

GLOBAL MEET ON ONCOLOGY AND CANCER RESEARCH

JUNE 29-30, 2023 | (Mercure Roma West Rome, Italy)



Dr. Dimcho Bachvarov

Laval University, Quebec City, Canada

Aberrant DNA methylation potentiates oncogenes expression and disease progression in ovarian cancer

Epithelial ovarian cancer (EOC) accounts for 4% of all cancers in women and is the leading cause of death from gynecologic malignancies. The molecular basis of EOC initiation and progression is still poorly understood. Previously, we have applied an epigenomics approach to investigate the possible implication of aberrant DNA methylation in EOC etiology. We used methylated DNA immunoprecipitation in combination with CpG island tiling arrays to characterize at high resolution the DNA methylation changes that occur in the genome of serous EOC tumors during disease progression. We found widespread DNA hypermethylation that occurs even in less invasive/early stages of ovarian tumorigenesis. In contrast, significant DNA hypomethylation was observed only in high-grade (G3) serous tumors. This approach led to the identification of novel EOC oncogenes, potentially modulated by epigenetic mechanisms (hypomethylation) in advanced EOC, and displaying implication in different mechanisms of EOC dissemination, including alterations in gene expression control (RUNX1, RUNX2), abnormal metabolism (BCAT1), aberrant O-glycosylation (GALNT3) and importantly, epithelial to mesenchymal transition (EMT) regulation (Ly75, GRHL2, HIC-5). These genes could represent new therapeutic targets and/or novel biomarkers indicative for EOC progression. Moreover, our data are indicative for the implication of aberrant DNA methylation in EMT-mediated EOC progression.

Biography:

Dimcho Bachvarov is a Professor at Université Laval, Québec PQ Canada, received his B.Sc. and M.Sc. degrees from the University of Sofia in 1975-1978. He obtained his Ph.D. degree in 1986 in the Institute of Molecular Biology at the Bulgarian Academy of Science. Onsecutively, he started his academic career in Canada, as he is currently a Full Professor at the Dept. Mol. Medicine, Université Laval. Dr. Bachvarov' research interests are focused on the characterization of novel epigenetically regulated epithelial ovarian cancer (EOC) oncogenes and their role in EOC dissemination, as well as the role of EMT and aberrant glycosylation in EOC progression.