Research Proposal

T2EDK-03266 BIOKARETRA

Determination of genomic and transcriptomic prognostic bio-signatures in head and neck cancer

The enterprise Cellular and Molecular Immunological Applications (CeMIA SA) in cooperation with ANTISEL SA, the National Hellenic Research Foundation, the Oncology Clinic of the University Hospital of Alexandroupoli the Department of Histology and Embryology of the National and Kapodistrian University of Athens and the Cancer Immunology and Immunotherapy Center of "Agios Savvas" Hospital has joined the Single RTDI State Aid Action "RESEARCH - CREATE - INNOVATE" funded by the Operational Program Competitiveness, Entrepreneurship and Innovation 2014-2020 (EPAnEK).

The measure aims to support research and innovation, technological development and demonstration at operating enterprises for the development of new or improved products, the development of synergies among enterprises, research and development centers and higher education sector as well as to support the patentability of research results and industrial property. In that context, the main objectives of the measure are:
- Economic development based on knowledge and sustainable specialization;
- Integration of new knowledge and innovation to existing and new products, services, production systems and value chains;
- Connection of academic research with market needs and economy.

The Action is co-financed by Greece and the European Union - European Regional Development Fund.

AIM

The aim of this study is to identify reliable biomarkers with prognostic and predictive value through the study of genes in patients with head-neck cancer (H&N) which: (a) are responsible for the production of proteins that are associated with the pathogenesis of H&N, (b) regulate the immunological response against cancer cells and c) enhance the suppressive mechanisms employed by cancer cells to develop resistance to anti-cancer therapies. In this context, we have highlighted a panel of 40 genes that are involved in H&N. The latter will include the study of the tumor mutagenic burden (TML) which has been shown to have predictive value in many cancers and the identification of an immunological signature for every patient. The study will include 100 patients, aiming to develop complete bio-signatures that will be used to predict the clinical course and response to therapy. The clinical examinations will take place before and after each therapy, providing for the first time the possibility to clinically confirm the H&N parameters under examination in real-time.

At the end of the study, a platform of prognostic and predictive biomarkers will be created for both plasma and tissue, taking us one step closer to personalized H&N therapy. This is expected to confer an enormous benefit to the patient by maximizing the therapeutic outcome and to the healthcare system by limiting excessive/unnecessary treatment modalities without substantial benefit to the patient.

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