

**VICTORIA THE HEART OF AUSTRALIAN HEALTH AND MEDICAL RESEARCH,  
SHINES A SPOT LIGHT ON OUR BRIGHTEST**

**VICTORIA IS TO HEALTH AND MEDICAL RESEARCH WHAT NASHVILLE IS TO COUNTRY MUSIC**

**Fertility test for breast cancer patients**

Health and Medical Research has increased the survival rate for women diagnosed with breast cancer. Nowadays, women diagnosed with a primary breast tumour have a greater than 80% chance of living longer than ten years after diagnosis. Unfortunately, this can come at a cost, with the most effective treatments often significantly reducing the patient's chance of having a child.

The prospect of treatment causing infertility dramatically affects decisions about the appropriate anticancer treatment to be used, and can lead to patients selecting a therapy that preserves fertility but may not be the most effective for treating the cancer.

PhD student Zobaida Edib from Department of Obstetrics and Gynaecology at the University of Melbourne has commenced developing the first 'fertility risk prediction tool' that considers both the prior fertility of the patient and the effects that planned anti-cancer treatments may have on future fertility.

"The test will ultimately help patients to plan for treatment and decide whether to attempt to preserve their fertility prior to treatment for early breast cancer," Zobaida said.

**Mum it is not safe hair!**

Anxiety and stress cause the body to over produce hormones such as cortisol. A new non-invasive test can measure cortisol levels in hair.

PhD student Hannah Bryson from the Department of Medicine, Dentistry and Health Sciences at the University of Melbourne is using this new non-invasive technique to measure stress in children living with social adversity.

Hannah's results show that children not living in a safe place have higher cortisol levels. She aims to use her results to determine whether indicators of social adversity are associated with child hair cortisol so that future tests can assist in determining children's wellbeing.

**Evade to invade. The fatal consequence of the spread of prostate cancer**

New research from La Trobe University's Institute for Molecular Science is helping to us to understanding how prostate cancer cells spreads to the bone (metastasis), a fatal consequence of prostate cancer.

PhD student Katie Owen is working on determining how even after treatment success, tumour cells can remain in circulation for up to 20 years. "*Tumour cells remain dormant and can survive undetected for prolonged periods*", Katie said.

Katie and her team have discovered that prostate cancer cells use sophisticated immune evasion strategies to remain undetected, and subsequently use these same process to invade the bone during periods of bone susceptibility.

*"This work that may be exploited therapeutically to decrease the mortality associated with bone-metastatic outgrowth in prostate cancer which could ultimately lead to reduced patient mortality"*.

## **A Stroke of Brilliance\_- new techniques to save stroke patients**

For patients who suffer a severe stroke caused by a large vessel occlusion (LVO) treatment time is everything. Unfortunately, there are only a very few hospitals in Australia that are capable of the appropriate care for these high-risk patients. Often patients have to be transported to appropriate hospital after LVO diagnosis which greatly increases the damage caused by the stroke.

PhD student Henry Zhao, has developed and validated a new and highly accurate identification method for paramedics to help them determine whether a patients has had a LVO. The “ACT-FAST” algorithm accurately discriminates key patient features and symptoms to help paramedics quickly identify whether specialist treatment needed.

*“This research aims to dramatically speed up treatment for stroke patients that require specialised clot retrieval surgery, by training paramedics to recognise them in the community and transporting them directly to a hospital capable of performing the procedure”* Henry said.

## **Studying prostate cancer in 3D**

Cancer initiation and progression is strongly influenced by the organ or cells in which it is situated, ‘tumour microenvironment’. The influence of these surrounding cells is critical for cancer growth, progression and resistance to therapies. However, studying the role that the tumour microenvironment plays on cancer is difficult to replicate in the laboratory.

PhD student Brooke Pereira from the Department of Anatomy and Developmental Biology, Biomedicine Discovery Institute at Monash University has developed a prostate cancer model using a *3D printing technology*, to produce an environment that better replicates what is actually happening inside the body.

*“Tumours do not grow in isolation in the body, but recruit different cells nearby to help them develop and grow”* Brook said. In her model, she has studied surrounding immune cells known to support prostate cancer group. Using her 3D model, she has shown that the immune cells promote tumour development and progression.

Developing improved models to study cancer will help scientists to develop therapies that are less likely to suffer from resistance a well-characterised consequence of the tumour microenvironment.

Media and Photo opportunities.

**Media Contact:** \_\_\_\_\_ **Paddy Dempsey 0401 457 809**  
**Catherine West on 0415 928211**

Major National Supporter of ASMR MRW®

