



## Tackling Childhood Cancer on a Tiny Scale

Presented by

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### Abstract

Children's cancer is the number one cause of disease related death in developed countries. Thirty percent of children have recurrent or drug resistant disease, also referred to as high-risk disease. Current treatments for these children are highly toxic and lead to treatment related side effects and for survivors, can lead life-long health issues. There is an urgent need to develop more effective and targeted therapies to reduce the morbidity and mortality of childhood cancers. Interest in nano-based therapeutics for the treatment of cancers is increasing. As occurs with the development of other cancer therapeutics the focus is on treatments for adult cancers. Consideration needs to be given to the fact that children get different cancers to adults, metabolism differs between children and adults, children are growing during therapy and may have altered biodistribution profiles. Our research has been focusing on the development of clinically relevant *in vitro* and *in vivo* models of childhood cancer and the investigation and use of nanoparticle-based delivery systems that improve efficacy and are less toxic than conventional therapy.

### Biography

Maria is recognised for her innovation in driving interdisciplinary research in cancer nanomedicine. An outstanding scientific leader, she is internationally recognised for her research in cancer biology and therapeutics. Her research has identified clinically important mechanisms of resistance to cancer therapies and developed new technologies, with her discoveries leading to patents, industry and clinical linkages for the development of cancer therapeutics and devices.

An key leader within her discipline, Maria has served on the American Association for Cancer Research (AACR) Awards committee, is Chair of the Australian Institute for Policy and Science, and a Life Member and past-President of the Australian Society for Medical Research. The novelty and significance of her research has been recognised many times, including via receipt of the AACR Women in Cancer Research Award, as well as being named by the NHMRC as an Australian 'high achiever' in health and medical research. Recognition of her significant contributions to innovation is reflected in her being amongst the 2015 AFR/Westpac *100 Women of Influence* (Innovation category), as well as the inaugural *Knowledge Nation 100* – the 'rock stars' of Australia's innovation-driven new economy. Her awards include the 2017 *Premiers Science and Engineering Award for Leadership in Innovation in NSW*, 2019 *Lemberg Medal*, and two *Australian Museum Awards* which includes the 2021 *ANSTO Eureka Prize for Innovative use of Technology*. Maria is a Fellow of the Australian Academy of Health and Medical Sciences and Fellow of the Royal Society of New South Wales. In 2020, Maria was named the *NSW Premier's Woman of the Year*.

A recognised medical research leader, she has served on government panels including NHMRC Research Committee, Medical Research Future Fund Stem Cell Therapies Mission Advisory Committee and the Women in Health Sciences Committee, where she contributes to high level policy. In 2019, Maria was appointed a *Member (AM) of the Order of Australia* for her significant service to medicine, and to medical research, in the field of childhood and adult cancers.

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