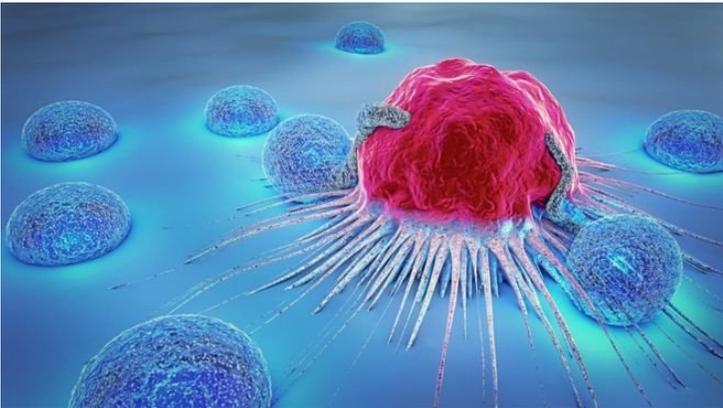


Singapore launches national initiative in cancer therapy imaging

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CITI programme is an integrated, multidisciplinary platform for translational immunooncology imaging that addresses the urgent call for biomarker-driven approaches to monitor tumour immune response.



Global efforts in immuno-oncology have received a major boost, with a S\$22 million Health and Biomedical Sciences (HBMS) Industry Alignment Fund Pre-Positioning (IAF-PP) grant being awarded to the Cancer ImmunoTherapy Imaging (CITI) programme. Led by local researchers from Duke-NUS Medical School (Duke-NUS) and the National Cancer Centre Singapore (NCCS), the CITI programme is an integrated, multidisciplinary platform for translational immunooncology imaging that addresses the urgent call for biomarker-driven approaches to monitor tumour immune response.

Cancer remains a leading killer worldwide and it is the number one killer in Singapore. In recent years, cancer immunotherapy (CIT) has emerged as a scientific breakthrough that harnesses the patient's own immune system to fight off cancer. While CIT has the promise to be particularly effective, on average only one in five patients respond to these treatments. Combined with the high cost of the treatments, there is a tremendous need for judicious selection of immunotherapy combinations that maximise patient outcomes, while reducing the economic burden of cancer care.

Non-invasive in vivo imaging can complement CIT selection by visualising cancer immune responses to determine if immunotherapy treatment strategies are safe and effective. Hence, the CITI programme is conceptualized and designed on the fundamental objective of designing unique probes that can bind immune cells and "light" them up as a way to "see" the immune profile in the tumour and whole body.

"It's an exciting time for the field of Immuno-Oncology, and our team is committed to enabling the timely discovery, validation, and clinical translation of novel peptide-based immune cell targeted probes for optical and nuclear imaging. The expertise and platform technologies incorporated in the CITI programme will serve to drive the development of an 'Immuno-Oncology Imaging Toolbox' to allow for precision immune imaging for precision immuno-oncology," said programme co-lead AnnMarie Chacko, Assistant Professor and Head of the Laboratory for Translational and Molecular Imaging (LTMI), Cancer and Stem Cell Biology Research Programme at Duke-NUS Medical School.

She added that having the participation of Singapore's leading experts from across 12 research organisations in orthogonal capabilities, from Immunology, to Chemistry, Imaging, Bioinformatics, Clinical Trials, and Commercial Innovation, strengthens this initiative. These organisations include the National University of Singapore, Singapore General Hospital, the National

Cancer Institute Singapore, and several institutes from the Agency for Science, Technology and Research (A*STAR).

“As a clinician, we are often faced with the difficult task of selecting the best treatment for our patients. This is especially challenging with CIT, given the complex nature of cancer and the immune system,” added Dr. Daniel Tan, Associate Professor and Senior Consultant, Medical Oncology, NCCS, and colead of the CITI programme. “Having an immunology imaging toolkit will provide us the potential means to help make critical clinical decisions in patient care. This includes deciding which patients may respond best, and how to improve treatment responses by selecting the best CIT combinations that are likely to succeed in our patients. A non-invasive imaging approach will also help to facilitate further study of the dynamic nature of the immune response.”

The CITI programme is designed to target several value inflection points in the translational R&D continuum from CIT discovery to implementation. Hence, strategic biopharma alliances are being sought for collaborative opportunities, including probe co-development, licensing, and clinical trial schemes. Industry partners will also be able to access programme infrastructure and resources to expedite translational and clinical applications for their in-house diagnostic/CIT candidate assets.

“When we have Singapore’s leading experts in immuno-oncology coming together in the CITI programme, we can create a world-class centre for CIT efforts that will greatly enhance the understanding of CIT, and efficacy of cancer treatment,” commented Dr. Danny Soon, Senior Director, Biomedical Research Council, A*STAR. “The burgeoning field of immunotherapy offers exciting opportunities that will lead to impactful healthcare outcomes for Singapore and beyond.”