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Newsletter

Issue 39



Alice's Charity Ball 2025

NBCRC Members Spotlight



Professor Stewart Martin, Director of Nottingham Breast Cancer Research Centre, received a NBCRC Pilot Grant in 2020, his research focus was on "Understanding calpastatin's role in regulating breast cancer metastasis." With this Pilot Grant, Stewart studied how a protein called calpastatin (CAST) affects breast cancer response to treatment and its spread. Stewart's team found that while all three types of CAST affected gene expression in breast cancer cells, only CAST-III's effects, on three specific genes (MAGEB2, SLC05A1, and NTRK2) correlated with patient survival outcomes, suggesting it may negatively impact prognosis through specific genetic pathways.

You can find out more and read the latest research update here:

<https://bit.ly/pilot-grant-2020>

Congratulations to Büsra Erkan who has successfully defended her PhD. Her thesis was titled: The Role of Solute Carriers in Luminal Breast Cancer: Key In Vitro Studies, Co-expression Patterns, Prognostic Significance, and Promising Markers for Clinical Outcomes. She was under the guidance of her supervisors Dr Andy Green and Prof Emad Rakha.

We welcome our newest member to our scientific community **Dr Navarasi Srajagopal**, Consultant Breast Histopathologist at Nottingham City Hospital (Affiliate member).



NBCRC Pilot Grant Awards 2025

We are delighted to announce our 2025 Pilot Grant Award recipients Dr Sarah Storr, Assistant Professor in Cancer Sciences and Dr Jason Adhikaree, Clinical Associate Professor in Oncology at the University of Nottingham. Our pilot grant application process maintains exceptionally high standards through evaluation by an external panel of breast cancer experts, ensuring only the most promising projects receive funding. We also integrate the perspectives and priorities of breast cancer patients into our selection process. Sarah's project is entitled "The use of advanced 3D models to understand bone colonising breast cancer", and Jason's project is entitled "Identifying drivers of metastatic risk and treatment resistance in triple negative breast cancer undergoing neoadjuvant chemo-immunotherapy treatment". More information below!



Title of project: The use of advanced 3D models to understand bone colonising breast cancer.

Background

Breast cancer is one of the most prevalent cancers globally, and when it spreads, the bone is often its first destination. Even in early stage disease, tiny clusters of cancer cells can hide in the bones, remaining dormant for years. Understanding how cancer not only spreads but also survives in the bone is critical for developing more effective treatment strategies.

Aims

This research will create models that accurately mimic the bone environment in patients, allowing scientists to study how breast cancer spreads and grows during bone metastasis. We will use powerful techniques to explore gene expression levels and metabolite changes in individual cells to discover pathways involved in facilitating and regulating bone metastasis.

Techniques and methodology

We will use 3D printing to create bone-like structures that will be seeded with special cells to produce and mimic bone. We will then add different types of breast cancer cells, from different disease phenotypes, to see how they interact with the bone-like tissue. Using single-cell RNA sequencing and single-cell metabolomics, we will analyse the levels of gene expression and metabolite levels in individual cancer cells to understand what makes them able to survive and colonise bone.

Impact on breast cancer research

This study will develop new ways to study bone metastasis in the laboratory, allowing us to understand how breast cancer colonises bone. By identifying important genes and metabolites involved in the process, we will discover new ways to treat patients with bone metastasis. The long-term aim of this research is to stop the spread of breast cancer and improve survival of patients with secondary cancer. This research will also contribute to the development of better cell culture models and help researchers work together by sharing findings, leading to faster breakthroughs in cancer treatment.



Title of project: Identifying drivers of metastatic risk and treatment resistance in triplenegative breast cancer undergoing neoadjuvant chemo-immunotherapy Treatment.

Background

The survival for patients with locally advanced triple negative breast cancer remains lower than other subgroups due to treatment resistance and early metastasis. Tumours shed parts of itself called extracellular vesicles (EV) which carry tumour specific messengers to prepare for metastatic implantation in an organ. Not only do EVs establish metastasis, their persistence during treatment, we hypothesize, they hold the potential to understand treatment resistance and mechanisms of disease relapse.

Techniques and methodology

We aim to isolate EV from 3 triple-negative banked patient derived cell lines and analyse the size, shape and internal content (RNA and proteins). We then aim to take serial blood samples from 10 patients at baseline and at 12 weeks into treatment (after 4 cycles) of neoadjuvant chemoimmunotherapy to assess for persistent EV post treatment. We will use advanced sequencing technologies to analyse the content of the EV and computer programmes to quantify the largest changes in the internal content pre- and post-treatment.

