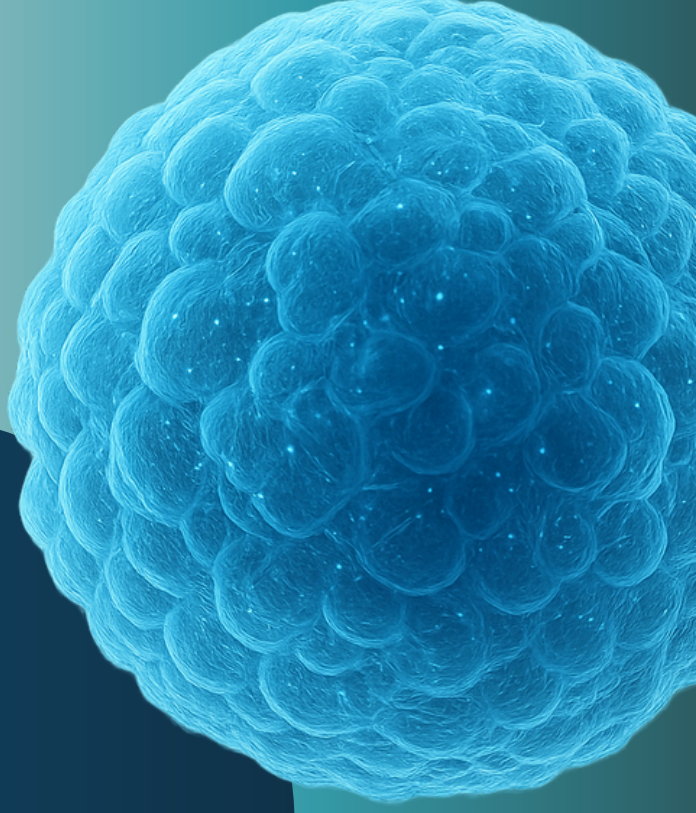
Canolfan Ymchwil Canser Cymru | Wales Cancer Research Centre



Wales Cancer Research Conference 2026

Monday 23 March 2026

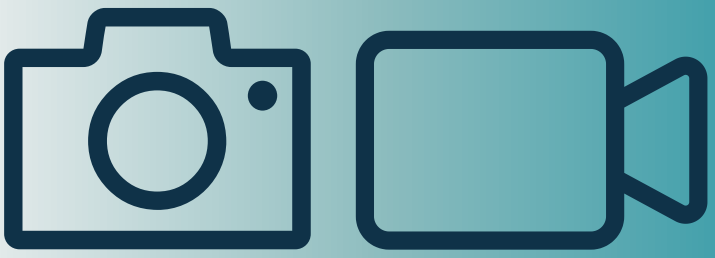
The Vale Resort, Hensol

Programme and abstracts

#WCRC26

Vale RESORT ★★★★

FILMING AND PHOTOGRAPHY



We will be filming and taking photographs during the Wales Cancer Research Conference. All film/photos will be used for PR and marketing purposes promoting the Wales Cancer Research Centre and partners. If you would prefer not to be included in photographs, please let a member of our Hub team know before the end of the conference.

Byddwn ni'n ffilmio ac yn tynnu lluniau yn ystod Cynhadledd Ymchwil Canser Cymru. Bydd yr holl ffilmiau/lluniau'n cael eu defnyddio at ddibenion cysylltiadau cyhoeddus a marchnata er mwyn hyrwyddo Canolfan Ymchwil Canser Cymru a phartneriaid. Os byddai'n well gennych chi beidio â chael eich cynnwys yn y lluniau, rhowch wybod i aelod o'n tîm cyn diwedd y gynhadledd.

Please do not share or reproduce abstract, poster or presentation content from this event; please treat data presented as confidential.

Peidiwch â rhannu nac atgynhyrchu cynnwys crynodeb, poster na chyflwyniad o'r digwyddiad hwn; dylech drin data a gyflwynir yn gyfrinachol.

CONTENTS

1 DIRECTOR'S WELCOME AND PROGRAMME

- Director's welcome/Croeso gan y Cyfarwyddwr 4
- Programme/Rhaglen 6
- About the Wales Cancer Research Centre/Ynglŷn â chanolfan Ymchwil Canser Cymru 10
- The Cancer Research Strategy for Wales (CReSt)/Strategaeth Ymchwil Canser Cymru (CReSt) 12
- Meet today's sponsors 14
- Sue Campbell patient and public involvement/engagement Award 17
- Clinical Research Award: In memory of Dr Laura Bunting 18
- Conference awards 19

2 CONFERENCE SPEAKERS

- Conference chair and keynote speakers 21
- Lightning talks: Precision and mechanistic oncology, Immuno-oncology and Radiotherapy 26
- Wales in profile: Advancing cancer clinical trials in Wales, and tackling neurotoxicity in immunotherapy 27
- Lightning talks: Cancer clinical trials, Palliative and supportive oncology and Population health-based cancer prevention and early detection 28
- Sponsor spotlight: Moondance Cancer Initiative 29
- Wales in profile: Tackling cancer challenges in Wales: Novel drug delivery systems in the brain 30
- Patient voice: Molly Fenton 30
- Debate speakers 31

3 ABSTRACTS

- Abstract contents 35
- Lightning talk abstracts 36
- Poster abstracts 42

Vale RESORT

Venue by kind permission of the Vale Resort

Professor Mererid Evans
Director, Wales Cancer Research Centre

Dear Delegates,

I am delighted to welcome you all to the Wales Cancer Research Conference 2026!

At the Wales Cancer Research Centre (WCRC), we have continued to work in partnership with many others over the last year to develop and support excellent cancer research across Wales. Aligned with Wales' Cancer Research Strategy (CReSt), we're focused on growing the cancer research base in Wales for the benefit of our population and patients.

Our past conferences have been amazing opportunities for collaboration and networking, and I hope today will be no different.

Our keynote speakers are joining us from across the UK, to share their insights on a range of important and cutting edge topics, including the future of AI in radiotherapy, the untapped potential of behavioural interventions, the latest developments in cancer immunotherapy, and the influence of tumour architecture on disease behaviour and treatment - a fantastic illustration of some of the impactful cancer research being undertaken around the UK.

It is also my pleasure to welcome our new 'Wales in Profile' sessions, where speakers will showcase success stories from across the principality, highlighting the breadth of expertise across many areas of cancer research in Wales. I'm also pleased to announce there will be debate on whether sequencing the genome of every cancer in Wales is a realistic and worthwhile goal; chaired by Dr James Calvert, Wales' Deputy Chief Medical Officer, and featuring heavyweights in the field, I've no doubt this will be an entertaining and thought-provoking session.

It is always vitally important to put the patient voice at the heart of the conversation, and I am thrilled that Molly Fenton will be joining us to talk about her inspirational journey from diagnosis to advocacy – it's sure to be a highlight!

I encourage everyone to take time to view the posters on display, and read the abstracts in this brochure. It is incredibly encouraging to see the volume and variety of novel work being done in cancer research across Wales.

Today would not be possible without our funders, Health and Care Research Wales, our hosts at The Vale Resort, and the generosity of our sponsors, to whom we're very grateful.

Let the Wales Cancer Research Conference 2026 commence!

Yr Athro Mererid Evans
Cyfarwyddwr, Canolfan Ymchwil Canser Cymru

Annwyl Gynadleddwyr,

Mae'n bleser mawr gennyf groesawu pob un ohonoch i Gynhadledd Ymchwil Canser Cymru 2026!

Yng Nghanolfan Ymchwil Canser Cymru (WCRC), rydyn ni wedi parhau i weithio mewn partneriaeth â llawer o rai eraill dros y flwyddyn ddiwethaf i ddatblygu a chefnogi ymchwil ragorol ar ganser ledled Cymru. Yn unol â Strategaeth Ymchwil ar Ganser Cymru Gyfan (CReSt), rydyn ni'n canolbwyntio ar ddatblygu sylfaen ymchwil i ganser yng Nghymru er budd ein poblogaeth a'n cleifion.

Roedd ein cynadleddau blaenorol yn gyfle gwych i gydweithio a rhwydweithio, ac rwy'n gobeithio na fydd heddiw'n eithriad.

Mae'n prif siaradwyr yn ymuno â ni o bob cwr o'r DU i rannu eu gwybodaeth ar ystod o bynciau blaengar, gan gynnwys dyfodol deallusrwydd artiffisial (DA) ym maes radiotherapi, potensial ymyraethau ymddygiadol sydd heb eu defnyddio cyn hyn, y datblygiadau diweddaraf ym maes imiwnotherapi canser, a dylanwad strwythur tiwmorau ar ymddygiad clefydau a'u triniaeth - esiampl arbennig o'r ymchwil ar ganser sy'n cael effaith sydd ar waith ledled y DU.

Mae hefyd yn bleser i gyflwyno ein sesiynau newydd "Cip ar Gymru" pan fydd siaradwyr yn tynnu sylw at straeon llwyddiannus o bob cwr o'r wlad, gan ddangos lled yr arbenigedd mewn llawer o feysydd ymchwil canser yng Nghymru. Rwy hefyd yn falch o gyhoeddi y bydd trafodaeth ynghylch a yw dilyniannu pob genom canser yng Nghymru yn nod realistig a buddiol; Dr James Calvert, Prif Swyddog Meddygol Cymru fydd yn cadeirio, a bydd arbenigwyr o bwys yn y maes yn cymryd rhan. Does gen i ddim amheuaeth y bydd hi'n sesiwn ddifyr sy'n ysgogi'r meddwl.

Mae bob amser yn bwysig iawn i roi llais y claf wrth galon y drafodaeth, ac rwy'n hynod o falch y bydd Molly Fenton yn ymuno â ni i siarad am ei phrofiad ysbrydoledig o gael diagnosis ac yna eirioli – mae'n siŵr o fod yn uchafbwynt!

Rwy'n annog pawb i gymryd amser i edrych ar y posteri fydd yn cael eu harddangos, ac i ddarllen y crynodebau yn y llyfryn. Peth calonogol yw gweld nifer ac ystod y gwaith newydd sydd ar waith ym maes ymchwil ar ganser ledled Cymru.

Ni fyddai heddiw wedi bod yn bosibl heb ein cyllidwyr, Ymchwil Iechyd a Gofal Cymru, ein gwesteiwyr yn y Vale Resort, a haelioni ein noddwyr, ac rydyn ni'n ddiolchgar iawn iddyn nhw.

Boed i Gynhadledd Ymchwil Canser Cymru 2026 ddechrau!

Morning sessions 09:30-12:40

All sessions are taking place in the Castle Suite unless otherwise stated

09:30 - Welcome: Prof Mererid Evans (Wales Cancer Research Centre)

09:40 - Keynote: Prof Rajesh Jena (University of Cambridge)

The future of AI in radiotherapy

10:15 - Abstract lightning talks

Dr Ella Reed (precision and mechanistic oncology), Mélanie Boudaud (immuno-oncology), and Dr Muhammad Usman Akbar (radiotherapy)

Chair: Prof Duncan Baird (WCRC Associate Director, Cardiff University)

10:25 - Wales in profile: Dr Ricky Frazer (Velindre Cancer Centre), Dr Mark Willis (University Hospital of Wales)

Advancing cancer clinical trials in Wales, and tackling neurotoxicity in immunotherapy

Chair: Prof Awen Gallimore (CReSt Theme Lead, Cardiff University)

11:05 - Refreshment break, poster and exhibition viewing

11:30 - Keynote: Prof Dame Theresa Marteau (University of Cambridge)

Changing behaviour at scale to protect our health and planet: What stops us?

Chair: Prof Kate Brain (CReSt Theme Lead, Cardiff University)

12:05 - Abstract lightning talks

Dr Sean Johnson (cancer clinical trials), Dr Nichola Gale (palliative and supportive oncology), and Dr Harriet Quinn-Scoggins (population health-based cancer prevention and early diagnosis)

Chair: Dr Helen Pearson (WCRC Associate Director, Cardiff University)

12:15 - Sponsor spotlight: Moondance Cancer Initiative

CADARN: A new system-level intervention to unlock the potential of cancer research across Wales, presented by Prof Jared Torkington (Clinical Director, Moondance Cancer Initiative)

12:40 - Lunch, poster and exhibition viewing

(Castle Suite and Morgannwg Suite)

Afternoon sessions 13:35-17:15

13:35 - Keynote: Prof Kevin Harrington (Institute of Cancer Research)

Radiotherapy and immunotherapy combinations for solid cancers:
Insights on past successes and future directions

14:10 - Wales in profile: Prof William Gray (Cardiff University) and Dr Ben Newland (Cardiff University)

Tackling cancer challenges in Wales: Novel drug delivery systems in the brain

Chair: Prof Alan Parker (CReSt Theme Lead, Cardiff University)

14:45 - Patient voice: Molly Fenton

Advocacy in action: How my brain tumour diagnosis inspired me to create change

Chair: Dr James Powell (CReSt Theme Lead, Velindre Cancer Centre)

15:05 - Refreshment break, poster and exhibition viewing

15:30 - Keynote: Dr Alastair Lamb (Barts Cancer Institute)

Delving deeper into the architecture of cancers: Using digital spatial profiling
to improve our understanding and treatment of prostate cancer

Chair: Dr Helen Pearson (WCRC Associate Director, Cardiff University)

16:05 - Poster and lightning talk awards

16:20 - Debate: "We should perform whole genome sequencing as standard for every cancer in Wales"

Chair: Dr James Calvert (Deputy Chief Medical Officer, Welsh Government)

For: Prof Richard Adams (Cardiff University and Velindre Cancer Centre) and Ms Sian Morgan (All-Wales Medical Genomics Service)

Against: Prof Kevin Harrington (Institute of Cancer Research) and Prof Awen Gallimore (Cardiff University)

OR

Early/mid career researcher event: Meet the expert

Pre-registered attendees only (Morgannwg Suite)

17:00 - Closing remarks: Prof Mererid Evans (Director, Wales Cancer Research Centre)

17:15 - Networking reception and poster viewing

Sesiynau bore 09:30-12:40

Mae pob sesiwn yn cael eu cynnal yn Ystafell y Castell oni nodir yn wahanol

09:30 - Gair o groeso: Yr Athro Mererid Evans (Cyfarwyddwr, Canolfan Ymchwil Canser Cymru)

09:40 - Prif Araith: Yr Athro Rajesh Jena (Prifysgol Caergrawnt)

Dyfodol deallusrwydd artiffisial (DA) ym maes radiotherapi

10:15 - Crynodeb o'r sgyrsiau chwim

Dr Ella Reed (oncoleg manwl gywir a mecanistig), Mélanie Boudaud (imiwno-oncoleg) a Dr Muhammad Usman Akbar (radiotherapi)

Cadeirydd: Yr Athro Duncan Baird (Cyfarwyddwr Cyswllt Canolfan Ymchwil Canser Cymru, Prifysgol Caerdydd)

10:25 - Cymru mewn proffil: Dr Ricky Frazer (Canolfan Canser Felindre), Dr Mark Willis (Ysbwty Prifysgol Caerdydd)

Hyrwyddo treialon clinigol oncoleg yng Nghymru, a mynd i'r afael â niwrodocsigedd ym maes imiwnotherapi

Cadeirydd: Yr Athro Awen Gallimore (Arweinydd Thema CReSt, Prifysgol Caerdydd)

11:05 - Egwyl lluniaeth a chyfle i weld y posteri a sgwrsio â'r arddangoswyr

---

11:30 - Prif Araith: Yr Athro Dame Theresa Marteau (Prifysgol Caergrawnt)

Datblygu a gwerthuso ymyraethau i newid ymddygiad er mwyn gwella iechyd y boblogaeth a lleihau anghydraddoldebau iechyd

Cadeirydd: Yr Athro Kate Brain (Arweinydd Thema CReSt, Prifysgol Caerdydd)

12:05 - Crynodeb o'r sgyrsiau chwim

Dr Sean Johnson (treialon clinigol canser, Dr Nichola Gale (oncoleg liniarol a chefnogol), ac Dr Harriet Quinn-Scoggins (ymchwil ar atal, canfod cynnar, gofal sylfaenol, a gwasanaethau iechyd)

Cadeirydd: Dr Helen Pearson (Cyfarwyddwr Cyswllt Canolfan Ymchwil Canser Cymru, Prifysgol Caerdydd)

12:15 - Chwyddwydr ar y Noddwr: Mentergarwch Canser Moondance

CADARN: Ymyrraeth newydd ar lefel system i ddatgloi potensial ymchwil ar ganser ledled Cymru, a gyflwynir gan yr Athro Jared Torkington (Cyfarwyddwr Clinigol, Menter Canser Moondance)

12:40 - Cinio, a chyfle i weld y posteri a sgwrsio â'r arddangoswyr

Ystafell Morgannwg ac Ystafell y Castell

Sesiynau prynhawn 13:35-17:15

13:35 - Prif Araith: Yr Athro Kevin Harrington (Sefydliad Ymchwil Canser)

Cyfuniadau radiotherapi ac imiwnotherapi ar gyfer canserau soled: Cipolwg ar lwyddiannau'r gorffennol a chyfeiriadau'r dyfodol

---

14:10 - Cymru mewn proffil: Yr Athro William Gray (Prifysgol Caerdydd) a Dr Ben Newland (Prifysgol Caerdydd)

Mynd i'r afael â heriau canser yng Nghymru: Systemau cyflenwi cyffuriau newydd yn yr ymennydd

Cadeirydd: Yr Athro Alan Parker (Arweinydd Thema CReSt, Prifysgol Caerdydd)

14:45 - Llais y Claf: Molly Fenton

Eiriolaeth ar waith: Sut y gwnaeth fy niagnosis o diwmor yr ymennydd fy ysbrydoli i greu newid

Cadeirydd: Dr James Powell (Arweinydd Thema CReSt, Canolfan Ganser Felindre)

15:05 - Egwyl lluniaeth a chyfle i weld y posteri a sgwrsio â'r arddangoswyr

---

15:30 - Prif Araith: Dr Alastair Lamb (Sefydliad Canser Bart)

Ymchwilio'n ddyfnach i bensaernïaeth canserau: defnyddio proffilio gofodol digidol i wella'r ffordd rydym yn deall ac yn trin canser y prostad

Cadeirydd: Dr Helen Pearson (Cyfarwyddwr Cyswllt Canolfan Ymchwil Canser Cymru, Prifysgol Caerdydd)

16:05 - Gwobrau posteri a'r cyflwyniadau chwim

16:20 - Debate: Trafodaeth: "Dylen ni gymryd fabwysiadu dilyniannu'r genom cyfan yn ddull safonol i bob canser yng Nghymru"

Cadeirydd: Dr James Calvert (Dirprwy Brif Swyddog Meddygol, Llywodraeth Cymru)

O blaid: Yr Athro Richard Adams (Prifysgol Caerdydd a Chanolfan Canser Felindre) a

Ms Sian Morgan (Gwasanaeth Genomeg Feddygol Cymru Gyfan)

Yn erbyn: Yr Athro Kevin Harrington (Sefydliad Ymchwil Canser) a'r Athro Awen Gallimore (Prifysgol Caerdydd)

neu

Digwyddiad ymchwilwyr ar ddechrau neu ar ganol eu gyrfa:

Cwrdd â'r Arbenigwr

Y rheini sydd wedi cofrestru yn unig (Ystafell Morgannwg)

17:00 - Sylwadau cloi: Yr Athro Mererid Evans (Cyfarwyddwr, Canolfan Ymchwil Canser Cymru)

17:15 - Derbyniad rhwydweithio a chyfle i weld y posteri

Canolfan Ymchwil Canser Cymru | Wales Cancer Research Centre

About the Wales Cancer Research Centre

The Wales Cancer Research Centre is based at Cardiff University and funded by the Welsh Government via Health and Care Research Wales and our funding partners at Cardiff University, Swansea University, Bangor University, Velindre NHS Trust and Cardiff and Vale University Health Board. We work collaboratively to support cancer research across Wales and to drive progress in line with Wales' cancer research strategy, CReSt.

Cardiff University / Prifysgol Caerdydd

Prifysgol Bangor University 1884

GIG Cymru NHS Wales — Bwrdd Iechyd Prifysgol Caerdydd a'r Fro / Cardiff and Vale University Health Board

Prifysgol Abertawe Swansea University

GIG Cymru NHS Wales — Ymddiriedolaeth GIG Felindre Velindre NHS Trust

Ymchwil Iechyd a Gofal Cymru Health and Care Research Wales

As part of WCRC's role in CReSt implementation, we have opportunities for you to get involved:

Join our bioinformatics network

Join our Early/Mid Career Researchers Network

Tap into the skills of our PPI network

Use our signposting resources, such as our early career researcher guide

Sign up to our monthly newsletter to stay up to date with news, events, funding opportunities and more from the Wales Cancer Research Centre

Canolfan Ymchwil Canser Cymru | Wales Cancer Research Centre

Gwybodaeth am Ganolfan Ymchwil Canser Cymru

Wedi'i lleoli ym Mhrifysgol Caerdydd, mae'r Ganolfan Ymchwil Canser Cymru wedi'i hariannu gan Ymchwil Iechyd a Gofal Cymru, yn ogystal â'n partneriaid ariannol ym Mhrifysgol Caerdydd, Prifysgol Abertawe, Prifysgol Bangor, Ymddiriedolaeth GIG Felindre, a Bwrdd Iechyd Prifysgol Caerdydd a'r Fro. Rydym yn gweithio ar y cyd i gefnogi ymchwil canser ledled Cymru ac i yrru cynnydd yn ei flaen yn unol â strategaeth ymchwil canser Cymru, sef CReSt.

Cardiff University / Prifysgol Caerdydd

Prifysgol Bangor University 1884

GIG Cymru NHS Wales – Bwrdd Iechyd Prifysgol Caerdydd a'r Fro / Cardiff and Vale University Health Board

Prifysgol Abertawe Swansea University

GIG Cymru NHS Wales – Ymddiriedolaeth GIG Felindre Velindre NHS Trust

Ymchwil Iechyd a Gofal Cymru Health and Care Research Wales

Yn rhan o rôl y Ganolfan Ymchwil Canser Cymru wrth weithredu CReSt, mae sawl cyfle i chi gymryd rhan:

Ymunwch â'n rhwydwaith biowybodeg

Ymunwch â'n Rhwydwaith Ymchwilwyr ar Ddechrau/Canol eu Gyrfa

***Manteisiwch ar sgiliau rhwydwaith Cynnwys y Cleifion a'r Cyhoedd (PPI) ***

*** Defnyddiwch ein hadnoddau, fel ein Canllawiau i Ymchwilwyr ar ddechrau eu gyrfa***

Mynnwch y wybodaeth ddiweddaraf drwy ein cylchlythyr i gael gwybod am ein mentrau a'n digwyddiadau newydd, wrth i ni eu cyhoeddi drwy gydol y flwyddyn

The Cancer Research Strategy for Wales (CReSt)

The abstracts, posters and oral abstract presentations within the conference are aligned with the themes in CReSt, Wales' first national cancer research strategy.

Precision and mechanistic oncology

Looking at how genetics can affect who gets cancer, how that cancer behaves, and finding ways to treat cancers with particular genetic 'signatures'.

Immuno-oncology

Understanding how our bodies' immune responses change when cancer develops, and finding ways to use the immune system to help fight cancer.

Radiotherapy

Exploring how radiotherapy can kill cancer cells while limiting the impact on the rest of the body.

Cancer clinical trials

Bringing promising new treatments to patients in trials and testing new ways of giving existing treatments.

Palliative and supportive oncology

Finding the best ways to look after patients with cancer, such as pain control, side effect management and mental health support.

Prevention, early detection, primary care and health services research

Finding new ways to prevent cancer and detect it early, and making sure that health services in Wales are underpinned by strong science.

The CReSt themes are areas where Wales shines already, and by working together and focusing our efforts we can achieve even more. This maximises research opportunities for patients and ensures we keep learning and applying new advances within and beyond the clinic. Everyone involved in cancer research in Wales has a part to play in making the CReSt strategy become a reality, and we hope this day will inform, inspire and motivate you along your journey.

Since the launch of CReSt, we have collectively made an enormous amount of progress, spanning all six priority themes. In celebration of this, WCRC has compiled a report showcasing highlights from the Wales cancer research community. This report features large-scale and strategic advancements in the space, major funding awards, progress in trials and much more. Read the report here.

Strategaeth Ymchwil Canser Cymru (CReSt)

Mae'r crynodebau, y posteri a'r cyflwyniadau llafar o grynodebau yn y gynhadledd yn cyd-fynd â'r themâu yn CReSt, strategaeth ymchwil canser genedlaethol gyntaf Cymru.

Oncoleg fecanistig a manwl-gywir

Edrych ar sut y gall geneteg effeithio ar bwy sy'n cael canser, sut mae'r canser hwnnw'n ymddwyn, a chanfod ffyrdd o drin canserau â 'llofnodion' genetig penodol.

Imiwno-oncoleg

Deall sut mae ymatebion imiwn ein cyrff yn newid pan fydd canser yn datblygu, a dod o hyd i ffyrdd o ddefnyddio'r system imiwnedd i helpu i frwydro yn erbyn canser.

Radiotherapi

Ystyried sut y gall radiotherapi ladd celloedd canser tra'n cyfyngu ar yr effaith ar weddill y corff.

Treialon clinigol ym maes canser

Dod â thriniaethau newydd addawol i gleifion mewn treialon a phrofi ffyrdd newydd o gynnig triniaethau presennol.

Oncoleg gefnogol a lliniarol

Dod o hyd i'r ffyrdd gorau o ofalu am gleifion â chanser, fel rheoli poen, rheoli sgîl-effeithiau a chymorth iechyd meddwl.

Ymchwil yn ymwneud ag atal, canfod cynnar, gofal sylfaenol a gwasanaethau iechyd

Dod o hyd i ffyrdd newydd o atal canser a'i ganfod yn gynnar, a gwneud yn siŵr bod gwasanaethau iechyd yng Nghymru yn cael eu hategu gan wyddoniaeth gref.

Mae themâu CReSt yn feysydd lle mae Cymru'n rhagori ynddynt eisoes, a thrwy gydweithio a chanolbwyntio ein hymdrechion, gallwn gyflawni mwy hyd yn oed. Bydd hyn yn caniatáu i gleifion fanteisio i'r eithaf ar gyfleoedd ymchwil a sicrhau ein bod yn parhau i ddysgu o'r datblygiadau newydd a welir o fewn a thu hwnt i'r clinig, a'u cymhwyso. Mae gan bawb sydd ynghlwm ag ymchwil canser yng Nghymru ran i'w chwarae wrth wireddu'r strategaeth CReSt ac rydym yn gobeithio y bydd y diwrnod hwn yn ddefnyddiol, yn eich ysbrydoli ac yn eich ysgogi hyd eich taith.

Ers lansio CReSt, rydyn ni wedi gwneud llawer iawn o gynnydd gyda'n gilydd dros bob un o'r chwe thema. I ddathlu hyn, mae Canolfan Ymchwil Canser Cymru wedi llunio adroddiad i nodi uchafbwyntiau cymuned ymchwil canser Cymru. Mae'r adroddiad hwn yn taflu goleuni ar ddatblygiadau strategol ac ar raddfa fawr yn y maes, dyfarniadau cyllid sylweddol, cynnydd mewn treialon, a llawer mwy.
Darllenwch yr adroddiad yma.

Meet our sponsors

Conference platinum sponsor

MOONDANCE CANCER INITIATIVE

Moondance Cancer Initiative is a not-for-profit company that aims to accelerate significant and sustained improvement in cancer survival outcomes over the next 10 to 15 years in Wales.

Conference gold sponsors

VectorBuilder

VectorBuilder is a rapidly growing biotechnology organisation. Our revolutionary online Vector Design Studio has become popular with researchers around the world for its rich functionalities and highly intuitive user interface. We specialise research products and services such as vector cloning, virus packaging, library construction, stable cell line generation, COVID-19 research reagents, AAV capsid evolution and biodistribution and GMP manufacturing of clinical-grade plasmid DNA and viruses, taking your design right through to therapy.

Miltenyi Biotec

Miltenyi Biotec is a global leader in innovating technologies and services for patient-specific cell and gene therapies, transforming scientific discoveries into practical treatments for personalised medicine. With over 35 years of expertise, it supports biomedical discoveries and translates them into clinical applications, enhancing patient access to new therapies. Miltenyi Biotec focuses on offering integrated solutions for complex challenges in treating cancers, autoimmune diseases, and inherited disorders. Its Miltenyi Bioindustry division provides expert guidance to therapy developers efficiently from process development to commercialization. Headquartered in Bergisch Gladbach, it employs 4,700 people across 24 countries.

Meet our sponsors

The Brain Tumour Charity is the largest dedicated funder of research into brain tumours globally, campaigning for change, and providing support for people affected by brain tumours, with a vision to see them defeated. Committed to saving and improving lives, we're moving further, faster to help every single person affected by a brain tumour. We're set on finding new treatments, offering the highest level of support and driving urgent change.

Cancer Research UK is the world's leading cancer charity dedicated to saving lives through research, influence and information. Cancer Research UK supports research into the prevention and treatment of cancer through the work of over 4,000 scientists, doctors and nurses. In the last 50 years, the charity has helped double cancer survival in the UK, with its research playing a role in more than half of the world's essential cancer drugs.

Cancer Research Wales is the Welsh cancer research charity. Since 1966, Cancer Research Wales has invested over £35 million to fund the best researchers, clinicians and health professionals to push the boundaries of cancer research here in Wales. Our research delivers hope for people affected by cancer today and will transform the future for the patients of tomorrow and tackle cancer inequalities in Wales. All our research spending is spent here in Wales. We currently have over £7,600,000 invested in 40 live projects that are researching quicker diagnosis and better and kinder treatments for cancer.

Velindre Cancer Service provides non-surgical tertiary oncology services: we are a specialist treatment, teaching, research and development centre for non-surgical tertiary oncology services to patients from across South East Wales serving a population of 1.7 million. **Cardiff Cancer Research Partnership (CCRP)** is a partnership between Velindre Cancer Services, Cardiff and Vale University Health Board and Cardiff University. The CCRP is building on our proven track record of delivering pioneering cancer research to become Wales' leading cancer research centre. The CCRP will unite leading academics, clinical partners and Welsh stakeholders to deliver the future of bold, complex cancer research to over 3.4 million citizens.

Meet our sponsors

Conference bronze sponsors

Advanced Therapies Wales | Therapiau Datblygiedig Cymru

Working to deliver the benefits of advanced therapies to improve health, wellbeing and prosperity of the people of Wales.

Molomix Bioscience

Based in south Wales, Molomix Bioscience Limited provides high-performance molecular testing platforms designed to accelerate biotech R&D. As the UK and Ireland partner for SiGENEX, we supply the infrastructure that enables researchers to develop and validate their own proprietary assays for cancer and associated health complications. Crucially, our technology is engineered for seamless transition into clinical settings, allowing the rapid diagnostics developed by our partners to be deployed at the point of need. By bridging the gap between lab-based innovation and clinical delivery, we empower oncology professionals to improve patient outcomes through faster, more accessible testing.

Other exhibitors

WALES CANCER BIOBANK
BIOFANC CANSER CYMRU

Cardiff University | Prifysgol Caerdydd
Centre for Trials Research
Canolfan Ymchwil Treialon

Our funder

Ymchwil Iechyd a Gofal Cymru
Health and Care Research Wales

Health and Care Research Wales is a networked organisation, supported by Welsh Government, which brings together a wide range of partners across the NHS in Wales, local authorities, universities, research institutions, third sector and others. We work in close partnership with other government agencies and research funders (both in Wales and across the UK); industry partners; patients; service users; public and other stakeholders. We work together to promote research into diseases, treatments, services and outcomes that can lead to discoveries and innovations which can improve and even save people's lives.

The Sue Campbell PPIE Award

In memory of patient and public involvement/engagement (PPIE) Research Partner, Sue Campbell

The Sue Campbell PPIE Award honours the memory of Sue Campbell, a dedicated advocate for meaningful patient and public involvement in cancer research. As a cancer survivor, Sue brought lived experience, compassion, and determination to her work—particularly in pelvic cancers and radiotherapy, including proton beam therapy.

Sue served for six years as Chair of the Wales Cancer Biobank (WCB) Lay Liaison and Ethics Group, where she introduced the inclusion of lay members on all WCB committees. A founding member of the Wales Cancer Research Centre Patient and Public Involvement Research Partner Group, she contributed actively despite health challenges, supporting the Radiotherapy CReST Theme and multiple multidisciplinary research groups. She also helped develop the internationally-used PIRIT Impact and Planning Tool for PPI and was a valued member of the Centre for Trials Research Public Involvement and Engagement Hub. Sue's insight enhanced many studies and trials, including EAGLE, COPELIA, VALTIVE 1, Gastroscope, Add-Aspirin CRC, PivotalBoost and Socrates.

This year, the Sue Campbell PPIE Award will be presented to the poster demonstrating the best examples of patient and public involvement in research, reflecting Sue's commitment to collaboration, inclusion, and impact.

Clinical Research Award

In memory of Dr Laura Bunting

We remember Dr Laura Bunting with deep gratitude for her outstanding support of the Wales Cancer Research Centre. Through her work with Health and Care Research Wales, Laura championed collaboration, helped to strengthen research capacity, and ensured that patients remained at the heart of innovation. She was respected not only for her leadership and vision, but also for her warmth, integrity, and encouragement of others.

In recognition of her exceptional support and contributions, the Wales Cancer Research Centre is dedicating the 'Clinical Research Award' at the Wales Cancer Research Conference 2026 to Laura, presenting it as a tribute to her commitment to advancing cancer research and improving outcomes for patients across Wales.

For this award, the poster judges select the poster they deem to demonstrate the work with the most impact or potential impact in clinical practice, in keeping with the enduring legacy that Laura has left.

Conference Awards

Alongside the Sue Campbell PPIE Award and the Clinical Research award, dedicated to Dr Laura Bunting, a further two prizes will be presented in the categories below.
In all cases, the judges are looking for the work to be articulated clearly and concisely, with a coherent rationale and well-thought-out future plans.

Scientific Excellence Award

The cancer research community in Wales has an excellent track record of delivering cutting-edge work in fields that cover the whole range of the six CReSt themes, encompassing lab work, qualitative and quantitative studies, data science and much more.
For the Scientific Excellence award, the judges will be scrutinising the posters showcasing non-clinical work, spanning all applications of basic, data and discovery science.

Best Lightning Talk Award

Following a comprehensive review by the CReSt Theme Leads and members of the EMCR Committee, six submitters have been chosen to deliver a lightning talk, one representing each of the CReSt themes:

- Precision and mechanistic oncology: Dr Ella Reed, Cardiff University
- Immuno-oncology: Mélanie Boudaud, Swansea University
- Radiotherapy: Dr Muhammad Usman Akbar, Cardiff University
- Cancer clinical trials: Dr Sean Johnson, Cardiff University
- Palliative and supportive oncology: Dr Nichola Gale, Cardiff University
- Population health-based cancer prevention and early diagnosis: Dr Harriet Quinn-Scoggins, Cardiff University

The winner of the Best Lightning Talk Award will be selected by an audience vote.

The voting will be open from 12.30pm - 3pm. Please use the QR code to vote for your favourite lightning talk.

This can be a reflection on the scientific merit of the work, the presentation skills and clarity of the speaker, the novelty of the work, or a combination of any/all of these factors.
You may only vote once, and your vote will be anonymous.

