

## DR LIZ CALDON – targeting fast-growing cancer cells

Garvan Institute of Medical Research



Many cancers respond poorly to current therapies, including the aggressive “basal-like” breast cancers and those caused by defects in the familial cancer gene, Brca1.

These tumours are characterised by the fact that they grow fast, and the body’s inability to effectively repair damage to DNA. Dr Liz Caldon, a breast cancer researcher at the Garvan Institute of Medical Research in Sydney, believes these features act together to make cancer cells even more aggressive.

With the aid of her Cure Cancer Australia grant, Liz and her colleagues aim to find out how increased growth rate may increase the rate of DNA mutation, when cells are unable to repair their DNA. They may then be able to design drug treatments to target cells that have particularly high growth rates and faulty DNA repair, and thus develop new therapies for cancers that are, at present, untreatable.

### DEVASTATING IMPACT

Breast cancer has a devastating impact, which Liz has experienced personally through watching its effects on family members and close friends. Nevertheless she remains optimistic – and is determined to make a difference – having also directly

observed the benefits of a personalised approach to managing the disease, where each patient is given treatment that’s specific to their type of breast cancer, including personalised surgery and hormone therapy.

“Treatment of each woman as an individual can lead to better resolution of the disease while causing the minimum impact on quality of life,” says Liz. “The ability to treat each case individually has come from research, particularly in the understanding of oestrogen action and its role in breast cancer development.”

Unfortunately, says Liz, a significant proportion of women still can’t be helped by current therapies or approaches because researchers and doctors don’t understand the underlying cause of their subtype of disease. More research will undoubtedly identify better strategies for the diagnosis and treatment of women who currently don’t survive.

After high school at MLC School, Sydney, Liz did not move directly into cancer research. She completed a double degree in science and law at the University of New South Wales, then did a clerkship in a Sydney law firm. But she soon realised that science and medicine were her passion.

### THE ROLE OF GENES

She completed a Master of Science degree at the University of Toronto in Canada, followed by her PhD at the Garvan Institute. During her time at the Garvan, Liz has focused her efforts on understanding the role of certain genes in promoting the growth of breast cancers, and how these may also help create resistance to anti-cancer therapy.

The study of breast cancer is rewarding because there’s a strong and supportive Australian community of researchers, says Liz. This community provides access to quality research tools like state-of-the-art

equipment and tumour banks and gives researchers an opportunity to develop skills under the mentorship of local experts.

“There’s also a commitment to the study of multiple aspects of breast cancer in Australia, from basic research through to clinical practice,” she says. “That means my work is likely to have the greatest opportunity in helping patients. My motivation to be a breast cancer researcher derives from having seen the benefit of research up till now, and wanting to contribute to extending that benefit to all women.”

How important has the Cure Cancer grant been? As a young investigator it’s difficult to get funding to establish a career and explore new ideas, says Liz. “I’m extremely grateful to Cure Cancer Australia for giving me the opportunity to perform my own research. It’ll be a great launching pad for my career and will hopefully lead to effective new strategies in our fight against cancer.”

Born in Sydney and married to Tim, a lawyer, Liz likes to travel and experience different cultures, especially different types of cuisine. She loves to cook, creating recipes from scratch, from jam to pasta. She has also been dabbling in cake decorating over the past two years. Whatever spare time she has left is devoted to swimming and fitness training.

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