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New molecular insights of pancreatic ductal adenocarcinoma

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Pancreatic ductal adenocarcinoma (PDAC) is a high malignant neoplasm that will represent the second cause for cancer death in the next 20 years. Recent molecular studies have better clarified its complex genetic landscape. However, many mechanisms of tumorigenesis of such tumor remain still unclear and of difficult comprehension. The study of peculiar variants of this tumor type may help in the comprehension of the biology of PDAC. To this aim, we have studied with immunohistochemistry, FISH (Fluorescent in situ hybridization) analysis and whole-exome sequencing the rare PDAC variant named undifferentiated carcinoma of the pancreas with osteoclast-like giant cells (UCOGC). Firstly, we observed some clinical and prognostic peculiarities in this PDAC variant. Then we report strikingly molecular similarities of UCOGC to those known to drive conventional PDAC, including activating mutations in the oncogene KRAS, and inactivating mutations in the tumor suppressor genes CDKN2A, TP53, and SMAD4. Lastly, we describe a new potential PDAC driver gene which we found in 25% of UCOGC studied with whole-exome sequencing: the SERPINA3 gene.

Biography

Claudio Luchini is a Surgical Pathologist with expertise in the field of next-generation sequencing and of systematic review with meta-analysis. He has studied at Verona University, Italy and then Indiana University, USA and Johns Hopkins University as Research Fellow. He has published his important works in *Journal of Clinical Oncology* and *Cancer Cell*. With the tool of meta-analysis, he has highlighted the prognostic role of important morphological and molecular alterations in cancer. The main goal of his research is to find morphological and molecular markers for early diagnosis of tumors or to better stratify cancer prognosis.

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