Research Team: OmicDPT

Team Leader: Dott.ssa Simona De Summa

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Background

Some solid tumors are studied by the OmicDPT team with with an "omic" approach (genetic, epigenetic, protein and pathological) with the aim of validating biomarkers related to tumor susceptibility, prognosis, classification and diagnosis and prediction of therapeutic response. Particular attention is given to the use of liquid biopsy for the study of these biomarkers.

The team includes two areas:

    a. Omics and computational biology
    b. Biomorphology and proteomics.

The new team includes different projects listed below:

1. Identification of colon carcinomas potentially sensitive of immunotherapy. This study evaluates the use of a genetic and epigenetic and expression signature for this identification on both paraffin tissue and plasma. In addition, the study uses a digital pathology approach to allow the integration of genomics data with morfometric data in order to identify specific gene alterations (e.g., KRAS).

2. Study, through transcriptomic profiles, of a rare pathology such as Merkel cell carcinoma to highlight any sensitivity/resistance to immunological treatments.

3. Realization of an Artificial Intelligence algorithm on histological preparations of patients affected by Luminal B HER2 negative breast cancer as a surrogate for the Endopredict genomic test.

4. Construction of a "lean" platform for the management of a diagnostic and molecular genetic laboratory.

5. Role identification of NDRG1 protein in triple negative breast cancers, through IHC and gene expression techniques.

6. Study of the molecular mechanism of carcinogenesis related to viral oncogenesis in tumors of the urogenital system and the head and neck area.

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