiasm and developing research capability amongst nurses and AHPs. The event focused on developing research ideas, professional development and collaboration.



£1.4m FUNDING FOR DNA RESEARCH



Dr Chris Staples from Bangor University's School of Medical Sciences has been awarded a prestigious Future Leader Fellowship by UK Research and Innovation.

He joins top researchers and innovators from across the country to receive a portion of a £78 million cash boost provided as Future Leader Fellowships. This investment is designed to propel the next generation of scientific leaders as they conduct cutting-edge research and develop their research independence. He has been awarded £1.4m for four years, with the possibility of a further three

years of support.

In all cells, our DNA is constantly being damaged, and such alterations to our genetic code can lead to diseases like cancer and neurodegeneration. In response, we have evolved tumour suppressive mechanisms to repair specific types of DNA damage. Some cancer cells are defective in their DNA repair and can therefore be targeted by DNA-damaging chemotherapies or radiotherapy. Dr Staples, who was funded by the centre for several years, is working on understanding these repair mechanisms and how these could become the target for new personalised cancer therapies.

Dr Staples said, "I am delighted to receive this fellowship and my team and I will do our very best to achieve our goal of further understanding how DNA is repaired and potentially exploiting our findings to benefit cancer patients."

Future Leaders Fellowships are helping universities and businesses in the UK recruit, train and retain the world's best researchers and innovators, regardless of their background.

We are learning how to target cells that can't repair DNA damage that causes cancer

EVALUATING PALLIATIVE CARE SUPPORT ON WEEKENDS AND BANK HOLIDAYS

Acting on the need for swift response to urgent referrals at weekends and bank holidays, Cardiff and Vale University Health Board commissioned a Palliative Care Clinical Nurse Specialist (CNS) Service. It provides weekend and bank holiday support to patients with progressive non-curable illnesses and their families, at home or in hospital. Our staff conducted an independent evaluation and recommended subsequent action to ensure it is fit for the future.

From 10 recommendations, the following actions were prioritised:

- ◆ A review of service processes

and systems to optimise inter-organisational working has commenced.

- ◆ A minimum data set to improve service activity reporting has been collaboratively developed and implemented.
- ◆ A way to reduce CNS call management burden, improve remote access to patient information and enhance communication efficiency, with out-of-hours GPs is being piloted through provision of an additional CNS each weekend working with the national 111 team and GP out-of-hours hub.

- ◆ The impact of the pilot intervention on CNS travel inefficiency through call triage and referral to other appropriate health care practitioners is also being assessed.

The independent evaluation identified key improvement areas for action. Some are interconnected, accordingly, interventions that aim to make improvements in one area may impact positively on others. A purposely designed set of data collection tools will support a robust evaluation of the effect of interventions on service efficiency, effectiveness, outcomes and impact.

Palliative Care Evidence Review Service

The Palliative Care Evidence Review Service (PaCERS) was developed by Professor Anthony Byrne five years ago to support the specific informational needs of clinical professionals and other decision makers working in palliative care in Wales.

PaCERS undertakes rapid evidence reviews that are clinically or policy driven. Our review methodology published in 2019, has been presented at international and national conferences. It addresses the challenge of the trade-off between the timely transfer of evidence against the risk of impacting on rigour. Furthermore, we recognise the importance of engagement with the clinical workforce and policy-makers throughout our reviews, from developing and refining the review question at the start through to demonstrating impact of the findings.

During its first five years the PaCERS team has worked closely with clinical professionals across many health boards in Wales, and more recently with the Marie

Curie charity, to produce critically appraised summaries of available evidence. This has helped facilitate at-pace integration of research findings into service development and helps enable palliative care professionals to:

- ◆ Gain an overview of literature relevant to their field, in order to inform future practice
- ◆ Confirm that current practice

reflects contemporary research evidence

- ◆ Identify areas where little evidence exists and where further research is needed.

Further details and reports are available at <http://palliativecare.walescancerresearchcentre.com/palliative-care-evidence-review-service/>



Our PaCERS service quickly delivers answers to research questions to help clinical professionals in their work

Some of our reviews:

- ◆ Does advance care planning alter management decisions made by healthcare professionals?
- ◆ What processes decrease the risk of opioid toxicity following interventional procedures for uncontrolled pain in palliative care or cancer patients?
- ◆ What outpatient models have proven efficacy for assessment and management of pelvic radiotherapy late effects?
- ◆ What is the impact and effectiveness of the 7 day CNS service on palliative care patients and their families?
- ◆ What are the attitudes and perceptions of patients with pulmonary fibrosis and their carers towards use of oxygen therapy?
- ◆ What is the evidence base for the assessment and management of cancer cachexia in adults with incurable pancreatic cancer?
- ◆ What is the evidence base for care models within care homes that improve the end of life for patients and their carers?

