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City University Distinguished Lecture Series

Speaker

Professor Chih-Ming Ho

Distinguished Research Professor, University of California, Los Angeles

Member, US National Academy of Engineering

Academician, Academia Sinica



AI Enabled Personalized Theranotics

on

Monday, 28 January 2019 at 4:30 pm

at

Connie Fan Multi-media Conference Room

4/F Cheng Yick-chi Building

City University of Hong Kong

Tat Chee Avenue, Kowloon

Abstract

When cancer patients were treated by chemotherapy, usually the response rate is about 25% or less. In other words, one out of four patients responds to the chemotherapy. The inability to pinpoint optimized regimen, including drugs and doses, to accommodate genetics related human diversities and patient specific physiological responses results in implicitly suboptimal treatment efficacy, which is the reason for low response rate. The efficacy/toxicity are diagnosed by biomarkers, which are also patient specific. For example, one of the common marker for liver cancer is Alpha fetoprotein (AFP), but AFP expression may not pronounce at all for many liver cancer patients. Furthermore, the endpoint marker reading of each patient may be far apart for patients taking the same drug and dose.

Enabled by artificial intelligence (AI), we discovered that the therapeutic outcomes (efficacy/toxicity) could be dynamically correlated with treatment inputs (drugs and doses) through a smooth Phenotypic Response Surface (PRS). PRS is governed by a second order algebraic equation and has a parabolic shaped landscape. Deterministically correlating inputs and outputs will immediately converge on actionable, experimentally-optimized treatment outcomes. The regimen developed by AI-PRS platform can customize to a specific patient, which will lead to a major improvement of response rate.

AI-PRS is a mechanism free technology, which makes AI-PRS universally applicable towards all indications. We have demonstrated this platform for more than 30 different diseases with 0 misses. These successfully treated diseases include cancers, infectious diseases and organ transplantations for children and adults.

Biography

Professor Chih-Ming Ho received Ph.D. from The Johns Hopkins University. He held the Ben Rich-Lockheed Martin Chair Professor until retired in 2016 and currently is a UCLA Distinguished Research Professor. He served as UCLA Associate Vice Chancellor for Research from 2001 to 2005.

His research interests include personalized medicine, microfluidics and control of turbulence. He is ranked by ISI as one of the top 250 most cited researchers worldwide in the entire engineering category (2000–2014). Professor Ho was inducted as a member of the US National Academy of Engineering and an Academician of Academia Sinica. Professor Ho received Doctor of Engineering Honoris Causa from Hong Kong University of Science and Technology. He holds ten honorary chair professorships including the Einstein Professorship from Chinese Academy of Science. Professor Ho was elected Fellow of AAAS, APS, AIMBE, AIAA and 3M-Nano Society.

Online registration:

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