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Singapore awards NRF grant to develop novel therapies for liver cancer

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The team aims to develop preventive interventions for liver cancer using innovative, state- of-the-art genomic technology



A team of multidisciplinary scientists has been awarded the prestigious National Research Foundation (NRF) Singapore grant to uncover the fundamental mechanisms of liver disease progression from fatty liver disease to fibrosis/cirrhosis (liver scarring), and eventually, liver cancer.

The team aims to identify novel therapeutic targets and biomarkers that can be developed into new therapies to prevent progression to cancer, as well as biomarkers that can be used to detect and monitor early disease progression to allow prompt preventive interventions. The research is led by A*STAR's Genome Institute of

Singapore (GIS), in collaboration with A*STAR's Singapore Immunology Network (SIgN), Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine), National University Hospital (NUH) and Cancer Science Institute (CSI), SingHealth Duke- NUS Translational Immunology Institute (TII), and Nanyang Technological University Singapore's (NTU Singapore) School of Biological Sciences.

Heptacellular carcinoma (HCC) the most common type of primary liver cancer in adults, is also one of the most prevalent cancers in the Asia-Pacific region, including Singapore. In terms of cancer deaths in Singapore, it was ranked third among men and fourth among women from 2011-2015.

The team is now motivated to understand the early mechanisms that underlie the progression of early liver disease to advanced fibrosis or cirrhosis, and eventually to HCC.

The primary research objective of the project is to generate a comprehensive single-cell catalogue of the evolution of disease-associated cell states (both in liver epithelium and tissue environment) that control the trajectories of the disease progression to HCC.