Role of Protein Recoding by A-to-I RNA Editing in Hepatocellular Carcinoma

RNA editing introduces changes in RNA sequences encoded by the genome, contributing to “RNA/epigenetic mutations”. In humans, the most frequent type of editing is the conversion of adenosine to inosine (A-to-I), which is mediated by adenosine deaminase acting on RNA (ADAR) enzymes. A-to-I RNA editing can lead to a codon change as the nucleoside inosine (I) is interpreted as guanosine (G) by the cellular machines, resulting in a diversification of protein function. Knowledge gleaned from our previous research has highlighted a link between the dysregulated A-to-I RNA editing and cancer development. Albeit very few protein-recoding type of RNA editing have been reported thus far and not all are of high biological importance, our recent study suggested that editing-mediated protein recoding of COPA (coatamer subunit α) gene led to a functional switch for COPA from being slightly oncogenic to tumor suppressive, and loss of COPA editing is most likely to be a driver for tumorigenesis and can also be used as a predictive factor for hepatocellular carcinoma.

ABOUT THE SPEAKER

Dr Polly Chen got her Bachelor of Medicine in 2002 from Medical school, Jiangsu University, China, followed by 2-year specialized training in Obstetrics & Gynecology. She completed her PhD in Cancer Genetics in Prof. Xin-Yuan Guan’s laboratory at the University of Hong Kong in 2010. After 2-year postdoctoral training in the same lab, she joined Cancer Science Institute of Singapore as a Special fellow in 2012, and was promoted to a Principle Investigator and joined the Department of Anatomy, NUS, as an Assistant professor in 2014. Dr. Chen’s research has centered on transcriptome alterations in human cancers and in particular on understanding how A-to-I RNA editing contributes to cancer initiation and progression. She currently places focus on the regulators of A-to-I RNA editing and the crosstalk between RNA editing and alternative splicing in cancer.