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Delineation of complex transcription programmes governed by Wnt/- catenin signaling in stomach cancer cell lineages

Kumarean Ganesan
Madurai Kamaraj University, India

Wnt/β-catenin signaling pathway is one of the major oncogenic signaling pathways often activated in many gastrointestinal cancers including stomach cancer. However, the transcriptional regulations governed by Wnt signaling remain uncovered in stomach cancer. In this investigation we have delineated the *Wnt/β*-catenin signaling governed transcriptional regulations in multiple *Wnt* hyperactive and non-Wnt activated gastric cancer cell lineages by genome-wide mRNA profiling upon modulating the expression of the β-catenin gene. By integrating i) the gene expression changes ii) transcription factor binding sites in gene sets and iii) transcription factor specific *in-vitro* reporter assays, we have delineated multiple transcription programmes regulated by *Wnt/β*-catenin. β-catenin is being the co-activator or co-repressor of *E2F, IRF, Myc, KLF4* and *TCF4* mediated transcription programmes. Further, these transcription programmes are also modulated by the other signaling pathways activated in the cell type. Interestingly, we also found the dysregulation of these transcription programmes in multiple cohorts of primary gastric tumors. Expression of target genes of some of the delineated transcription programmes has the potential to predict the clinical outcome of gastric cancer patients. Identification of therapeutic regimens targeting these individual transcription programmes will pave ways for developing targeted and personalized therapies for gastric cancer. This is the first delineation of Wnt/β-catenin governed multiple transcription factor mediated complex transcriptional regulations in functional genomic and clinical contexts in any cell lineage

Biography

Kumaresan Ganesan has completed his Ph.D at the age of 27 years from Madurai Kamaraj University, India and did his postdoctoral studies from University of Texas M.D. Anderson Cancer Centre, Texas and National Cancer Centre, Singapore. At present, he is Associate Professor of Dept. of Genetics, School of Biological Sciences, Madurai Kamaraj University, India. His research team is working on dissecting the complex transcriptional regulations in stomach, liver and breast cancers by integrative functional genomics approaches. He has published more than 15 papers in reputed journals and being the Principal Investigator of 8 ongoing Cancer Genomics research projects

kumar@oncocellomics.org