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CHROMATIN DEREGULATION IN PROSTATE CANCER

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Epigenetic reprogramming including altered transcription factor binding and altered patterns of chromatin and DNA modifications are now accepted as the hallmark of aggressive cancers. I will show that global changes in chromatin structure and chromatin accessibility in prostate tumour tissue can define castrate-resistant prostate cancer and present mechanistic insights of the effect of androgen receptor deregulation on the chromatin. Such effects translate into epigenetics reprogramming of tumor cells mediated by bromodomain containing proteins. Finally, I will present BROMO-10, a gene signature with high prognostic value and predictive of response to bromodomain inhibitors, which are now in clinical trials also for advanced prostate cancer. Bromodomain containing proteins can be used also as disease biomarkers, and I will show that BRD4 in particular can identify DNA stretches enriched in low p-value GWAS-significant disease/tissue-specific susceptibility loci including breast and prostate cancer.

Biography

Alfonso Urbanucci graduated from the University of Perugia, in Italy, and got his PhD in Cancer Genetics and Molecular Biology of Cancer in Finland at the University of Tampere in 2012. His personal research interest is on the transcriptional and chromatin drivers underpinning prostate cancer progression with the androgen receptor as a focal point. He published a series of papers regarding the molecular effects of the deregulation of the androgen receptor on the chromatin and transcription, and how these drive prostate cancer progression. He then moved to Oslo at the Centre for Molecular Medicine Norway (EMBL partnership), and subsequently at the Oslo University Hospital, where he investigated the mechanism of action of bromodomain inhibitors and derived novel prognostic tools for patient stratification. He is currently Researcher at the Norwegian Radium Hospital.

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