NEW BOWEL CANCER DETECTION TRIAL

Our Assistant Director Sunil Dolwani is the Chief Investigator on an innovative new trial called CONSCOP2.

A colonoscopy (bowel camera examination) is offered to all persons who test positive on a bowel cancer screening stool test. About half of those then examined by camera have cancers or polyps within their bowel. These are small abnormal growths that might lead to cancer in the future.

Currently polyp removal reduces death from cancer in the lower bowel. However, in the upper bowel the types of polyps present are often difficult to visually detect by

camera examination making them a higher risk. About one in five bowel cancers may have developed from these upper bowel polyps.

The study aims to detect more polyps by use of a dye assisted camera examination. We will seek further improvements in polyp detection by spraying blue dye into the bowel prior to the camera examination. This makes polyps easier to visually detect. This procedure is known as a chromo-colonoscopy.

We will test whether chromo-colonoscopy improves the number of high-risk polyps found at the initial procedure by randomly assigning consenting trial participants to

either have a standard colonoscopy or a chromocolonoscopy for their initial assessment. We will then use routinely collected patient data to find out if those having chromocolonoscopy have fewer high-risk polyps and cancers in the next three years.

If chromo-colonoscopy is better than current practice then it will lead to more high-risk polyps being found, more accurate phasing of colonoscopy surveillance and fewer bowel cancers in the longer term.



INDUSTRY FORUM

On Friday 4 October, industry colleagues from across the UK attended an event in Cardiff hosted by the Wales Cancer Research Centre, Cancer Implementation Group and Life Sciences Hub Wales.

The purpose of the event was to:

- ◆ Launch Wales' first Cancer Industry Forum
- ◆ Set the scene in readiness for a 'Cancer Innovation Challenge' to deliver seed funding.
- ◆ Provide industry with an opportunity to pitch to work with NHS Screening

The event was introduced by Professor Chris Jones, Deputy Chief Medical Officer for Wales who said

“Cancer is a top priority for Wales. We are open for business and look forward to working with industry to help drive forward innovation.”

Sessions during the day included: scene setting by the Welsh Implementation Group, cancer innovation case studies, establishment of the Cancer Industry Forum and the launch of the Life Sciences Hub Wales' forthcoming Cancer Innovation Challenge.

Industry colleagues in attendance included; Fujifilm Medical Systems, CanSense, Siemens, Roche Diagnostics, Olympus, Janssen by Johnson and Johnson and many more.

Dee Puckett, Head of Health and

Social Care Engagement at Life Science Hub Wales, said, “We were delighted to see such an enthused turn out from industry at the event on Friday. Great to see such a mix of organisations from Wales and across the UK coming together to help drive forward innovation in the delivery of cancer care. A particular thanks goes to our colleagues at the Cancer Implementation Group who were instrumental in bringing this event to life. There is much to do, but we're confident that with the right people, we can make a real difference to the people of Wales.”

The event closed with a wonderful performance from the Tenovus Cancer Care Choir, leaving everyone feeling uplifted and inspired and ready to work together.

LOOKING FORWARD

This report concludes our initial five years of funding, but we are delighted that following a competitive bid process, Health and Care Research Wales has announced that it will continue to fund us for a further five years. We have learnt much during this funding period and, as such, have planned a few changes to our structure going forward.

The current system of themes and work packages will be replaced with the model pictured below. This new structure places more emphasis on the journey of the patient. We will condense our 10 work packages down to four new work streams: Personalised Prevention, Enhanced Diagnosis, Improved Patient Outcomes and Optimised Patient Experience. These will sit within two domains: Prevention and Diagnosis, and Treatment and Care.

We will continue to build a sustainable cancer research community that reaches out beyond the borders of Wales to make a unique contribution to the global effort to reduce the burden of cancer. We are developing new interventions to improve outcomes for patients both within NHS Wales, but also through other healthcare services world-wide.

Our Personalised Prevention research will focus on developing

and evaluating strategies to encourage healthier life-style choices in high-risk groups of people, such as stopping smoking or maintaining a healthy diet. We are building on our strengths in screening, prevention and early diagnosis to reduce the burden of cancer on the people of Wales and beyond. We do this by conducting research which helps prevent cancer, wherever possible, which picks up abnormalities at the pre-cancerous stage or which detects cancer in its earliest stages before it can grow and spread.