Canolfan Ymchwil Canser Cymru | Wales Cancer Research Centre

Conference speakers

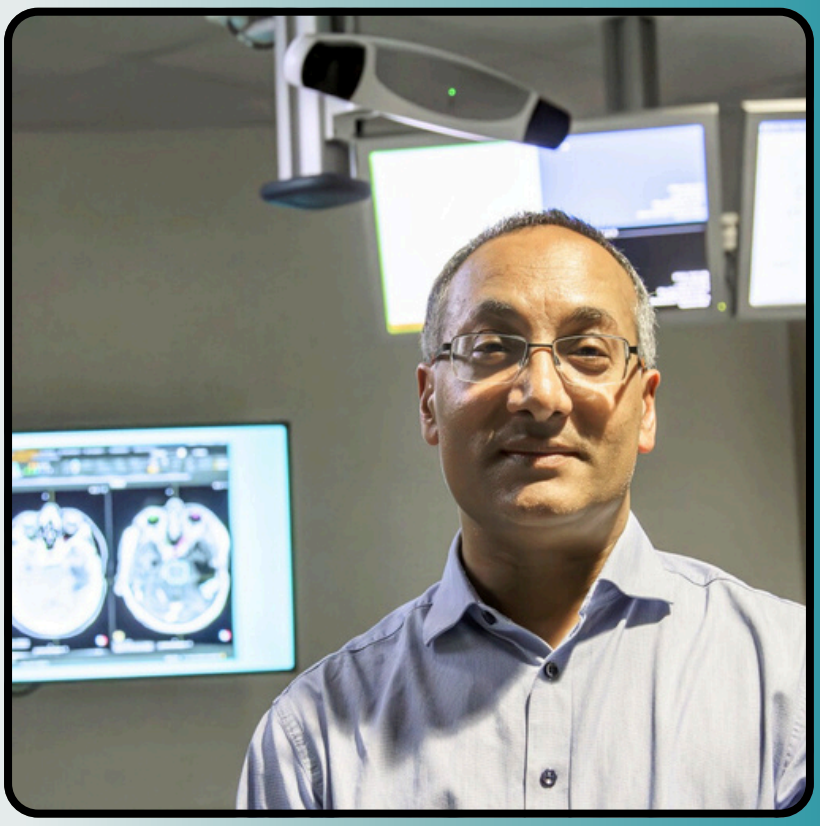
Conference Chair

Prof Mererid Evans
(Director, Wales Cancer Research Centre)

Professor Mererid Evans is the director for the Wales Cancer Research Centre, as well as a consultant clinical oncologist at Velindre Cancer Centre in Cardiff, specialising in head and neck cancer.

A graduate of the University of Wales College of Medicine, she received a PhD in 2001 for her research into immune responses to Human Papillomavirus (HPV) in patients with cervical cancer. Professor Evans is now chief investigator of three multi-centre clinical trials (PATHOS, Best-Of and PEARL) which all seek to develop kinder treatments for patients with head & neck cancer.

09:40 - Keynote speaker



Prof Rajesh Jena
(University of Cambridge)

Raj Jena is a Professor of AI in Radiation Oncology based at the University of Cambridge Department of Oncology and Cambridge University Hospitals. His research interests focus on clinical image processing, data science and machine learning applications. Raj is the chief investigator for Hamlet.rt, a multi-centre radiomics study in radiation therapy open at over 12 sites over the UK and Tata medical centre in Kolkata. He is a member of the Royal College of Radiologists' AI in Clinical Oncology (AICO) committee.

Raj enjoys working at the interface between the clinical, academic and commercial sectors, including in successful collaborations with Siemens and other imaging companies, and he works as a clinical consultant to the Health Futures team at Microsoft Research. Raj has had the opportunity to work with thought leaders in medical image analysis, and subsequently led the NHS AI lab funded OSAIRIS project, which developed the first cloud based, open source imaging AI solution to be deployed at Addenbrooke's Hospital.

Raj is now applying his knowledge of machine learning and image processing to the STELLA project, an international collaboration developing a novel smart radiotherapy unit for low- and middle-income countries.

11:30 - Keynote speaker

Prof Dame Theresa Marteau (University of Cambridge)

Professor Emerita Dame Theresa Marteau is a psychologist and behavioural scientist in the Clinical School at the University of Cambridge, and Honorary Fellow at Christ's College, Cambridge.
Her research interests include:

1. Development and evaluation of interventions to change behaviour - principally diet, tobacco and alcohol consumption – to improve population health equitably and sustainably, with a particular focus on targeting non-conscious processes
2. Acceptability to the public and policy makers of government intervention to change behaviour

Her book 'Pushback: How We Can Change Our Behaviour to Build a Thriving World' is due to be published by The Bodley Head in January 2027.

13:35 - Keynote speaker

Prof Kevin Harrington
(Institute of Cancer Research)

Kevin Harrington is Head of the Division of Radiotherapy and Imaging at The Institute of Cancer Research (ICR)/Royal Marsden Hospital (RMH) and Co-Director for the ICR/RM CRUK RadNet Centre of Excellence.

His research group focuses on radiosensitisation through ATR inhibition, innate, STING-mediated immune agonism and herpes viruses as oncolytic immunotherapies. He holds two CRUK programme grants in support of this work. He received the 2019 British Association of Head and Neck Oncology (BAHNO) President's Achievement Award and was the 2021 Semon Lecturer (Royal Society of Medicine), the 2023 Elia Lecturer (Princess Margaret Cancer Centre, Toronto) and the 2024 Tata Orator (Tata Medical Centre, Kolkata).

He has published >675 peer-reviewed publications and >50 book chapters [H index 121; i10 index 603]. He was a Clarivate Highly Cited Researcher in 2021, 2022, 2023 and 2024.

15:30 - Keynote speaker

Dr Alastair Lamb
(Barts Cancer Institute)

Alastair Lamb is a Cancer Research UK funded clinician scientist & urologist based at Barts Cancer Institute and Guys Hospital in London. He runs a scientific group called SPACE (Spatial Prostate Assessment and the Circulating Environment), whose main interest is the molecular basis of localised prostate cancer. His lab interrogates spatial clonal biology to unpack prostate cancer heterogeneity, with a focus on identifying and defining clonal lethality. The longer term objective is to change the paradigm of prostate cancer screening, diagnosis and treatment. The first part of this work was published in Nature in 2022, with a follow up analysis in Molecular Cancer in 2023.

Alastair is also involved in clinical trials research, as co-chief investigator of the TRANSLATE Trial, and a local investigator for the ATLANTA, PROMOTE and FINESSE Trials. Alongside this he set up the QUANTUM Biobank at Oxford to facilitate tissue collections complementing research into urological malignancies.

Clinically, he manages patients across the full spectrum of localised prostate cancer from prostate specific antigen (PSA) test counselling, through diagnosis, surveillance, and robotic prostatectomy. He introduced local anaesthetic transperineal (LATP) prostate biopsy to Oxford as well as a prostatectomy planning meeting to ensure robust discussion of all cases and a consensus approach to operative steps, on the basis that intentionality and teamwork matters in complex surgery.

10:15 - Lightning talks

Precision and mechanistic oncology

Dr Ella Reed
(Cardiff University)

Dr Ella Reed is a Postdoctoral Research Associate at Cardiff University. After completing her PhD studying parasite infection in colorectal cancer, she then worked with Dr Beatriz Salvador investigating the heterogeneity of pancreatic cancer initiation. She now works with Dr Catherine Hogan to better understand mechanisms by which mutant cells avoid elimination in the pancreas. She has a strong interest in integrating computational biology with experimental laboratory work. Her goal is to bridge bioinformatic analysis and wet-lab research to gain a more comprehensive understanding of how epithelial-immune cell-cell communications contribute to pancreatic cancer initiation.

Immuno-oncology

Mélanie Boudaud
(Swansea University)

Mélanie Boudaud is a PhD student who recently joined Swansea University in Prof Steven Conlan's group as part of a joint PhD programme with the University of Grenoble, France. Her project focuses on developing a novel therapy for ovarian cancer, targeting both the tumour and its microenvironment. Her research integrates mouse models and patient-derived clinical samples, with the goal of advancing this therapeutic approach toward clinical relevance.

Radiotherapy

Dr Muhammad Usman Akbar
(Cardiff University)

Muhammad Usman Akbar is a postdoctoral researcher in medical imaging and computational science at Cardiff University (CUBRIC). His research focuses on diffusion MRI, neuroimaging, and deep learning, with an emphasis on advanced image analysis, applied artificial intelligence, and the development of data-driven research tools.

10:25 - Wales in Profile

Advancing cancer clinical trials in Wales, and tackling neurotoxicity in immunotherapy

Dr Ricky Frazer (Velindre Cancer Centre)

Dr Ricky Frazer is a Consultant Medical Oncologist at Velindre Cancer Centre (VCC), specialising in renal cancer, skin cancer, and acute oncology. He is Clinical Lead for the Acute Oncology Assessment Unit, Immunotherapy Toxicity Management Service, and Advanced Cellular Therapies at VCC. He is a Royal College of Physicians College Tutor, Honorary Lecturer at Cardiff University, and Programme Director for the GMC-accredited Postgraduate Diploma and MSc in Medical Oncology at the University of Buckingham. Nationally, Dr Frazer serves as Vice President of the Immuno-Oncology Clinical Network and co-leads the National Immuno-Oncology Education Forum. He is a founding member of the UK Renal Oncology Collaborative (UK ROC) and co-founder of The Immunobuddies podcast, launched in 2023, which has global reach. His contributions to leadership, education, and innovation have been recognised with multiple awards, including Velindre NHS Trust's Individual Leader of the Year (2023 and 2024).

Dr Mark Willis (University Hospital of Wales)

Mark Willis graduated in medicine from Cardiff University, having also completed an intercalated BSc in cellular and molecular pathology. He undertook neurology specialist training across South Wales, during which time he completed a PhD from Cardiff University in the field of MS immunology - supported by a clinical research training fellowship from the Wellcome Trust. Dr Willis was appointed as a consultant neurologist with a specialist interest in neuroinflammatory disease at the University Hospital of Wales, Cardiff, in 2022. He continues to have active research interests in multiple sclerosis, and in the neurological complications of novel cancer immunotherapy, including immune checkpoint inhibitors (ICI) and CAR-T cell therapy. Dr Willis sits on the national ICI-neurotoxicity MDT, is a member of the education committee of the Association of British Neurologists and contributes regularly to educational events for the immuno-oncology clinical network.

12:05 - Lightning talks

Dr Sean Johnson
(Cardiff University)

Cancer clinical trials

Sean is a Data Analyst at the Centre for Trials Research (CTR), Cardiff University working across clinical trials, with a focus on haematology and solid tumour research. His interests centre on maximising the scientific and patient benefit of clinical trial data through responsible data sharing.

Dr Nichola Gale
(Cardiff University)

Palliative and supportive oncology

Dr Nichola Gale is Senior Lecturer in Physiotherapy at Cardiff University. She is currently working on the inclusive prehabilitation for patients with cancer, funded by the NIHR. She co-leads CAHPR (Cymru) and research capacity building at Velindre University NHS Trust.

Dr Harriet Quinn-Scoggins
(Cardiff University)

Population health-based cancer prevention and early detection

Harriet is a Research Associate in Cancer Screening, Prevention and Early Diagnosis in PRIME Centre Wales, Cardiff University. With a background in Medical Anthropology, her work has a strong focus on health equity and the intersectionality of the fundamental determinants of health and the complex interactions of social and other identities for under-represented and high-risk/incidence groups.

12:15 - Sponsor spotlight

Moondance Cancer Initiative

CADARN: A new system-level intervention to unlock the potential of cancer research across Wales

Prof Jared Torkington – Clinical Director, Moondance Cancer Initiative

In this session, Prof Jared Torkington will introduce CADARN — a new system-level intervention to unlock the potential of cancer research across Wales. Developed by Moondance Cancer Initiative, CADARN adapts the proven GRECCAR model from France, which fosters national collaboration and rapid implementation, and tailors it to the Welsh context, with a focus on equity and clinical relevance.

This session will demonstrate how the CADARN framework concentrates collective effort around tumour-specific national rounds, tackling long-standing barriers to bring structure and shared focus to drive faster, fairer delivery. It will include an update from the inaugural colorectal cancer round, which took place at the end of 2025, and provide details on the upcoming round, focused on breast cancer.

14:10 - Wales in Profile

Tackling cancer challenges in Wales: Novel drug delivery systems in the brain

Prof William Gray (Cardiff University)

William (Liam) Gray is Professor of Functional Neurosurgery at Cardiff University and Honorary Consultant Neurosurgeon at the University Hospital of Wales. He is Director of the Advanced NeuroTherapies Centre (ANTC), a Health and Care Research Wales funded research centre for the development and delivery of Advanced Therapies Medicinal Products (ATMPs) to the brain in early phase clinical trials. He is UK CI for the uniQure AMT-130 gene therapy trial for Huntington's Disease, and PI for gene therapy trials in Fronto-Temporal Dementia (Aviadobio) and Parkinson's Disease (AskBio). He is also the Clinical Lead for Advanced Therapies Wales and Midlands Wales Advanced Therapy Treatment Centres.

Dr Ben Newland (Cardiff University)

Ben Newland joined the School of Pharmacy and Pharmaceutical Sciences at Cardiff University in 2017 to set up his highly interdisciplinary research team which predominantly focuses on developing drug delivery systems to repurpose existing drugs for brain tumour therapeutics.

14:45 - Patient Voice

Molly Fenton

Molly Fenton BCAh is a health activist living with a brain tumour, and the first Welsh Young Ambassador for The Brain Tumour Charity. Molly's channeling her experience through activism from starting a podcast to speaking at the United Nations, working to have difficult conversations to break stigmas and achieve better health equity for young Welsh people.

16:20 - Debate

Debate motion: “We should perform whole genome sequencing as standard for every cancer in Wales”

Dr James Calvert (Welsh Government)

Dr James Calvert is Deputy Chief Medical Officer for Wales and National Clinical Director for NHS Wales. He Chairs the Welsh Government Cancer Board. NHS Wales is committed to advancing precision medicine across the country and providing Welsh Patients with the widest possible access to Oncology Research trials. A respiratory physician by background, Dr Calvert has held senior leadership roles across the NHS and has led national audits, service redesigns, and research collaborations in public health and service delivery.

Ms Sian Morgan (All Wales Medical Genomics Service)

Sian Morgan, FRCPath is a Consultant Clinical Scientist within the All Wales Medical Genomics Service (AWMGS). A Consultant Clinical Scientist with over 35 years of experience Sian, has overseen and led on strategic relationships and alliances leading to improved diagnostic pathways and implementation of new genomic services within the NHS in Wales. Sian also holds an honorary senior research fellowship with Cardiff University.

Prof Richard Adams (Cardiff University and Velindre Cancer Centre)

Richard is Professor of Clinical Trials at Cardiff University and holds several leadership roles in cancer research and clinical practice. He is Lead for the Wales Tackling Cancer Through Research Initiative, Clinical Director of the Centre for Trials Research (CTR)—a large UKCRC-accredited Clinical Trials Unit—Clinical Director of the Wales Cancer Biobank, and Honorary Consultant Clinical Oncologist at Velindre Cancer Centre and Cardiff & Vale University Health Board.

Through the Tackling Cancer Through Research Initiative, Richard works across health boards, trusts, and disciplines to foster a vibrant culture of clinical research engagement and delivery, with the aim of improving cancer care in Wales.

Richard’s clinical practice and research focus on lower gastrointestinal cancers. He chairs the British Colorectal Oncology Group and represents both this group and Wales on the United Kingdom Collaboration on Cancer Clinical Research (UK3CR). He is actively involved in national and international organisations, including the International Rare Cancer Initiative (IRCI, for anal cancer), the ARCAD Foundation executive, and the European Gastro-Intestinal Cancer Collaboration (ENGIC).

16:20 - Debate

Prof Awen Gallimore (Cardiff University)

Prof. Awen Gallimore is a professor within the Division of Infection Immunity and Co-Director of Systems Immunity Research Institute at Cardiff University. She gained a DPhil in Professor Andrew McMichael's laboratory in Oxford, studying the immune response to simian and human immunodeficiency viruses. With a Wellcome Trust travelling fellowship she subsequently moved to the laboratory of the Nobel laureate Professor Rolf Zinkernagel to further study factors important for anti-viral immunity. She established her laboratory in the Nuffield Department of Medicine in Oxford to look at ways of persuading the immune system to recognise cancer. Awen moved to Cardiff in 2002 and shortly afterwards gained a senior fellowship from the MRC to expand the lab. The Cardiff lab, which currently receives funding from Cancer Research UK, Cancer Research Wales, Breast Cancer Now and The Wellcome Trust takes basic research using model systems of cancer through to testing novel immunotherapies in patients with cancer.

Prof Kevin Harrington (Institute of Cancer Research)

Kevin Harrington is Head of the Division of Radiotherapy and Imaging at The Institute of Cancer Research (ICR)/Royal Marsden Hospital (RMH) and Co-Director for the ICR/RM CRUK RadNet Centre of Excellence.

His research group focuses on radiosensitisation through ATR inhibition, innate, STING-mediated immune agonism and herpes viruses as oncolytic immunotherapies. He holds two CRUK programme grants in support of this work. He received the 2019 British Association of Head and Neck Oncology (BAHNO) President's Achievement Award and was the 2021 Semon Lecturer (Royal Society of Medicine), the 2023 Elia Lecturer (Princess Margaret Cancer Centre, Toronto) and the 2024 Tata Orator (Tata Medical Centre, Kolkata).

He has published >675 peer-reviewed publications and >50 book chapters [H index 121; i10 index 603]. He was a Clarivate Highly Cited Researcher in 2021, 2022, 2023 and 2024.

Canolfan Ymchwil Canser Cymru | Wales Cancer Research Centre

Conference abstracts

Please do not share or reproduce abstract, poster or presentation content from this event; please treat data presented as confidential.

Peidiwch â rhannu nac atgynhyrchu cynnwys crynodeb, poster na chyflwyniad o'r digwyddiad hwn; dylech drin data a gyflwynir yn gyfrinachol.

Contents

Lightning talk abstracts 36

Theme 1: Precision and mechanistic oncology abstracts 42

T1A1 - 10 42

T1A11 - 20 52

T1A21 - 30 62

T1A30 - 35 71

Theme 2: Immuno-oncology abstracts 77

T2A1 - 10 77

T2A11 - 18 87

Theme 3: Radiotherapy abstracts 96

T3A1 - 10 96

T3A11 - 15 106

Theme 4: Cancer clinical trials abstracts 111

T4A1 - 4 111

Theme 5: Palliative and supportive oncology abstracts 115

T5A1 - 7 115

Theme 6: Population health-based cancer prevention, detection, primary care and health service research abstracts 122

T6A1 - 10 122

T6A11 - 20 132

T6A21 - 23 142

Theme 1: Precision and mechanistic oncology

T1A0P

Unveiling the heterogeneity of pancreatic cancer initiation: a novel perspective on epithelial-immune cell-cell Interactions

Ella Reed[1], Reuben Asher[2], Pilar Acedo Nunez[2], Catherine Hogan[1] and Beatriz Salvador-Barbero[1]

1. ECSCRI, School of Biosciences, Cardiff University, Cardiff, UK
2. UCL Institute for Liver and Digestive Health, London, UK

Introduction: Understanding mechanisms underlying pancreatic cancer (PC) initiation is essential for identifying early biomarkers and preventing disease progression. PC typically initiates from KRAS mutant cells within a pro-inflammatory tissue environment, where immune cell infiltration and injury-associated signalling promote acinar-to-ductal metaplasia (ADM) and early neoplastic progression. However, how interactions between mutant epithelial cells and the immune microenvironment contribute to early PC development remains poorly understood.

Methods: A sporadic mouse model of PC was used to induce KrasG12D mutations in ~20% of epithelial cells, with tissue collected across stages of disease progression. Single-cell RNA sequencing of banked mouse pancreatic tissue was used to characterise cellular composition and infer cell–cell communication networks using CellChat and NicheNet. Spatial transcriptomics of human pancreatic tissue was conducted using the CosMx platform and key signalling axes were validated by immunofluorescence.

Results: Cell–cell communication analysis revealed significant ligand–receptor interactions between epithelial-immune cells, including App–Cd74. Spatial transcriptomics confirmed App expression in ductal cells within PanINs and tumours and Cd74 expression in infiltrating immune cells. The App–Cd74 interaction was most prominent at the low-grade PanIN stage and was validated at the protein level, suggesting a role in early disease initiation and immune evasion. NicheNet analysis further identified inflammatory and wound-healing-associated signalling pathways predicted to enhance App transcription.

Conclusion: These findings identify App–Cd74 signalling as a novel epithelial–immune communication axis in early PC and highlight the importance of inflammatory cell–cell interactions in tumour initiation, with potential implications for early detection and therapeutic interception.

Funding acknowledgment: Pancreatic Cancer UK

Targeting Ovarian Cancer and Its Microenvironment: A Novel Synergistic Approach Combining RAGE-Directed Antibody–Drug Conjugate and Prokineticin-2

Mélanie Boudaud[1,2,3], Constance Collet[2,3], Frédéric Sergent[2,3], Alizée Jacquard[2,3], Nicolas Lemaitre[2,3], Sara Karroum[2,3], Mohamed Benharouga[2,3], Deya Gonzalez[1], Nadia Alfaidy[2,3], Steve Conlan[1]

1. Reproductive Biology and Gynaecological Oncology (RBGO), Swansea University Medical School
2. Commissariat à l'Energie Atomique (CEA)
3. UMR 1292 INSERM/CEA/UGA, Mechanism of Angiogenesis in Biological Barriers (MAB2), Biology and Biotechnology for Health Laboratory (IRIG)

Ovarian cancer (OC) ranks as the sixth most prevalent cause of cancer-related death among women in the UK and is the most lethal gynaecological malignancy. Due to the absence of discernible symptoms at its early stages, OC is frequently diagnosed at advanced stages, when the tumour has already metastasised to near and distant organs. This delayed diagnosis results in recurrent resistance to conventional treatments underscoring the pressing need to identify novel therapeutic targets.

Recently, we have developed an Antibody–Drug Conjugate (ADC) targeting the Receptor for Advanced Glycation End Products (RAGE), a protein highly expressed in OC. To evaluate its efficacy we developed an orthotopic syngenic murine model. By selectively delivering the cytotoxic agents to tumour cells in vivo, we determined the efficacy of RAGE-ADC.

While targeting tumour cells in OC is essential, it appears also relevant to consider the tumor microenvironment (TME). We have recently discovered a key player within the TME: prokineticin2 (PROK2) protein that is highly expressed in the TME and may control OC tumour growth through the inhibition of adipocyte differentiation, a TME component known to feed tumour cells.

We will highlight our recent discoveries a potential synergistic effect of RAGE-ADC with PROK2. Indeed, we will demonstrate how compound treatment resulted in a greater reduction in OC cell proliferation compared to individual treatments. Consequently, it appears that PROK2 acts both on the TME and directly on OC cells synergistically with RAGE-ADC.

Funding acknowledgment: This work was supported by a PhD fellowship from Swansea University and Grenoble-Alpes University

Theme 3: Radiotherapy

T3A0P

Microstructural imaging of Glioblastoma tumours using ultra-strong gradient and multi-dimensional diffusion MRI

Muhammad Usman Akbar[1,2], Michael Law[1], Jennifer Golten[1,3], Najmus Sahar Iqbal[3], Elise Gwyther[4], George Eralil[3], Harpreet Hyare[5], Hannah Khirwadkar[6], Kathy Seddon[7], Matteo Figini[8], Eleftheria Panagiotaki[8], Florien Siebzehnrubl[9], Sarah Jones[1], Tara Davies[1], Derek Jones[1], James Powell[3], Marco Palombo[1,2]

1. Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff University, Cardiff, United Kingdom
2. School of Computer Science and Informatics, Cardiff University, Cardiff, United Kingdom
3. Velindre cancer centre, Velindre Rd, CF14 2TL, Cardiff, United Kingdom
4. Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff, United Kingdom
5. Department of Translational Neuroscience and Stroke, UCL Queen Square Institute of Neurology, University College London, London, United Kingdom
6. Swansea Bay University Health Board, Morriston Hospital, United Kingdom
7. Public and Patient Representative, Wales Cancer Research Centre, United Kingdom
8. Hawkes Institute, Department of Computer Science, University College London, London, United Kingdom
9. European Cancer Stem Cell Research Institute, Cardiff University, Cardiff, United Kingdom

Glioblastoma (GBM) is the most aggressive adult primary brain tumour and almost invariably recurs despite maximal resection followed by chemoradiotherapy. Because GBM is highly heterogeneous and repeat biopsies are risky, clinicians need sensitive, non-invasive imaging markers that delineate infiltrative disease, support treatment planning, and track response earlier than conventional MRI.

In the MIMOSA study, we acquired multi-contrast diffusion MRI on an ultra-strong gradient clinical scanner and analysed the data with a fully automated pipeline that generates whole-brain maps of microstructural tissue properties. For clinically interpretable summaries, we generated computed tumour-centric radial profiles that quantify how imaging signatures change from the lesion core to the enhancing boundary and into peritumoral tissue, enabling within-patient comparison and visualisation of tumour gradients. Initial evaluation included five patients spanning meningioma, diffuse midline glioma and glioblastoma multiforme demonstrating feasibility across diverse tumour phenotypes.

Across glioblastoma cases, the profiles consistently revealed three zones: (i) a central necrotic/edematous core, (ii) a diffusion-restricted, hypercellular rim, and (iii) an abnormal peritumoral region with persistent deviation from healthy tissue beyond the contrast-enhancing boundary, suggesting residual infiltration not captured by standard imaging. These patient-specific signatures provide candidate imaging biomarkers to refine surgical and radiotherapy margins, support risk-adapted follow-up, measure response, and inform earlier detection of recurrence. Ongoing work will validate these biomarkers in larger cohorts, assess test–retest robustness, and evaluate their prognostic utility for progression-free survival and patterns of failure.

Funding acknowledgment: This work is funded by UKRI Future Leaders Fellowship (MR/T020296/2 and 1073) and Cancer Research Wales (MIMOSA study). MP is funded by UKRI Future Leaders Fellowship (MR/T020296/2 and 1073) and the MRC Research Grant MR/W031566/1. MA is funded by Cancer Research Wales (MIMOSA study). The first two authors contributed equally, and the last two authors contributed equally.

Theme 4: Cancer clinical trials

T4A0P

Baseline symptom burden and quality of life in newly diagnosed myeloid malignancies: Results from the international PROACTIVE project

Sean Johnson[1], Fabio Efficace[2], Adriano Venditti[3], Thomas Baldi[2], Joanna Canham[1], Abin Thomas[1], Giovanni Martinelli[4], Alfonso Piciocchi[2], Mike Dennis[5], Steve Knapper[6], Nigel H Russell[7], Maria Teresa Voso[3], Marco Vignetti[2], Ian Thomas[1]

1. Centre for Trials Research, Cardiff University, Cardiff, United Kingdom
2. Italian Group for Adult Hematologic Diseases (GIMEMA), Data Center and Health Outcomes Research Unit, Rome, Italy.
3. Department of Biomedicine and Prevention, University of Rome Tor Vergata, Rome, Italy
4. IRCCS Istituto Scientifico Romagnolo per lo Studio dei Tumori "Dino Amadori" IRST S.r.l, Meldola, Italy.
5. The Christie NHS Foundation Trust, Manchester, United Kingdom
6. School of Medicine, Cardiff University, Cardiff, United Kingdom
7. Department of Haematology, Nottingham University Hospital, Nottingham, UK

Background: Advances in the treatment of myeloid malignancies have increased the importance of health-related quality of life (HRQoL) in clinical decision-making. However, evidence describing baseline HRQoL and symptom burden in patients with acute myeloid leukemia (AML), acute promyelocytic leukemia (APL), and myelodysplastic syndromes (MDS) remains limited.

Objectives: To assess the prevalence of clinically important symptoms at diagnosis in patients with AML, APL, and MDS, and to compare baseline HRQoL profiles across these diseases.

Methods: Data were obtained from the PROACTIVE project, an international initiative pooling patient-reported outcome data, including the EORTC QLQ-C30. Data from NCRI-UK trials and GIMEMA studies were combined. Analyses included patients with valid baseline HRQoL questionnaires (n=3,349). The cohort comprised 2,046 AML patients, 1,078 MDS patients, and 225 APL patients. Clinically important symptoms were defined using established QLQ-C30 thresholds. Multivariable linear regression models, adjusted for age and sex, were used to compare HRQoL scores across diagnoses, with AML as the reference group.

Results: At diagnosis, symptom burden was substantial. The most prevalent clinically important symptoms were dyspnea (69%), nausea/vomiting (58%), pain (48%), fatigue (40%), and appetite loss (24%). Symptom prevalence varied by disease, with APL patients generally reporting the highest burden. Compared with AML, APL patients showed worse clinically relevant HRQoL across multiple domains, while MDS patients reported better HRQoL in several symptom and functional scales.

Conclusions: Patients with AML, APL, and MDS experience significant symptom burden at diagnosis, with distinct disease-specific HRQoL profiles. These findings support incorporating patient-reported outcomes into baseline assessment and future longitudinal analyses.

Funding acknowledgment: The NCRI AML trials were funded by Cancer Research UK

Theme 5: Palliative and supportive oncology

T5A0P

The Feasibility of Inclusive Prehabilitation (I-Prehab) Education for Cancer Care Workers

Nichola Gale[1], Alexandra Mitchell[1], Akhilesh Ramachandran[1], Manasi Patil[1], Sally Wheelright[2], Jane Hopkinson[1], Shea Palmer[1]

1. School of Healthcare Sciences, Cardiff University
2. Brighton and Sussex Medical School, University of Sussex

Introduction: Prehabilitation (Prehab) improves cancer treatment outcomes by supporting physical activity, nutrition, and emotional resilience. However, access and adherence to cancer prehab remains inequitable, particularly for people from minority ethnic backgrounds and socioeconomically disadvantaged communities. To address this, we co-produced online Inclusive Prehabilitation ('I-Prehab') education to help cancer care workers facilitate access and adherence to prehabilitation for all people with cancer. This study tested the feasibility of delivering and evaluating I-Prehab amongst cancer care workers.

Methods: I-Prehab was launched at four sites in the UK through a mixture of in-person, online and hybrid roadshows. The primary feasibility outcomes were recruitment to and completion of I-Prehab education. Questionnaires pre- and post-education assessed knowledge of six aspects of inclusive prehabilitation practice using bespoke questions (six-point scale: strongly agree to strongly disagree), and confidence in healthcare-related communication using the Self-Efficacy 12 measure (maximum score = 120).

Results: In total 126 cancer care workers accessed the I-Prehab roadshows and 97 completed the pre-education questionnaire. 80/97 (82%) completed all six I-Prehab modules and the post-education questionnaire. Self-reported knowledge of inclusive prehabilitation practices increased in all six areas assessed. Self-Efficacy-12 scores improved from median Pre: 89 to Post 106 ($p<0.001$), indicating improved confidence in healthcare-related communication.

Conclusion: The results indicate recruitment to, and completion of I-Prehab education and its evaluation were feasible. Knowledge of inclusive prehabilitation practices and confidence in healthcare-related communication improved. I-Prehab education offers a novel way to equip cancer care workers with the knowledge and skills needed to deliver equitable, person-centred prehabilitation.

Funding acknowledgment: Funded by The National Institute for Health and Care Research (NIHR), Health and Social Care Delivery Research Programme (Award ID: NIHR151668).

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6AOP

Preparing healthcare providers and policy makers for equitable and informed implementation of Multi-Cancer Early Detection (MCED) blood tests

Harriet Quinn-Scoggins[1], Delyth Price[1], Uju Ogbonna[2], Richard Adams[3], Rikke Andersen[4], Julie Hepburn[5], Rashmi Kumar[5], Laura Marlow[6], Fiona Wood[1], Kate Brain[1]

1. PRIME Centre Wales, Division of Population Medicine, Cardiff University
2. Division of Population Medicine, Cardiff University
3. Centre for Trials Research, Cardiff University
4. Department of Public Health, Research Unit of General Practice, University of Southern Denmark
5. Lay Representative
6. Centre for Cancer Prevention, Screening and Early Diagnosis, Queen Mary University of London

Background: Multi-Cancer Early Detection blood tests (MCEDs) could advance cancer diagnosis, pending further evidence of clinical utility and consideration of diagnostic infrastructures. Developing appropriate training, information, person-centred communication strategies and resources will be critical to ensure that this new technology does not increase existing cancer inequalities if implemented.

Aim: To understand the information and communication needs of healthcare providers and policy makers for MCED blood tests in symptomatic and screening contexts, with a focus on health equity.

Methods: 1:1 key informant interviews. Participants were recruited via established networks and snowballing techniques and were purposively sampled to include: primary and secondary care, a range of roles in cancer symptomatic/screening pathways, a range of knowledge of MCEDs and relevant policy makers from across the UK. Data were transcribed, thematically analysed and mapped to the Socioecological Model.

Results: Twenty-five interviews were conducted. Overall, participants were cautiously favourable towards future implementation of MCED blood tests for both screening and symptomatic diagnosis purposes. Continued consideration of health equity was considered paramount. In the symptomatic context, participants' main concern was communicating the complexity of diagnostic pathways to patients to ensure that they felt supported. For screening, the primary concern was ensuring public understanding of test accuracy and possible under- and over-diagnosis to support informed decision-making.

Implications: Our findings will support a platform for future research to develop and evaluate tailored interventions, training materials and information resources supporting the equitable and informed implementation and delivery of MCED blood tests for diverse populations.

Funding acknowledgment: This work is funded by a Cancer Research UK Early Detection and Diagnosis Primer Award.

Theme 1: Precision and mechanistic oncology abstracts

Theme 1: Precision and mechanistic oncology

T1A1

Targeting FZD7/Wnt Signalling to Treat Metastatic Prostate Cancer

Kieran Hodson[1], Jessica Hembrough[1], Sarah Koushyar[1], Hector Arrendondo[1], Valerie Meniel[1], Helen Pearson[1], Karl Willert[2], Toby Phesse[1]

1. The European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University, Cardiff CF24 4HQ, UK
2. School of Medicine, University California San Diego, La Jolla, CA 92093, USA

Prostate cancer (PCa) is an aggressive malignancy affecting 1 in 8 males in the UK and is the 2nd leading cause of cancer-related mortality in males worldwide (1-2). Despite clinical advances, patients often develop resistance to standard-of-care therapies, commonly leading to aggressive malignancies classified as metastatic castration resistant PCa (mCRPC) (2). Approximately 70% of patients with mCRPC present with tumour within their bones, which correlates with a 30% five-year survival rate, highlighting the urgent clinical need for novel therapies capable of specifically targeting these metastases (2).

The Wnt signalling pathway is an evolutionarily conserved pathway that is commonly dysregulated in cancer (3). Deregulated Wnt signalling is observed in ~18% of mCRPC cases, often at the ligand-receptor level (4-6). We have demonstrated that targeting Wnt signalling, through both the inhibition of PORCN, which prevents ligand secretion, or the knockdown of Wnt receptor FZD7, reduces colony formation and migration in PCa cells, alongside downregulation of Wnt-associated genes. Furthermore, we have shown that PCa cells exhibit an increase in colony formation and migratory capacity when exposed to bone-conditioned media, accompanied by an upregulation of FZD7 expression.

