# Video Transcript: 2024-25 Premier’s Awards for Health and Medical Research Dr Rachel Joyce

## Dr Rachel Joyce

My name is Dr Rachel Joyce and I’m a proud Koori person of Wayilwan descent and scientist.

Vision: View of The Walter and Eliza Hall Institute of Medical Research.

## Dr Rachel Joyce

I completed my nominated research project during my PhD studies at the Walter and Eliza Hall Institute of Medical Research, or WEHI, and I work as a post-doctoral research fellow at the University of Melbourne and at WEHI where I’m focused on identifying strategies for cancer prevention in at risk populations.

Text: 2024-25 Premier’s Awards for Health and Medical Research. Celebrating the achievements of Victoria’s early career health and medical researchers. Dr Rachel Joyce. Aboriginal Researcher undertaking research in any field of health and medical research Award. Victoria State Government. 30th Anniversary. Supported by ASMR, Australian Society for Medical Research.

Text: Why did you become a health or medical researcher?

Vision: View of Rachel walking through the corridor. View of Rachel in elevator.

## Dr Rachel Joyce

I became a researcher because I wanted to work to understand how we can secure good health and wellbeing outcomes for our communities. Cancer is a disease which can have profound impacts on our physical, emotional and mental health and wellbeing, and it’s now the leading cause of death for Aboriginal and Torres Strait Islander peoples, as well as the leading cause of death across communities on this continent.

Text: Please introduce your nominated research project. What problem is it addressing?

Vision: View of Rachel exiting elevator and walking up stairs.

## Dr Rachel Joyce

My research project is called Interrogating the Cells of Origin of BRCA2 Mutant Breast Cancer to identify strategies for cancer prevention. So women or female individuals who inherit a mutation in their BRCA2 gene face an incredibly high lifetime risk of breast cancer, and tend to develop the disease at a very early age. And these individuals are often advised to go through life-altering surgery in order to reduce their cancer risk.

Vision: View of Rachel working in the laboratory.

## Dr Rachel Joyce

This research project was focused on identifying a safer, and non-invasive alternative for the individuals to reduce their cancer risk. And in order to do this I was focused on identifying the cells which give rise to breast cancer in these individuals, and understanding the mechanism by which they do so.

Text: What have been the project’s results?

## Dr Rachel Joyce

So by interrogating patient breast tissue samples, I was able to identify a group of pre-cancerous cells that were unique to breast tissue from BRCA2 mutation carriers.

Vision: View of Rachel working on equipment and the computer in the laboratory.

## Dr Rachel Joyce

And I was also able to find that these cells exhibited hyperactive mTORC1 signalling which is a key cell growth pathway.

So using a pre-clinical mouse model of BRCA2 mutant breast cancer development, we were actually able to target the signalling pathway and block its activity. And in doing so we were able to significantly delay the onset of cancer development.

Text: How could this project make a difference to people’s lives?

Vision: View of Rachel working on equipment and the computer in the laboratory.

## Dr Rachel Joyce

This research project offers hope for a future in which at risk women may take medicines that are designed for their needs rather than undergoing life-altering surgery in order to reduce their cancer risk.

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