



Research Project Proposal

Academic year 2019-2020

Project Nº 30

Title: *New approaches of adoptive transfer cell therapy for cancer immunotherapy*

Department/ Laboratory *Department of Immunology and Immunotherapy. Laboratories of Combined Cancer Immunotherapy Based on Immunostimulant Monoclonal Antibodies (3.04) and Cytokine-based therapies (3.03). CIMA*

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Summary

Cancer immunotherapy has become a standard of care for the treatment of a number of malignant diseases. However, further progress is still needed to extend benefit to other indications and enhance efficacy. Natural killer (NK) cells and a subset of dendritic cells, type 1 DC (cDC1), have shown to play a critical role, but still not well-defined, in the process by which the immune system controls cancer progression. NK cells kill tumor cells directly and produce proinflammatory mediators. Concomitantly, injected cDC1 are capable of taking up antigenic material and induce MHC-I-dependent cross-presentation that causes a sustained cytotoxic T cell-mediated immune response. This cell therapy maneuver, when successfully, would control distant non-injected lesions. To achieve the most of this cell immunotherapy approach, it will be synergistically combined with immunomodulatory agents such as PD1 blocking and CD137 monoclonal antibody agents or stimulatory cytokines (IL-15, IL-12). Utilizing a variety of relevant mouse tumor models and immunological techniques such as multi-parametric flow cytometry, this project, seeks to unveil the mechanisms of crosstalk between cDC1 and NK cells to better exploited the anti-tumoral efficacy of these immune cells in cancer treatment and set up the bases required for clinical translation.

yes

X

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?

no