As part of our recent Prostate Cancer UK research grant, we will be utilising the novel antibody drug conjugate septuximab vedotin (FZD7-ADC) to investigate the efficacy of targeting FZD7 in mCRPC bone metastasis, utilising multiple in vivo models (5-7). We shall also explore how Wnt signalling regulates the interaction between PCa cells and the bone metastatic niche.

1. Lloyd, T., Hounsome, L., Mehay, A., Mee, S., Verne, J. and Cooper, A. 2015. Lifetime risk of being diagnosed with, or dying from, prostate cancer by major ethnic group in England 2008-2010. BMC Med 13, p. 171. doi: 10.1186/s12916-015-0405-5
2. Raychaudhuri, R., Lin, D. W. and Montgomery, R. B. 2025. Prostate Cancer: A Review. Jama 333(16), pp. 1433-1446. doi: 10.1001/jama.2025.0228
3. Zhan, T., Rindtorff, N. & Boutros, M. Wnt signaling in cancer. Oncogene 36, 1461–1473 (2017). https://doi.org/10.1038/onc.2016.304
4. Robinson, D. et al. 2015. Integrative clinical genomics of advanced prostate cancer. Cell 161(5), pp. 1215-1228. doi: 10.1016/j.cell.2015.05.001
5. Koushyar, S., Meniel, V. S., Phesse, T. J. and Pearson, H. B. 2022. Exploring the Wnt Pathway as a Therapeutic Target for Prostate Cancer. Biomolecules 12(2). doi: 10.3390/biom12020309
6. Hodson, K. et al. 2025. Targeting Cancer with Paris' Arrow: An Updated Perspective on Targeting Wnt Receptor Frizzled 7. Sci 7(2), p. 61. Available at: https://www.mdpi.com/2413-4155/7/2/61
7. Do, M. et al. 2022. A FZD7-specific Antibody-Drug Conjugate Induces Ovarian Tumor Regression in Preclinical Models. Mol Cancer Ther 21(1), pp. 113-124. doi: 10.1158/1535-7163.Mct-21-0548

Funding acknowledgment: Prostate Cancer UK

Theme 1: Precision and mechanistic oncology

T1A2

Understanding the functional importance of the Wnt receptor FZD7 in prostate tumourigenesis.

Jess Hembrough[1], Kieran Hodson[1], Anna Richards[1], Karl Willert[2], Helen Pearson[1], Toby Phesse[1]

1. The European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University, Cardiff CF24 4HQ, UK
2. School of Medicine, University California San Diego, La Jolla, CA 92093, USA

Prostate cancer is the second most common cancer in men, contributing to 375,000 deaths annually. In prostate cancer, aberrant activation of Wnt signalling is involved in tumour initiation, progression, metastasis and therapeutic resistance (Koushyar et al. 2022). Mutations in core Wnt pathway components (APC and β-catenin) are less frequent in prostate cancer, instead deregulation arises through altered expression of Wnt ligands and receptors.

Frizzled (FZD1 - 10) receptors are members of the G protein-coupled receptor family, serving as primary receptors in the Wnt pathway, that mediate proliferation, differentiation, migration, apoptosis and stem-cell activity. Literature has shown FZD7-mediated Wnt signalling influences progression and metastasis of gastric, colorectal and ovarian cancer (Flanagan et al. 2019; Koushyar et al. 2022). However, the functional importance and therapeutic benefit of targeting FZD7 in prostate cancer has not been explored.

The aim of this research is to elucidate the role of FZD7 in early prostate tumourigenesis and investigate its involvement in the interaction between prostate cancer cells and Cancer-Associated Fibroblasts (CAFs). This will be achieved by a combination of in vitro and in vivo studies with FZD7 overexpressing and knockdown prostate cancer cells. Additionally, a co-culture model of prostate cells and fibroblasts will be established to examine the role of FZD7 during cancer cell-to-fibroblast interactions. This project also looks at the therapeutic effect of a novel FZD7 antibody drug conjugate using in vivo models of prostate cancer (Do et al. 2022).

This study hopes to enhance the functional and molecular understanding of FZD-mediated Wnt signalling during prostate tumourigenesis and provide a novel therapeutic target in prostate cancer.

Do, M. et al. 2022. A FZD7-specific Antibody-Drug Conjugate Induces Ovarian Tumor Regression in Preclinical Models. Mol Cancer Ther 21(1), pp. 113-124. doi: 10.1158/1535-7163.Mct-21-0548

Flanagan, D. J. et al. 2019. Frizzled-7 Is Required for Wnt Signaling in Gastric Tumors with and Without Apc Mutations. Cancer Research 79(5), pp. 970-981. doi: 10.1158/0008-5472.Can-18-2095

Koushyar, S. et al. 2022. Exploring the Wnt Pathway as a Therapeutic Target for Prostate Cancer. Biomolecules 12 (2). doi: 10.3390/biom12020309

Funding acknowledgment: Cardiff University School of Bioscience

Theme 1: Precision and mechanistic oncology

T1A3

Automated Spatial Phenotyping of Fibroblasts in Prostate Cancer: Unlocking Predictive Insights

Anna E Richards[1], Leah Officer-Jones[2], Silvia Martinelli[2], Lisa Spary[3], Rachel L Baird[2], John Le Quesne[2], Helen B Pearson[1]

1. The European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University, Cardiff, UK
2. Cancer Research UK Scotland Institute (CRUK SI), Glasgow, UK
3. Wales Cancer Bank, University Hospital Wales, Cardiff, UK

Early-stage prostate cancer (PCa) has excellent survival rates (>98% at 5 years), yet patients who relapse soon after primary prostatectomy treatment experience markedly poorer outcomes. Identifying individuals at risk of relapse remains a major clinical challenge, with implications for treatment decisions and prevention of overtreatment. Thus, there is an urgent need to identify new biomarkers for primary therapy relapse and to improve our molecular characterisation of PCa to enhance patient care.

Cancer-associated fibroblasts (CAFs) are key regulators of tumour:stroma crosstalk and extracellular matrix remodelling, driving PCa progression and therapy resistance. While transcriptomic studies have highlighted prognostic CAF subpopulations in PCa, current signatures lack cell-type specificity and spatial context. As a highly diverse cell type, no single marker can be used for CAF identification. Therefore, we hypothesise that spatially resolved detection of CAF subpopulations, with subtyping at the protein level, can predict relapse risk in localised PCa.

To test this, we employed high-plex imaging on a tissue microarray (TMA) comprising prostate tumours and matched normal tissue from patients that relapsed within or beyond 5 years post-prostatectomy. Using a custom 40-plex Phenocycler-Fusion immunofluorescence panel, specimens were co-stained for 13 CAF markers, 11 immune markers, and 16 cancer hallmarks. Data from patient specimens (n=99, +matched normal tissue) are informing the development of an automated pipeline to spatially phenotype CAFs within this cohort.

Our goal is to establish the predictive value of CAF abundance/spatial distribution, thereby advancing biomarker discovery and personalised care in PCa.

Funding acknowledgment: Cancer Research Wales, Wales Cancer Research Centre, Health and Care Research Wales, Cancer Research UK

Theme 1: Precision and mechanistic oncology

T1A4

BCL3: a promising therapeutic target to treat prostate cancer

Tabitha Cunliffe[1], Marcos Quintela-Vazquez[1], Daniel J. Turnham[1], Boris Shorning[1], Luke Piggott[2], Robert Jones[3], Andrea Brancale[4], Andrew Westwell[5], Richard W.E. Clarkson[1] and Helen B. Pearson[1]

1. ECSCRI, School of Biosciences, Cardiff University
2. TNA Therapeutics, USA
3. ECMC Cardiff, University Hospital Wales, Cardiff University
4. University of Chemistry and Technology, Prague
5. School of Pharmacy, Cardiff University

Metastatic prostate cancer(mPC) remains the leading cause of mortality among patients with prostate cancer(PC), primarily due to its resistance to conventional treatments such as androgen/AR-targeted therapy(ARTT), thus new therapies are urgently needed. Elevated expression of the oncogenic transcription factor B cell lymphoma 3(BCL3) is frequent in PC, yet it is currently unknown if BCL3 inhibitors are efficacious against PC.

Here, we report that BCL3 is not essential for normal prostate homeostasis in-vivo, and treatment with our novel small molecule BCL3 inhibitor(TNAT-101), is not toxic to normal adult mouse tissues, including prostate. To test the therapeutic benefit of BCL3-targeted therapy against PC, we treated two PC-PDX models with TNAT-101 in-vivo, revealing significant reductions in tumour burden and good tolerability. Supportively, ex-vivo explant cultures from a transgenic mouse PC model also displayed reduced tumour proliferation and apoptosis evasion, indicating BCL3-targeted therapy is effective in an immune competent setting. Although, TNAT-101 treatment of PC-3 subcutaneous advanced PC xenografts revealed insensitivity to BCL3 inhibition, thus upcoming work will seek to identify predictive biomarkers for treatment response to inform the design of a future early-phase clinical trial exploring BCL3 blockade in PC.

Collectively, these findings establish that BCL3 facilitates PC growth and highlight BCL3-targeted therapy as a promising novel therapeutic approach for advanced PC. Future work will explore the functional role of BCL3 in tumorigenesis, ARTT-resistance and metastasis, aiming to determine the stages of disease where TNAT-101 treatments would be the most effective with the ultimate goal of improving survival outcomes and patient care.

Funding acknowledgment: Prostate Cancer UK

Theme 1: Precision and mechanistic oncology

T1A5

Calpain as a novel therapeutic target in breast cancer

Danielle Harper[1], Ivan Shapovalov[1], Jung Yeon Min[1], Samantha Cockburn[1], Anya Aaron[1], Brian J. Laight[1], Yan Gao[1], and Peter A. Greer[1]

1. Division of Cancer Biology and Genetics, Sinclair Cancer Research Institute, Department of Pathology and Molecular Medicine, Queen's University, Kingston, Ontario

Calpains are a family of 15 calcium-activated cysteine proteases that have emerged as potential therapeutic targets in triple-negative breast cancer (TNBC). Calpains regulate substrate function through limited proteolysis and are involved in diverse cell signaling pathways. Calpain-1 and calpain-2, the most studied isoforms, are ubiquitously expressed heterodimers composed of unique catalytic subunits (encoded by capn1 and capn2) and a common regulatory subunit (encoded by capns1). Genetic disruption of capns1 leads to loss of calpain-1 and calpain-2 activity. While active site directed calpain inhibitors exist, they lack specificity due to structural similarities with other proteases. Using genetic approaches, we validated calpain-1 and calpain-2 as relevant therapeutic targets in TNBC, providing rationale for the development of selective calpain-1/2 inhibitors.

Using CRISPR-Cas9, we knocked out capns1 in three TNBC cell lines: MDA-MB-231, AC2M2 and E0771. Cell migration was assessed by video microscopy and spontaneous lung metastasis was evaluated in mouse models. To explore potential off-target effects associated with systemic calpain inhibition, we generated a transgenic mouse strain with conditional deletion of capns1 in the hematopoietic lineage. Immune profiling of tumours and lungs was performed by flow cytometry.

Genetic calpain disruption significantly reduced TNBC cell migration in vitro. In mouse models, capns1 knockout reduced lung metastasis by up to 80%. Conditional deletion of capns1 in hematopoietic cells did not affect TNBC tumour growth or metastasis. Immunophenotyping revealed no significant differences in lymphoid or myeloid compartments of tumour bearing mice. These findings support the development of selective calpain inhibitors as a therapeutic strategy for TNBC.

Funding acknowledgment: Canadian Institutes of Health Research (CIHR)

Theme 1: Precision and mechanistic oncology

T1A6

Investigating the role of P-REX2 in prostate cancer

Samuel C. Hawkins[1], Boris S. Shorning[1], Wytske Van Weerden[2], Heidi C.E. Welch[3], Richard W.E. Clarkson[1], Andrew D. Campbell[4] and Helen B. Pearson[1]

1. The European Cancer Stem Cell Research Institute, Cardiff University, Cardiff, UK
2. ERASMUS Medical University, Rotterdam.
3. Babraham Institute, Cambridge University, Cambridge, UK
4. Cancer Research UK Scotland Institute, Glasgow, UK

Prostate cancer (PCa) is the second leading cause of male cancer related deaths in the UK. Dysregulation of PI3K/AKT signalling, often driven by PTEN loss, occurs in up to 20% and 50% of primary and metastatic PCa cases, respectively. Although PI3K targeted therapies show promise, incomplete pathway suppression frequently leads to resistance, highlighting the need for new therapeutic strategies and predictive biomarkers.

Phosphatidylinositol-3,4,5-trisphosphate-dependent Rac exchange factor 2 (P-REX2), a Rac GEF activates Rac and inhibits PTEN to modulate PI3K/AKT signalling. PREX2 is frequently amplified/mutated in human cancers including melanoma, breast cancer, and PCa. In vivo, melanoma models show P-REX2 loss does not impair tumour growth but enhances MEK inhibition sensitivity, mirroring PI3Kβ inhibition/deletion. These findings raise the possibility of a similar relationship in other epithelial cancers, such as PCa. However, the role of P-REX2 in PCa and its ability to regulate PI3K directed therapy sensitivity remain unknown.

This project investigates the functional significance of P-REX2 during prostate homeostasis, tumorigenesis, and therapeutic resistance using genomic datasets and in vitro/in vivo models. We show PREX2 amplification/mutation occurs in PCa (Primary: 3.5–4%, Metastatic: 5–23%) and positively correlate with poor outcome. Targeting P-REX2 using a small molecule inhibitor (PREX-in1), reduces the migratory capacity of PCa in vitro without affecting cell viability, indicating an anti-metastatic function. Future work aims to explore the role of P-REX2 in vivo using both transgenic mouse models as well as novel studies with PREX-in1 (+/- AKT/MEK inhibition) in both slow progressive and aggressive PCa.

Funding acknowledgment: Prostate Cymru

Theme 1: Precision and mechanistic oncology

T1A7

Exploring the mechanism and predictability of KRASG12D cell elimination mechanisms in the adult pancreas.

Non Williams[1], Beatriz Salvador-Barbero[1], Angela Marchbank[2], Maria Secrier[3], and Catherine Hogan[1]

1. European Cancer Stem Cell Research Institute, Cardiff University
2. Genome & Research Hub, Cardiff University
3. UCL Genetics Institute, University College London

Epithelial tissues are subjected to mutational challenges and have evolved homeostatic defence mechanisms to identify and eliminate aberrant cells. For mutant cells to persist and contribute to cancer development, they must evade this competitive elimination. Pancreatic cancer primarily arises from sporadic KRAS mutations, and our previous work showed that KRASG12D cells compete with normal neighbours for space and survival, with the majority being actively eliminated from the tissue. The pancreas, a slow-proliferating epithelial tissue, relies on cellular plasticity and reprogramming for tissue repair. We recently showed that a subset of KRASG12D cells escape elimination and remain in the tissue by adopting a plastic, dormant state, driven by Wnt5a signalling. Here, we continue to explore the contribution of cellular plasticity to cell elimination in vivo. We hypothesize that non-eliminated KRASG12D cells constitute a progenitor-like population, with enhanced capacity to reprogram into a dormant state in response to cellular stress. Using spatial transcriptomics and single-cell RNA sequencing, we aim to define the molecular mechanisms underlying cell elimination, focusing on Wnt signalling, cell dormancy and stemness, cellular stress and injury responses, and cell-cell interactions. We aim to characterise the non-eliminated KRASG12D subpopulations, with emphasis on progenitor-like cells. Additionally, we are assessing the predictability of KRASG12D cell elimination based on tissue location and local cellular environments using 3D fluorescent imaging and spatial transcriptomics. Together, this work will elucidate the molecular and spatial determinants of mutant cell elimination, providing critical insight into pancreatic cancer initiation which can inform future prevention and early detection strategies.

Funding acknowledgment: BBSRC

Theme 1: Precision and mechanistic oncology

T1A8

Virus directed enzyme prodrug cancer gene therapy using the conversion of ethanol to acetaldehyde via enhanced ADH activity, supported by inhibition of ALDH and drugs that inhibit DNA damage repair.

Emily Proudman[1], Audrey Clooney[1], Rebecca Bayliss[1], Alan Parker[1], Philip Savage[1]
1. Cardiff University

The use of genes delivered to cancer cells, to convert an innocuous precursor drug to a cytotoxic agent is a relatively old therapeutic concept.

However, due the shortcomings of historical delivery systems, clinical development has been very limited. Recent changes in adenovirus gene delivery systems, which are now highly specific and being assessed in clinical trials, has led to a renewed interest in this subject.

We have previously demonstrated the therapeutic potential of producing intra-tumoural toxicity via the enhanced conversion of ethanol (alcohol) to acetaldehyde via viral delivery of the alcohol dehydrogenase (ADH) gene

With the availability of modern therapeutic technology, we are re-examining the potential of this low toxicity system.

To date we have confirmed the cytotoxic effects of acetaldehyde in vitro and constructed both adenovirus and lentivirus delivery systems.

In addition, we have demonstrated that acetaldehyde toxicity is enhanced by the DNA repair inhibitors, Olaparib (PARP) and ART558 (Pol theta) when given individually or together. These drugs are in clinical use, can safely be combined and would not have any additional toxicity if combined with ethanol administration.

We are currently examining the toxicity of virus directed acetaldehyde production combined with ALDH and DNA repair inhibition in a range of tumour cells.

Overall, we would hope that by developing an enhanced version of the technology, combining ADH delivery with ALDH inhibition and PARP/Pol theta inhibition along with effective tumour specific delivery, we can develop a low cost, non-toxic therapy that may be applicable to many types of malignancy.

Funding acknowledgment: Cardiff University, WCRC, Velindre University NHS Trust

Theme 1: Precision and mechanistic oncology

T1A9

Quizartinib Exposure Drives Resistance to Multiple Kinase Inhibitors and Reversal of FLT3 Internal Tandem Duplication in Acute Myeloid Leukaemia.

James A. Austin[1], Giusy Russomanno[2], Dominic P. Byrne[3], John A Harris[3], Muhammad Ameer Saif[4], David J. MacEwan[2], Patrick A Eyers[3] and Vanessa Marensi[3,5]

1. Department of Clinical Infection, Microbiology & Immunology, Institute of Infection, Veterinary & Ecological Sciences Faculty of Health and Life Sciences, University of Liverpool, Liverpool, UK
2. Department of Pharmacology & Therapeutics, Institute of Systems, Molecular and Integrative Biology, University of Liverpool, Liverpool, UK
3. Department of Biochemistry, Cell & Systems Biology, Institute of Systems, Molecular and Integrative Biology, University of Liverpool, Liverpool, UK
4. The Clatterbridge Cancer Centre NHS Foundation Trust, Liverpool, UK
5. North West Cancer Research Institute, North Wales Medical School, Bangor University, Wales, UK

The rapid onset of acute myeloid leukaemia (AML) results from the accumulation of acquired mutation and expansion of heterogeneous dominant clones. Constant adaptations frequently lead to relapse and resistance to therapy. Aberrant expression and mutation of the FLT3 kinase receptor is a poor prognosis factor, which can jeopardize available therapies. Therefore, targeting mutated FLT3 is a promising therapeutic approach. To tackle resistance, we have developed and stablished a cell line model resistant to the FLT3 inhibitor quizartinib (MOLM13-R and MV411-R) from the AML cell lines MOLM13 and MV411, which endogenously express a mutated FLT3. Resistance to quizartinib promoted resistance to multiple kinase inhibitors, including MEK1/2 targeting agents, even if the degree of sensitivity diverge between models. Nevertheless, FLT3 receptor was not as responsive to the FLT3 ligand in the resistant lines. Moreover, the phenotype is associated with the reversal of the ITD mutation back to wild-type (FLT3-WTr). RNA-seq analysis demonstrated that MOLM13-R and MV411-R transcriptomes differ from the parental cells and most changes occur among receptors engaging in extracellular events. Changes that were revealed among key immune receptors at the protein level, including the clinical markers CD123 and CD33. Our findings show that resistance to a specific target therapy could lead to resistance to multiple kinase inhibitors. We hope to provide information that can be translated to the clinical practice and improve therapeutic outcome

Funding acknowledgment: North West Cancer Research

Theme 1: Precision and mechanistic oncology

T1A10

ATRX loss alters telomere fusion complexity and structure

Lexie Hall[1], Kez Cleal[1], Greg Ngo[1], Duncan Baird[1]

1. Division of Cancer and Genetics, Cardiff University School of Medicine, Cardiff, CF14 4XN

Occurring early in tumourigenesis, telomere dysfunction promotes genome instability through end-to-end chromosome fusions, frequently mediated by error-prone DNA repair pathways. ATRX is a chromatin remodeller commonly mutated in cancers that activate the alternative lengthening of telomeres (ALT) pathway; however, it's role in shaping telomere fusion architecture and repair pathway choice remains poorly understood. To investigate this, DNA double-strand breaks were induced using a TALEN-based model at multiple telomeric ends in wild-type (WT) and ATRX-knockout ($ATRX^{-/-}$) HCT116 and RPE1 cells. Resulting telomere fusion events were characterised by long-read Nanopore sequencing and analysed using the Fusion Sequencing Long-Read (FSLR) pipeline, enabling high-resolution assessment of fusion junction architecture across thousands of individual molecules. $ATRX^{-/-}$ cells exhibited a significant reduction in structural complexity at telomere fusion junctions, accompanied by the presence of longer insertions compared with WT cells. Our results reveal a novel role for ATRX in regulating telomere processing prior to fusion. Future studies will investigate potential interactions between ATRX and DNA polymerase theta (Polθ) to further define how ATRX cooperates with DNA repair factors to influence telomere stability. Such work will help clarify how ATRX suppresses the ALT pathway and potentially reveal therapeutic targets in ALT positive cancers.

Funding acknowledgment: Myristica Trust

Theme 1: Precision and mechanistic oncology

T1A11

Long-read Sequencing in Circulating Tumour DNA (ctDNA) Lung Cancer Liquid Biopsies

Karam Aboud[1,2], Sian Morgan[2], Rachel Dodds[2], Joanne Morgan[1], Nigel Williams[1], Andrew Beggs[6], Nick Tovey[6], Joanne Stockton[6], Rob Jones[1], Paul Shaw[4], Richard Adams[5], Magda Meissner[1], Sophie Shaw[2]

1. Cardiff University
2. All Wales Medical Genomics Lab (AWMGL)
3. Velindre Cancer Centre
4. Centre for Trials Research
5. University of Birmingham

Research has demonstrated the utility for rapid detection of DNA genomic signatures using ctDNA from blood samples. Liquid biopsy blood samples have many advantages including allowing for non-invasive testing of lung cancer genetic profiles at an earlier stage of the diagnostic pathway. However, existing genomic tests lack information on some types of genetic abnormalities e.g. methylation signatures and copy number variants. Long-read DNA sequencing is fast becoming an innovative solution for the interrogation of genetic signatures in cancer which are hard to detect with existing short-read DNA technologies. Due to low ctDNA quantities and relatively short ctDNA fragment length in these sample types, long-read sequencing platforms were previously not considered as a viable solution within this clinical setting.

We optimised library prep methodology for one long-read sequencing platform (Pacific Biosciences Sequel II) and collaborated with colleagues at Birmingham University to utilise their expertise for another platform (Oxford Nanopore PromethION). We then compared the two long-read sequencing platforms with the existing short-read platform, using blood samples from lung cancer patients (obtained from the QuicDNA study).

Initial results show for the first time that long-read platforms can work effectively with ctDNA samples from lung cancer patients. The ability to quantify methylation signatures has been shown. Copy number variants, not previously reliably detectable by short-read technologies, are detected consistently. Results from this study demonstrate the capability for identification of novel genetic signatures from this sample type and pave the way for further applications for long-read sequencing in ctDNA.

Funding acknowledgment: This work is funded by an innovation grant from Cancer Research Wales. It is also a part of a PhD project funded by Stepping Stones Lung Cancer Charity and Velindre Cancer Centre Charitable Funds. Many thanks to our funders for their valuable support.

Theme 1: Precision and mechanistic oncology

T1A12

The DNA sensor IFI16 functions in the replication stress response in cancer cells

Jahnavi Rajan[1], Caryl Jones[1], Christopher Staples[1]
Bangor University

The cellular response to DNA replication stress is a key driver of DNA damage in cancer pathogenesis and is an important determinant of cancer cell sensitivity to a wide range of traditional and precision therapies. DNA damage is a major contributor to inflammation in cancer and other human pathologies. Here, we report that replication stress induces an inflammatory response in the absence of DNA damage. The DNA-sensing factor interferon-γ-inducible factor 16 (IFI16) binds nascent DNA at stalled replication forks and signals via the adaptor stimulator of interferon genes (STING) to induce activation of nuclear factor κB (NF-κB) and the production of pro-inflammatory cytokines, independently of the cytosolic DNA sensor cyclic guanosine monophosphate (GMP)-AMP synthase (cGAS). Replication stress-induced fork remodeling generates a new DNA end that is vulnerable to degradation by nucleases and is protected by a range of factors, including the tumor suppressors BRCA1 and BRCA2. IFI16 acts directly at stalled replication forks to protect nascent DNA from degradation by the nucleases MRE11, EXO1, and DNA2. Furthermore, IFI16 is required for the interferon-mediated rescue of fork protection in BRCA-deficient cells, highlighting the critical role of IFI16 in the crosstalk between innate immunity and fork protection during replication stress.

Funding acknowledgment: North West Cancer Research, Cancer Research Wales, Wales Cancer Research Centre

Theme 1: Precision and mechanistic oncology

T1A13

Ruthenium Polypyridyl Complexes in the Exploration of Mismatch DNA

Natalia Kolozsvari[1], Christopher E. Elgar[1], Paul R. Tiley[1], Gareth J. Jenkins[2], Martin R. Gill[1]

1. Department of Chemistry, Swansea University, UK
2. Swansea University Medical School, Swansea University, UK

Ruthenium polypyridyl complexes that intercalate DNA (metallo-intercalators) have been investigated for their use in cancer research, where they offer a potential alternative to DNA-damaging drugs such as cisplatin. DNA replication in cancer cells can be inhibited with ruthenium metallo-intercalators that stall replication fork progression in cancer cells, activating the DNA damage response mechanism, thus inhibiting cell proliferation. However, further improving cancer-selectivity remains an ongoing aim. One complex, [Ru(Me4phen)2(dppz)]2+ (Me4phen = 3,4,7,8-tetramethyl-1,10-phenanthroline, dppz = dipyrido[3,2-a:2′,3′-c]phenazine), is able to distinguish between well-matched and mismatched bases in DNA and has improved activity towards mismatch repair (MMR)-deficient cancer cells which have elevated levels of mismatch DNA.

This work explores ruthenium complexes based on [Ru(Me4phen)2(dppz)]2+, containing the "elbow-shaped" intercalating ligand qdppz (naphtho[2,3-a]dipyrido[3,2-h:2′,3′-f]phenazine-5,18-dione), which were synthesised with the aim of isolating molecules with mismatch-selectivity. We have found complexes containing the qdppz ligand have a higher binding affinity to CT-DNA than dppz analogues, which is further promoted by the steric bulk of the ancillary ligands. Two of the complexes have also been found to have a significant preference towards mismatches in DNA, demonstrated by ethidium bromide displacement, as well as Cyanine5.5 luminescence quenching assays. Biological studies of the complexes indicate cytotoxicity towards DLD-1 and DLD-1+Chr2 colorectal cancer cells, with one complex, [Ru(5,5′-dmb)2qdppz]2+ (5,5′-dmb = 5,5'-dimethyl-2,2'-bipyridine) possessing a significantly lower IC50 concentration than cisplatin, although selectivity towards the MMR-deficient DLD-1 cell line has not been observed. Further investigation towards activity in cells revealed anti-proliferative and slightly DNA-damaging activity, however the exact mechanism of action is still under investigation.

Funding acknowledgment: Cancer Research Wales

Theme 1: Precision and mechanistic oncology

T1A14

NFIA::CBFA2T3 expression promotes growth and survival of human erythroid cells

Ellie McCracken[1], Siân Rizzo[1], Owen Hughes[1], Maryam Alanazi[1,2], Abdulsalam M Alruwaili[1,3], Maryam Halawi[1,4], Raymond Toghill[5], Amanda Gilkes[1], Zulfa Yoosuf Aly[1], Brian L Calver[1], Steve Knapper[1,6], Richard Darley[1], Alex Tonks[1]

1. Department of Haematology, Division of Cancer & Genetics, School of Medicine, Cardiff University
2. Shaqra University, College of Applied Medical Science, Shaqra, Saudi Arabia
3. Shaqra University, College of Pharmacy, Jazan, Saudi Arabia
4. Clinical Pharmacy Department, College of Pharmacy, Jazan University, Jazan, Saudi Arabia
5. Department of Haematology, University Hospital of Wales, Cardiff and Vale University Health Board
6. Cardiff University, Cardiff Experimental and Cancer Medicine Centre, School of Medicine, Cardiff, United Kingdom

Erythroid leukaemia is a form of blood cancer characterised by accumulation of erythroid and myeloid blasts in the bone marrow. Expression of the NFIA::CBFA2T3 fusion gene, a rare abnormality, has been identified in multiple infant cases of erythroid leukaemia. NFIA is required for normal human erythroid commitment of haematopoietic progenitors, while CBFA2T3 is a transcriptional corepressor which regulates erythropoiesis (red blood cell production). However, the effect of this fusion gene on normal human blood cell development is unknown.

A retroviral vector capable of inducing ectopic NFIA::CBFA2T3 expression was created using directional subcloning into PINCO with restriction enzymes. Normal primary human haematopoietic stem and progenitor cells (CD34+ HSPC) were transduced with NFIA::CBFA2T3 and cell sorting used to enrich for the erythroid lineage. Colony forming assays were established and scored following 14 days of culture. The effect on cell growth and erythroid differentiation in the erythropoietin (EPO) independent and dependent phases of growth were analysed by flow cytometry.

Increased expansion in NFIA::CBFA2T3 CD34+ HSPC was observed compared to controls. Erythroid expansion was delayed compared to controls in response to stimulation with EPO, accompanied by delayed Glycophorin A upregulation. NFIA::CBFA2T3 cells demonstrated increased colony forming efficiency both in the absence and presence of EPO. Furthermore, NFIA::CBFA2T3 cultures had an increased proportion of early and intermediate progenitors compared to controls. These findings indicate increased growth accompanied by delayed erythroid maturation in NFIA::CBFA2T3 CD34+ HSPC. scRNAseq is currently being performed to identify the mechanisms by which ectopic NFIA::CBFA2T3 expression contributes to delayed erythropoiesis.

Funding acknowledgment:

Myristica Trust: PhD Funding
Cardiff Cancer Research Hub: Cancer Discovery Seedcorn Award

T1A15

Exploring Telomeric Chromatin Interactions throughout Replicative Crisis in Colorectal Cancer Cells

Julie E. Thornton[1], Emmon Coral[1], Duncan M. Baird[1], Kate Liddiard[1]
Division of Cancer and Genetics, School of Medicine, Cardiff University

Telomeres are repetitive, non-coding nucleoproteins that protect the ends of human linear chromosomes. In 85-90% of cancers, including colorectal cancer (CRC), cells undergo a period of high genomic stress triggered by telomere erosion and fusion called replicative crisis. Crisis escape via activation of telomerase, a telomere-lengthening reverse transcriptase, enables replicative immortality. Crisis is therefore an early and decisive step during malignancy. This project aims to study telomeric chromatin interactions throughout crisis to identify biomarkers for early CRC detection. We generated a crisis model in the BRAF-mutated CRC HT29 cell line by transducing cells with DN-hTERT, a dominant-negative telomerase construct. Three HT29$^{DN\text{-}hTERT}$ single-cell clones successfully underwent crisis onset and escape throughout long-term culture. We characterised crisis onset by telomere fusion appearance (multiplex long-range PCRs) following decreases in telomere length (Single Telomere Length Analysis (STELA) assays) and cell population doubling (PD) rate. We characterised crisis escape by increased telomerase activity (Telomerase Repeated Amplification Protocol (TRAP) assays), telomere length, and PD rate, and decreased telomere fusion frequency. We performed chromosome conformation Capture-C assays on these HT29$^{DN\text{-}hTERT}$ clones pre- and deep-crisis, enriching for genome-wide interactions involving chr17p/chrXp subtelomeres. We are categorising interactions by their proximity to telomeres/centromeres and whether they overlap with a gene or repetitive element. For each interaction profile, we are identifying enriched regulatory networks using the STRING protein-protein association database. Differences in long-range telomeric chromatin interactions pre- vs deep-crisis may allow insights into the altered chromatin and transcription states of CRC crisis, an important selection bottleneck event during early malignancy.

Funding acknowledgment: Cancer Research Wales (CRW)

Theme 1: Precision and mechanistic oncology

T1A16

Toward Clinically Deployable Diffusion MRI Virtual Biopsy

Yang Yang[1,2], Leandro Beltrachini[1,2] etc.

1. School of Physics and Astronomy, Cardiff University, Cardiff, United Kingdom
2. Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff University, Cardiff, United Kingdom

Prostate cancer risk stratification relies on histopathology (e.g., Gleason grading), but biopsy is invasive and can suffer from sampling error and complications. Diffusion MRI (dMRI) offers an alternative by enabling to probe tumour microstructure in vivo and non-invasively. However, a key challenge is translating diffusion signals into microstructural features that are both interpretable and verifiable. Several dMRI-based microstructure descriptors have been presented in the literature, most of them based on unrealistic and limiting assumptions regarding the underlying tissue geometries or idealised MRI sequences not available in clinical systems. In this work, an MRI-based virtual-biopsy framework is introduced for phenotyping pore-like restricted-diffusion microstructures such as the gland lumen. Statistical constraints are used to reconstruct histology-like binary microstructures directly from dMRI signals without any underlying assumptions, enabling quantitative characterisation of pore shapes and sizes. A U-Net based learning strategy is incorporated to infer microstructural descriptors from diffusion signals from clinical scanners where the diffusion gradient amplitud is limited, improving robustness under routine protocols. Validation is performed using computational simulations and experimental dMRI data from a microcapillary phantom. This phantom mimics restricted diffusion in a disordered pore-like environment and provides a stringent benchmark. Preliminary results show improved signal matching and reconstructed microstructures that better match expected structural features. Overall, this work moves dMRI virtual histology closer to clinical deployment, supporting future patient studies and microstructural phenotype imaging for precision oncology, with improved transferability across standard scanners.

Funding acknowledgment: This work has been partially funded by the BBSRC (BB/T011564/1) and the Taith mobility scheme.

Theme 1: Precision and mechanistic oncology

T1A17

Telomere Crisis Generates Highly Complex Rearrangements and Tumour-Specific Neoantigens

Vanda Miklos[1], Kez Cleal[1], Barbara Szomolay[2], Sara Seifan[1], Duncan Baird[1]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University
2. Division of Infection and Immunity, School of Medicine, Cardiff University

Telomere crisis is a major source of genomic instability and a key step in malignant transformation, yet the structural complexity of rearrangements generated during crisis remains poorly defined. Such complex structural variants (SVs) may generate cancer-specific neoantigens absent from stable genomes, with potential implications for tumour immunogenicity.

