NUS National University of Singapore | Department of Biological Sciences, Faculty of Science

SEMINAR

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Hosted by A/P Liou Yih Cherng

One, No one, and One Hundred Thousand: new clues to the riddle of the mutant p53 oncogene

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The TP53 tumor suppressor is the most frequently mutated gene in human cancers. In recent years, a blooming of research efforts based on both cell lines and mouse models have highlighted how deeply mutant p53 proteins affect fundamental cellular pathways with cancer-promoting outcomes. Neomorphic mutant p53 activities spread over multiple levels (chromatin structure, transcriptional regulation and microRNA maturation) shaping the proteome and the cell's metabolic pathways, and also exerting cytoplasmic functions and displaying cell-extrinsic effects. These tumorigenic activities are inextricably linked with the blend of highly corrupted processes that characterize the tumor context. Recent discoveries are starting to uncover mutant p53 downstream programs that are common to different mutant p53 variants. This will allow a better understanding of the interplay between mutant p53 and other oncogenic pathways and lead to identification of actionable targets for clinical antitumor therapies.

Artwork by Ann Nee, DBS, NUS