Department of Biological Regulation and Dwek Institute for Cancer Therapy Research

ZOOM ON CANCER

HYBRID LECTURE

Tumor ecosystems- from prediction to modeling

Prof. Carlos Caldas
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15th **February Tuesday** 2022

14:00 Candiotty Auditorium

Breast cancers are complex ecosystems of malignant cells and tumour microenvironment (TME). The composition of these tumor ecosystems and interactions within them contribute to therapy response and largely determine aspects of tumor biology. Efforts to build response predictors have not incorporated this knowledge. We collected clinical, digital pathology, genomic and transcriptomic profiles of pre-treatment biopsies of breast tumors from patients treated with chemotherapy +/- HER2-targeted therapy prior to surgery. Pathology endpoints (complete response or residual disease) at surgery were then correlated with multi-omic features in these diagnostic biopsies. We have shown response to treatment is modulated by the pre-treated tumour ecosystem, and its multi-omics landscape can be integrated in predictive models using machine learning. Patient-derived tumor xenografts remarkably phenocopy the donor tumor ecosystem, despite all TME being mouse-derived and the lack of lymphocytes in NSG host mice. We are now using these xenografts as tumor ecosystem models to study in detail response/resistance to therapy, dormancy and metastasis.

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Host

Prof. Moshe Oren
The Andre Lwoff Chair in Molecular Biology
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