Using long-read amplicon sequencing, we systematically characterised telomere fusion events arising during telomere crisis in human fibroblast models. Long-read sequences were analysed using a custom computational tool that maps and clusters fusion events to resolve complex rearrangements. This analysis resolved over 100,000 distinct telomere fusion events per sample, revealing extreme structural heterogeneity, with the most complex fusions comprising up to 30 breakpoint junctions. We further identified recurrent genomic loci that are preferentially incorporated into fusion structures, suggesting non-random patterns of genome rearrangement during crisis and highlighting candidate regions associated with genome instability.

To assess potential cancer relevance, we analysed whole-genome sequencing data from matched pre- and post-crisis HCT116 colorectal cancer clones. Structural variant calling and neoantigen prediction identified SV-derived candidate neoantigens that were unique to post-crisis genomes and absent from pre-crisis clones, indicating that telomere crisis can give rise to novel tumour-specific antigenic sequences.

Together, these results demonstrate that telomere crisis generates extreme structural complexity and contributes to the emergence of tumour-specific genomic configurations with the potential to expand the neoantigen landscape. Our findings implicate telomere crisis as a significant source of cancer-specific variation and support further investigation of SV-derived neoantigens as biomarkers of genomic instability and tumour evolution.

Funding acknowledgment: Myristica Trust

Theme 1: Precision and mechanistic oncology

T1A18

The function of protein lactylation in cisplatin-resistant ovarian cancer cells via targeting of monocarboxylate transporters (MCTs)

Fariba Mirani[1], Fadi Alanazi[1], Tomos Walker[1], Christopher J. Staples[1], Jonathan L. Blank[1]

1. North West Cancer Research Institute, North Wales Medical School, Bangor University, LL57 2UW, UK

Targeting cancer metabolism is an attractive therapeutic strategy for the treatment of cancer. In particular, cancer cells preferentially metabolize glucose to lactate via accelerated glycolysis to support their high proliferation rates. In turn, lactate must be exported to prevent the cytotoxic effects of intracellular lactate accumulation. To manage this, specialized monocarboxylate transporters (MCTs) are upregulated in various cancer types and are predictors of poor prognosis and increased mortality. MCT1-selective inhibitors that block lactate transport have been developed that show promising activity in several preclinical cancer models and have been evaluated clinically. We have assessed the activity of the MCT1 inhibitor AZD3965 in the cisplatin-resistant A2780 ovarian cancer model and demonstrate that cisplatin-resistance is associated with enhanced AZD3965 sensitivity in cell viability assays. Furthermore, we demonstrate that AZD3965 and cisplatin show combination lethality, suggesting that MCT1 inhibition may resensitize cells to DNA damage by cisplatin. Intracellular lactate accumulation in response to MCT1 inhibition is also shown to increase protein modification by lactate, a process termed lactylation, as detected with antibodies specific to lactyl-lysine residues. Since two components of the MRN complex involved in DNA-damage repair, MRE11 and NBS1, have recently been shown by others to be regulated by lactylation, we have assessed whether components of the MRN complex are lactylated in the presence of AZD3965. These studies may help support a link between cancer metabolism and chemotherapeutic drug resistance in this ovarian cancer model and offer a therapeutic rationale to enhance the activity of cisplatin as a standard of care chemotherapeutic.

Funding acknowledgment: This work is supported with funding from Health & Care Research Wales as part of a Wales Cancer Research Centre Sustainability Award and from North West Cancer Research

Theme 1: Precision and mechanistic oncology

T1A19

Development of Precision Virotherapies for Diffuse Midline Gliomas

Mariana Varela Pereira[1], Emily A. Bates[1], Florian Siebzehnrubl[2], Chris Jones[3], William Gray[4] and Alan L. Parker[1]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University, Cardiff
2. European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University, Cardiff
3. The Glioma Group, Institute of Cancer Research, London
4. Neuroscience and Mental Health Innovation Institute, School of Medicine, Cardiff University, Cardiff

Diffuse Midline Gliomas (DMGs) are highly aggressive paediatric brainstem tumours with a median survival of 9-11 months - a figure unchanged for over four decades. This indicates a critical need for targeted therapies. The VITAL lab has developed Ad5NULL-RGD, an engineered adenovirus modified to ablate binding to native adenovirus receptors minimising off-target effects. The vector was redirected to αvβ3/5 integrins highly expressed in several brain tumours, via an RGD motif, enhancing tumour-specific uptake. The aim of this project is to characterise the receptor profile of these tumours and evaluate Ad5NULL-RGD as a therapeutic vector for DMG. Flow cytometry of DMG cell lines was performed to assess expression of αvβ3, αvβ5 integrins, and the Coxsackievirus and Adenovirus Receptor (CAR). Transduction efficiency was quantified using luciferase-based assays following infection with Ad5 and Ad5NULL-RGD vectors. Cytotoxic activity was evaluated using CellTiter-Glo viability assays post-infection with the oncolytic Ad5 and Ad5NULL-RGD vectors. DMG cell lines consistently overexpressed αvβ3 and/or αvβ5 integrins, validating them as entry receptors for the modified vector. Ad5NULL-RGD demonstrated enhanced transduction efficiency and preferential uptake compared to unmodified Ad5. Both oncolytic Ad5 and Ad5NULL-RGD induced significant cytotoxic effects, resulting in a marked reduction in DMG cell viability compared to uninfected controls, with Ad5NULL-RGD offering enhanced tumour selectivity. In conclusion, Ad5NULL-RGD effectively targets DMG cells via αvβ3/αvβ5 integrins, offering improved transduction over native Ad5 and on-target cytotoxicity. These results highlight its potential as a safe and effective virotherapy for DMG, with broader applications for targeted gene therapy in brain tumours.

Funding acknowledgment: The Mosawi Foundation

Theme 1: Precision and mechanistic oncology

T1A20

Abstract retracted

Theme 1: Precision and mechanistic oncology

T1A21

The cells of origin of the chemotherapy curable malignancies are highly sensitive to cytotoxic chemotherapy and the induction of apoptosis.

Emily Proudman[1], Philip Savage[1]
1. Cardiff University

The detailed mechanisms of how cytotoxic chemotherapy routinely produces cure in a limited number of malignancies, whilst causing only modest toxicity to the majority of cancers is uncertain.

We have reviewed published information regarding the impact of chemotherapy exposure on the viability of the cells of origin the chemotherapy curable malignancies.

In B cell and T cell acute lymphoblastic leukaemia, exposure to chemotherapy results in near total loss of the respective cells of origin of Pro-B cells and DP thymocytes within 2 days. However, these cells are rapidly replaced from the chemotherapy resistant bone marrow stem cells.

In diffuse large B cell lymphoma, the germinal centre cells of origin are naturally poised on the edge of apoptosis, with a half-life of approximately 6 hours making in vitro study impractical.

The cell of origin for testicular cancer is the OCT4+ stem cell, which shows similar sensitivity to chemotherapy as the malignant cells, with total loss of the stem cells on exposure to BEP chemotherapy.

Overall, it appears that the chemotherapy curable malignancies, do not acquire a high degree of sensitivity to chemotherapy on their change to the malignant phenotype, rather they maintain the high sensitivity of their cells of origin.

These findings are in keeping with our previous observations that the high degree of chemotherapy sensitivity follows the dramatic changes in apoptotic sensitivity that accompany the genetic manipulations of VDJ recombination, somatic hypermutation, meiosis and nuclear fusion occurring in these normal healthy but transient cells.

Funding acknowledgment: Cardiff University, WCRC, Velindre University NHS Trust

Theme 1: Precision and mechanistic oncology

T1A22

Inhibition of cFLIP attenuates the amplification of Cancer Stem Cell (CSC)-like activity after chemotherapy.

Timothy Robinson[1], Gillian Seaton[2], Rhiannon French[2], Daniel Turnham[2], Valerie Meniel[2], Richard Clarkson[2]

1. Bristol Medical School (PHS), University of Bristol, Oakfield House, Oakfield Grove, Clifton, Bristol, BS8 2BN.
2. European Cancer Stem Cell Research Institute, Cardiff University School of Biosciences, Hadyn Ellis Building, Maindy Road, Cardiff CF24 4HQ.

Despite significant advances in targeted, immunological and cytotoxic cancer therapy against breast cancer, there are significant numbers of patients who are resistant to treatment. Major challenges remain such as drug resistance and tumour recurrence with Triple Negative Breast Cancer (TNBC) having the worst prognosis of all breast cancer subtypes, characterized by more frequent relapse rates and reduced length of survival in metastatic disease. Increasing evidence implicates a small subpopulation of cells within the tumour, with the ability to self-renew and differentiate, termed breast cancer stem cells (bCSC), which enable tumours to evade conventional therapies, and promote more aggressive tumours. Recently, it has been demonstrated that higher levels of gene expression within CSC-related pathways exist in TNBC and this is upregulated in response to chemotherapy. Therefore targeting bCSCs poses an attractive therapeutic approach to combat cancer.

Our previous work has demonstrated that targeting an anti-apoptotic protein called cellular flice-like inhibitory protein (cFLIP) sensitizes bCSCs to the cytotoxic effects of the apoptosis inducer TRAIL, reduces the CSC phenotype and CSC-signalling through the beta catenin pathway.

In this study, we show that treatment of breast cancer cells with first line chemotherapies which successfully decrease tumour burden in the clinic, paradoxically increase bCSC activity in vitro, and promote tumour recurrence and metastasis in vivo. We used a novel compound targeted against cFLIP (OH14) in combination with chemotherapy treatment and demonstrated cFLIP inhibition prevented the expansion of bCSC activity in response to chemotherapy in vitro and prevented tumour recurrence in vivo

Funding acknowledgment: Breast Cancer Now

Theme 1: Precision and mechanistic oncology

T1A23

Oxidative DNA damage repair and chromosome breakage (micronuclei) in oesophageal disease progression: exploring the link between blood and tissue mutation levels

Kate Hurlow[1], Hamsa Naser[1], Kathryn Munn[1], Kate Chapman[1], Lisa Williams[2], Will Beasley[2], Gareth Jenkins[1]

1. In Vitro Toxicology Group, Faculty of Medicine, Health and Life Science, Swansea University, Swansea, UK
2. Department of Gastroenterology, Singleton Hospital, Swansea Bay University Health Board, Swansea, UK

Chronic inflammation in patients with gastro-oesophageal reflux disease (GORD) and Barrett's oesophagus (BO) can trigger oxidative stress, contributing to DNA damage, micronuclei (MN) formation and development of oesophageal adenocarcinoma (OAC). Previous research shows that lymphocyte MN levels increase throughout the GORD/BO/OAC histological progression. Furthermore, a reduced sensitivity to treatment with ROS inducers was observed in lymphocytes with higher baseline MN frequencies (MN%), suggesting an adaptive response to oxidative stress, potentially involving DNA repair.

We aim to explore the role of oxidative DNA damage repair mechanisms to better understand how oxidative stress influences lymphocyte MN formation in patients with oesophageal disease. Furthermore, we aim to investigate the relationship between lymphocyte MN formation and DNA damage (MN) in oesophageal tissue.

Lymphocytes and oesophageal epithelial cells (OECs) were isolated from blood and cytology samples of GORD and BO patients. Results show a positive correlation between lymphocyte and OEC MN% (R value=0.5068, p=0.0379), indicating a link between blood and tissue mutation levels.

qPCR was performed to assess expression of oxidative DNA damage repair enzyme OGG1 in tissue biopsies. Following exclusion of statistically defined outliers, results showed a significant increase (p=0.0035) in OGG1 expression between GORD and BO samples. However, there was no correlation between either lymphocyte or OEC MN% and OGG1 expression. Additionally, treatment of patient lymphocytes with OGG1 inhibitor showed a slight but not significant increase in MN%. Whilst these results indicate OGG1 alone has no significant influence on MN formation, research into other DNA repair mechanisms and pathways is needed.

Funding acknowledgment: Cancer Research Wales

Theme 1: Precision and mechanistic oncology

T1A24

A Mathematical framework to predict Adaptive Therapy success through early response dynamics.

Liam Ryall-Friend[1], Mark Davies[2], Noemi Picco[1]

1. Department of Mathematics, Swansea University.
2. Department of Cancer and Genetics, Cardiff University.

Adaptive therapy offers a personalised cancer therapy that aims to control and contain the growth of malignant tumours, utilising eco-evolutionary principles. Principles that capitalise on the competition for limited resources between different subclones of the tumour with different sensitivities to a drug. Adaptive therapy provides a unique treatment regime that differs dramatically from the standard of care, continuous therapy. This standard method involves treating to cure the patient, that can sometimes result in competitive release of treatment resistant colonies, leading to rapid treatment failure.

Much literature exists on Adaptive Therapy, describing how it can be improved for individual patients. However, little consideration has been made considering how success of Adaptive therapy can be predicted for individual patients. Within this poster a system of ordinary differential equations is utilised to describe 2 subclones of a tumour with 2 distinct sensitivities to a time varying drug. This framework is then used to investigate how the early response dynamics of the tumour can predict the success of Adaptive therapy.

Funding acknowledgment: EPSRC, Swansea Bay University Health Board

HSP90A as a Novel Candidate Therapeutic Target in the regulation of EGFR following the loss of Kidins220 using RNA sequencing analysis in pancreatic cancer

Deepa Shankla[1], Qingping Dou[2], Wen G. Jiang[1] and Lin Ye[1]

1. Cardiff China Medical Research Collaborative, Division of Cancer and Genetics, Cardiff University School of Medicine, Cardiff, CF14 4XN, UK.
2. Barbara Ann Karmanos Cancer Institute, Departments of Oncology, Pharmacology and Pathology, School of Medicine, Wayne State University, Detroit, MI 48201, USA

Introduction: Heat shock protein 90 alpha (HSP90A) is a molecular chaperone that plays a critical role in protein folding, thereby maintaining cellular homeostasis and is frequently overexpressed in cancer and supports several oncogenic signalling pathways, including those mediated by the epidermal growth factor receptor (EGFR). Our previous studies in pancreatic cancer demonstrated that loss of Kidins220 results in EGFR upregulation; however, the molecular mechanisms driving this response remain poorly understood. This study aimed to investigate the involvement of HSP90A in EGFR regulation following Kidins220 knockdown in pancreatic cancer cells.

Material and Methods: Kidins220 knockdown using lentiviral shRNA in the pancreatic cancer cell lines MiaPaCa-2, PANC-1, and AsPC-1, with scrambled RNA used as a control. RNA sequencing was performed to identify transcriptional alterations associated with Kidins220 loss. Knockdown efficiency and expression were validated using PCR and western blotting. To evaluate the functional role of HSP90A, cells were treated with an HSP90A inhibitor (50 nM) for 2, 4, and 24 hours, followed by analysis of EGFR protein expression.

Results: RNA sequencing analysis revealed significant upregulation of HSP90A in Kidins220 knockdown in MiaPaCa-2 and PANC-1 cells, which was confirmed at the transcript and protein level. Time-course inhibition of HSP90A resulted in dynamic changes in EGFR expression, with a pronounced increase observed at 24 hours compared with untreated controls, suggesting a role for HSP90A in EGFR protein stabilisation.

Conclusion: These findings identify HSP90A as a potential regulator of EGFR signalling in the context of Kidins220 loss and support its further investigation as a therapeutic target in pancreatic cancer.

Funding acknowledgment: This project is funded by the Government of India.

Theme 1: Precision and mechanistic oncology

T1A26

The use of multiomics to better inform drug development for advanced breast cancer beyond current techniques: A Scoping Review.

Emily Berry[1], Professor Emiliano Spezi[1], Professor Richard Adams[2,3]

1. School of Engineering, Cardiff University
2. School of Medicine, Cardiff University
3. Velindre Cancer Centre

Breast cancer is one of the most prevalent forms of cancer worldwide and has high biological heterogeneity, making it hard to predict treatment response, particularly so in advanced and metastatic cases. As precision oncology advances, multiomics approaches have emerged as a promising avenue to broaden understanding of tumour complexity beyond what is possible with single-omics analyses alone.

This review was conducted to evaluate current methodologies for integrating multiomics data to predict treatment response, progression-free survival, and overall survival in advanced/metastatic breast cancer, and identifies outstanding gaps that limit clinical translation.

By searching online databases, 404 studies were found and later screened to determine eligibility against a set criterion that looked for research articles published between 2015 and 2025 and that utilised multiomics methods to predict key prognostic factors and treatment milestones. After 2 stages of screening, 31 were found to have met the criteria and were qualitatively synthesised to be included in this review.

Most studies demonstrated that multiomics integration improves predictive performance over single-omics models, with reported AUC values frequently exceeding 0.80. Integration strategies varied widely, though late integration and machine-learning–based architectures were predominant. Transcriptomics and genomics were the most frequently used omics modalities, while radiomics and pathomics were comparatively under-represented despite their relevance in solid tumours.

Overall, the findings highlight that multiomics integration offers advantages for modelling treatment response and survival in breast cancer. However, substantial challenges persist, including limited cohort availability, the difficulties of dimensionality reduction, and the need for robust clinical validation.

Funding acknowledgment: The Myristica Trust

Theme 1: Precision and mechanistic oncology

T1A27

Do Cutibacterium acnes extracellular vesicles mediate the inflammatory host response in prostate cancer?

Luka Brajdic[1], Helen B. Pearson[2], Helen L. Brown[1]

1. School of Biosciences, Cardiff University
2. European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University

Introduction: The skin-associated microbe Cutibacterium acnes has been reported to colonise prostate tumours for over two decades. Previous studies using live bacteria have reported pro-inflammatory effects including stimulation of tumour necrosis factor alpha and interferon gamma secretion by macrophages as well as activation of NF-κB driven inflammatory signalling in prostate cells. However, the extent to which these effects are mediated by bacterial extracellular vesicles (bEVs), which may be disseminated through circulation, remains unclear.

Methods and Results: C. acnes was cultured for 72h before filtration and isolation of bEVs through ultracentrifugation. Nanoparticle tracking revealed C. acnes vesicles had a mean peak diameter of 93 nm. Despite preparation with clinical grade water and multiple filtration steps, particles averaging 115 nm were also detected in control unconditioned microbiological medium. Metabolic activity was non-significantly increased in benign (BPH-1) and malignant (PC3) prostate cells stimulated with bEVs at 10 µg/mL protein concentration. Crystal violet staining suggested that biomass was significantly decreased in PC3 cells treated with C. acnes bEVs ($p=0.0086$) ($n=3$). Ongoing work is screening for NF-κB pathway activation using cytokine arrays.

Conclusions: Results to date suggest that microbiological medium may be a confounding factor in isolating bEVs and assessing their effects on host cells. Future work will address C. acnes growth in particle-depleted medium, as well as examining the localisation of C. acnes bEVs within prostate epithelial cells and evaluating their impact on host inflammatory cytokine production. Understanding this relationship may allow for the development of therapies targeting the tumour microbiome.

Funding acknowledgment: Applied Microbiology International and Wales Innovation Network

Theme 1: Precision and mechanistic oncology

T1A28

Pharmacological Targeting of Bcl3 in Models of Breast and Colorectal Cancer

Hannah Smith[1], Will Yang[1], Adam Higgins[1], Gillian Seaton[1], Andrew Westwell[2], Andrea Brancale[3] and Richard Clarkson[1]

1. European Cancer Stem Cell Research Institute, Cardiff University School of Biosciences, Haydn Ellis Building, Maindy Road, Cardiff, Wales, UK. CF24 4HQ.
2. School of Pharmacy and Pharmaceutical Sciences, Cardiff University, Redwood Building, King Edward VII Avenue, Cardiff, CF10 3NB, Wales, U.K.
3. Department of Organic Chemistry, University of Chemistry and Technology, 16628 Prague, Czech Republic.

Despite major advances, cancer remains a leading cause of mortality. Mortality is linked to disease progression, with most cancer deaths ascribed to metastatic disease, therefore demanding more targeted treatments and provoking need for a greater understanding of the tumour-intrinsic cellular mechanisms driving disease progression.

B-cell lymphoma 3-encoded protein (Bcl3) is a proto-oncogene, closely associated with numerous intracellular signalling pathways, including NF-κB and Wnt. Bcl3 upregulation within a range of cancer types, an association with poor prognosis and exhibited cancer-promoting actions all highlight Bcl3 as a potential therapeutic target.

We have developed novel Bcl3 inhibitors, designed to prevent interactions between Bcl3 and the NF-kB signalling pathway. Our studies demonstrated tumour-efficacy of these inhibitors in breast cancer models, but we are yet to determine efficacy within other cancers, such as colorectal cancers (CRC), and to understand the downstream consequences of Bcl3 inhibition, intrinsic to the cancer cell.

Here we report the efficacy of a second-generation inhibitor, CB1, within CRC. Daily administration of CB1 exhibited tumour regression and tumour stasis within xenograft models, and a depletion of metastatic burden. Furthermore, CB1 is shown to influence the cancer cell kinome, with an additional emphasis on the family of Eph receptors, involved in cell motility and cell-cell communication. Preliminary data suggests that CB1 acts independently of canonical Wnt signalling, which is often dysregulated in CRC.

This evidence shows that pharmacological targeting of Bcl3 is a promising avenue for the treatment of breast and colorectal cancers, and alludes to the cell-intrinsic nature of this pharmacological inhibitor.

Funding acknowledgment: N/A

Theme 1: Precision and mechanistic oncology

T1A29

Discovery of Novel Anticancer Bcl3 Inhibitors

Tia Z. Elstow[1], Dusan Ruzic[1], Andrea Brancale[2], Richard W. E. Clarkson[3], Andrew D. Westwell[1]

1. School of Pharmacy and Pharmaceutical Sciences, Cardiff University
2. Department of Organic Chemistry, University of Chemistry and Technology, Prague
3. European Cancer Stem Cell Research Institute, School of Biosciences, Cardiff University

B-cell lymphoma 3 (Bcl3) protein is an oncogenic driver which regulates numerous signalling pathways implicated in solid tumour progression. We have previously described the design and discovery of new small-molecule anticancer Bcl3 inhibitors targeting the Bcl3-p50 protein-protein interface, leading to the development of a novel preclinical candidate known as JS6. Bcl3 is a very promising transcriptional co-activator with multiple roles in advanced solid tumours such as colorectal and metastatic breast cancers. In this study, we present the optimisation and structure-activity relationship exploration of new chemical entities, including JS6 analogues and 'cyclised' derivatives. We describe the computational design of the Bcl3-p50 protein-protein interaction interface, the development of chemical synthetic routes and characterisation of the compounds, in addition to preclinical anticancer testing of novel Bcl3 inhibitors. To expand the scope of our research, we aim to investigate proteolysis-targeting chimera (PROTAC) candidates, targeted for the selective degradation of the Bcl3 protein.

Funding acknowledgment: Myristica Trust

Cancer Research Wales

Theme 1: Precision and mechanistic oncology

T1A30

Abstract retracted

Theme 1: Precision and mechanistic oncology

T1A31

Design and Synthesis of Small-Molecule Inhibitors Targeting MRE11 Nuclease Activity

Eleanor Ashcroft[1,2,4], Edgar Hartsuiker[1], Mark Young[2], Salvatore Ferla[3], Marcella Bassetto[4]

1. North Wales Medical School, Bangor University
2. School of Biosciences, Cardiff University
3. Medical School, Pharmacy, Swansea University
4. School of Pharmacy and Pharmaceutical Sciences, Cardiff University

MRE11 is a key component of the MRN complex, involved in the repair of double-stranded DNA breaks, exhibiting both endonuclease and exonuclease activities. Inhibition of DNA repair pathways is a promising approach to improving cancer treatment. When a single repair pathway is defective, cancer cells rely heavily on a single mechanism, which can be targeted therapeutically with small-molecule inhibitors, enabling synthetic lethality. We aim to exploit synthetic lethality by developing novel MRE11 inhibitors. Existing MRE11 nuclease inhibitors, such as mirin, have demonstrated potential to induce DNA damage in cancer cells and improve treatment outcomes. The aim of this research is to design and develop more potent MRE11 inhibitors with dual activity against both exonuclease and endonuclease functions. By inhibiting these enzymatic activities, we seek to enhance the therapeutic efficacy of DNA-damaging agents and overcome resistance mechanisms in cancer therapy. Furthermore, to facilitate the biological evaluation of these compounds, we are optimising the expression and purification of the MRE11 protein. This approach will enable high-throughput screening of candidate inhibitors. To date, we have synthesised and developed analogues that aim to inhibit exonuclease and dual-nuclease activity. Alongside the chemical synthesis, biochemical techniques have been implemented to optimise the expression and purification of the MRE11 protein; this approach provides a new way to assess our inhibitors. Future work will involve the biological evaluation of our novel inhibitors using recombinant MRE11 and in silico studies to identify additional novel MRE11 inhibitors.

Funding acknowledgment: Cancer Research Wales

Theme 1: Precision and mechanistic oncology

T1A32

Statistical Description of Prostate Microstructure for Cancer Grading

Morgan Williams[1], Leandro Beltrachini[1]

1. Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff University

Cancer grading is becoming an increasingly automated process, driven by recent advances in machine learning. However, most machine learning models operate as 'black boxes', offering predictions with limited interpretability. To address this limitation, we propose using functions that describe the statistical arrangement of microstructural tissue components, referred to as statistical descriptors in statistical physics. These descriptors offer a more interpretable link between tissue architecture and computational outcomes. Previous studies have used the two-point correlation function (TPCF) to segment histological images. Yet, it has been demonstrated that the TPCF alone cannot fully characterise clustered textures unequivocally. This work therefore investigates the necessity and value of incorporating additional statistical descriptors to more comprehensively capture tissue microarchitecture. We assess the ability of different descriptors to quantify key tissue features and their relevance to cancer grading. A suite of statistical descriptors will be computed from H&E-stained prostate biopsy images sourced from an open dataset. Expert-assigned cancer grades provided with the dataset will serve as ground truth for comparing descriptor values across grades. The ultimate goal of this work is to enable automatic determination of prostate cancer grade using statistical descriptors. This approach aims to deliver a transparent and interpretable method for computational cancer detection, bridging the gap between automated analysis and biological understanding.

Funding acknowledgment: This work has been funded by the Myristica Trust through a cancer research PhD studentship.

This work has also been partially funded by the BBSRC (BB/T011564/1) and the Taith mobility scheme.

Theme 1: Precision and mechanistic oncology

T6A33

Stem-Like Cancer-Initiating Cells and Cell-Cell Signalling Drive PanIN Progression in Pancreatic Cancer

Salvador-Barbero B#[1], Reed E[1], Ruiz-Palacios D[2], Pedraza S[2], Ibanez A[2], Castano JP[2], Hogan C#[1]

1. European Cancer Stem Cell Institute, Cardiff University
2. Instituto Maimonides de Investigacion Biomedica de Cordoba

Pancreatic cancer (PC) is one of the most aggressive malignancies and has a dismal survival rate, underscoring the urgent need for improved early detection strategies. PC arises from activation of the KRAS oncogene, which induces acinar-to-ductal metaplasia (ADM) that can progress to low-grade pancreatic intraepithelial neoplasias (LG-PanINs), high-grade PanINs (HG-PanINs), and ultimately invasive carcinoma.

We hypothesise that only a subpopulation of KRas mutant cells within PanINs develop stem-like properties that allow them to drive PanIN development and progression to PC.

To test this, we used a mouse model that mimics sporadic PC initiation, in which 20% of cells express KRasG12D in the context of inflammation, recapitulating ADM, LG-PanINs, HG-PanINs, and tumours.

Single-cell transcriptomic analysis identified a subset of cells with more stem-like and cancer stem cell properties present in all timepoints, termed Cancer Initiating Cells (CICs). CICs interestingly overexpressed genes involved in cell attachment and stemness. Tissue immunofluorescence staining revealed that only few LG- and HG-PanINs contained substantial numbers of CICs, suggesting that only certain PanINs have the potential to progress into tumours. These findings were validated in human PanINs and tumours using spatial transcriptomics. Functional assays confirmed that CICs possess greater stemness potential than non-CIC PanIN cells.

Cell-cell interaction analysis identified Amyloid Precursor Protein (App)-Cd74 as the strongest interaction between CICs and surrounding PanIN cells, with downstream activation of MAPK and NFkB pathways confirmed by immunofluorescence staining and spatial transcriptomics.

Overall, this study provides new insight into PC initiation and identifies potential targets for early detection and preventive therapies.

Funding acknowledgment: Pancreatic Cancer UK, Cancer Research UK

Theme 1: Precision and mechanistic oncology

T1A34

Engineering Human Adenovirus Type 10 for Tumour-Selective Virotherapy

Mahulena Marušková[1], Emily A. Bates[1], Rebecca Wallace[1], Rebecca J. Bayliss[1,2], Alan L. Parker[1,2]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University
2. Wales Applied Virology Unit, School of Medicine, Cardiff University

Background: Human adenoviruses (HAdVs) are attractive vectors for oncolytic virotherapy due to their genetic plasticity and well-established safety profile. HAdV type 5 (species C) is the most widely studied, but its clinical utility is limited by high levels of pre-existing immunity. In contrast, HAdV-D10 (species D) displays low seroprevalence in the human population, making it a promising candidate. However, wild-type adenoviruses, including HAdV-D10, typically lack tumour specificity, necessitating further engineering to improve their on-target activity.

Methods: To develop a tumour-selective virotherapy platform, HAdV-D10 was modified via a two-step strategy:

1. Detargeting of native receptors through a KO1 mutation in the fiber knob to ablate any residual binding to the coxsackie virus and adenovirus receptor (CAR), and a RGE mutation in the penton base to prevent off-target integrin-binding.

2. Retargeting to cancer cells by insertion of a RGD motif into the DG loop of the fiber knob to engage $\alpha v\beta 3$ and $\alpha v\beta 5$ integrins, commonly overexpressed in malignant tissues, including glioblastoma.

Results: The resulting vector, Ad10KO1.RGE-RGD.GFP was produced at high titre and purity. In vitro transduction assays demonstrated significantly enhanced infectivity in $\alpha v\beta 3/5$-positive tumour cell lines. These results support the feasibility of engineering HAdV-D10 as a tumour-selective virotherapy. Ablating native receptor usage while incorporating cancer-specific ligands significantly enhances targeting precision. Further development will include arming the virus with therapeutic transgenes and assessing efficacy in preclinical in vivo models.

Funding acknowledgment: N/A

Theme 1: Precision and mechanistic oncology

T1A35

Knowing the unknown: Real world outcome of Molecular Profiling (MP) in Carcinoma of Unknown Primary (CUP) patients referred to regional (South East Wales SEW) CUP service

Sonali Dasgupta[1], Maleeha Anwar[1], George Joseph[2], Veena Joseph[2], Anurag Joshi[3], Meleri Morgan[3], Alice Richards[3], Sian Morgan[4]

1. Oncology, Velindre University NHS Trust
2. Radiology, Velindre University NHS Trust
3. Pathology, Cardiff and Vale University Health Board
4. Genomics, All Wales Medical Genomics Service (AWMGS)

Cancer of Unknown Primary (CUP) is heterogeneous aggressive metastatic malignancy; sixth commonest cause of cancer deaths. Landmark CUPISCO clinical trial (Krämer, 2024) demonstrate that CUP MP (Molecular Profiling) guided MGT (Molecularly Guided Treatment) improves survival; but in UK, access is through clinical trials/research. In Wales, CUP Cancer Site Group (CSG) collaborated with AWMGS in introducing CUP NGS as Standard-of-care (SOC) (2024). We then analysed regional (SEW) CUP database (Jan 24- April 25) for clinical outcomes.

Illumina-TruSight Oncology-500 assay for NGS and tumour site-specific IHC were used. Molecular targets which could be utilised in clinical practice were only analysed.

167 new referrals to SEW CUP MDT were recorded. 23 were benign and excluded. Data was analysed on N=144. MP reduced confirmed CUP (cCUP) by 22% and increased identification of solid tumours by 16% and non-epithelial cancers by 6%. Total of 74 patients had MP; this supported tumour-of-origin (TOO) in 33 patients. Range of actionable mutations were identified in 25 patients, with PDL1 positivity being the strongest signal (n=16). 13 patients (19.4%) were treated with MGT.

Patients on MGT had median OS 16 months, versus empirical Carboplatin/Taxol chemotherapy 8.2 months, or BSC 2 months (p value=0.000).

Our data is the first UK real-world data on CUP MP outcomes. In one-fifth patients, CUP MP guided TOO-prediction helped access SST-directed targeted treatment as SOC, resulting in significantly improved survival.

49% CUP patients could not have MP; inadequate/poor quality tissue, tissue exhaustion are common challenges. Our future work will investigate integration of liquid biopsy (ctDNA) for MP in CUP.

Abbreviations:

AWMGS – All Wales Medical Genomics Service
BSC - Best Supportive Care
CSG - Cancer Site Group
CUP - Cancer of Unknown Primary
cCUP – Confirmed CUP IHC Immuno Histochemistry
HER2 - Human Epidermal growth factor Receptor 2
MDT - Multi-Disciplinary Team
MGT - Molecular Guided Treatment
MMR - Mismatch Repair protein
MP - Molecular Profiling
NGS - Next Generation Sequencing
OS Overall Survival
PDL1 Programmed Death-Ligand 1
SOC - Standard Of Care
SEW - South East Wales
SST - Site Specific Tumour Site
TOO - Tumour Of Origin

Funding acknowledgment: N/A

Theme 2: Immuno-oncology abstracts

Theme 2: Immuno-oncology

T2A1

Development of a novel combination immunotherapy for the treatment of αvβ6-positive solid tumours

Rebecca J Bayliss[1,3], Elise Moses[1] , Ben de Wet[2], Alan L Parker[1, 3]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University.
2. Immunocore Ltd, Milton Park, Abingdon, Oxfordshire.
3. Wales Applied Virology Unit, School of Medicine, Cardiff University.

Immune-mobilizing monoclonal T-cell receptors Against Cancer (ImmTAC) show potent anti-tumour activity by targeting peptides presented by the major histocompatibility complex (pMHC) on cancer cells through an engineered high-affinity soluble T-cell receptor and activating T-cells via an anti-CD3scFv. ImmTAC NY-ESO targets New York esophageal squamous cell carcinoma 1 (NY-ESO-1), a cancer testis antigen with restricted expression in healthy tissue.

ImmTAC therapy is targeted to peptide presented on a specific allotype and the ability to target broadly remains a challenge. In order to potentially broaden the targeting of tumours by soluble mTCR-based therapies, we utilise an αvβ6 tumour-selective virotherapy, Ad5NULL-A20, as a platform to express HLA.A*02 in complex with NY-ESO-1 peptide (pHLA-NYESO) on the surface of HLA.A*02 negative (αvβ6 positive) cancer cells.

We demonstrate that HLA.A*02 negative cell lines transduced with Ad5NULL-A20.pHLA-NYESO express HLA.A*02 on the cell surface. Co-culture of T cells with cancer cells expressing pHLA-NYESO in the presence of ImmTAC-NYESO resulted in activation of T cells as measured by increased expression of CD69 and CD25. Furthermore, an increase in pro-inflammatory cytokines IFNγ and TNFα, T-cell proliferation and enhanced T cell mediated killing of cancer cells were evident. By contrast, ImmTAC-mediated redirection was not observed in the absence of pHLA-NYESO expression on HLA.A*02 cell lines.