Impact on breast cancer research

The triple negative breast cancer patient group remains a high unmet need for improved survival. Immunotherapy alongside chemotherapy has been the major advance in this field for both early-stage disease as well as advanced stage where it offers long-term survival to a few. However, many patients become resistance to chemo-immunotherapy which remains an unanswered dilemma for triple negative breast cancer, and indeed for all high mortality associated cancers. Our hypothesis is that EV present at diagnosis and more importantly, persistent after treatment, hold key information on factors driving relapse and/or disease progression. We aim to discover prognostic signatures warranting higher risk and identify new cancer metastatic and drug resistance pathways. We envisage this research leading to a larger grant for prospective cohort study to validate our findings. Ultimately, we aim to improve treatments for triple negative breast cancer patients.

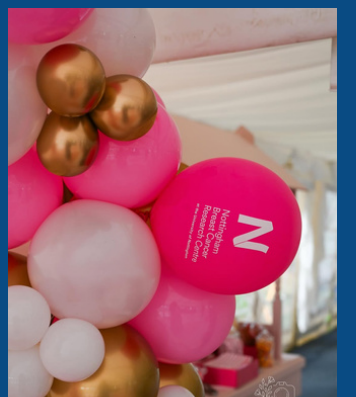
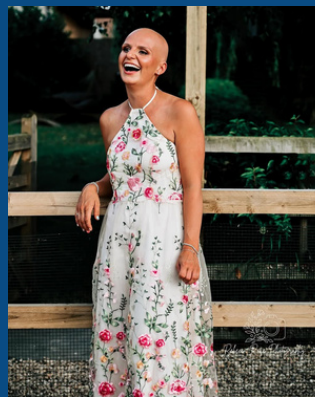
Outreach



Our Breast Cancer Awareness Event on Saturday 14th June at St.Peter's Square was a success, thanks to Dr Sarah Storr's expertise and our dedicated NBCRC volunteers. Every conversation helped advance our mission of bringing crucial breast cancer awareness directly to our community. Dr Storr, lead member of NBCRC outreach initiatives, also visited Treetops Hospice in Risley on Tuesday 3rd June to deliver a presentation focused on the ongoing research efforts at NBCRC, connecting patients and families directly with the latest developments in breast cancer research. Dr Storr featured in the What's Hot in Notts? Podcast sharing her experience as a breast cancer researcher. You can listen to the podcast here: <https://bit.ly/breast-cancer-podcast>

Fundraising Events & Celebrations!

Alice' Greaves Charity Ball, held on Saturday 21st June, raised an amazing amount, over £47,500! The event, that coincided with Alice's 27th birthday, was a tremendous success that brought together 365 attendees in unified celebration - over 30 generous sponsors backed the event helping to raise vital funds NBCRC's research whilst celebrating Alice's inspiring story of resilience and unwavering advocacy for the cause. **A very big thank you** to Alice, her friends and family for their support in making the event such a wonderful success!



Robin Hood Half Marathon 2025

Meet our 2025 runners, Sarah, Cat, Katy, Emily, Samuel, Bethan, Jake, Katie, Jenna, Evie, Oscar, Lottie, Joseph, Rachel, Cerys, Iris, Isabelle, Samuel, Ben, Zoe, Sophie and Samuel! . You can scan their QR codes and support their fundraising race.



We are still looking for more volunteers to take part in Nottingham's annual Robin Hood Half Marathon. Last year's team raised £3,720 – let's see if we can meet, or beat, it!

You can then create your own [Just Giving page](#) on the NBCRC website.

You will receive a FREE running vest and personalised poster to share with friends and family across social media. Please get in touch with Faylisha by email at nbcrc@nottingham.ac.uk if you are interested in fundraising for the centre or would like any more information.

NBCRC Branded Gifts

We have a number of branded items such as golf umbrellas, tote bags, pens and mugs. If you would like to purchase any please get in touch with us.

NBCRC Tours

If you would like to have a look around our research facilities, meet some of our researchers and hear about the wonderful research that you are helping to make possible please contact us, we would love to show you around!

How to Give

You can help support vital breast cancer research. Making a gift is easy, you can donate once or set up a regular direct debit.

[Donate](#)

Contact Us

Email:
nbcrc@nottingham.ac.uk

Website:
www.nottingham.ac.uk/go/nbcrc

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