The Cancer Science Institute of Singapore

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CANCER SCIENCE INSTITUTE OF SINGAPORE
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DISTINGUISHED SPEAKERS' SERIES



William C. Hahn

William Rosenberg Professor of Medicine,
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Using a Cancer Dependency Map

Abstract

Although molecular profiling of human tumors is now routine, the use of this data to guide therapy remains limited to a subset of patients. To complement genome characterization studies, we have used genome scale gain and loss of function approaches to identify genes required for cell survival and transformation. Specifically, we have performed systematic studies to interrogate rare alleles found altered in cancer genomes and used advances in synthetic gene synthesis to prospectively interrogate all possible alleles of known cancer genes. In parallel, we have performed both genome scale RNAi and CRISRP-Cas9 screens in hundreds of cancer cell lines to identify differentially essential genes and the context that specifies gene dependency. These studies now allow us to define a Cancer Dependencies Map. Using these datasets and approaches, we have defined new categories of potential cancer targets and can systematically identify molecular pleiotropy. These approaches promise to further operationalize precision cancer medicine.

Register in advance for this meeting:

Biography

Dr. William C. Hahn is the William Rosenberg Professor of Medicine in the Department of Medical Oncology at the Dana-Farber Cancer Institute and Harvard Medical School and an Institute Member of the Broad Institute of MIT and Harvard. He serves as an Executive Vice President and the Chief Operating Officer at the Dana-Farber Cancer Institute.

Dr. Hahn has made numerous discoveries that have informed our current molecular understanding of cancer and have formed the foundation of new translational studies. Dr. Hahn and his colleagues helped demonstrate that activation of the reverse transcriptase telomerase plays an essential role in malignant transformation. This observation provided the means to create novel experimental model systems to identify and characterize the cooperative genetic interactions that lead to malignant transformation. Together with his colleagues at the Broad Institute, he helped develop genome scale tools and technology to perform somatic cell genetics in human cells. His laboratory has pioneered the use of integrated functional genomic approaches to identify and validate cancer targets. The tools, models and approaches that his laboratory has developed are widely used worldwide to discover and validate molecularly targeted cancer therapies. Dr. Hahn and his collaborators have created the Cancer Dependency Map and are engaged in defining rational approaches to designing combination therapies for cancer.

Dr. Hahn has served as the President of the American Society for Clinical Investigation and has been elected to the Association of American Physicians. Dr. Hahn has been the recipient of many honors and awards including the Wilson S. Stone Award from M.D. Anderson Cancer Center for outstanding research in cancer (2000), a Howard Temin Award from the National Cancer Institute (2001), the Ho-Am Prize in Medicine (2010), the Richard and Hinda Rosenthal Award from AACR (2015) and the Claire and Richard Morse Award (2019).

Tuesday, 19th October 2021
8.30am - 9.30am
ZOOM
Chair: Prof. Ashok Venkitaraman