Overall, the surface expression of HLA.A*02 in complex with tumour antigen NYESO using a tumour selective virotherapy, Ad5NULL-A20, has potential to broaden the reactivity of ImmTAC-NYESO to HLA.A*02:01 negative cells. Further investigation could demonstrate if this combination therapy holds translational potential to expand a potential effective treatment to all patients regardless of HLA subtype.

Funding acknowledgment: Velindre Cancer Charity

Immunocore

Wales Applied Virology Unit

β2M-loss in cancer exposes potent HLA-independent T-cell receptors and reveals a gateway to universal cancer targeting.

Li Rong Tan[1], Mateusz Legut[1], Théo Morin[1], Marine E. Caillaud[1], Cristina Rius[1], Aaron Wall[1], Marco Donia[2], Inge Marie Svane[2], John Phillips[3], Barbara Szomolay[1,4], Garry Dolton[1] and Andrew K. Sewell[1].

1. Division of Infection and Immunity, Cardiff University School of Medicine, Cardiff, Wales, UK.
2. Center for Cancer Immune Therapy, Department of Oncology, Copenhagen University Hospital, Herlev, Denmark,
3. Division of Haematology, Department of Medicine, University of Utah School of Medicine, Salt Lake City, UT, United States of America.
4. Systems Immunology Research Institute, Cardiff University, Cardiff, Wales, UK.

Background: The conventional narrative of tumour elimination emphasises $CD8^+$ αβ T-cells recognising tumours via the HLA class I pathway. However, HLA class I downregulation occurs in >40% of cancers, posing a major obstacle to immunotherapy. In addition, HLA restriction limits TCR-T therapy, since even the most common HLA alleles cover only a minority of patients. Therefore, there is a need for safe anti-cancer HLA-agnostic TCRs. Loss of β2-microglobulin (β2M), essential for antigen presentation via HLA class I and MHC-like molecules, is observed in a significant subset of patients. I hypothesised that β2M-negative cancers might provide a source of HLA-independent anti-cancer T-cells.

Methods: We analysed tumour-infiltrating lymphocyte (TIL) products from a patient with β2M-negative metastatic melanoma (NCT00937625) who achieved stable disease after TIL therapy. TCRs were tested for recognition of multiple cancer types. Genome-wide CRISPR/Cas9 screening is being applied to identify the corresponding ligands.

Results: Cancer-reactive γδ TCRs were present in the TILs. When transferred into recipient T-cells, these TCRs conferred robust, HLA-independent recognition of diverse cancers, consistent with recognition of widely shared non-polymorphic ligands. In vivo persistence and expansion of these γδ T-cells in patients without evident pathology suggest a favourable safety profile. A forward genetic screen has yielded lysis-resistant tumour lines, which are being sequenced to identify molecules required for cancer recognition.

Conclusion: These findings demonstrate that β2M-loss cancers expose potent, HLA-independent γδ TCRs with broad-spectrum anti-tumour activity. Defining the ligands they recognise could reveal universal cancer targets and lay the foundation for a new class of off-the-shelf immunotherapies effective in all patients.

Funding acknowledgment: Wellcome Trust

Optimising anti-PI3Kδ and anti-LAG-3 immunotherapy dosing regimens for triple negative breast cancer improves outcome by removing treatment-related adverse events

Sarah N Lauder[1], Ana Pires[1], Michelle Somerville[1], Lorenzo Capitani[1], Kathryn Smart[1], James Geary[1], Emily M Mills[1], Bart Vanhaesebroeck[2], Andrew Godkin[1], Awen Gallimore[1].

1. Division of Infection and Immunity, Cardiff University School of Medicine, SIURI, Cardiff, CF14 4XN, UK
2. UCL Cancer Institute, Paul O'Gorman Building, University College London, 72 Huntley Street, London WC1E 6BT, UK

Background: Current immunotherapy regimens most often fail due to an insufficient T cell response and/or immune-related adverse events (irAE) which lead to treatment discontinuation. Additionally, many cancers likely require combination immunotherapies which may further increase irAE. This is exemplified in our preclinical models of dual targeting of regulatory T cells (Tregs) with a PI3Kδ inhibitor and antibodies to LAG-3. Indeed, while this approach in preclinical models of triple-negative breast cancer shows excellent tumour control, treatment is poorly tolerated and results in significant toxicity. Given the emerging relevance of these targets in human breast cancer, we explored strategies to sustain tumour immunity while mitigating toxicity using these therapeutic modalities.

Methods: Different approaches to combination immunotherapies employing a PI3Kδ inhibitor (PI-3065) with LAG-3 targeting treatments were tested in a mouse model of triple negative breast cancer to optimise tumour control whilst limiting irAE.

Results: Systemic targeting of the LAG-3 ligand FGL1 did not provide additional anti-cancer benefit but markedly worsened irAE. Localised delivery of anti-LAG-3 antibodies to the tumour microenvironment promoted tumour control whilst reducing the overall number of animals experiencing severe irAE compared to those receiving systemic LAG-3 blockade. However, intermittent dosing of PI3Kδ inhibitor in combination with anti-LAG-3 treatment prevented the initial development of irAE and enabled excellent tumour control without systemic adverse effects.

Conclusions: Our data demonstrated that refining immunotherapy delivery approaches can improve tolerability that ultimately transforms treatment success.

Funding acknowledgment: This work was funded by Cancer Research UK and Breast Cancer Now.

Theme 2: Immuno-oncology

T2A4

PROTACs enhance the presentation of MHC class I peptides through increased degradation of targeted proteins: A method for making cancers more visible to antigen-specific T cells

Emily Mills[1], Sarah Lauder[1], Kathryn Smart[1], Saul Michue-Seijas[2], Hannah Cole[2], James Geary[1], Andrew Godkin[1], Heulyn Jones[2], Awen Gallimore[1]

1. Division of Infection and Immunity, Cardiff University
2. Medicines Discovery institute, Cardiff University

MHC class I peptides are produced from proteolytic degradation of cytosolic proteins in the ubiquitin-proteasome pathway. MHC class peptide complexes are then presented on the cell surface where they may be recognised by T cells. This pathway is crucial for allowing cytotoxic T cells to detect and kill infected or malignant cells. Cancers often hijack these mechanisms, downregulating expression of antigens or the MHC class I complex, subsequently evading recognition and killing by tumour-specific CD8+ T-cells. Resulting from this, a critical focus in the field of cancer immunotherapies is finding a means to improve the presentation of tumour associated antigens on a cancer cell to enhance the sensitivity of T-cell based immunotherapies. PROteolysis TArgeting Chimeras (PROTAC) technology is rapidly changing the landscape of drug discovery, finding applications in the degradation of cell cycle targets associated with cancer. PROTACs initiate the degradation of their target protein via enforced ubiquitination and subsequent proteosomal-mediated degradation. While many PROTAC-based cancer studies have focused on degrading protein targets that are critical for cell survival, less well explored is the fate of the target protein once degradation has occurred. Here, we demonstrate that PROTAC-mediated degradation of the intracellular target protein HCV-NS3 enhances proteosomal-degradation and subsequent presentation of MHC-I restricted NS3-derived peptides on the surface of a cancer cell. This PROTAC-mediated boost of antigen presentation improves the recognition of cancer cells by NS3-specific cytotoxic CD8+ T-cells, and preliminary work indicates that PROTAC treatment of mice with NS3+ tumours enhances T-cell tumour infiltrate, reduces tumour incidence, slows tumour growth and improves overall survival.

Funding acknowledgment: N/A

Theme 2: Immuno-oncology

T2A5

A Patient-Derived Organoid Platform for Systematic Identification of Colorectal Cancer-Specific Epitopes

Chloe Harris[1], Stefan Milutinovic[1], Stephanie Burnell[1], Lorenzo Capitani[1], Carina Owen[1], Kasope Wolffs[1,2], Andrew Godkin[1,3], Awen Gallimore[1]

1. Division of Infection and Immunity, School of Medicine, Cardiff University, Heath Park, Cardiff, CF14 4XN, UK.
2. Wales Cancer Bank, UHW Main Building, Heath Park, Cardiff, CF14 4XN, UK.
3. Department of Gastroenterology and Hepatology, University Hospital of Wales, Heath Park, Cardiff, CF14 4XN, UK. 4Division of Cancer and Genetics, School of Medicine, Cardiff University, Heath Park, Cardiff, CF14 4XN, UK

Colorectal cancer (CRC) remains largely unresponsive to immunotherapy, particularly in microsatellite-stable (MSS) disease, where tumour-specific epitopes are poorly defined. Here, we describe a fully human, animal-free CRC organoid platform integrating multi-omic profiling with immune co-culture to systematically discover and functionally validate tumour-specific antigens.

Using a biobank of matched tumour and healthy organoids with corresponding autologous PBMCs, we implemented a tiered antigen discovery pipeline combining bulk RNA-seq and whole-genome sequencing (WGS). This approach identified a diverse epitope landscape comprising tumour-associated antigens (TAAs), canonical mutation-derived neoantigens, gene fusions, and non-canonical transcripts. TAAs were identified via stringent differential expression analysis (DESeq2) and HLA class I epitope prediction (NetMHCpan). Canonical neoantigens and fusion-derived peptides were predicted using nextNEOpi, integrating WGS/RNA-seq data, HLA typing, and phasing. Non-canonical tumour-specific antigens were reconstructed from intronic and intergenic regions using NovumRNA, filtered against matched healthy organoids and GTEx colon RNA-seq (n = 260), and assessed for HLA binding. Candidates were prioritised based on predicted binding affinity, expression level, and variant allele frequency.

MSI tumours yielded the highest number of predicted epitopes, including up to 345 TAAs, 68 fusion-derived, and 16 non-canonical candidates. Notably, one MSS tumour generated over 300 TAAs and 39 fusion epitopes despite a low canonical mutation burden. Across the cohort, canonical neoantigens were rare (≤4 per patient). After stringent filtering, 37 high-confidence epitopes were prioritised, 11 of which were shared across patients and/or HLA alleles.

Selected peptides will undergo immunogenicity testing using HLA-matched donor PBMCs, followed by autologous organoid–PBMC co-cultures to assess $CD8^+$ T-cell reactivity and tumour specificity. This platform defines the CRC epitope landscape across multiple antigen classes and establishes a translational framework for personalised immunotherapy.

Funding acknowledgment: NC3Rs

Theme 2: Immuno-oncology

T2A6

Immune Activation Reshapes Tumour Vasculature Potentiating Successful Anti-Tumour Responses to Anti-Angiogenic Co-Therapy

Stefan Milutinovic[1], Sarah Lauder[1], Kathryn Smart[1], Marc Hillgaertner[1], Michelle Somerville[1], Andrew Godkin[1] and Awen Gallimore[1]

1. Division of Infection and Immunity, Systems Immunity University Research Institute, Cardiff Cancer Research Partnership, School of Medicine, Heath Park, Cardiff, CF119HP.

Tumour blood vessels are structurally and functionally abnormal, generating a hypoxic and immunosuppressive microenvironment that limits the effectiveness of immunotherapy. Anti-angiogenic agents can transiently normalize tumour vasculature and enhance immune-cell infiltration, and pre-clinical as well as clinical studies show that combining these agents with immune-checkpoint blockade (ICB) improves anti-tumour responses. However, emerging evidence indicates that the relationship between angiogenesis and immunity is bidirectional: immune activation triggered by ICB can itself remodel tumour vessels, promote vascular normalisation, and modulate pro- and anti-angiogenic immune populations. Using a carcinogen-induced tumour model in which regulatory T cell (Treg) depletion leads to improved tumour control we investigated vascular changes associated with heightened anti-tumour immunity. Bioinformatic analysis of tumour microarray gene-expression data using gene set enrichment analysis and gene set variation analysis for single sample pathway scoring revealed an enrichment of the hallmark angiogenesis pathway in tumours that do not respond to Treg depletion (non-responders). Further interrogation using manually curated gene sets derived from previously published bulk RNA-sequencing and single-cell studies of mouse and human intra-tumoral endothelial cells revealed an enrichment of signatures associated with vascular disorganization and highly angiogenic endothelial tip cells, demonstrating that an angiogenic transcriptional programme distinguishes non-responder from responder tumours. Further findings support the existence of reciprocal crosstalk between T cells and tumour vasculature which may inform the optimal design and scheduling of combination immunotherapy and anti-angiogenic strategies.

Funding acknowledgment: Cancer Research UK

Theme 2: Immuno-oncology

T2A7

Oncolytic Adenovirus 5 Mediated Prodrug Conversion Therapy for use in Glioblastoma

Wallace Rebecca[1], Bates A Emily[1], Parker L Alan[1]

1. Cardiff University, School of Medicine

Current treatments for glioblastoma are extremely limited. Consequently, the Viral Immunotherapies and Advanced Therapeutics Lab (VITAL) group is designing Adenovirus (Ad) based oncolytic viruses as the next generation of glioblastoma treatments. We inserted the FCU1 transgene, which converts the harmless antifungal agent 5-flourocytosine (5-FC) into chemotherapy drug 5-flourouracil (5-FU), into our Ad5NULL-RGD vector, which is both de-targeted from all natural Ad5 binding sites and re-targeted to glioblastoma. We hope to achieve a multimodal effect with this new therapy: The oncolytic virus infects cancer cells and, through oncolysis, releases both tumour and viral antigens into the tumour microenvironment, stimulating the immune system. Replication leads to the production of more virus within the tumour. At the same time, infected cells locally produce the encoded transgene and convert the prodrug to chemotherapy at the site of need. The viruses were produced using in-house recombineering techniques and tested in vitro using multiple human glioma stem-cell lines. Primary in vitro results are promising, as the vectors effectively kill patient derived glioma stem-cell lines. This effect is enhanced in the presence of 5-FC and can be observed in a dose dependent manner. Additionally, the "null" mutations introduced into the virus to reduce off-target effects and increase safety do not diminish infective capacity of tumour cells. In conclusion, this presents an exciting possibility for the future of glioblastoma treatments and new hope to current and future patients.

Funding acknowledgment: Funded by Cancer Research Wales

Theme 2: Immuno-oncology

T2A8

Evaluating microglia phenotypes and patient-specific glioblastoma–microglia interactions using a dynamic 3D iPSC-derived brain organoid model

Julia Spagnolello[1]

1. Cardiff University

Glioblastoma (GBM) is the most aggressive primary brain tumour, representing approximately 50% of all malignant brain tumours. Despite standard-of-care treatment, the outcomes remain extremely poor, with median survival around 20 months, with less than 10% of the patients living beyond five years. There are currently no approved targeted therapies for GBM. Increasing evidence highlights the crucial role of microglia, the resident myeloid cells of the brain, in shaping the GBM tumour microenvironment, supporting tumour growth and facilitating immune evasion. However, the specific microglial phenotypes and signalling mechanisms that drive these tumour-promoting functions remain poorly understood due to the lack of physiologically relevant human models.

This project addresses this gap by generating a biologically relevant 3D patient–derived model to elucidate underlying mechanistic interactions between microglia and GBM. Patient-derived tumour tissue and matched blood samples are provided through our partnership with King College London. Peripheral blood mononuclear cells are reprogrammed into induced pluripotent stem cells via Sendai virus-mediated delivery of the Yamanaka factors and subsequently directed along neuronal and mesodermal pathways to generate brain organoids or functional microglia. The final model integrates both patient-derived GBM cells and functional microglia into the brain organoid creating a 3D isogenic system

Using this system, we aim to characterise tumour-associated microglial phenotypes and define their spatial and functional interactions with GBM cells. Insights from this work will help identify microglia-driven mechanisms that could be targeted in future to support the development of novel immunotherapeutic strategies for GBM.

Funding acknowledgment: Cancer Research Wales

Theme 2: Immuno-oncology

T2A9

In vivo reprogramming of extracellular vesicles: developing a platform technology to enhance cancer vaccines

Aimee P. Lucignoli[1], Kevin D. Thiessen[2], Kate F. Milward[1], Jason P. Webber[3], Alan L. Parker[1,4], Rebecca J. Richardson[2], Carly M. Bliss[1,4,5]

1. Division of Cancer & Genetics, School of Medicine, Cardiff University
2. School of Biochemistry and Biomedical Science, University of Bristol
3. Institute of Life Science, Swansea University Medical School, Swansea University
4. Wales Applied Virology Unit, Cardiff University
5. Systems Immunity University Research Institute, Cardiff University

Immunotherapy has revolutionised cancer treatment by directing patients' T cells to eliminate tumours. One limitation is low immunogenicity of tumour-associated antigens (TAAs) due to their "self" origin. We propose harnessing extracellular vesicles (EVs) to enhance therapeutic vaccination against TAAs. Proteins can be tethered to EVs by fusion to motifs that are naturally enriched within EV membranes. Display of TAA on EVs should increase TAA dissemination from the injection site for interaction with immune cells, helping to break peripheral tolerance.

DNA-based EV-display constructs using EGFP model antigen were designed and evaluated in vitro and in vivo. Constructs were transfected into human cells and EVs isolated from cell conditioned media. Successful display of EGFP on EVs in vitro was confirmed by ELISA. To assess EV-editing capability in vivo, constructs were injected into single-cell zebrafish embryos to visualise EGFP-displaying EVs. Live imaging of the zebrafish dorsal aorta at two days post fertilisation revealed circulating EGFP-tagged EVs. EV tracking and quantitative analysis confirmed these events were unique to our EV-display construct, with significantly higher frequency and fluorescence intensity compared with non-targeted EGFP. Further, mammalian codon optimisation of constructs was sufficient for expression in both zebrafish and human cells, underpinning streamlined pre-clinical evaluation.

In conclusion, we have reprogrammed EVs in vivo to display an antigen of interest. The system will now be encoded into an adenoviral delivery vector for additional inflammatory stimuli and to facilitate endogenous production of modified EVs. These novel vaccines will progress to immunogenicity testing in mice, with a TAA replacing EGFP.

Funding acknowledgment: Wales Cancer Research Centre,

GW4 BioMed2 MRC DTP,

Royal Society,

Systems Immunity University Research Institute (Cardiff University)

Theme 2: Immuno-oncology

T2A10

Development of Ad5NULL-DogTag: A native tropism-ablated, flexible platform for precision adenoviral therapy vector targeting

Emma A. Swift[1], Alan L. Parker[1,2,3]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University, Cardiff, CF14 4XN, UK
2. Systems Immunity University Research Institute, Cardiff University School of Medicine, Heath Park, Cardiff, CF14 4XN, UK
3. Wales Applied Virology Unit (WAVU), Cardiff University School of Medicine, Heath Park, Cardiff, CF14 4XN

Adenoviruses are appealing candidates from which to construct vectors for therapeutic applications, including as oncolytic virotherapy agents. Nevertheless, native adenoviral entry receptors are broadly expressed on the surface of healthy human tissues, resulting in significant potential for their off-target uptake and resulting occurrence of dose-limiting side effects. The ability to alter the tropism of adenoviruses to selectively target their entry into malignant cells is therefore critical to their success as cancer therapy agents.

In the present study, we describe the development a flexible system for precision adenoviral vector targeting, generated by combining mutations that ablate all known cell entry mechanisms for adenovirus serotype 5 (Ad5NULL) with insertion of a heterologous peptide known as DogTag. The DogTag peptide can undergo spontaneous reaction to form a covalent bond with its protein partner, DogCatcher. By genetically linking DogCatcher to cancer-targeting domains, this provides a mechanism through which the basal viral backbone can be coated with adaptor molecules to guide its entry into tumour cells. Since alteration of the tropism of this vector requires only the exchange of the adaptor molecule, Ad5NULL-DogTag is poised to overcome issues such as downregulation of entry receptor expression and tumour heterogeneity as barriers to the efficacy of oncolytic virotherapy.

Thus far, we have successfully produced the Ad5NULL-DogTag vector, as well as several recombinant DogCatcher proteins targeting a variety of tumour-associated antigens. We now aim to optimise the coupling of these adaptors to the viral surface and evaluate their capacity to direct selective entry of Ad5NULL-DogTag into tumour cells.

Funding acknowledgment: Cancer Research UK

Theme 2: Immuno-oncology

T2A11

Investigating adenovirus 49 as a potential oncolytic virus

Rosie M. Mundy[1], Jasmine Caldwell[1], Charlotte Lovatt[1], Yuan Chen[2], Antonio Di Maio[2], Yan Liu[2], David A. Matthews[3], Alan L. Parker[1,4]

1. Division of Cancer and Genetics, Cardiff University School of Medicine, Cardiff, CF14 4XN
2. Department of Metabolism, Digestion and Reproduction, Glycosciences Laboratory, Faculty of Medicine, Imperial College London, Du Cane Road, London, W12 ONN
3. Department of Cellular and Molecular Medicine, School of Medical Sciences University Walk, University of Bristol, Bristol, BS8 1TD
4. Systems Immunity University Research Institute, Cardiff University School of Medicine, Cardiff, CF14 4XN

Oncolytic viruses present an alternative for cancer care to traditional methods, which can have devastating side effects for patients. Human adenoviruses have garnered attention for this purpose, due to their amenability to engineering for tropism modification and their capability to package large transgenes.

Efforts to create an oncolytic adenovirus have centred around adenovirus type 5 (Ad5). A significant disadvantage to this is high global seroprevalence, arising from prior infection priming a patient's immune system to recognise and clear an Ad5 based therapeutic before delivery of its therapeutic payload. Adenovirus 49 (Ad49) is an attractive alternative to Ad5 due to its comparatively low global seroprevalence, although exploitation is hampered by a lack of understanding of its cellular receptors.

Previous work has identified a role for sulphated glycans binding the fiber-knob protein of Ad49 (which initiates infection), although another adenovirus' protein differing by three surface amino acids did not bind the glycans. These residues were mutated, and the resulting proteins tested for binding to cells deficient in heparan sulphate proteoglycans. We have also investigated Ad49 for its transcriptomic profile, to begin to assess its behaviour within infected cancer cells.

By determining Ad49's interactions, mutations can be designed to target Ad49 to cancer cells and control the virus' infection mechanism, presenting an attractive, safe and efficient alternative for future viral vector development. This work will provide safety and efficacy information to guide future vectorisation and targeting of Ad49 to cancer cells to provide future therapeutic options to patients.

Funding acknowledgment: WCRC Career Starter Award

Manipulating T-cell immune responses to improve anti-Glioblastoma immunity

Mathew Clement[1,2], Michelle Somerville[1], Sarah Lauder[1], Stefan Milutinovič[1], Florian Siebzehnrubl[3] & Awen Gallimore[1,2]

1. Division of Infection & Immunity, School of Medicine, Cardiff University.
2. Systems Immunity Research Institute, School of Medicine, Cardiff University.
3. European Cancer Stem Cell Institute, Cardiff University.

Glioblastoma (GBM) is the most aggressive and malignant primary brain tumour. There are limited treatment options including surgery, radiotherapy, and temozolomide chemotherapy, but these usually provide temporary relief with tumour return inevitable. Even with aggressive treatment GBM is fatal with a median survival of ~15 months and a five-year survival rate of 6.9%. This highlights the urgent need for novel treatments.

Current therapeutic approaches for GBM largely fail to prevent relapse due to genetic and cellular heterogeneity within the tumour. Whilst the use of immune checkpoint blockade (ICB) or chimeric antigen receptor T-cells (CAR-T-cells) have been trialled as immune-modulators in GBM, both have failed to provide any improved tumour control indicating that other targets are needed. This may be due to other immunosuppressive mechanisms in the tumour microenvironment (TME) and/or due to sub-optimal priming of GBM-specific T-cells. Overcoming immunosuppression in the TME is therefore vital for the success of immunotherapies targeting GBM moving forward.

The immune-modulating cytokine IL-10 plays a major role in promoting an immune-suppressive TME and has been shown to promote GBM tumour progression. CD4+ T-cells are known to release IL-10 (TH1, TH2 and Regulatory T-cells) during inflammation, however, how CD4+ T-cell mediated IL-10 release contributes to GBM progression remains unknown.

My preliminary results show that IL-10 is over-produced in both human and mouse models of GBM and that blocking IL-10 signalling gives rise to a reduction in tumour burden, greater survival and an increase in activated immune cells in the brain. These data imply that targeted blockade of IL-10 signalling could provide a useful treatment option to improve GBM outcome in humans.

Funding acknowledgment: The Brain Tumour Charity

Theme 2: Immuno-oncology

T2A13

A pre-clinical adenoviral vectored cancer immunotherapy designed to harness antiviral immunity against cancer cells

Kate Milward[1], Aimee Lucignoli[1], Katie Topley[2], Elise Moses[1], Garry Dolton[2], Lucy C Jones2[,3], Andrew Sewell[2,4], Carly M Bliss[1,4,5], Alan L Parker[1,4,5]

1. Division of Cancer & Genetics, Cardiff University
2. Division of Infection & Immunity, Cardiff University
3. Cwm Taf Morgannwg University Health Board
4. Systems Immunity University Research Institute (SIURI), Cardiff University
5. Wales Applied Virology Unit (WAVU), Cardiff University

Immunotherapies designed to enhance anti-cancer immunity can be limited by poor tumour-selectivity, or by scarcity of immunogenic tumour-associated antigens (TAAs). This study overcomes these challenges through a novel adenoviral-vectored immunotherapy, engineered to selectively redirect antiviral immunity towards epithelial cancers.

Our approach exploits an engineered tumour-selective, non-replicating Adenovirus type-5 (Ad5) platform, Ad5NULL-A20. The Ad5NULL modifications eliminate native Ad5 tropisms, protecting healthy tissues. Insertion of A20 peptide retargets viral entry to tumours via αvβ6- an integrin enriched in aggressive epithelial cancers, but not healthy adult epithelium. Bypassing reliance on TAAs, Ad5NULL-A20.VA encodes a viral antigen (VA), against which population-level T cell immunity is prevalent through vaccination/infection. We hypothesised that vector-treated cancer cells would present VA via Human Leukocyte Antigen (HLA), targeting them for antiviral T cell-mediated destruction.

Following incubation with Ad5NULL-A20.VA in vitro, surface expression of VA and HLA were quantified in multiple human pancreatic cancer cell lines. Immunotherapy functionality was assessed in co-cultures of VA-specific T cells with Ad5NULL-A20.VA-treated cancer cells, measuring T cell activation via ELISA for cytokines and flow cytometry for activation markers. T cell-mediated killing of cancer cells was measured using viability assays.

T cells were robustly activated in the presence of Ad5NULL-A20.VA-transduced pancreatic cancer cells, and killed those cancer cells in an HLA-restricted, αvβ6-dependent manner. These findings demonstrate that Ad5 NULL -A20.VA selectively infects, and re-directs VA-reactive T cell cytotoxicity towards, αvβ6-expressing cancer cells. These promising results prompt the incorporation of other immune mediators and alternative VAs, plus evaluation in other epithelial cancer types and mouse models.

Funding acknowledgment: Wales Cancer Research Centre
Academy of Medical Sciences
Royal Society
Advanced Therapies Wales
Cancer Research UK
Stand Up to Cancer
Life Sciences Hub Wales

Theme 2: Immuno-oncology

T2A14

Targeting glioblastoma with precision adenoviral therapies

E. A. Bates[1], R. J. Bayliss[1], M. Maruskova[1], A. L. Parker[1]

1. Division of Cancer and Genetics, School of Medicine, Cardiff University, Heath Park, Cardiff, CF14 4XN, UK.

Glioblastoma (GBM) is a devastating form of brain cancer with poor survival rates and a significant unmet clinical need. Existing virotherapies lack the required selectivity and power to be effective in GBM. Adenoviruses (Ad) are popular vectors for a range of clinical applications. Species C, Ad5, is well documented experimentally, but its utility is limited by high prevalence of pre-exiting immunity and significant "off-target" interactions which negatively affect dose limiting toxicities. Our lab has developed the Ad5NULL platform with adverse interactions ablated.

We developed glioblastoma targeted vectors, Ad5NULL-RGD and Ad10-RGD, which efficiently and selectively target αvβ3/5 integrins, upregulated in GBM, improving 'on tumour' activity and limiting detrimental off target effects. Our data indicates Ad5NULL-RGD demonstrates an improvement in transduction compared to Ad5 and Ad5-RGD. We show selective transduction in GBM cell lines and glioma stem cells (GSCs) demonstrating Ad5NULL-RGD that is well suited to GBM applications. Additionally, we demonstrate that Ad10-RGD efficiently transduces αvβ3 positive GSCs. We have evaluated these vectors in relevant models of GBM including brain organoids and patient-derived 3D cultures. We have developed these vectors further by incorporating transgenes that modulate the immune microenvironment and enhance tumour cell killing. These novel precision virotherapies hold potential as new therapeutic options for devastating brain cancers of significant unmet clinical need.

Funding acknowledgment: The Brain Tumour Charity

Cancer Research Wales

Theme 2: Immuno-oncology

T2A14

3MERLIN: Myasthenia, Myositis, Myocarditis syndrome (3M) Epidemiology, Registry founding, and Laboratory INsights

Ben Schroeder[1,2], Arron Lacey[3], Laura Baker[3], Samra Turajilic[4,5], Max Emmerich[4,5], Simon Jones[6,7], Anna Olsson-Brown[8,9], Heather Shaw[10,11], Ricky Frazer[12], Arjun Ghosh[13,14], Kate Young[4], Hester Franks[15,16], Clare Barlow[17], Helen Winter[18], Stephen Keddie[19], Maria I Leite[20,21], Sam Clark[22], Neil Robertson[1,2], Aisling Carr[23,24], Mark Willis[1,2]

1. Department of Neurology, University Hospital of Wales, Cardiff, Wales, UK.
2. Department of Psychological Medicine and Clinical Neuroscience, Cardiff University, Cardiff, Wales, UK.
3. School of Medicine, Swansea University, Swansea, Wales, UK
4. Renal and Skin Units, The Royal Marsden NHS Foundation Trust, London, UK.
5. Cancer Dynamics Laboratory, The Francis Crick Institute, London, UK.
6. Systems Immunity Research Institute, Cardiff University, Cardiff, UK
7. Hodge Centre for Translational Neuroscience, Cardiff University, Cardiff, UK
8. Sussex Cancer Centre, University Hospitals Sussex, Sussex, UK
9. Dept of Clinical and Molecular Pharmacology, University of Liverpool, Liverpool, UK
10. Mount Vernon Cancer Centre, East and North Hertfordshire NHS Foundation Trust, UK
11. Department of Oncology, University College London Hospitals, London, UK
12. Velindre Cancer Centre, Cardiff, UK
13. Barts Heart Centre, Barts Health NHS Trust, London, UK
14. Cardio-oncology, University College London Hospitals, London, UK
15. Centre for Cancer Sciences, Translational Medical Sciences, Biodiscovery Institute, University of Nottingham, Nottingham NG7 2RD, UK.
16. Department of Oncology, Nottingham University Hospitals NHS Trust, Nottingham City Hospital, Hucknall Road, Nottingham NG5 1PB, UK.
17. Somerset Foundation Trust, Musgrove Park Hospital, Parkfield Drive, Taunton, Somerset TA1 5DA, UK
18. The Bristol Haematology and Oncology Centre, Horfield Road, Bristol BS2 8ED, UK
19. Department of Neurology, The Royal London Hospital, London, England, UK.
20. Nuffield Department of Clinical Neurosciences, University of Oxford, Oxford, England, UK.
21. Department of Neurology, Oxford University Hospitals NHS Foundation Trust, Oxford, England, UK.
22. Critical Care, University College London Hospitals, London, UK
23. Centre for Neuromuscular Diseases, National Hospital for Neurology and Neurosurgery, London, England, UK.
24. Department of Neuromuscular Diseases, UCL Queen Square Institute of Neurology, London, England, UK

Background: 3M (Myasthenia, Myositis, Myocarditis) is a novel, high-lethality condition (mortality rate ~40%) provoked by high-impact cancer therapy (Immune Checkpoint Inhibitors - ICIs). Approximately 45% of new cancer patients are eligible for ICI therapies and therefore vulnerable to 3M development. 3M epidemiology and pathophysiology are poorly understood with a pressing need to identify treatment and emergency management strategies.

Methods: 3MERLIN is a doctoral thesis supported by an Association of British Neurologists (ABN) Clinical Research Training Fellowship and Welsh Clinical Academic Track (WCAT) Fellowship composed of three work-packages to identify the epidemiology and an exploration of pathophysiology.

1) Big data approach using an algorithm to identify patients with 3M on a national level using the Secure Anonymised Information Linkage (SAIL) cohort in Wales.
2) Prospective, multi-site, protocol-led clinical phenotyping and biobanking into a new UK registry
3) Wet-lab techniques to identify cellular, humoral, and serological markers of 3M and severity in comparison with MANIFEST subjects.
Participating sites include: Cardiff, UCLH, Oxford, Brighton, Nottingham, Bristol.

Results: Results will be presented at relevant national and international neurology and oncology conferences, and in peer-reviewed journals. Expressions of interest in collaboration are welcomed.

Conclusion: 3MERLIN establishes a national translational platform to develop our understanding of a novel, high-lethality condition with the aim of improving diagnosis, risk stratification, and management of 3M.

Funding acknowledgment: Association of British Neurologists (ABN) Clinical Research Training Fellowship and Welsh Clinical Academic Track (WCAT) Fellowship

Theme 2: Immuno-oncology

T2A15

ABC-12: Exploring the microbiome in patients (pts) with advanced biliary tract cancer (BTC) in a first-line study of durvalumab in combination with cisplatin/gemcitabine (cis/gem)

Hayley Timmins[1], Ashley Osborne[2], Rebecca Cox[2], Joanna Canham[1], Muhammad Riaz[1], Huda Mohamed[1], Harpreet Wasan[3], Pippa Corrie[4], Roopinder Gillmore[5], Mabel Teng[6], Olusola Faluyi[7], Arvind Arora[8], Seema Arif[9], Paul Miller[10], Richard A Hubner[2], John Bridgewater[11], Richard Adams[1,9], Juan W Valle[12,2,13], Mairéad G McNamara[12,2]

1. Cardiff University
2. The Christie NHS Foundation Trust
3. Imperial College Healthcare NHS Trust
4. Cambridge University Hospitals NHS Foundation Trust
5. Royal Free London NHS Foundation Trust
6. University Hospitals Birmingham NHS Foundation Trust
7. Clatterbridge Cancer Centre NHS Foundation Trust
8. Nottingham University Hospitals NHS Trust
9. Velindre University NHS Trust
10. Oxford University Hospitals NHS Foundation Trust
11. University College London Hospitals NHS Foundation Trust
12. University of Manchester
13. The Cholangiocarcinoma Foundation

Background: Durvalumab/cis/gem improved overall survival (OS) in pts with advanced BTC versus placebo/cis/gem (Oh et al. NEJM Evid 2022). Disruption of microbiota may impair tumour response to immunotherapy/chemotherapy; a better understanding of its role in efficacy of these therapeutics in advanced BTC is required.

