



Research Project Proposal

Academic year 2016-2017

Project Nº 7
Title: Exploiting a new target for cancer immunotherapy
Department/ Laboratory Laboratorio 3.03. Programa de Inmunología e Inmunoterapia, Center for Applied Medical Research (CIMA)
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Summary <p>We have identified a receptor mainly known for its role in lipid metabolism. But this receptor also plays a dual role in inflammation. Under steady-state conditions, anti-inflammatory signals are transmitted but in situations of danger, the same receptor can mediate pro-inflammatory signals.</p> <p>The objective of this project is to decipher the molecular mechanisms involved in the dual activity of the receptor in inflammation. This basic knowledge will be applied to the development of new drugs to enhance different strategies of cancer immunotherapy. On the one hand, we will use the pro-inflammatory activity to stimulate the innate immune response against cancer. On the other hand, we will use the anti-inflammatory activity to develop new drugs to potentiate the activity of oncolytic viruses and other antitumor gene therapy strategies.</p> <p>In order to reach these aims, we will develop agonist and antagonist ligands based on peptides and small molecules. The anti-inflammatory or inflammatory activity will be analyzed in vitro in both cells from the immune system and in other cell types. We will identify the mechanisms of action through the use of siRNA, antibodies and chemical inhibitors that will identify the pathways involved in the described effects. Finally, the therapeutic activity will be assessed in murine models of colon cancer.</p>
POSSIBILITY OF PhD YES* * (PhD grant required)