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Singapore cancer genome scientists win President's Science Award

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Singapore: A team comprising Professor Patrick Tan from Duke-NUS Graduate Medical School (Duke-NUS) and A*STAR's Genome Institute of Singapore (GIS), Professor Teh Bin Tean from the National Cancer Centre Singapore (NCCS), and Professor Steven Rozen from Duke-NUS, have recieved President's Science Award for their outstanding integrative and translational research in Asian cancer genomics.

The President's Science Award is presented to research scientists and engineers in Singapore who have made outstanding contributions in basic research leading to the discovery of new knowledge or the pioneering development of scientific or engineering techniques and methods. Recipients will receive a crystal trophy, a citation and a prize of $50,000.

Professors Patrick Tan, Teh Bin Tean, and Steven Rozen are recognised for their discoveries of new genes and molecular pathways in various types of Asian cancers. Over the past eight years, these scientists have pursued multi-disciplinary and collaborative "team-science". Using innovative genomic platforms and biological approaches including next-generation sequencing, they have interrogated the genomes of Asian cancers, identifying novel targets for improved therapeutics and diagnostics.

Focusing on four Asian malignancies (stomach, biliary tract, urinary tract, and breast fibroepithelial tumors), the team identified novel genetic alterations, investigated relationships between these alterations and environmental factors, and mapped how these contribute to disease. Their results have led to strategies for the improved diagnosis, treatment, and prevention of such cancers.

Some of the team's key discoveries include:

a) Discovery of specific molecular signatures associated with exposure to aristolochic acid (AA), a carcinogen found in certain herbal remedies, and its role in liver and bladder cancer

b) Identification of genes mutated in breast fibroepithelial tumors, including the MED12 gene that is mutated in 60 percent of

breast fibroadenomas, a condition found in 10 percent of women worldwide

c) Demonstration of the role of chromatin modifier genes such as ARID1A and BAP1 in stomach and biliary tract cancers.