Methods: This is a multi-centre, single arm trial, recruiting a minimum of 50 evaluable patients from 9 sites to explore the microbiome in pts receiving durvalumab 1500 mg intravenously (IV) Q3w, in combination with cis 25 mg/m2, gem 1000 mg/m2 (Days 1 and 8, Q3w) up to 8 cycles, followed by durvalumab 1500 mg as monotherapy Q4w, until progression or intolerable toxicity. Pts with an ECOG PS of ≤1, histologically-proven BTC, including cholangiocarcinoma and gallbladder carcinoma, with no prior systemic chemotherapy for locally advanced or metastatic disease are eligible. Pts must provide saliva and stool samples before durvalumab/cis/gem and at 18 weeks, or at progression (if earlier than 18 weeks). Taxonomic profiling via 16S Ribosomal ribonucleic acid gene sequencing will examine differences in diversity and composition of the gut microbiome. The primary objective is to determine the difference in baseline alpha diversity between "responders" (partial/complete response) and "non-responders" at 18 weeks (RECIST 1.1). Secondary objectives include investigation of association between microbiome parameters and objective response rate, tumour control (partial + complete response + stable disease), progression-free and OS, and investigate interaction between treatment effect and microbiome parameters. Archived tissue will be used for research into the tumour microbiome and/or factors that may influence response to chemotherapy/immunotherapy.

Clinical Trial Registration: ISRCTN Number: 11210442

Funding acknowledgment: AstraZeneca Pharmaceuticals

Theme 2: Immuno-oncology

T2A16

Immune-competent iPSC-brain organoids: the dialogue between myeloid and lymphoid cells within Glioblastoma microenvironment

Giulia A Ionescu[1], Cátia Neto[1]
1. Cardiff University, School of Pharmacy and Pharmaceutical Sciences

Glioblastoma multiforme (GBM) is the most common malignant primary brain tumour, characterised by a highly aggressive behaviour, with a dismal prognosis. Due to extensive infiltration and molecular heterogeneity, GBM has a high rate of relapsing following initial standard-of-care treatment with residual cells showing variable degrees of resistance to chemo- and radiotherapy.

The tumour microenvironment (TME) is a major influence in disease recurrence and development, with a crucial role in tumour evolution and immune evasion. It consists of both tumour and non-tumour derived cell populations, specifically of the immune component (including myeloid and lymphoid populations), that are in constant communication. Recent studies have shown brain-resident myeloid populations have a significant impact on the suppressive nature of the TME by discouraging antitumour T cell activity and limiting effectiveness of all in-clinic immunotherapies.

Building onto the work that has been carried out in our team, this project will focus on accurate recapitulation of the GBM TME using a 3D iPSC-brain organoid (BO) model derived from patient iPSCs. Using iPSC technology, our model will incorporate brain-resident myeloid cells (microglia and macrophages) and different T cell population to provide valuable insights into the immune dynamics within GBM tumours, facilitate target identification and aid drug development. Our aims are to address the hypothesis that modulation of the myeloid populations towards anti-tumour and immune suppressive phenotypes will improve T cell anti-tumour function, and how direct chemical modulation influences T cell activity within TME.

Funding acknowledgment: This PhD project is funded by Cancer Research Wales

Theme 2: Immuno-oncology

T2A17

Localised delivery of chemoattractants and immune checkpoint inhibitors using a precision virotherapy in pancreatic cancer

Charley Lovatt-Travers[1], Luned M. Badder1, Catherine Hogan[1,2], Alan L Parker[1]

1. Division of Cancer and Genetics, Cardiff University School of Medicine
2. European Cancer Stem Cell Research Institute, Cardiff University School of Biosciences

PDAC is renowned for having an immunologically "cold" tumour microenvironment characterised by low tumour infiltrating lymphocytes (TILs), infiltration of immunosuppressive immune cells and decreased antigen presentation, and this is reflected in the poor results seen from clinical trials looking at systemic administration of immune checkpoint inhibitors (ICIs). ICIs work by driving inflammation and activating existing anti-tumour immunity; therefore, durable clinical responses are most seen in cancers which demonstrate an immunologically inflamed "hot" TME with existing immune cell infiltration. Therefore, to extend ICI efficacy to non-responders, it is critical that combination strategies which aim to "heat up" tumours to obtain durable clinical responses are generated.

To this end, oncolytic viruses (OVs), which preferentially infect and induce immunogenic cell death of cancer cells are a compelling combination agent which possess the ability to increase immune cell infiltration and overcome immunosuppression. We have previously described the modification Ad5 to retarget the virus to αvβ6 integrin to generate a tumour-selective virotherapy; Ad5NULL- A20. αvβ6 integrin is expressed in >90% of PDAC tumours, with limited expression in healthy epithelium. We demonstrate that Ad5NULL- A20 selectively kills αvβ6+ PDAC cells and that the immune activating activity of these vectors can be enhanced by developing armed versions that locally secrete anti-programmed death-1 (PD-1) and anti-PD-L1 antibodies. Furthermore, through the secretion of the chemoattractant interferon γ-induced protein 10 (IP10), we demonstrate significantly increased T cell migration in vitro.

Funding acknowledgment: Pancreatic Cancer Research Fund

Theme 2: Immuno-oncology

T2A18

Abstract retracted

Theme 3: Radiotherapy abstracts

Theme 3: Radiotherapy

T3A1

Design of ruthenium(II) polypyridyl complexes as new radiosensitizers

Natalia Kolozsvari[1], Sujani Imaduwa Wickrama Acharige[1], James Cronin[2], Christopher Staples[3], Martin R. Gill[1]

1. Department of Chemistry, Swansea University
2. Department of Biomedical Sciences, Swansea University
3. School of Medical Sciences, Bangor University

Radiosensitising chemotherapies are molecules that combine synergistically with ionising radiation (IR) to achieve greater cancer cell killing than each modality in isolation. At present, molecules used in this capacity are established DNA-damaging chemotherapeutics that have several limitations including their relatively low cancer-selectivity, generation of genotoxic DNA double-strand breaks (DSBs) and high cytotoxicity towards non-cancerous cells.(1)

Independent research strands have established that two categories of molecule, PARP inhibitors (PARPi) and ruthenium(II) polypyridyl complexes (RPCs), have shown promise in combination with IR.(2) In each case this has translated to enhanced cancer cell killing when cells are exposed to IR using an external beam source or targeted radionuclide therapy. Importantly, RPCs have previously been shown to achieve cancer cell growth inhibition without generation of double-strand break damage: an advantage over current DNA-targeting drugs.(3)

This will summarise our work in the development of RPCs as novel radiosensitizers, outlining our molecular design hypotheses, including the preparation of dual-function metallodrugs that combine DNA replication fork targeting and PARP inhibiting functionality in a single molecule, and discuss mechanistic insights into observed radiosensitizing effects in cancer cells. How this work contributes to the isolation of new radiosensitizers with improved cancer selectivity will be discussed.

References

1. Gill and Vallis, Chem. Soc. Rev. 2019, 48, 540
2. Gill et al. Chem Sci 2018, 9, 841-849
3. Kolozsvari and Gill, J Inorg Biochem, 2025, 112977

Funding acknowledgment: Cancer Research Wales

Theme 3: Radiotherapy

T3A2

UK radiotherapy practice for Oligodendroglioma –data from the APPROACH trial (ISRCTN:1339049) radiotherapy quality assurance (RTQA) programme

Jennifer Golten[1,2], Anna Bruce[3,4], Daniel Egleston[3,4], Elizabeth Miles[3,5], James Powell[1,2], Louise Murray[6,7]

1. Velindre University NHS Trust
2. Cardiff University,
3. National Radiotherapy trial Quality Assurance (RTTQA) group,
4. Clatterbridge Cancer Centre,
5. Mount Vernon Cancer Centre,
6. St James' University Hospital
7. Leeds Institute of Medical Research, University of Leeds

Oligodendroglioma is a primary brain tumour defined by IDH mutation and 1p/19q co-deletion, typically affecting younger adults and associated with favourable prognosis, therefore minimising radiotherapy (RT)-related neurocognitive and endocrine sequelae is increasingly important.

The APPROACH (Analysis of Proton vs Photon Radiotherapy in Oligodendroglioma and Assessment of Cognitive Health) trial is a UK randomised controlled study comparing photon RT with proton beam therapy (PBT). As part of the radiotherapy quality assurance (RTQA) programme, a national pre-accrual facility questionnaire (FQ) was undertaken to evaluate RT practices across England and Wales and assess readiness for protocol compliance.

Between 1/10/22 and 30/9/25, 23 photon centres and 2 PBT centres completed the FQ designed by the National Radiotherapy Trials Quality Assurance (RTTQA) Group. All centres reported use of VMAT techniques with thermoplastic mask immobilisation. MRI-CT image fusion was universal, although MRI slice thickness (0.8–3 mm) and CT planning slice thickness (1–3 mm) varied, with several centres exceeding the trial-specified limits (≤1 mm MRI, ≤2 mm CT). The use of dedicated planning-MRI was specifically stated in 22% of centres. Only 17% of centres routinely contoured hippocampi and none contoured the hypothalamus, both mandated organs-at-risk (OARs) within the protocol. Dose schedules were generally consistent with national guidance (54 Gy/30# for Grade 2, 59.4 Gy/33# for Grade 3).

The findings indicate broad alignment in technique and dose delivery but highlight variability in imaging and OAR delineation. Implementation of the APPROACH trial and associated RTQA processes is hoped to promote national standards in oligodendroglioma RT practice.

Funding acknowledgment: Wales Cancer Research Centre and Velindre University NHS Trust for funding of the first authors Clinical Research Fellowship

NIHR

Re-audit of outcomes and toxicity following stereotactic radiosurgery for brain metastases at Velindre Cancer Centre, comparing patients with brain metastases from common versus uncommon primary tumour sites.

Ali Hussnain[1], Nicholas Gomez[1], Sara Walters[1], Jason Griffiths[1], Jillian MacLean[1], Najmus Sahar Iqbal[1] and James Powell[1,2]

1. Oncology Department, Velindre Cancer Centre, Cardiff
2. School of Medicine, Cardiff University

Introduction: Velindre Cancer Centre (VCC) provides stereotactic radiosurgery (SRS) for brain metastases across South and Mid Wales. This study evaluated overall survival (OS), tolerance and toxicity following SRS, and compared median survival between patients with metastases from common primary tumours (lung, breast, melanoma, kidney) and uncommon primaries (gastrointestinal, head and neck, gynaecological, bladder, thyroid, sarcoma, MUO).

Method: Patients treated with SRS between September 2020–December 2024 were included. Toxicities were recorded prospectively, while demographics, performance status, outcomes and primary tumour sites were collected retrospectively. OS was analysed overall, by number of metastases, and by primary tumour group.

Results: 244 SRS treatments were delivered to 196 patients; 77.5% were first treatments. Most treatments (67.2%) targeted a single metastasis. Lung cancers accounted for 45.3% of treatments, followed by breast (17.9%), melanoma (15.9%) and kidney (8.1%). Uncommon primaries represented small numbers across several tumour sites (4.9%) including colorectal, gynaecological, bladder, thyroid, sarcoma, head and neck malignancies and MUO.

Median OS was 13.5 months, improved from 11.2 months in a 2015–2020 cohort. Median OS was 14.3 months for one metastasis, 12.9 months for two and 5.5 months for three. Common tumour metastases had longer OS (15 months) than uncommon tumours (7.2 months). Toxicities were mostly grade 1–2, commonly fatigue and headache; no grade 4 events occurred.

Conclusion: SRS remains well tolerated with good intracranial control, though survival decreases with greater metastatic burden. Patients with metastases from common primary tumours show superior OS. Further analysis of performance status and tumour characteristics is ongoing.

Funding acknowledgment: N/A

Theme 3: Radiotherapy

T3A4

Radiomics for Predicting Treatment Response and Prognosis in Rectal Cancer: A Systematic Review of Multimodal Imaging, Standardization, and Delta-Radiomics

Yiwen Dong[1], Emiliano Spezi[2], Richard Adams[3]

1. School of Engineering, Cardiff University
2. School of Engineering, Cardiff University
3. Cardiff University School of Medicine and Velindre University NHS Trust

Background: Radiomics has shown promise for predicting treatment response and prognosis in rectal cancer, particularly in patients undergoing neoadjuvant chemoradiotherapy. However, heterogeneity in imaging protocols, feature extraction, and model development limits reproducibility and clinical translation. Importantly, to date, no systematic review has comprehensively evaluated radiomics models across key methodological dimensions, including multiparametric MRI integration, feature standardization and harmonization, clinical data integration, and delta-radiomics (i.e. changes in radiomic features over time).

Methods: Following PRISMA guidelines, PubMed and Scopus were searched for CT- or MRI-based radiomics studies published between 2018 and 2025 that evaluated treatment response or survival in rectal cancer. Studies were compared across imaging modality, feature standardization, clinical integration, delta-radiomics, and model performance.

Results: A total of 43 studies were included. Eight comparative studies showed that multiparametric MRI-based radiomics generally outperformed single-sequence models, although evidence was mainly derived from small retrospective cohorts with limited external validation. Clinical integration was evaluated in 21 studies (49%) and was consistently associated with improved predictive performance. Delta-radiomics was investigated in 9 studies (21%), demonstrating higher accuracy than baseline features, predominantly in single-center settings. In contrast, only 8 studies reported explicit feature standardization strategies, and advanced harmonization using ComBat (to reduce inter-site variability) was applied in just 2 studies, highlighting substantial methodological heterogeneity across the literature.

Conclusion: Radiomics has the potential to support prediction of treatment response and prognosis in rectal cancer within the radiotherapy setting. Evidence is strongest for approaches incorporating multiparametric MRI, clinical integration, and delta-radiomics, but translation remains limited by methodological heterogeneity, insufficient standardization, and a lack of prospective multicenter validation. Future studies should prioritize standardized workflows, transparent reporting, and clinically feasible designs to support integration of radiomics into radiotherapy decision-making.

Funding acknowledgment: N/A

Theme 3: Radiotherapy

T3A5

Hippocampal Dosimetry and Neurocognitive Function in Patients undergoing Stereotactic Radiosurgery

Najmus Sahar Iqbal[1,2], Michelle Smalley[3], Tara Daisley-Devoy[4], Maeve Williams[5], John N Staffurth[1,2], Jillian Maclean[1], James R Powell[1,2]

1. Velindre University NHS Trust, Clinical Oncology, Cardiff, United Kingdom
2. Cardiff University, School of Medicine, Cardiff, United Kingdom
3. Cwm Taf University Health Board, Clinical Psychology, Cardiff, United Kingdom
4. University of Bath, Clinical Psychology, Bath, United Kingdom
5. Velindre University NHS Trust, Medical Physics, Cardiff, United Kingdom

Aim: Despite the precision of stereotactic radiosurgery (SRS) up to 60% of patients develop neurocognitive function (NCF) impairment. The hippocampus is implicated in NCF impairment; however, the dose tolerance is not defined for SRS. This study aims to correlate NCF changes with hippocampal dosimetry.

Method: Patients underwent NCF testing and quality of life (QoL) measure at baseline, and 1,3, and 6-months following SRS. NCF tests included Hopkins learning verbal test – revised (HVLT-TR), trail making test, controlled oral word association test and digit span. QoL was measured using the European organisation for research and treatment of cancer core quality of life questionnaire (EORTC QLQ-C30). The radiation therapy oncology group protocol was utilised to delineate hippocampal volumes.

Results: 36 patients were recruited. Mean age was 64 years; median WHO performance status was 1. Participants who had a decline in HVLT-TR tests score at 1-month had a mean dose to 0.1cc of the hippocampus of 5.39Gy vs. 2.28Gy in participants who had maintained scores, (p-value=0.026). This finding was independent of all other organs at risk doses. The global QoL scores were reduced in the patients with reduced HVLT-TR T-score vs those with retained score: 67.36(95%CI 61.99–72.73) vs 57.41 (95%CI 54.17–60.65) respectively.

Conclusion: Higher hippocampal dose was associated with acute NCF impairment and had a significant impact on QoL. Contouring the hippocampus as an organ at risk during SRS treatment planning and prioritising it as an optimal constraint should be considered. Thus, it may be possible to prevent acute deterioration in NCF and improve patient's QoL.

Funding acknowledgment: Moondance Foundation

Theme 3: Radiotherapy

T3A6

Hippocampal dosimetry and implication for treatment planning in patients undergoing stereotactic radiosurgery for limited brain metastases

Najmus Sahar Iqbal[1,2], Maeve Williams[2], Matthew Williams[2], Ceri Doherty[2], Andrew Bryant[2], Michael Chu[2], Jillian Maclean[2], Anthony Millin[2], Nachi Palaniappan[2], John Staffurth[1,2] & James Powell[1,2]

1. School of Medicine, Cardiff University, Cardiff.
2. Velindre University NHS Trust, Cardiff.

Introduction: Stereotactic radiosurgery (SRS) offers survival benefits while minimising neurocognitive function (NCF) decline in patients with brain metastases. However, despite its precision, SRS can still cause hippocampal radiation exposure and NCF impairment.

Methods: This study retrospectively examined hippocampal dosimetry in 30 patients with 1-3 brain metastases treated using linear accelerator-based SRS using a dynamic conformal arc (DCA) technique. We then conducted a planning study in 10 patients who received the highest hippocampal doses to assess the feasibility of hippocampal-sparing SRS planning. Two hippocampal sparing SRS techniques were evaluated and compared to the standard technique, namely hippocampal-sparing DCA and hippocampal-sparing volumetric modulated arc therapy (VMAT).

Results: Retrospective analysis revealed inter-individual variation in hippocampal dose received: 25% of patients received >5 Gy and 50% received >2 Gy to 0.1 cc of the closest hippocampus. Proximity of planning target volume (PTV) to the hippocampus, brainstem, and optic chiasm, as well as PTV volume and metastasis location significantly influenced hippocampal dose. The number of metastases did not correlate with increased hippocampal exposure. Both hippocampal sparing techniques significantly reduced hippocampal dose without compromising PTV coverage or organ at risk (OAR) constraints. Hippocampal-sparing DCA achieved the lowest doses to the hippocampus, while VMAT plans delivered slightly higher low-dose volumes (e.g., V1Gy) to the brain.

Conclusion: This study demonstrates that SRS can result in significant hippocampal irradiation. Delineating the hippocampus enables meaningful dose reductions without affecting plan quality. These findings support incorporating hippocampal delineation into standard SRS planning for patients with limited brain metastases. Further prospective studies are needed to establish clinical dose constraints and correlate hippocampal dose with NCF.

Funding acknowledgment: Moondance Foundation

Theme 3: Radiotherapy

T3A7

Phase 1b/II trial of pembrolizumab plus standard radiotherapy with chemotherapy in Squamous Cell Carcinoma of anus (CORINTH): Cohorts safety data

Lisette Nixon[1], Margherita Carucci[1], Angela Casbard[1], Lawrence Raisanen[1], Catharine Porter[1], Philip J Markham[1], John Lindley[1], Marianne G. Guren[2], Vicky Goh[3], Thomas Rackley[4], Samuel Bosompen[6], Natalie L Abbott[4], Morny Drury[7], Marcia Hall[5], Mark Harrison[5], Richard Adams[1]

1. Centre for Trials Research, Cardiff University, Cardiff, UK
2. Oslo University Hospital, Oslo, Norway
3. School of Biomedical Engineering & Imaging Sciences, King's College London, London; UK
4. RTTQA, Cardiff & London, UK
5. Mount Vernon Cancer Centre, Northwood, UK
6. Frimley Health NHS Foundation Hospital, Slough, UK
7. Consumer Representative

Background: Squamous cell carcinoma of the anus (SCCA) is rare but increasing in incidence. Patients with more advanced stage disease have a 1 in 3 chance of local failure or metastatic disease at 3 years. Immune checkpoint inhibition has only shown modest benefits as a single agent.

CORINTH evaluates addition of checkpoint inhibitor pembrolizumab to Intensity Modulated Radiotherapy with Chemotherapy (IMCRT).

Methods: CORINTH is a multicentre, single arm, open-label, non-randomised study to evaluate the safety and tolerability of pembrolizumab with standard IMCRT (53.2Gy, 28d) in 50 adult patients with locally advanced SCCA. Pembrolizumab (200mg/21d) was administered starting Day 1 Week 5 of the IMCRT schedule in Cohort 1 (Co1) and Day 1 Week 1 in Cohort 2 (Co2) and continued for 6 months (8 doses in total). Safety and toxicity data were reviewed by the Safety Review Committee (SRC). Primary endpoint was safety and tolerability. Secondary endpoints include feasibility, clinical response, and patient reported outcomes.

Results: Enrolment: 7 in Co1, 6 in Co2. At SRC review, one Co1 participant withdrew (disease progression), one Co2 (Investigator's decision due to toxicity). No treatment-related adverse events (TRAEs) were reported in Co1. Two patients in Co2 experienced TRAEs (all Grade 3), which included diarrhoea, hyperglycaemia, decreased lymphocyte count, oral mucositis, and vomiting. No deaths, were reported.

Conclusions: Initial findings in both Cohorts suggest the introduction of pembrolizumab to IMCRT is safe. Recruitment of a further 39 participants to the expansion cohort (Day 1 Week 1 of IMCRT schedule) has completed. Final analysis will confirm safety and tolerability and provide data on relative efficacy against historical data.

Funding acknowledgment: Funded by MSD (Merk Sharpe & Dohme) through and Investigator Led Grant

Theme 3: Radiotherapy

T3A8

Promoting recruitment and ensuring quality of treatment delivery in the UK's 1st proton radiotherapy trial in oesophageal cancer

Shannon Rowlands[1], Sarah Gwynne[1,2], Owen Nicholas[1], Ganesh Radhakrishna[3], Geraint Lewis[2,4], Fiona Williams[4], Jonathan Helbrow[2,5]

1. South West Wales Cancer Centre
2. NIHR RTTQA group
3. The Christie NHS Foundation Trust
4. Velindre Cancer Centre
5. Gloucestershire Hospitals NHS Foundation Trust

The optimal treatment for locally advanced oesophageal adenocarcinoma remains an area of research, particularly following recent data from the ESOPEC trial showing an increased overall survival with perioperative FLOT chemotherapy compared to preoperative chemoradiotherapy. PROTIEUS is a multicentre, randomised phase 2 trial evaluating photon radiotherapy versus proton beam therapy (PBT) in the neoadjuvant setting, with 30-day grade 3 or higher post-operative complications as its primary endpoint. An educational webinar was held to increase awareness of the trial and its radiotherapy quality assurance (RTTQA) programme.

Methods: An educational webinar was held in May 2025, outlining the PROTIEUS trial design, recent protocol amendments and the RTTQA programme. Attendees included members of the multi-disciplinary team. A post-webinar survey assessed achievement of learning objectives and self-reported confidence in outlining, planning, and reviewing proton plans pre and post webinar.

Results: Sixty-nine participants attended the webinar, with 31 completing the post webinar survey. All oncologists and 91% of radiotherapy professionals agreed or strongly agreed that the learning objectives relevant to their role were met. Statistically significant improvements in self-reported confidence levels were observed in oncologists in outlining neoadjuvant cases and reviewing proton plans, and in radiographers, physicists, and dosimetrists in planning neoadjuvant cases and evaluating proton plans.

Conclusion: This educational webinar successfully improved multidisciplinary understanding of the PROTIEUS trial and increased confidence in PBT. Ongoing educational initiatives may support consistent protocol delivery and trial recruitment, contributing to the evidence base for optimal treatment strategies in oesophageal cancer.

Funding acknowledgment: N/A

Green-dMRIPrep: diffusion MRI preprocessing pipeline with integrated QC, energy tracking, and carbon emissions auditing

Muhammad Usman Akbar[1,2], Maëliss Jallais[1,2], Marco Palombo[1,2]

1. Cardiff University Brain Research Imaging Centre (CUBRIC), School of Psychology, Cardiff University, Cardiff, United Kingdom
2. School of Computer Science and Informatics, Cardiff University, Cardiff, United Kingdom

Diffusion MRI (dMRI) is increasingly used in clinical neuroscience and oncology research to characterise tissue microstructure and support biomarkers of disease, treatment response, and recovery. However, dMRI preprocessing remains fragmented across multiple command-line tools, with variable quality control (QC) practices and limited transparency about computational cost. These gaps reduce reproducibility, increase the risk of undetected processing failures, and slow translation of advanced diffusion methods into clinical research workflows. We present Green-dMRIPrep, a single, click-to-run preprocessing package designed to reduce operational friction while improving standardisation, QC visibility, and environmental accountability.

Green-dMRIPrep provides a graphical user interface that orchestrates state of the art preprocessing steps and produces whole-run audit trails. A built-in QC module automatically evaluates pre/post stability, motion- and distortion-related metrics, and processing consistency, summarising outcomes using traffic-light scoring and interpretable visual overlays. Importantly, QC thresholds can be calibrated using a site-specific reference dataset (WAND), supporting adaptable yet standardised decision rules across scanners and cohorts. To address sustainability concerns in computational neuroimaging, the pipeline records per-step energy consumption and equivalent carbon emissions and aggregates these into a consolidated report. A dedicated "Run Green" mode can schedule processing during lower-carbon periods of electricity generation, enabling practical emissions reduction without compromising data integrity.

across internal multi-subject testing, Green-dMRIPrep detected common failure modes (e.g., mismatched inputs, acquisition-parameter errors, excessive motion) while remaining robust in challenging pathological data, including a glioblastoma case with extensive oedema. Green-dMRIPrep supports reproducible, scalable, and sustainability-aware diffusion MRI studies, improving readiness for clinical research deployment

Funding acknowledgment: This work is funded by UKRI Future Leaders Fellowship (MR/T020296/2 and 1073) and Cancer Research Wales (MIMOSA study). MP is funded by UKRI Future Leaders Fellowship (MR/T020296/2 and 1073) and the MRC Research Grant MR/W031566/1. MA is funded by Cancer Research Wales (MIMOSA study).

Theme 3: Radiotherapy

T3A10

Radiotherapy QA of hippocampus and hypothalamus contouring for the APPROACH (Analysis of Proton vs Photon Radiotherapy in Oligodendroglioma and Assessments of Cognitive Health) trial (ISRCTN:1339049)

Jennifer Golten[1,2], Emiliano Spezi[1,3], Anna Bruce[4,5], Daniel Egleston[4,5], Elizabeth Miles[4,6], James Powell[1,2], Louise Murray[7,8]

1. Velindre University NHS Trust
2. Cardiff University, School of Medicine
3. Cardiff University, School of Engineering
4. National Radiotherapy Trials Quality Assurance (RTTQA) group
5. Clatterbridge Cancer Centre
6. Mount Vernon Cancer Centre
7. St James's University Hospital
8. Leeds Institute of Medical Research, University of Leeds

Purpose/Objective: The APPROACH trial mandates delineation of organs-at-risk including hippocampi and hypothalamus. This will allow future dosimetric analysis, to correlate with assessment of late toxicity. Here we review trial centres' experience in contouring hippocampi and hypothalamus and assess performance in the benchmark outlining case.

Methods: Pre-trial elements include a facility questionnaire (FQ) to document local radiotherapy practices and confirm ability to comply with the trial protocol, and benchmark outlining and planning cases in accordance with the APPROACH Radiotherapy Guidance.

From 1/12/22-30/09/25 the FQ was circulated to 23 photon and 2 proton beam radiotherapy (PBT) centres in England and Wales. Atlases were created by the RTQA Oncologists to guide hippocampus and hypothalamus contouring.

Submitted contours were evaluated for concordance against consensus gold standard (GS) volumes using various conformity indices.

Results: The FQ revealed 6/25 centres routinely contour the hippocampus. One centre routinely contours the hypothalamus.

Conformity indices demonstrated moderate agreement with median JCI of 0.61 for hippocampi and 0.51 for hypothalamus with both under- and over-contouring observed. JCI > 0.7 is generally considered to denote acceptable conformity.

Slice-by-slice analysis showed that the superior and inferior extent of the structures were more prone to deviations from GS.

Conclusions: Analysis of APPROACH pre-trial QA indicates that hippocampi and hypothalamus are infrequently contoured in standard practice. The outlining benchmark case highlights the interobserver variation that exists in contouring, despite provision of specific, atlas-based guidance.

The trial has implemented contour review for all patients to confirm adherence to protocol and ensure validity of trial results.

Funding acknowledgment: Wales Cancer Research Centre; Velindre University Hospital Trust; NIHR

Theme 3: Radiotherapy

T3A11

Abstract retracted

Theme 3: Radiotherapy

T3A12

Combining Radiotherapy with ART1 Inhibition Remodels the Tumour Immune Landscape in an Immune-Cold Model of Head and Neck Cancer

Jessica Oliver[1], Victor Gray[1], Ricardo Sainz[1], Linda Li[1], Kevin Harrington[1], Erik Wennerberg[1]
1. The Institute of Cancer Research, London, United Kingdom

Immune escape mechanisms remain a significant barrier to effective cancer treatment. ADP-ribosyltransferase 1 (ART1) is an ectoenzyme that mono-ADP-ribosylates (MARylates) extracellular proteins, including P2X7R, expressed on many immune cells. Tumour-derived ART1 can MARylate P2X7R using extracellular NAD+, triggering NAD-induced cell death and depletion of immune cells. NAD+ levels increase following radiotherapy, potentially exacerbating ART1-mediated immune cell loss. We hypothesise that inhibiting ART1 could preserve immune cells and enhance radiotherapy efficacy. This was evaluated in a murine model of HPV-negative head and neck squamous cell carcinoma.

C57BL/6 mice bearing subcutaneous MOC2 tumours were randomised to receive radiotherapy (3 x 6 Gy), anti-ART1 monoclonal antibody (22C12), combination therapy, or vehicle control. Tumour growth and survival were monitored. Tumour-infiltrating immune populations, P2X7R expression, and MARylation were analysed by multiparameter flow cytometry 6 days post-radiation.

Anti-ART1 alone had no effect on tumour growth or survival, while radiotherapy delayed tumour progression. Combination therapy significantly improved survival and tumour control compared to all other groups. Radiotherapy increased intratumoural $CD8^+$ T cells and reduced Tregs and the addition of anti-ART1 preserved $CD8^+$ effector memory cells and significantly increased resident memory $CD4^+$ and $CD8^+$ T cells. Combination therapy reduced tumour-associated neutrophils and macrophages, increased inflammatory monocytes, and promoted cDC1 expansion. Radiation increased MARylation which was decreased in some populations upon the addition of anti-ART1, suggesting partial inhibition of ART1 activity.

ART1 inhibition synergises with radiotherapy to enhance anti-tumour immunity in a model of HPV-negative head and neck cancer, supporting ART1 as a promising therapeutic target to potentiate radiotherapy.

Funding acknowledgment: N/A

Theme 3: Radiotherapy

T3A13

Developing and optimising Magnetic resonance imaging and Spectroscopy for use in Radiotherapy (MRinRT) pathways: Investigating avenues to improve outcomes for patients and the assessment of treatment response

Clair Brunner[1], Adam Cooper[1], Nicholas Gomez[1], Stephen Bawden[1], Samantha Telfer[1], Owen Bodger[2], Kieran Foley[3], Jonathan Phillips[1,2], Owen Nicholas[1,2]

1. Swansea Bay University Health Board
2. Swansea University
3. Cwm Taf Morgannwg University Health Board

Background: MRI provides superior soft tissue resolution allowing for more accurate target volume delineation (TVD) for radiotherapy. Fusion of MRI to the planning CT to aid TVD is now standard of care for certain tumours, e.g. CNS, but not for others, e.g. oesophageal.

Methods: We have developed a prospective, multi-strand study to assess the potential role of MRI in radiotherapy planning across multiple tumours, MRinRT. Patients who have been referred for radiotherapy will have MRI(s) alongside their standard radiotherapy treatment pathway.

Objectives:

- Can MRI sequences/parameters be optimised to improve tumour and normal tissue differentiation?
- Does adding MRI to CT improve radiotherapy accuracy?
- Can MRI be used to adapt radiotherapy plans during a course of treatment to improve precision?
- Can MRI be used to predict response to radiotherapy?

Initially we will focus on gastro-oesophageal, pancreatic and CNS tumours but the methodology can then be translated to other tumour types.

For each tumour type there are 3 strands to the study:

1) Optimisation/Assessment: Healthy volunteers/patient scans will identify MRI sequences/parameters with the best images of the tumour/normal tissues (OARs). The effect of adding MRI to the CT planning scan on radiotherapy planning will be assessed.

2) MRI-adaptive radiotherapy: Patients will have a 2nd MRI during their treatment to make a new radiotherapy plan focussed on the remaining tumour. This will be compared to the original plan to assess the change in tumour volume and dose to OARs.

3) Imaging biomarkers: MRI biomarkers that can predict radiotherapy outcomes/toxicity will be identified.

Funding acknowledgment: South West Wales Cancer Fund from the Swansea Bay Health Charity has provided funding for patients to have MRI scans as part of their radiotherapy planning process.

Theme 3: Radiotherapy

T3A14

Systematic review of the benefit of MRI for radiotherapy planning for gastro-oesophageal cancers

Clair Brunner[1], Lizzy Evans[1], Richard Hugtenburg[1,2], Owen Nicholas[1,2], Sarah Gwynne[1,2]

1. Swansea Bay University Health Board
2. Swansea University

MRI is a non-invasive, non-ionising imaging technique which is known to give clearer images of soft tissues and tissue planes allowing for more accurate target volume delineation (TVD) for radiotherapy. More accurate TVD could allow clinicians to use smaller margins and therefore spare surrounding normal tissues from radiotherapy induced damage, which in turn reduces toxicity from radiotherapy.

Current standard of care with regard to imaging for TVD is to use a planning CT scan, with additional information from diagnostic imaging such as PET or EUS. It is possible to acquire MRI images using a range of MRI sequences/parameters and it is not clear which sequence(s) are best for TVD for gastro-oesophageal cancers or what benefit the addition of MRI would give.

For this systematic review, which is registered on Prospero, electronic databases have been searched for articles relating to oesophageal/gastric cancer, MRI and radiotherapy. 2323 articles were found and hand-screened leaving 117 articles for full text review. Of these 73 articles contain relevant information, 14 are reviews, 12 are clinicaltrials.gov summaries, and the articles relate to use of MR-Linac 27, adaptive radiotherapy 21, MR guided RT 18, TVD 18, treatment planning 10, tumour motion 7, 4D MRI 7, AI auto-contouring 5, OAR outlining 4, brachytherapy 2, OAR motion 2, post-op radiotherapy 1 and fiducial markers 1.

Data will be extracted and analysed to summarise the available evidence regarding the use of MRI for radiotherapy planning for gastro-oesophageal cancers. Preliminary results will be presented at the WCRC conference 2026.

Funding acknowledgment: Clair Brunner's research fellowship is funded by Swansea Bay University Health Board and WCRC.

Theme 3: Radiotherapy

T3A15

Abstract retracted

Theme 4: Cancer clinical trials abstracts

Theme 4: Cancer clinical trials

T4A1

Striving for Excellence: A CCRP Online Survey into Consultant Investigator Experience of the Velindre Cancer Centre Clinical Trial Pipeline

Richard Bennett[1], Ricky Frazer[2], Emma Barker[3]

1. Oncology, Velindre Cancer Centre
2. Oncology, Velindre University NHS Trust
3. Clinical Trials, Cardiff Cancer Research Partnership

Velindre Cancer Centre (VCC) is a core partner within the Cardiff Cancer Research Partnership (CCRP), supporting national ambitions to expand clinical trial access and performance in South-East Wales. This study aimed to assess consultant experience of the VCC clinical trial pipeline and identify system-level opportunities to strengthen trial activation and delivery.

