

SEMINARIO DE INVESTIGACIÓN DEL IdiSSC
21 de Noviembre de 2016

13:00h.-Metabolic checkpoint in prostate cancer pathogenesis and progression

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The products of metabolic pathways serve unexpected purposes in the process of cancer cell growth and dissemination. Despite the better understanding of the metabolic events that contribute to cancer, the field has not yet clarified (i) how these metabolic events are coordinately elicited, and, importantly, (ii) what differential metabolic cues drive cancer initiation and metastasis.

In order to decipher metabolic drivers of cancer, we envisioned a study that integrates bioinformatics screening, genetic mouse modeling and integrative metabolomics. We based our studies on the interplay between the signaling and metabolism in prostate cancer, exemplified by loss of PTEN in this tissue. We will provide an integrated perspective of the means and regulation of the metabolic switch in this disease.

We uncovered a metabolic switch stemming from transcriptional reprogramming that cooperates with PTEN loss while predicts and mediates metastatic dissemination. We demonstrated that genetic events identified in prostate cancer dataset analyses are causal to the disease, sustaining the acquisition of metastatic capacity in mouse models. Untargeted metabolomics complemented with stable isotope tracing and transcriptomics allowed us to identify a metabolic state permissive for metastasis. Moreover, we defined the molecular mechanism underlying this metabolic program and translate it back into a prognostic tool for the identification of prostate cancer patients at risk of relapse and metastasis. On the other hand, Overall, our work provides fundamental information about prostate cancer initiation and metastatic drivers, and the signaling requirements that determine the optimal oncogenic metabolic state.

13:50h.- PREGUNTAS