Our Enhanced Diagnosis work will have a strong focus on interdisciplinary working to evaluate technologies that could improve the diagnosis of cancer. We are working on improving the detection of early cancers and pre-cancerous bowel polyps using new imaging technologies and specially engineered bacteria that help us to identify areas of risk. We are also developing more effective ways of predicting patients' outcomes using biomarkers - tests which tell us about the current state of a tumour or its likely behaviour.

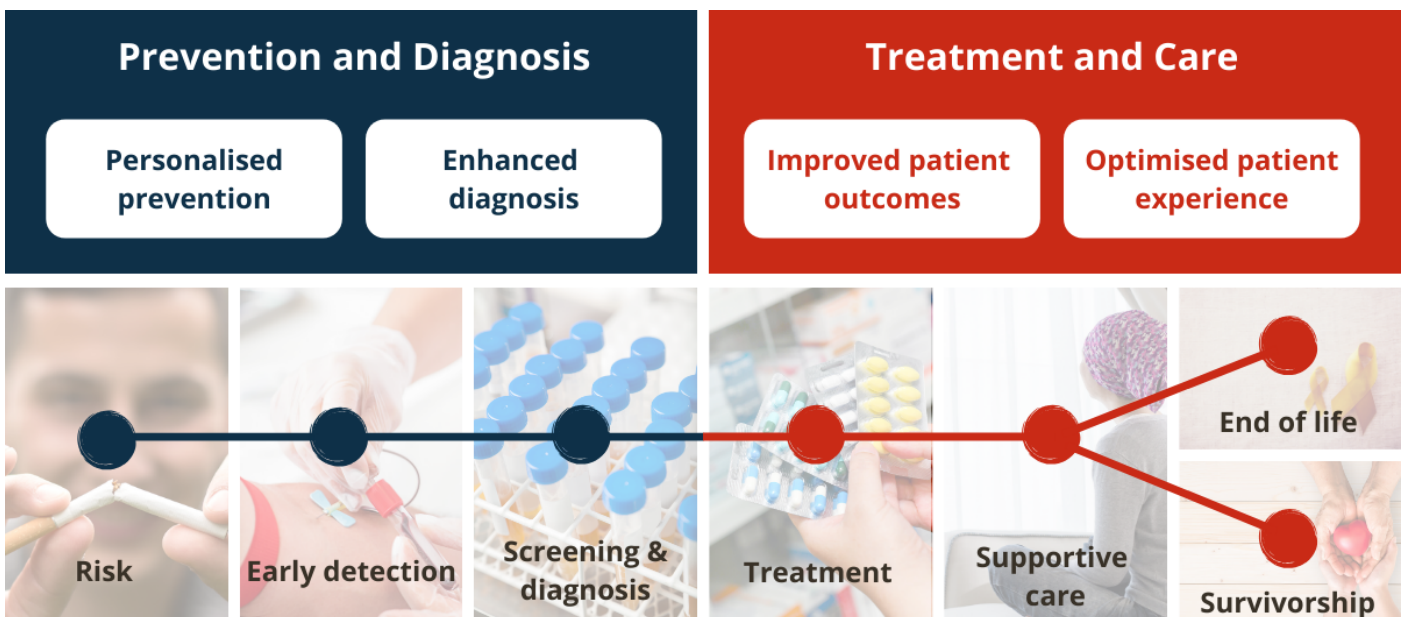
Our Improved Patient Outcomes workstream will bring lab scientists and clinical researchers together to develop new, improved therapies for patients through our innovative

Multi-Disciplinary Research Groups model. We are developing new cancer therapies to improve treatment options available to patients. We have particular strengths in molecularly-targeted 'biological therapies' which exploit the differences between cancer cells and normal cells.

Our Optimised Patient Experience work ensures that the research which we conduct is driven by the needs of patients, their families and carers, and of the community as a whole. This is particularly important in the setting of advanced disease, where eradicating the cancer may no longer be possible. In this case we want to find the best ways to balance a patient's quantity and quality of life to suit their individual wishes.

Public and patient involvement and engagement remains the golden thread that ties our work together, underpinning each of these new workstreams.

We look forward to embarking on a further five years, building on success to date, and making a real difference in reducing the burden of cancer for patients, their families and carers, and our community, in Wales and beyond.



www.walescancerresearchcentre.com
02921 848970