An anonymous 26-question online survey was distributed to 84 consultants. Multiple-choice, open-text and Likert-scale questions explored five domains: overall attitudes to clinical trials, research involvement, trial set-up, trial delivery, and ongoing management and oversight. Responses were analysed to identify trends relevant to service development and policy delivery.

Response rate was 22%. 74% respondents had principal (PI), co- or sub-investigator experience in ≥3 VCC studies; 5% had none. Among the most involved (53%; ≥6 studies), trial set-up experience was neutral (60%) or negative/very negative (40%). Reported challenges included set-up time and limited escalation of operational barriers. Access to contemporaneous trial information was rated difficult/very difficult by 79%. 32% received routine monthly reports on set-up, recruitment and income. In contrast, 69% rated research support during trial delivery as good or excellent, increasing to 90% among the most experienced consultants, who rated good.

This survey indicates an opportunity to strengthen VCC trial activation strategies, which are actively being addressed. Real-time operational review with PIs, and improved transparency of pipeline metrics may enhance performance against 2026 Government targets. Closer integration of service and research teams may improve engagement across the CCRP partnership, supporting sustainable growth in research capacity and patient access to trials.

Funding acknowledgment: N/A

Theme 4: Cancer clinical trials

T4A2

From CKD to Surgical Oncology: Leveraging Digital Health for Kidney Cancer Prehabilitation

Prem Sharma[1], Praboda Rajapaksha[1,3]*, Edore Akpokodje[1]*, Federico Villagra Povina[2], Peter Herbert[3], Meryl James[3], Nicola Thomas[3], Subhamay Ghosh[3]

1. Department of Computer Science, Aberystwyth University, Llandinam Building, Penglais, Aberystwyth
2. Department of Life Sciences, Aberystwyth University, Carwyn James Building, Penglais, Aberystwyth
3. Hywel Dda University Health Board, NHS Wales, Carmarthen, UK

* Equal contributors

Corresponding author - Edore Akpokodje (eta@aber.ac.uk)

Chronic kidney disease (CKD) and kidney cancer frequently coexist due to shared risk factors, including ageing, hypertension, diabetes, obesity, smoking, and chronic inflammation. Many patients diagnosed with kidney cancer present with pre-existing renal impairment, and surgical management—particularly partial or radical nephrectomy—can further reduce renal functional reserve and increase the long-term burden of CKD. Both conditions are associated with reduced physical fitness, fatigue, functional limitations, and psychological distress, all of which may negatively influence perioperative risk, recovery, and surgical outcomes. We have developed a digital health app to support individuals living with CKD through accessible, home-based interventions aligned with prehabilitation principles. The platform delivers structured, personalised exercise programmes tailored to renal limitations, along with monitoring of physical activity and psychological well-being. By addressing modifiable physical and psychological factors that influence surgical readiness, the app aims to support functional capacity, engagement with care, and quality of life, while reducing reliance on frequent hospital visits. Although the app was designed for chronic disease self-management in CKD, its core components closely align with the growing evidence base supporting prehabilitation in surgical oncology. Given the substantial overlap between CKD and kidney cancer populations, this platform has strong translational potential to support pre-operative optimisation in patients undergoing kidney cancer surgery, particularly those with impaired renal function. This work highlights the opportunity to leverage digital health solutions developed in nephrology to enhance prehabilitation pathways within kidney cancer care, potentially improving functional readiness, patient experience, and post-operative recovery.

Funding acknowledgment: Funder: Hywel Dda University Health Board, NHS Wales, Carmarthen, UK

PATHOS-10: CRUK-Funded Extended Long-Term Follow-Up of Functional and Survivorship Outcomes After Risk-Adapted Treatment for HPV-Positive Oropharyngeal Cancer

Christie Heiberg[1], Joanna Canham[1], Christopher Hurt[2], Ceri Frayne[1], Sean Johnson[1], Lisette Nixon[1], Mererid Evans[3], Terry M Jones[4]

1. Centre For Trials Research, Cardiff University
2. Southampton Clinical Trials Unit, University of Southampton
3. Division of Cancer and Genetics, Cardiff University and Dept. of Clinical Oncology, Velindre University NHS Trust
4. Liverpool Head and Neck Centre, Faculty of Health and Life Science, University of Liverpool

Background: Patients with HPV-positive oropharyngeal cancer have excellent long-term survival however, late treatment-related morbidity beyond 3 years is poorly characterised. While the international phase III PATHOS trial reports outcomes to 3 years, few studies have examined later effects, that largely included patients treated with radiotherapy or chemoradiotherapy. Long-term data in patients treated with transoral surgery followed by adjuvant therapy are lacking. Late deterioration in swallowing function represents a major but unquantified problem.

CRUK funded an extended long-term follow-up of PATHOS participants, known as PATHOS-10. Public Patient Involvement was central to the concept and design, with a dedicated patient group convened to identify priorities for long-term follow-up, shape research questions, and inform outcome selection. The study is being rolled out across PATHOS sites, with follow-up at 5, 7.5 and 10 years post-treatment.

Aims: The primary aim is to develop a predictive model identifying patients at risk of clinically significant late dysphagia. Secondary aims are to characterise long-term survival, swallowing function, late effects and QOL, explore the sustained benefits of de-intensified adjuvant therapy, and confirm oncological outcomes, including recurrence and second primary malignancies.

Measures: Participants will complete patient-reported outcome measures (MDADI, EORTC QLQ-C30, EORTC QLQ-H&N35, EQ-5D-5L). Swallowing will be assessed using PSS-HN and the 100 ml Water Swallow Test, with videofluoroscopy for participants meeting predefined criteria. ORN will be assessed at 5 and 10 years. Toxicity, oncological outcomes, and health resource use will be collected to support health economic analysis.

PATHOS-10 will generate a unique dataset describing long-term survivorship after transoral surgery and adjuvant treatment, informing future follow-up strategies, optimum care, and service planning.

Funding acknowledgment: Funded by Cancer Research UK (Grant no: A25317), co-sponsored by Cardiff University and Velindre University NHS Trust

Theme 4: Cancer clinical trials

T4A4

Patients' and healthcare professionals' experiences of the CHRONOS Trial exploring NOvel surgery in prostate cancer

Dr Daniella Holland-Hart[1], Dr Deepika Reddy[3], Dr Thiagarajah Sasikaran[2], Ms Puja Jadav[2], Mr Taimur Shah[3], Professor Hashim Ahmed[3], Dr Mirella Longo[1]

1. Division of Population Medicine, Cardiff University.
2. Imperial Clinical Trials Unit, Imperial College London.
3. Imperial College Healthcare NHS Trust.

Background: This qualitative study embedded in the CHRONOS trial (NCT04049747), compares patients' experiences of receiving radical therapy (Radical Prostatectomy, Radiotherapy) with focal therapy for in early-stage prostate cancer. It aimed to explore patients' experiences of the trial and treatments, reasons for declining the trial, and healthcare professionals' (HCPs) perceptions of equipoise in the trial.

Methods: Semi-structured longitudinal interviews were conducted with patients at three different time points comprising baseline (before treatment), 6 and 12+ months after baseline. Interviews with HCPs were conducted after they had recruited patients to the trial. Topics covered included: trial recruitment, impact of treatment on health and wellbeing, and overall perceptions of the trial. Interview data were thematically analysed.

Results: There were 28 interviews conducted (n=21 patients, n=7 HCPs). Trial recruitment facilitators included the option to receive focal therapy, patients receiving adequate support from staff, and opportunities to consider information about the trial in their own time. Reasons for declining the trial included preferences for specific treatments or active surveillance. Participants experienced side-effects including erectile and sexual dysfunction, urinary problems and fatigue, and required more information regarding the longer-term side-effects of treatments and catheters, and cancer status updates. HCPs described how training that they had received on equipoise had improved their ability to present the different trial options more effectively.

Conclusions: Future trials should consider the availability of focal therapy across the UK, the provision of a direct point of contact for patients, and a more integrated approach to recruitment to qualitative elements of a trial.

Funding acknowledgment: The CHRONOS study was funded the on behalf of Prostate Cancer UK Ref: RIA17-ST2-012.

DHH was funded by the Wales Centre for Cancer Research during write up.

Theme 5: Palliative and supportive oncology

T5A1

Factors Affecting Treatment Resilience in Patients with Oesophago-Gastric Cancers Undergoing Palliative Chemotherapy: A Rapid Review.

Dr Kiran Datta[1], Professor Anthony Byrne[2], Dr Daniella Holland-Hart[3]*

1. Wrexham Maelor Hospital, Betsi Cadwaladr University Health Board, Wrexham, United Kingdom.
2. Velindre NHS Trust, Wales, United Kingdom.
3. Marie Curie Research Centre, Division of Population Medicine, School of Medicine, Cardiff University, Heath Park, Cardiff, United Kingdom

Background: Oesophago-gastric cancer is the fifth most common in the UK. Most patients present with advanced disease and are unsuitable for curative surgery, so instead receive palliative treatment. Treatment resilience refers to the ability of patients to tolerate their treatment. Palliative chemotherapy can result in significant toxicity; almost 40% of patients are unable to complete their chemotherapy regimen, with this proportion rising significantly in older and frailer patients. Despite most cases occurring in patients over 70, older and frailer patients are often excluded from clinical trials, resulting in limited evidence to guide treatment decisions.

Methods: This review aimed to appraise evidence regarding treatment resilience to guide clinicians in identifying the most suitable candidates for palliative chemotherapy. Using a modified systematic method, it included articles published between January 2014 and May 2024. Pre-treatment characteristics influencing treatment resilience were assessed, as measured by completion rates, dose reductions and toxicities.

Results: Of the 931 papers returned, 14 reports of 13 studies were included. Factors assessed included age, performance status, frailty, lymphopenia and sarcopenia. Frailty and body composition appear potentially reliable indicators of chemotherapy toxicity. Poor performance status may be a possible indicator of treatment non-completion. There was no clear relationship between treatment resilience and age or lymphopenia.

Conclusions: Although this review was unable to specify patient characteristics to reliably predict patient tolerance of palliative chemotherapy, potential factors were identified. Future research should investigate these factors to support a precision medicine approach which could guide decision making regarding palliative treatment alongside patient preferences.

Funding acknowledgment: DHH and AB was funded by Marie Curie grant number 523838 and DHH by Wales Cancer Research Centre grant number 517190.

Theme 5: Palliative and supportive oncology

T5A2

Antithrombotic therapy management in patients with cancer approaching end-of-life: a mixed-method integration using joint display analysis

Elin Baddeley[1], Lisanne van't Walderveen[2], Helle Enggaard[3], Mette Søgaard[4], Denise Abbel[2], Suzanne Cannegieter[5], Michelle Edwards[1], Carme Font[6], Jamilla Goedegebuur[5], F.A. Klok[2], Kate J. Lifford[1], Isabelle Mahé[7], Simon P. Mooijaart[8], Simon Noble[1], Mark Pearson[9], Kathy Seddon[1], Stephanie Sivell[1], Sebastian Szmit[10], Stella Trompet[8], Anette Arbjerg Højen[4]

1. Division of Population Medicine, School of Medicine, Cardiff University, Cardiff - UK
2. Department of Medicine, Leiden University Medical Center, Leiden - The Netherlands
3. Clinical Nursing Research Unit & Clinical Cancer Research Center, Aalborg University Hospital, Aalborg - Denmark
4. Danish Center for Health Services Research, Aalborg University and Aalborg University Hospital, Aalborg - Denmark;
5. Department of Clinical Epidemiology, Leiden University Medical Center, Leiden - The Netherlands
6. Department of Medical Oncology, Hospital Clinic Barcelona, Barcelona – Spain;
7. Internal Medicine Department, Paris Cité Université, Paris – France;
8. Department of Internal Medicine, Leiden University Medical Center, Leiden - The Netherlands
9. Wolfson Palliative Care Research Centre, Hull York Medical School, Hull – UK;
10. Department of Cardio-Oncology, Centre of Postgraduate Medical Education, Warsaw – Poland

Introduction: There is a paucity of data on antithrombotic therapy (ATT) management in patients with advanced cancer at the end-of-life. SERENITY is a pan-European study aimed to develop and evaluate a shared decision-support tool to support ATT management. The first phase comprised a substantial body of evidence across multiple study designs. Integrating these findings may elicit key insights into the wider complexities affecting ATT management among this population.

Aim: To expand our understanding of ATT management among patients with advanced cancer approaching the end-of-life.

Methods: Findings from SERENITY phase 1, comprising a clinician survey across Europe; epidemiological studies, and semi-structured interviews across Denmark, France, Spain, The Netherlands and Wales, were integrated using joint display analysis.

Results: Prescribing patterns, patient and clinician stances on ATT and decisions regarding ATT in the context of cancer and end-of-life consistently show how current practice favours ATT continuation. Factors influencing ATT management were multifaceted; deprescribing decisions were based on reactive events, whereas continuation decisions were reinforced by passive, ongoing factors. Patient preferences and clinician experiences were significant influences, which could both help and hinder ATT decisions. The wider end-of-life setting also influenced ATT decisions, with cancer and clinical care transitions at this stage posing challenges surrounding prioritisation of ATT decisions.

Conclusion: ATT management in this context is influenced by a myriad of factors, including varying clinical settings, end-of-life context and patient and clinician stances on ATT and deprescribing decisions. Understanding these complexities is essential to addressing the inertia seen in ATT management in this population.

Funding acknowledgment: The study is part of the research project SERENITY – "Towards Cancer Patient Empowerment for Optimal Use of Antithrombotic Therapy at the End of Life". This project has received funding from the European Union's Horizon Europe research and innovation action under grant agreement No 101057292. Additionally, United Kingdom Research and Innovation (UKRI) has provided funding under the United Kingdom government's Horizon Europe funding guarantee - grant agreement No 10039823 for Cardiff University and 10038000 for Hull York Medical School.

Theme 5: Palliative and supportive oncology

T5A3

The needs of people living with glioma; a secondary analysis of qualitative data to standardise outcomes used in routine care.

Noreen Hopewell-Kelly[1], Vimeeka Raj Devarajan[1], Helen Bulbeck[2], Rhian Burke[3], Anthony Byrne[3,4], Andrew Carson-Stevens[1], Gwawr Evans[5], Cressida Lorimer[6], James Powell[3], Sarah Puntoni[7], Alasdair G Rooney[8], Kathy Seddon[1], Colin Watts[9], Stephanie Sivell[1], Ameeta Retzer[10]

1. Division of population medicine, Cardiff University
2. brainstrust - the brain cancer people
3. Velindre Cancer Centre, Velindre University NHS Trust
4. Marie Curie Hospice, Cardiff and the Vale
5. Velindre University NHS Trust
6. Oncology Department, University Hospitals Sussex NHS Foundation Trust
7. NHS Wales Performance and Improvement
8. Centre for Clinical Brain Sciences, The University of Edinburgh
9. Department of Cancer and Genomic Sciences, University of Birmingham
10. Health Services Management Centre, University of Birmingham

Background: Gliomas are the most common type of malignant brain tumour. People living with glioma often experience significant cognitive, emotional, and physical challenges due to both tumour and treatment; many report unmet needs within routine care. The COMBaT study (Core Outcomes to Measure clinical needs for people with primary Brain Tumour) aims to develop a core outcome set of patient-reported outcomes for use in routine clinical practice to address the needs of people with glioma.

Methods: We conducted a secondary analysis of 19 interviews with adults living with glioma and seven caregivers, originally collected during the COBra study (Core Outcomes in Brain Tumour Trials). Using Braun and Clarke's thematic analysis, we examined patient and caregiver experiences to identify outcomes considered most important for care and treatment.

Findings: Four key themes emerged:

Communication in Care: This was perceived as inconsistent and poorly delivered. Care pathways were unclear and coordination across providers limited.

Variation of Need by Glioma Grade: Support needs differed between low- and high-grade glioma patients.

Psychological Support: Ongoing psychological support for patients was frequently unmet.

Timely Referrals: Referrals to allied health professionals were often delayed and lacked sufficient consultation durations.

Next Steps: These findings will inform the development of a draft list of outcomes to capture the needs of people with glioma. This list will underpin a Delphi consensus process involving key stakeholders to agree on the most important outcomes for routine care. The resulting core outcome set will guide clinical practice and improve care pathways.

Funding acknowledgment: This work is supported by Cancer Research Wales Brain Tumour Initiative (BATRI) Grant No. 2551.

Theme 5: Palliative and supportive oncology

T5A4

An updated systematic review and qualitative synthesis of the lived experience of people living with glioma (Core Outcomes to Measure clinical needs for people with primary Brain Tumours: COMBaT Study).

Vimeeka Raj Devarajan[1], Silvia Goss[1], Noreen Hopewell-Kelly[1], Helen Bulbeck[2], Rhian Burke[3], Anthony Byrne[3,4], Andrew Carson-Stevens[5], Gwawr Evans[6], Cressida Lorimer[7], James Powell[3], Sarah Puntoni[8], Alasdair G Rooney[9], Kathy Seddon[1], Colin Watts[10], Ameeta Retzer[11], Stephanie Sivell[1]

1. Marie Curie Research Centre, Division of population medicine, Cardiff University
2. Services and policy, brainstrust - the brain cancer people
3. Velindre Cancer Centre, Velindre University NHS Trust
4. Marie Curie Hospice, Cardiff and the Vale
5. Division of Population Medicine, Cardiff University
6. Value-based healthcare, Velindre University NHS Trust
7. Oncology Department, University Hospitals Sussex NHS Foundation Trust
8. NHS Wales Performance and Improvement
9. Centre for Clinical Brain Sciences, The University of Edinburgh
10. Department of Cancer and Genomic Sciences, University of Birmingham
11. Health Services Management Centre, University of Birmingham

Background: People living with glioma face complex and unmet needs within healthcare settings. The COMBaT study aims to develop a core set of patient-reported outcomes for use in routine clinical practice. As part of this work, we updated the qualitative evidence base to better understand the lived experience of people with glioma.

Methods: We conducted an updated systematic review and synthesis of qualitative evidence undertaken during the Patient-Reported Core Outcomes in Brain Tumour Trials (COBra) study (PROSPERO: CRD42021236979). Using the COBra search strategy, eight electronic databases were searched from January 2021 to September 2025. Two reviewers independently undertook study selection, data extraction and critical appraisal using Critical Appraisal Skills Programme checklists. Lived experiences of people with glioma from the included studies will be coded inductively and synthesised thematically, focusing on outcomes that can be reported in routine practice.

Findings: 7064 studies were identified, and their titles and abstracts were screened. 290 full-text papers were retrieved for screening, and 50 included for data extraction. Key authors were contacted where necessary. The data extraction, critical appraisal and synthesis will be completed in early 2026. Data from the COBra review (21 papers) will be combined with this updated review.

Next Steps: Findings will contribute to the development of a draft list of outcomes to measure the needs of people with glioma. This will underpin a Delphi consensus process with key stakeholders to agree on outcomes for routine care to guide clinical practice and improve care pathways in Wales.

Funding acknowledgment: This work is supported by Cancer Research Wales Brain Tumour Initiative (BATRI) Grant No. 2551.

Gamifying Early Oncology Education: A Hospice-Themed Escape Room for Second-Year Medical Students in Palliative Care Foundations

Alice Crabtree[1], James Davies[1], Kate Hilson[1], Sarju Patel[1], Karen Reed[1], Hannah West[1], Siwan Seaman[1]

1. Velindre Cancer Centre, Cardiff and Vale UHB, Cardiff University School of Medicine, Marie Curie Hospice, Cardiff and the Vale.

Background: Early exposure to palliative and supportive oncology is essential for developing compassionate, holistic clinicians. Within Cardiff University, this teaching begins in earnest during Year 2 of the MBBCh programme, setting the foundation for future practice. Innovative, engaging methods are needed to make these first experiences impactful and meaningful.

Methods: Following the return to face-to-face teaching post-pandemic, we redesigned the second-year undergraduate placement at an inpatient hospice. A "Holistic Hospice" escape room was developed to meet core palliative care curriculum objectives, including symptom management, communication, and holistic assessment. Students worked collaboratively to solve nine puzzles within 45 minutes, simulating real-world problem-solving in palliative care. Feedback was collected and compared with traditional classroom-based teaching at a local hospice.

Results: Quantitative feedback demonstrated high effectiveness in meeting five learning objectives, with average scores of 9.2/10 for the escape room group versus 8.9/10 for traditional teaching. Qualitative responses highlighted strong engagement and enthusiasm, with comments such as "the best placement in medical school to date." Students reported improved understanding of holistic care and teamwork skills.

Conclusions: Gamification through escape rooms can successfully deliver foundational palliative and supportive oncology education to early-year medical students. This approach achieves learning objectives comparable to traditional methods while providing a memorable, learner-centred experience. Embedding innovative teaching strategies at this stage may enhance preparedness for clinical practice and foster positive attitudes toward palliative care.

Funding acknowledgment: N/A

Theme 5: Palliative and supportive oncology

T5A6

Abstract retracted

Specialist Neuro-oncology community therapy services: addressing inequalities and gaps in service provision.

Cathryn Lewis[1], Carmen Reed[1], Sarah Cordeaux[1], Rhian Burke[1], Charlotte John[1], Rebekah Trapnell[1], Deborah Mullan[1], Nichola Gale[2], Helen Williams[3], Thomas Howson[3]

1. Velindre Cancer Service
2. Cardiff University
3. Bevan Commission

Introduction: Patients with high-grade brain tumours experience rapid and unpredictable disease progression which comes with complex supportive care needs. Despite a specialist multi-disciplinary outpatient clinic at Velindre Cancer Centre, patients often have ongoing community-based needs. However no dedicated services exist with the specialist skills and knowledge required, resulting in inconsistent and inequitable service provision, increased risk of hospital admissions, and reduced quality of life (QoL).

Methods: A 4-week pilot was designed to provide specialist OT and physiotherapy for patients known to the existing outpatients service. A range of validated outcome measures were utilised to evidence pre and post QoL (EQ5D5L), function (AusTOMs) and falls risks. Patient experience information was also collected via a Likert Scale.

Results: A comparison of pre and post QoL data (EQ5D5L) demonstrated a percentage increase within all domains from 11% (usual activities) to 37.5% (pain). Percentage improvements in activity, participation and patient well-being were demonstrated with AusTOMs.

Patient questionnaires rated experiences as excellent throughout with qualitative data highlighting the positive impact on both patients and carers.

All patients (n=6) were identified with AHP needs that would not have been identified without the outreach assessment being completed.

Conclusion: The data from the pilot demonstrated improvements in both QoL and function. Very high falls risks were identified with all patients and the pilot enabled individualised, specialist interventions to support admission avoidance.

All patients required onward referrals for equipment and services that would otherwise been missed, with further unmet needs identified for speech and language therapy and dietetics.

Funding acknowledgment: N/A

Theme 6: Population health-based cancer prevention, detection, primary care and health service research abstracts

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A1

Cancer prehabilitation can be inclusive for individuals from diverse and low-income communities by prioritising cultural relevance and involving friends and family.

Dr. Sarah Fry[1]; Dr. Nichola Gale[1]; Professor Emerita Jane Hopkinson[1]; Dr. Alexandra Mitchell[1]; Manasi Patil[1]; Professor Shea Palmer[1]

1. School of Healthcare Sciences, Cardiff University, on behalf of the NIHR I-Prehab Project research team

Background: Prehabilitation prepares individuals for cancer treatment by optimising physical, nutritional, and psychological health through empowerment and needs-based prescribing. Although widely accepted as beneficial, uptake varies and can be dependent on inequalities in access to or acceptance of prehabilitation. The Inclusive Prehabilitation (I-Prehab) study addresses this through a programme of work to coproduce online education for cancer workers to support inclusive prehabilitation. We will present findings of the third work package, which used principles of coproduction to establish priority areas for inclusive prehabilitation. We will share findings relevant to individuals from low-income or culturally diverse communities.

Aim: To coproduce I-Prehab education to facilitate inclusive prehabilitation for cancer treatment, with a focus on engagement of people from culturally diverse and/or deprived communities.

Methods: Nine co-production activities were conducted, comprising six in-person workshops (n=78), one online workshop (n=18), and three individual interviews. These involved discussion of qualitative findings from earlier ethnographic case study research and a numerical voting exercise to record priorities for delivering inclusive prehabilitation. Quantitative and qualitative data were integrated using a mixed-methods approach.

Findings: Thematic analysis identified five themes: Accessibility, Service inclusivity, Communication inclusivity, Person-centredness, and Support from others. For people living in areas that are culturally diverse and/or deprived, priority areas included: use of inclusive language (both lay and first language), familiarity with cancer workers, cultural relevance, and inclusion of friends and family.

Conclusion: Inclusive prehabilitation education should incorporate culturally relevant content and communication approaches, and social support strategies to enhance access, acceptance, and adherence.

Funding acknowledgment: Funded by the National Insitute for Health and Care Research

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A2

Cancer incidence in Wales: historical trends and projections to 2035 using novel methods

Rosemary Walmsley[1], Leon May[1], Serenay Ozalp[1], Jonathan Rees[1], Ffion Thomas[1], Rebecca Thomas[1], Stephanie Smits[1], Dyfed Wyn Huws[1,2], Louisa Nolan[1], Llion Davies[1]

1. Research, Data, and Digital Directorate, Public Health Wales
2. Population Data Science, Swansea University

Aim: Describe cancer trends in Wales and project incidence up to 2035, to inform public health strategies and health system planning.

Methods: Using validated whole-population cancer registry data from the Welsh Cancer Intelligence and Surveillance Unit and Office for National Statistics population estimates/ projections, we described incidence, age-standardised incidence, net survival, and mortality for all cancers excluding non-melanoma skin cancer (NMSC) and for the four most common cancers (prostate, female breast, lung, colorectal) in Wales. We used historical data to develop and validate an approach to cancer projections based on combining projections from different methods (an "ensemble" approach). We used this approach to produce projections up to 2035.

Results: The number of new cancer cases per year (incidence) increased by 21% between 2002-2004 and 2017-2019, to ~20,000 cases per year. By 2035, we project that there will be ~24,000 new cancer cases (excluding NMSC) annually in people living in Wales (a projected 11% increase over the period 2025-2035). Trends are primarily driven by population ageing. We also project increases over the period 2025-2035 in the number of cases of prostate (18%), female breast (11%) and colorectal (9%) cancer. Uncertainties about the impact of smoking and of a new screening programme meant we were unable to project lung cancer cases.

Conclusions: Projected increases in cancer cases over the next decade will impact the health system. They also highlight the importance of effective population-wide measures to reduce the impact, such as prevention through reducing inequalities and exposure to modifiable risk factors.

Funding acknowledgment: This work did not receive external funding. This work made use of cancer registry data maintained by the Welsh Cancer Intelligence and Surveillance Unit and population data from the Office for National Statistics.

T6A3

Exploring the Impact of Diagnostic Setting on Survival for Individuals Diagnosed with Cancer and Cardiovascular Disease in Wales.

Caitlin Partridge[1], James Rafferty[1], Mark Davies[2], Keith R Abrams[3], Rhiannon K Owen[1]

1. Population Data Science, Swansea University
2. Division of Cancer and Genetics, Cardiff University
3. Department of Statistics, University of Warwick

Background & Objectives: Cancer and cardiovascular disease (CVD) are two of the largest causes of death in the UK. Individuals living with multiple long-term conditions (MLTC) have a higher mortality rate. This research aims to understand the impact of timing, ordering, and setting of cancer and CVD diagnoses in Wales.

Method: The Wales Multimorbidity e-Cohort (WMC) held within the Secure Anonymised Information Linkage (SAIL) Databank was used to identify all Welsh residents living with MLTC over 15-years (2005-2019) of follow-up, applying a 5-year clearance period (2000-2004) of cancer and/or CVD diagnoses. Smoothed Kaplan-Meier (KM) curves and Cox proportional hazards (CoxPH) models, adjusted for area-level deprivation, age, sex, and rurality, were used to evaluate time to death from cancer/CVD diagnosis by diagnostic setting (ED and non-ED).

Results: 450,657 individuals received a cancer/CVD diagnosis. 206,731 (84.5%) cancer diagnoses were made in non-ED settings. 132,975 (49.8%) CVD diagnoses were made in non-ED settings. Median survival for individuals diagnosed with cancer in non-ED settings was 12.94 (95% CI: 12.80, 13.08) years compared to 0.31 (95% CI: 0.30, 0.32) years in ED. The hazard of death when diagnosed in an ED setting compared to a non-ED setting increased 6-fold (Hazard Ratio (HR)=6.03, 95% CI: 5.94,6.12) and 2-fold (HR=2.12, 95% CI: 2.09,2.14) for individuals diagnosed with cancer and CVD respectively.

Conclusions: Diagnosis setting had an important impact on the survival of individuals diagnosed with cancer and CVD. Individuals diagnosed in an ED setting had a worse survival prognosis compared to those diagnosed in an ED setting.

Funding acknowledgment: HDR UK

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A4

Integrated Urinary Omics suggests Immune Dysregulation in Breast Cancer

Nur Aimi Aliah Zainurin[1], Manfred Beckmann[1], Helen Phillips[1], Russell Morphew[1], Matthew Hegarty[1], Robert Andrews[3], Alex Gibbs[3], Dimitra Ivanova[1], Tim Gate[4], Helen Tench[5], Mandana Pennick[2], Luis A J Mur[1]

1. Department of Life Sciences, Aberystwyth University, Aberystwyth, SY23 3DA, United Kingdom
2. Glan Clwyd Hospital, Betsi Cadwaladr University Health Board, Bodelwyddan, LL18 5UJ, United Kingdom
3. Cardiff University, Sir Geraint Evans Building, Academic Avenue, Heath Park, CF14 4XN, United Kingdom
4. Wrexham Maelor Hospital, Betsi Cadwaladr University Health Board, Wrexham, LL13 7TD, United Kingdom
5. Bronglais General Hospital, Hywel Dda University Health Board, SY23 1ER, United Kingdom

Breast cancer (BC) remains a major global health challenge due to its biological heterogeneity and complex host-microbe interactions. Current diagnostic approaches often fail to capture these dimensions, limiting early detection and personalised care. We aim to identify integrated urinary signatures through metabolomic, proteomic, and microbiome that reflect BC biology and could serve as non-invasive biomarkers for diagnosis and prognosis. Urine samples from 121 participants (BC: n=45; benign breast disease: n=36; symptomatic controls: n=29; healthy controls: n=11) were profiles using high-resolution metabolomics (Orbitrap FIE-MS), proteomics (LC-MS), and microbiome profiling (16S rRNA sequencing). Multi-omics integration employed Joint Pathway Analysis and DIABLO to uncover functional networks. Our results showed that BC samples exhibited distinct urinary profiles, including enrichment of inflammation-associated bacteria (Enterococcus faecalis, Bacteroides fragilis), altered metabolic pathways (ABC transporters, central carbon metabolism), and host proteins linked to immune signaling and oxidative stress (e.g., fibrinogen gamma chain). DIABLO revealed strong host–microbe associations, which could suggest a urinary environment that reflects the formation of BC. This study introduces the first integrated urinary omics framework for BC, revealing mechanistic links between microbial dysbiosis, metabolic reprogramming, and host inflammatory responses. These findings support development of non-invasive diagnostics and personalised interventions in precision oncology.

Funding acknowledgment: N/A

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A5

The All-Wales Colorectal Peritoneal Metastases Service: stakeholder feedback for a newly developed CRS and HIPEC centre

Sivakumar Jayakumar[1], Jody Parker[1], Caroline Trezise[1], Leigh Davies[1]

1. Department of Colorectal Surgery, Cardiff and Vale University Health Board

Background: Colorectal peritoneal metastases pose a significant treatment challenge, historically compounded by limited access to cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) within Wales. To address this, the All-Wales Colorectal Peritoneal Metastases Service was established in Cardiff as a national unit providing specialised MDT review, surgical assessment, and peritoneal-directed therapy. This study aimed to evaluate and understand both patient and referring clinician experience of this new service.

Methods: The service hosts twice-monthly MDT meetings to discuss patient eligibility for CRS and HIPEC. Structured patient experience surveys and referring clinician feedback forms were analysed to evaluate satisfaction, communication quality, and system performance.

Results: Of 331 patients discussed, 50 (15.1%) underwent CRS and HIPEC. Patient experience surveys were sent to 41 individuals, with 30 completing the feedback process. Among respondents, 83.3% reported being "very satisfied" with their care, and 96.7% confirmed full understanding of their surgical plan, associated risks, and benefits following consultation. Pre-referral information was considered adequate by 90% of respondents, and 70% expressed interest or possible interest in joining peer support groups.

Clinician feedback forms were distributed to 69 individuals, with 19 responses received. All respondents (100%) agreed on the necessity of a dedicated Welsh service, with 84.2% describing the referral process as "easy" or "very easy." Additionally, 100% of clinicians reported timely and clear communication regarding MDT outcomes. Interest in further involvement was evident, with 57.9% expressing a desire to join MDT discussions and 68% supporting the introduction of "peritoneal champions" within regional MDTs. Key suggestions for service improvement included the development of digital referral tools and the establishment of national referral guidelines.

Conclusion: The All-Wales Colorectal Peritoneal Metastases Service represents a successful model for the introduction of a new, centralised service for complex oncologic care. High satisfaction rates among both patients and clinicians, combined with clear areas for continued system optimisation, support the scalability of this model to other national health systems seeking to enhance equity and efficiency in the management of colorectal peritoneal metastases.

Funding acknowledgment: Moondance Cancer Initiative

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A6

Peer-led WhatsApp messaging is acceptable for sharing prostate cancer risk information among Black men: Pilot study results.

Dr Sarah Fry[1]; Dr Kai Wakeham[1]; Dr Shancang Li[2]; Dr George Theodorakopoulos[2]; Dr Nicholas Courtier[1]; Dr Harriet Quinn-Scoggins[3]

1. School of Healthcare Sciences, College of Biomedical and Life Sciences, Cardiff University
2. School of Computer Science and informatics, College of Physical Sciences and Engineering, Cardiff University
3. PRIME Centre Wales, Division of Population Medicine, School of Medicine, College of Biomedical and Life Sciences, Cardiff University

Background: Prostate cancer (PCa) is a common male cancer, and Black men are among those with the highest risk1. These men are most likely to be diagnosed at a younger age and with late stage disease 1,2. Early detection remains a priority but population-based screening in the UK is challenging 3; a multi-centre trial is underway to identify the safest, most effective approach 4 but Black men have been underrepresented in previous research, limiting the applicability of findings5. Sharing PCa information effectively could address underrepresentation and late diagnosis in this group of men.

Aim: To evaluate the acceptability and accessibility of using peer-led WhatsApp groups to share prostate cancer risk messages with Black men.

Method: Two community co-applicants shared PCa risk messages using two secure WhatsApp groups. The co-applicants invited 25 men each (N=50) aged >45yrs and without a diagnosis of PCa. Participants viewed PCa risk messages, completed a survey, and were later invited to an interview to explore the survey findings in depth.

Preliminary results: Twenty-one men completed the survey. The majority (94%) of participants perceived WhatsApp to be appropriate for sharing prostate cancer risk information and raising awareness. Preliminary results from 15 individual interviews and 2 group discussions have shown differences in acceptance between cultural groups within the umbrella term 'Black men'.

Conclusion: These early results suggest culturally nuanced WhatsApp groups could be an effective way of raising awareness of PCa and research opportunities among Black men, to ensure fair representation in screening trials and early diagnosis.

