



Research Project Proposal

Academic year 2018-2019

Project Nº 16

Title: *In situ vaccination to enhance the efficacy of current antitumor immunotherapy*

Department/ Laboratory *Laboratory 3.01, Program of Immunology and Immunotherapy, CIMA.*

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Summary

Current antitumor immunotherapy based on checkpoint inhibitors (CPI) is demonstrating an important clinical efficacy. However, there are still patients who do not respond to these therapies. It has been postulated that “cold” tumors, those lacking infiltrating effector T lymphocytes, are poorer responders, as opposed to “hot” tumors, enriched in infiltrating cells. Therefore, strategies to enhance tumor infiltration, such as vaccination, would enhance efficacy of CPI. The goal of this project is to demonstrate if in situ vaccination (at the tumor level) would increase tumor infiltration and improve CPI efficacy. In Different murine tumor models representative of cold and hot tumors, immune profile characterization using multiparametric flow cytometry will be used. The presence of immune cell subsets, their phenotypic characterization and their functional properties will be tested using several assays (Elisa, Elispot, cell proliferation), to define and measure tumor infiltrating cells and their properties. Efficacy of monotherapies with CPI will be also analyzed to identify those tumor models amenable to in situ vaccination. According to these data, some tumor models will be chosen and tumor-bearing mice will be treated with combinations of in situ vaccines and CPI. Therapeutic efficacy will be determined by measuring tumor growth and animal survival. Underlying immunological mechanisms implicated in the response/no response obtained will be analyzed. This will be used to confirm the validity of the strategy, to define the best settings where it could be applied or, in case of failure, to design new strategies trying to overcome newly encountered mechanisms.

yes	x
no	

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