Funding acknowledgment: Funded by Cancer Research UK

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A7

Leveraging Lymph Node Micro-Anatomy to Improve Detection of Isolated Tumour Cells in Whole Slide Pathology Images

Burhanuddin Anis[1], Dr. Adam Vincent Jones[2], Dr. Miranda Pring[3], Prof. Paul Rosin[4]

1. School of Dentistry, Cardiff University
2. Department of Pathology, University Hospital Wales
3. Head and Neck, Severn Pathology, University of Bristol
4. School of Computer Science and Mathematics, Cardiff University

Isolated tumour cells (ITCs) remain difficult for even state-of-the-art deep learning (DL) systems to detect in lymph node whole slide images. Although current DL models achieve strong performance for large metastatic deposits, small lesions continue to represent a persistent failure mode, for even the largest pathology foundation models. This work investigates the spatial relationship between ITCs and lymph node micro-anatomy to identify contextual signals that may improve small-lesion detection. Given pathological observations that ITCs often accumulate within or near lymph node sinuses, spatial distributions were quantitatively analysed using the CAMELYON17 dataset. Sinus boundaries were extracted using an existing segmentation model to generate pixel-level masks, which were then overlaid with ITC annotations to measure overlap and proximity. Analysis revealed that more than 75% of annotated ITC pixels were located either within sinus regions or immediately along their boundaries, demonstrating strong anatomical enrichment. This finding indicates that lymph node micro-anatomy carries predictive information that is not yet explicitly leveraged by current patch-based metastasis detection models, which typically ignore global or regional tissue structures. The results motivate the development of an anatomy-aware modelling strategy that injects tissue-structure priors to inform coarse-to-fine patch extraction and classification schemes in fully-supervised deep learning methods for digital pathology. Introducing such anatomical context into deep learning workflows may improve sensitivity for small metastatic deposits and enhance the reliability of computational pathology systems. Future work will evaluate anatomy-aware approaches within full-slide diagnostic pipelines and assess their impact on ITC detection performance.

Funding acknowledgment: Medical Research Council through the GW4 Biomed2 Doctoral Training Partnership

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A8

Developing a Community Pharmacy Service to Facilitate Early Diagnosis of Bowel Cancer: Survey of Pharmacy Staff

Christian Von Wagner[1], Savita Shanbhag[2], Harriet Quinn-Scoggins[3], Caroline Clarke[1], Jack Hogton[3], Sophia Harmer[1], Evelyn Brunson[1]

1. University College London
2. Hywel Dda UHB
3. Prifysgol Caerdydd/Cardiff University

Background: Bowel cancer (BC) is the second leading cause of cancer-related deaths 1-4 yet has significantly increased survival rates with early detection 5,6. Community pharmacies (CPs) are easily accessible healthcare settings within the diagnostic pathway, offering an avenue for early detection. Despite this, limited research has been conducted exploring their approaches, specifically regarding recognition of symptoms and facilitating referrals; including potential barriers to user engagement, potential gaps in staff knowledge, and the effectiveness of established training programmes.

Method: Cross-sectional survey with CP staff (n=142 pharmacists; n=176 non-pharmacists) across London/Wales exploring:

- Frequency and initiation of BC consultations
- Capacity for additional responsibilities
- Staff knowledge and training needs
- Feasibility of referral pathway
- Potential facilitators

Results: Discussions of BC symptoms were infrequent, with conversations most often initiated by service users rather than by CP staff. 61.6% of respondents spent less than 5 minutes p/w discussing BC symptoms with service users. CP staff perceived barriers in offering confidential consultations to service users, despite recognising the importance of symptom discussion.

Implications: CPs provide an additional option within the diagnostic pathway, however, barriers staff encountered reduced their likelihood of engaging with service users. Pharmacists recognised that discussing symptoms with service users was important (71%) but raised concerns regarding the lack of time to discuss individual cases because of workload. For non-pharmacists, recognition that they had more opportunities to engage with services users was evident. However, they perceived a lack in relevant subject knowledge (61.5%) leading to a lack of engagement with service users who presented with potential BC symptoms.

References

1. George, A et al. 2018. Regional variations in UK colorectal cancer screening and mortality. The Lancet. 392(10144). 277-278.
2. Evans, H et al. 2002. The risk of subsequent primary cancers after colorectal cancer in southeast England. Gut. 50. 647-652.
3. Peacock, O, Clayton, S, Atkinson, F & Lund, J. 2013. 'Be Clear on Cancer': the impact of the UK National Bowel Cancer Awareness Campaign. Colorectal Disease. 15(8). 963-967.
4. Birch, R et al. 2022. Inflammatory Bowel Disease-Associated Colorectal Cancer Epidemiology and Outcomes: An English Population-Based Study. The American Journal of Gastroenterology. 117(11). 1858-1870.
5. Thompson, M et al. 2010. Earlier diagnosis and treatment of symptomatic bowel cancer: can it be achieved and how much will it improve survival? Colorectal Disease. 13(1). 6-16.
6. Ott, J, Ullrich, A & Miller, A. 2009. The importance of early symptom recognition in the context of early detection and cancer survival. European Journal of Cancer. 45(16). 2743-2748.

Funding acknowledgment: N/A

Awareness, discussions around and use of prostate specific antigen (PSA) testing among men living in the United Kingdom (UK): a national online survey

Stefanie Bonfield[1], Harriet Quinn-Scoggins[1], Jo Waller[1], Laura Marlow[1]

1. Centre for Cancer Screening Prevention and Early Diagnosis, Wolfson Institute of Population Health, Queen Mary University of London

Background: Increasing complexity around how men access Prostate Specific Antigen (PSA) testing makes it challenging to understand causes of inequalities in PSA testing and prostate cancer outcomes. A clearer understanding of public awareness and use of PSA testing is needed to inform consistent information, guidance and equitable early detection policies.

Methods: Six questions were added to YouGov's weekly online Social Research Omnibus Survey. Data were collected from a representative UK sample of 1,025 men in October 2025.

Results: Half of participants (50.1%, n=500/998) had heard of PSA testing. Among those aged ±40 years (n=609), a third (34.8%, n=212/609) reported ever having a PSA test, mostly in an NHS setting (84.7%, n=179/212), although some reported having a test through a charity (4.5%, n=9/212), private healthcare provider (1.7%, n=4/212) or doing a self-sample test at home (2.7%, n=6/212). Among those who had their first PSA test in an NHS setting, 19.6% (n=35/179) reported that they were not told about the pros and cons of the test. More reported that their first NHS PSA test was due to reasons such as age, ethnicity or family history (51.5%, n=92/179) than due to experiencing symptoms (42.3%, n=76/179).

Implications: Most PSA testing in the UK occurs in NHS settings, although more research is needed to understand testing offered through charities, private healthcare providers and direct-to-consumer tests. Findings will inform further studies to effectively support the public, patients and healthcare providers in making informed decisions about the use of PSA tests.

Funding acknowledgment: This work was supported by Cancer Research UK. PICCTR-2024/100006

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A10

Reimagining Gynaecological Cancer Detection: Patient Perspectives on Liquid Biopsy Blood Testing

Nerissa E. Thomas[1,2], Ashra Khanom[1], Alix Bukkfalvi-Cadotte[1], Charles D. Brilliant[2], Laura E. Thomas[1], Dean A. Harris[1,2]

1. Swansea University Medical School, Swansea University
2. Cansense

Introduction: Gynaecological cancers, including ovarian, endometrial, cervical and vaginal cancers, remain challenging to detect early due to non-specific symptoms, delayed presentation, and invasive or inaccessible testing pathways. These barriers disproportionately affect under-represented and marginalised groups, contributing to late-stage diagnosis and poorer outcomes. Improving early detection is therefore critical. Liquid biopsy blood testing has the potential to offer a more accessible and acceptable diagnostic approach.

Methods: A mixed-methods study was conducted to explore experiences of current gynaecological cancer testing and acceptability of a proposed liquid biopsy blood test. Questionnaire data from 338 respondents was analysed quantitatively and thematically. In-depth qualitative data were collected through focus groups with 13 women with lived experience of gynaecological cancer. Qualitative transcripts were analysed using a directed content analysis guided by the Theoretical Framework of Acceptability.

Results: Findings revealed limited public awareness of gynaecological cancer symptoms and diagnostic pathways, alongside widespread dissatisfaction with current testing methods, which were described as invasive, painful, and emotionally burdensome. Acceptance of a liquid biopsy blood test was high; 81% of questionnaire respondents reported feeling "very positive" towards its development, with 45% stating they would "definitely" prefer it. Qualitative analysis highlighted positive affective attitudes, perceived effectiveness, and improved accessibility associated with blood testing, with participants contrasting it favourably against existing procedures.

Future Prospects: These findings highlight strong patient support for less invasive diagnostic innovations. A liquid biopsy blood test may represent a promising step towards more equitable, acceptable, and timely gynaecological cancer detection, informing future test development and implementation strategies.

Funding acknowledgment: Thank you to Life Science Hub Wales and The Academy of Medical Sciences for sponsoring this project.

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A11

Establishing a Population-Scale Oncology Cohort via the SAIL Databank to Support Cancer Research in Wales.

Laura Baker[1], Arron Lacey[1], Ashley Akbari[1], Sunil Dolwani[2]

1. Population Data Science, Medical School, Swansea University, Wales.
2. Gastroenterology, Cardiff and Vale University Health Board, Wales.

Background: Routinely collected electronic health records (EHR) and administrative data have the potential to transform cancer care. In Wales, the Secure Anonymised Information Linkage (SAIL) Databank hosts several population-scale data sources containing individual-level information on cancer investigations, diagnoses, treatments, screening, and outcomes. However, overlapping coverage, heterogeneous structures, and inconsistent reporting limits their usability. To address this, we developed the SAIL Population Oncology Cohort (SPOC), a single harmonised resource that links and standardises several data sources, creating a cancer record for each individual. This research-ready data asset (RRDA) improves consistency and reduces data access lag through integrated sourcing.

Methods: SPOC integrates hospital admissions (PEDW), screening (SBSW, SBTW, SCSW), cancer registry (WCSU), radiotherapy (RTDS), administrative (CNIS, WDSD), and mortality data (ADDE) to produce an individual-level cancer profile.

Results: SPOC collates 614,970 cancers in Wales from 1985 - 2024, with a mean follow-up of 6.19 person-years until death or attrition. Records, including screening, staging, grading, and sociodemographic characteristics, were collated and reported at the point of diagnosis. Treatment data, aggregated by cancer and person, were compiled from four sources: chemotherapy, immunotherapy, radiotherapy, and surgery. SPOC is also linked to ONS death records, enabling analysis of all-cause and cancer-specific mortality. Designed to improve research access within the SAIL Databank, SPOC supports linkage to both raw cancer data and wider health and administrative datasets.

Conclusion: By harmonising longitudinal, population-scale cancer data into a single integrated resource, SPOC improves the accessibility and timeliness of cancer data for research in Wales.

Funding acknowledgment: The research was facilitated by the SAIL Databank, with funding from Health and Care Research Wales via the Wales Cancer Research Centre's CReSt catalytic funding and the Roche Bioresource Data Accelerator programme.

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A12

Understanding equity in cancer prehabilitation services in Wales: A medical record review.

Shea Palmer[1], Alexandra Mitchell[1], Akhilesh Ramachandran[1], Nichola Gale[1], Sian Lewis[2], Manasi Patil[1], Nicholas Courtier[1], Jane Hopkinson[1]

1. School of Healthcare Sciences, Cardiff University
2. Aneurin Bevan University Health Board

Background: Cancer prehabilitation prepares people for treatment by supporting physical activity, nutrition and emotional wellbeing. It reduces treatment complications and improves outcomes. However, people from lower socioeconomic and minority ethnic backgrounds are less likely to take up prehabilitation. Understanding current services is an important first step towards improving equity.

Aim: To undertake a medical record review to understand equity in NHS cancer prehabilitation services in Wales.

Methods: Data was collected for all patients attending an initial cancer prehabilitation consultation over a four-week period at seven NHS providers. Included patients were adults referred for prehabilitation with a confirmed or suspected diagnosis of upper gastrointestinal, colorectal, lung, prostate or breast cancer and awaiting active or palliative treatment. Data extracted included demographics, cancer site and the components of prehabilitation received. The Charlson Comorbidity Index and Index of Multiple Deprivation were calculated.

Results: n=134 patients were included. 63% had colorectal, 22% upper gastrointestinal and 12% lung cancer. Mean age was 68 years, with 56% male and 44% female. 42% were in the two quintiles of highest deprivation, whilst 100% with a recorded ethnicity were White – neither figure is representative of cancer cases in Wales. There was wide variability across services in the type and duration of prehabilitation received. An estimated 14% of patients newly diagnosed with these cancer types in Wales accessed prehabilitation.

Conclusion: The findings demonstrate a highly variable prehabilitation offer in Wales. Targeted efforts are required to improve uptake among socioeconomically disadvantaged and ethnic minority groups to enhance cancer treatment outcomes.

Funding acknowledgment: Funded by The National Institute for Health and Care Research (NIHR), Health and Social Care Delivery Research Programme (Award ID: NIHR151668). The views expressed are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A13

Developing an efficient and effective structural variant calling pipeline for a clinical cancer profiling context

Ashley J. Pridgeon[1], Erik Waskiewicz[1], Sophie Shaw[1], Duncan Baird[2], Kez Cleal[2]

1. All Wales Medical Genomics Service, Institute of Medical Genetics, University Hospital of Wales, Heath Park, Cardiff, UK
2. Division of Cancer and Genetics, School of Medicine, Cardiff University, Heath Park, Cardiff, UK

The rearrangement, removal, and duplication of genomic segments (structural variation) are hallmarks of cancer progression. Through these processes, cancer cells can alter the copy number, expression, and function of genetic material, enabling them to replicate, persist, and drive disease progression. Certain structural variants (SVs) are recurrent in specific cancer types and, when detected, can inform clinical treatment.

We are developing an in-house RNA-seq somatic SV detection pipeline for use in a clinical setting at the All Wales Medical Genomics Service (AWMGS). AWMGS provides next-generation sequencing for NHS patients across Wales; its cancer genomic profiling service analysed over 2,250 patient samples in 2024. However, with the rapid progress in clinical genomics, the current pipeline is becoming outdated; using old versions of bioinformatic tools and genome annotations. Our new pipeline will integrate into this cancer genomic profiling service and incorporate the most efficient and effective bioinformatic tools.

The development of this pipeline coincides with the migration of AWMGS bioinformatics services from local high-performance computing clusters to the cloud. Therefore, the efficiency and performance of the computational tools we use are critical to providing a cost-effective and accurate service to our patients.

Here, we present the development of this pipeline, comparing the performance of various tools, including Dysgu - a recently developed, computationally efficient SV caller. We explore how machine learning (employed by Dysgu) can be used to improve variant classification and explore how to enhance the presentation of the resulting clinical data.

Funding acknowledgment: Welsh Cancer Research Network WCRC

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A14

Addressing Variation in Symptomatic FIT Use Across Wales: Insights from a National Dashboard

Benjamin Hughes[1], Habib Khalil[1], Bethan Watson[1], Stevie Davies[2], Alun Matthews[2], Ian Leigh[2], Daniel Cullen[1], Raul Garcia[1], Jeff Turner[2]

1. Digital Health and Care Wales, NHS Wales
2. NHS Wales Performance and Improvement

Background: Colorectal cancer is the second most common cancer and the second leading cause of cancer-related death in Wales. The Faecal Immunochemical Test (FIT) is a non-invasive diagnostic tool that detects traces of blood in stool, supporting early identification of suspected colorectal cancer. Symptomatic FIT is available across all Health Boards in Wales for patients presenting with symptoms of suspected colorectal cancer. Patients with a positive FIT result (≥10µg of haemoglobin/g of faeces) should be referred for assessment on a suspected cancer pathway.

Aim: To evaluate variation in symptomatic FIT usage across Wales and its impact on colorectal cancer diagnostic pathways using a national dashboard.

Methods: A dynamic dashboard was developed to monitor FIT usage, lower gastrointestinal (GI) cancer waiting times, and adherence to national guidance. Data were analysed across Health Boards to identify patterns and areas for improvement.

Results: The dashboard revealed variation in usage, including one health board where primary care FIT use was 20% lower than others, contrary to guidance. This insight prompted a transition to primary care use, aligning with best practice where FIT acts as a triage tool prior to referral. Additionally, the dashboard identified 5,425 cases of potentially inappropriate FIT use for suspected upper GI cancer in the last year.

Conclusion: The national symptomatic FIT dashboard provides visibility of diagnostic pathways, enabling stakeholders to address variation, improve adherence to guidance, and streamline patient journeys. By supporting timely and appropriate referrals, the dashboard contributes to improved service efficiency and better patient outcomes.

Funding acknowledgment: N/A

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A15

Enhancing Personalised Management of Active Surveillance in Prostate Cancer: Developing and Applying Explainable Artificial Intelligence (xAI) Tools to Augment Clinical Decision-Making

Adam Moore[1,2], Gareth Jenkins[2], Savita Shanbhag[3], Yeung Ng[4], Emma Crawford[2], Reyer Zwiggelaar[1], Praboda Rajapaksha[1,2]

1. Department of Computer Science, Aberystwyth University
2. Data Science, Hywel Dda University Health Board
3. Medical Directorate, Hywel Dda University Health Board
4. Urology, Hywel Dda University Health Board

Active Surveillance (AS) is the gold standard for managing low-risk prostate cancer, offering a pathway to minimise overtreatment while monitoring for disease progression. However, predicting individual disease trajectories remains challenging due to the complex interaction of risk factors. This research addresses this uncertainty by developing Machine Learning (ML) models to support personalised clinical decision-making, utilising Explainable Artificial Intelligence (xAI) to ensure transparency.

We leverage routinely collected longitudinal data from the Hywel Dda University Health Board, NHS Wales. This rich dataset integrates Prostate-Specific Antigen (PSA) kinetics with granular patient-specific indicators, including co-morbidities, deprivation indices, and demographics. These features will train ML models to predict disease progression probabilities for individual patients. Crucially, xAI techniques will be applied to visualise which features drive these predictions, fostering clinical trust.

Data preparation is currently in progress, with clinical engagement embedded throughout the design process to ensure usability. The research will culminate in the development of an integrated clinical 'companion' application to support decision-making on a personalised basis, thus augmenting the clinical decision-making process. By integrating AI into the AS pathway, we aim to contribute to more consistent and personalised delivery of prostate cancer care/surveillance and help to further reduce the overtreatment of prostate cancer.

Funding acknowledgment: Eleanor and David James (Scholarship Fund, Aberystwyth University) & Hywel Dda University Health Board

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A16

Access to Vorasidenib for Low-Grade Glioma in the UK: Voices of Patients, Carers and Clinicians

Rachel Roberts[1], Shannon Winslade[1], Kiran Cheema[1], Anita Harries[1], Clare Jackson[1], Cameron Miller[2]

1. Support Team, The Brain Tumour Charity
2. Policy and Campaigns, The Brain Tumour Charity

Low-grade gliomas (LGG) often affect younger adults with patients often experiencing prolonged uncertainty, cognitive difficulties, and loss of independence. Following a draft decision by the National Institute for Health and Care Excellence not to recommend vorasidenib for NHS use, The Brain Tumour Charity conducted an online UK-wide survey to capture community perspectives on access, unmet need, and lived experience.

The survey, open from 15 October to 22 November 2025, received 1,316 responses. Of these, 73% were from individuals affected by LGG, including patients and carers. Quantitative questions assessed perceived unmet need and support for NHS access, while qualitative free-text responses were analysed thematically.

Support for NHS access to vorasidenib was almost unanimous (99%). A majority (86%) identified an unmet clinical need in LGG, referring to decades of limited innovation and reliance on invasive treatments including surgery, radiotherapy and chemotherapy. Qualitative analysis revealed four dominant themes: (1) hope associated with the first meaningful therapeutic advance in 25 years; (2) preservation of quality of life and independence; (3) frustration with systemic neglect and perceived inequity compared with other cancers; and (4) ethical and financial injustice. Patients and clinicians emphasised the value of delaying radiotherapy and chemotherapy, minimising cognitive harm, and reducing burden on NHS services through an oral, well-tolerated treatment.

These findings highlight a disconnect between standard cost-effectiveness assessments and outcomes that matter most to patients living with LGG. Incorporating lived experience, quality of life, and long-term societal impact into decision-making is essential to ensure equitable access to innovation in neuro-oncology.

Funding acknowledgment: N/A

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A17

Barriers to ovarian cancer risk reducing salpingectomy during caesarean section: a cross-sectional survey across Wales

Tamsin Mantel-Cooper[1], Hemant Maraj[1]

1. Department of Obstetrics and Gynaecology, Wrexham Maelor Hospital, Betsi Cadwaladr University Health Board

Objectives: Ovarian cancer is the UK's sixth most common female cancer, with nearly 90% likely originating in the fallopian tubes. Salpingectomy during caesarean section offers effective permanent contraception and lowers future ovarian cancer risk.

This study evaluates sterilisation practices among clinicians in Wales and reviews safety and effectiveness of salpingectomy during caesarean section.

Methods: A questionnaire was distributed to obstetricians across Wales from September to November 2025 focusing on sterilisation methods during caesarean section.

A literature review was conducted using Medline and Embase via Ovid.

Results: There were 102 respondents with 88% aware that salpingectomy can be performed for sterilisation during caesarean, and 81% knew it lowers ovarian cancer risk by up to 70%. However, only 42% routinely offer salpingectomy, and just 19% preferred this method.

The principal barrier appears to be a lack of experience or training in the procedure with 64% citing this.

There were concerns about increased operative time, bleeding risk and reduction in ovarian reserve. A literature review showed these concerns are unwarranted with no significant rise in perioperative risks compared to tubal ligation. There are no adverse effects on ovarian reserve or risks of early menopause. Some studies report increased operative time, but this becomes negligible when surgeons gain experience in the technique.

Conclusion: Salpingectomy at caesarean section presents a substantial opportunity to mitigate future ovarian cancer risk. It is a safe procedure yet remains rarely utilised in Wales. Educating obstetricians on the safety of the procedure and surgical training of the technique is recommended.

Funding acknowledgment: N/A

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A18

Lynch syndrome in Wales: insights from routine health data adapted for surveillance and screening

Robert Maddison[1,2], Ceri Williams[1], David Tucker[1], Suki Baynton[1], Sian Nisbet[3], Mark Davies[4], Alex Murray[3], Llion Davies[1]

1. Congenital Anomaly Register and Information Service, Public Health Wales, Capital Quarter 2, Tyndall Street, Cardiff, CF10 4BZ
2. Wales Gene Park, Cardiff University, Wales Genomic Health Centre, Cardiff Edge Life Sciences Park, Longwood Drive, Whitchurch, Cardiff, CF14 7YU
3. All-Wales Medical Genomics Service, Wales Genomic Health Centre, Cardiff Edge Life Sciences Park, Longwood Drive, Whitchurch, Cardiff, CF14 7YU
4. Singleton Hospital, Swansea Bay University Health Board, Sketty Lane, Sketty, Swansea, SA2 8QA, UK

Background: Lynch syndrome (LS) is an inherited condition caused by pathogenic variants in the mismatch repair genes: MLH1, MSH2, MSH6 and PMS2. LS greatly increases the risk of developing a variety of cancers, making regular screening key for early diagnosis and treatment. Effective patient registration to support such screening is currently lacking in Wales.

Aims: We will assess the feasibility of developing a Welsh LS register using routine health data for surveillance and screening purposes. Using this resource, we will describe the epidemiology of LS in Wales.

Methods: Data collection is ongoing. LS patients will be identified through two routes: 1) querying young (<50 years) specific cancer cases in the Patient Episode Database for Wales, and 2) using LS genetic test reports held by the All-Wales Medical Genomics Service. These reports will be linked with the Wales Adult Rare Disease Register and used to positively identify LS patients who may be considered for screening. Descriptive epidemiology and health care service utilisation analyses will be undertaken.

Results: We will report the epidemiology and spatio-temporal patterns of LS in Wales, evaluate the strengths and limitations of the data sources used to construct the register and outline lessons learned to inform future monitoring of cancer predisposition syndromes. We anticipate that linking genetic test reports will substantially enhance the identification of LS patients in routine health data who are likely to benefit from screening.

Conclusion: By exploring registration of LS patients from routine data, we aim to improve screening efficacy and early detection for LS-associated cancers in Wales.

Funding acknowledgment: RM is funded by the LifeArc Centre for Acceleration of Rare Disease Trials (RD-TAP).

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A19

A qualitative exploration of translation Toyota cultural principles to an NHS radiotherapy setting

Francesca Lewis[1], Nick Pearn[2], Nicholas Courtier[3]

1. Innovation, Velindre University NHS Trust
2. Toyota Lean Management Centre, Toyota Motor Manufacturing UK
3. School of Healthcare Sciences, Cardiff University

Background: Organisational culture shapes healthcare quality. The carmaker's 'Toyota Way', centred on respect for people and continuous improvement, offers a coherent cultural model yet whole culture translation to UK healthcare remains under evaluated beyond tool-level applications. This study evaluates the extent to which Toyota cultural ideas might be applicable to an NHS Wales specialised cancer care (radiotherapy) context.

Methods: Structured observations and brief interviews at a Toyota factory site and in-depth interviews with seven radiotherapy staff (Bands 3–8). Likert summaries described baseline organisational 'cultural capital' at the NHS site with thematic analysis for all qualitative data. Patient liaison input informed the design.

Results:

Toyota: Four key cultural practices were identified: strategic "compass setting" cascaded from leaders to teams, aligning daily tasks with long term goals; problem solving was system standardised not discretionary; managers were highly visible facilitators on the shop floor, irrespective of hierarchy; emotional intelligence training supported collaborative relationships.

NHS radiotherapy: Four themes were generated: visible supportive leadership; transparent communication; scope for voice/innovation; relational dynamics/cohesion, plus a cross cutting "Us and Them" dynamic. Facilitators of TPS translation included pride in care, alignment with respect/quality, recognition of waste, and peer support. Barriers included NHS values that were aspirational (not operationalised), entrenched bureaucracy, limited bottom up innovation, resource constraints, inconsistent respect, and siloed communication.

Conclusions: TPS principles align with NHS values but would require adaptive, incremental implementation. Practical levers to enhance quality, innovation, and engagement include visible, obstacle removing leadership, systematised frontline problem solving, and emotional intelligence training. Adaption of principles would need to mitigate hierarchical, bureaucratic, and resource constraints.

Funding acknowledgment: Research Capacity Building Collaboration First into Research Fellowship

T6A20

Exploring behaviours towards routine Carbapenemase Producing Organism (CPO) screening at a regional cancer centre in Wales

Joanne Simpson[1], Nicholas Courtier[2]

1. Infection Prevention & Control Nurse, Velindre Cancer Centre
2. School of Healthcare Sciences, Cardiff University

Background: Carbapenemase producing organisms (CPO) represent a significant risk for cancer patients as they are resistant to last-line antibiotics. Effective infection control relies on routine screening of patients admitted to augmented care units. Our study explores why the historical compliance rate of routine CPO screening of inpatients is typically less than 50%.

Method: Weekly screening figures were audited throughout the study period (01/11/24 to 31/10/25) to determine if raised awareness of the topic coincided with change in screening behaviour. Short semi-structured interviews, guided by the COM-B behaviour change framework, were conducted with approximately 15 healthcare support workers and staff/senior who are expected to perform CPO screening of cancer inpatients. Interview data and supporting field notes were analysed thematically.

Results: The range of patients screened according to protocol was 23% to 62%, with a trend for more consistent monthly compliance rate. The dominant interview theme was lack of education/training about CPO, which relates to the capability component of COM-B. Other themes (COM-B component) were: (i) Lack of confidence (psychological capability); Nurse embarrassment (automatic motivation); Nursing experience (reflective motivation/social opportunity); Time constraints (physical opportunity).

Conclusion: Education/training that emphasises the rationale for CPO screening within the cancer setting and works with conscious and unconscious staff motivation towards screening is likely to be the most effective way to improve protocol compliance. Impacts of education on screening behaviours should be monitored through audit. Our data can underpin reduction in healthcare-acquired infections from multi drug-resistant organisms such as CPO for those who are most vulnerable.

Funding acknowledgment: Velindre Healthcare Cancer Research Introduction to Research Fellowship Scheme

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A21

Safe skills transfer and mentorship: the all-wales colorectal peritoneal metastases service – a collaborative strategy to develop a new national service

Jody Parker[1], Matthew McKenna[1], Leigh Davies[1], Jared Torkington[1], Daniel Chung[2], Caroline Trezise[1], Tom Cecil[3], Brenden Moran[3]

1. Department of Colorectal Surgery, Cardiff and Vale University Health Board
2. Department of Radiology, Cardiff and Vale University Health Board)
3. Department of Colorectal Surgery, Hampshire Hospitals NHS Foundation Trust

Objectives: Until recently, there was no access to cytoreductive surgery (CRS) and hyperthermic intraperitoneal chemotherapy (HIPEC) for Welsh patients with resectable colorectal peritoneal metastases (CPM). A pilot programme, funded by Moondance Cancer Initiative, aimed to improve CPM management and offer CRS and HIPEC to selected patients. The service development model is presented in detail in addition to the short term outcomes are presented.

Methods: The service was developed in three phases: preparation, mentorship and independence. Multi-disciplinary team (MDT) meetings, surgery and team development were performed in conjunction with the Peritoneal Malignancy Institute Basingstoke during the first two phases. After this period of supervision and mentorship, the Welsh team continued independently.

Results: Over 34 monthly meetings, there were 228 MDT discussions of 174 patients. MDT members were trained with a combination of formal assessments, continuing professional developement and work based training. Radiology reporting by the new team was assessed for quality to ensure proficiency before the independence phase. Overall, 36/174 (20.7%) of patients were selected for CRS and HIPEC and to date, 31 have had surgery. Median age was 63 years and 54.8% were male. Median intra-operative peritoneal carcinoma index was 7. Complete cytoreduction was achieved in 27 patients (87.1%) and median length of stay was 10 days. Complications occurred in 25.8% with four Clavien-Dindo Classification II, four Clavien-Dindo Classification IV and no 30 day post-operative deaths. Operative duration, blood loss and length of stay were significantly shorter during the independence phase. The service development model enabled development of multi-disciplinary expertise within Wales, and safe delivery of this complex treatment strategy.

Conclusions: This project has demonstrated a successful and safe introduction of the All-Wales Colorectal Peritoneal Metastasis Service through an innovative approach of non NHS funding and expert mentorship. Detailed description of our model can be applied to other centres introducing CRS and HIPEC is a robust manner. The excellent results support the aim to secure sustainable funding to permanently commission this beneficial service for Welsh patients.

Funding acknowledgment: Moondance Cancer Initiative

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A22

Introduction of Expiratory Muscle Strength Training (EMST) for Head and Neck Cancer patients with chronic dysphagia post treatment.

Menna Payne[1], Kerry Davies[1], Lindsey Jose[1], Rebecca Mears[1]

1. Speech and Language Therapy Department. Royal Glamorgan Hospital, Cwm Taf Morgannwg University Health Board

EMST is a rehabiliation technique using a device to strengthn expiratory muscles which are critical for breathing out forcefully, coughing and swallowing. The purpose of EMST is to improve cough strength, enhance swallowing muscle movement and faciliate better laryngeal elevation during swallowing thus reducing the risk of aspiration.

Limited evidence exists for EMST in head and neck cancer populations. A study by Hutcheson et al (2018) suggested that EMST was a promising therapuetic approach for improving airway protection in chronic aspirators post radiation.

The aim of this study was to measure the maximal expiratory pressure pre and post EMST therapy (primary outcome) and to collect functional outcomes in relation to normalcy of diet, eating and drinking and emotional wellbeing to demonstrate the overall impact of the therapy approach (secondary outcome). Charitable funding from Face Up Cymru was obtained to support the work,

4 patients was recruited to the small single-centre study and preliminary findings were positive. 50% of patients fully adhered to the programme and these patients saw significant improvement in their pre and post MEP scores. 100% of patients reported positive changes in their functional abilities and quality of life.

The plan is to continue with the EMST programme, CTMUHB Research and Development team have kindly agreed to fund a further research project looking to offer this programme to a larger cohort of patients.

Funding acknowledgment: Face Up Cymru

Theme 6: Population health-based cancer prevention, detection, primary care and health service research

T6A23

Improving the Speech and Language Therapy (SLT) rehabilitation pathway for patients with late effects dysphagia post head and neck cancer treatment

Menna Payne[1], Kerry Davies[1], Lindsey Jose[1], Rebecca Mears[1]

1. Speech and Language Therapy Department. Royal Glamorgan Hospital, Cwm Taf Morgannwg University Health Board

Radiotherapy and other treatments for head and neck cancer can cause acute and long term side effects that can have a significant impact on quality of life. Dysphagia impacts hugely on social participation and emotional wellbeing. Late effects dysphagia (LATERAD) can be particularly challenging.

The SLT service was receiving increasing referrals for patients with LATERAD and so work was undertaken to identify is a clinic for patients suffering from LATERAD was feasible, acceptable and have a positive impact on function and wellbeing?

10 patients were offered the opporunity to engage. Baseline information was obtained in the form of an objective swallow assessment (videofluorsoscopy) and patient reported outcomes (PROMS). Paitents were then offered information/education and 8 week therapy block. 30% completed the therapy block. 40% were not suitable for the therapy block and 30% received education/support only.For those patients who completed the therapy block all showed quantative and qualitative imrpovements in function and PROMS. All who received SLT input showed improvements in their wellbeing scores.

The plan is to extend the reach of this project with generous funding from the Moondance Initiative in order to collect futher data to demonstrate the impact and also to identify patterns in patients most at risk to lead to risk straification work pre-treatment.

Funding acknowledgment: Macmillan Cancer Support funded the therapy devices used in the 8 week therapy block

The Royal College of Radiologists

Royal College of Radiologists continued personal development (CPD) credits

If you are a GMC-registered clinician currently practicing in the UK and wish to claim CPD credits for conference attendance, please follow the instructions below.

Conference learning objectives

- Gain an understanding of cancer research taking place across Wales and how it fits with the six cancer research strategy (CReSt) priority themes
- Understand how AI can be used in reference to radiotherapy
- Learn how digital spatial profiling can improve our understanding and treatment of prostate cancer
- Understand how radiotherapy and immunotherapy combinations can be utilised for solid cancers
- Learn how development and evaluation of interventions to change behaviour can improve population health and reduce health inequalities
- Achieve a greater understanding of Wales' areas of strength in cancer research
- Learn about a patient's experience of being part of research, and the value that public and patient involvement adds to cancer research

Attendance at the Wales Cancer Research Conference 2026 provides the following CPD credits in accordance with the CPD Scheme of the Royal College of Radiologists:

Conference attendance: 7 credits (whole day)
Oral abstract presentation: 5 credits for first author, 1 credit for other authors
Poster presentation: 3 credits for first author, 1 credit for other authors

If you require a certificate of attendance in order to log your credits, please email wcrc@cardiff.ac.uk after the conference providing your full name, title, and GMC number where possible.

Please do not share or reproduce abstract, poster or presentation content from this event; please treat data presented as confidential.

Peidiwch â rhannu nac atgynhyrchu cynnwys crynodeb, poster na chyflwyniad o'r digwyddiad hwn; dylech drin data a gyflwynir yn gyfrinachol.