ImmunoTools *special* Award 2015

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Antitumor potential of iNKT ligands

Our research group is interested in the search on the antitumor effect of some alpha-GalactosylCeramide (αGC) synthetic analogs that activates iNKT. These analogs are presented by CD1d and may be specifically recognized by iNKT cells, inducing their activation. Our approach has been successful in obtaining some analogs that activate iNKT and are able to control the development of lung metastases in a melanoma model of murine tumour. Now, the aim is to study the efficacy/potency of the functional activators in their antitumoral action and analyse the mechanisms that explain their differential behaviour relative to αGC.

Other important aspect that our group have found is that one of these αGC analogs induces a specific humoral response against the antigen ovalbumin (OVA), after immunization with the antigen together with the analogue. This observation raises the possibility of using αGC analogs as potential adjuvants to elicit an effective response against tumour specific antigens and may be used as therapeutic vaccines. Regarding the latter, other groups have found a specific response to vaccination with tumour specific antigen along with other adjuvants. What is more, other groups have been used apoptotic tumour cells as antigens. Despite all efforts, in no case has been achieved effective specific response. For this, our group propose to analyse the possible use of analogs as adjuvants in order to elicit an effective antitumor response. First of all, the objective is to verify whether the observed specific humoral response develops at the cellular level, that is, a CTL response. Specifically, we will carry out an *in vivo* approach, using three cell lines systems (EL-4, Eu-myc and B16) and the corresponding forms expressing the OVA antigen. In these three systems we are going to perform *in vivo* cytotoxicity and survival assays. Furthermore, we do not rule out the possibility of trying to use apoptotic cells as antigens together with αGC analogues. For this purpose, we will need to phenotype the different immune cell populations; both innate and adaptive effector and regulatory/helper cells and

specifically the presence of OVA specific $CD8^+$T cells, indicative of a specific response, to completely characterize the induced immune response. Therefore, a number of antibodies will be needed to complete studies that, if successful, may will open the doors to a future translation to the clinic of antitumor vaccines.

ImmunoTools *special* AWARD for **Maria Sabater Arcis** includes 25 reagents

FITC - conjugated anti-mouse CD8, CD11b, CD18, CD25, CD54, CD80, CD134, CD154, Isotype control IgG2b

PE - conjugated anti-mouse CD8, CD11b, CD34, CD44, CD45R, CD49d, CD62L, g/d TCR, isotype control IgG2b

APC - conjugated anti-mouse CD11a, CD11b, Isotype CD45, CD49d, Gr-1, NK, control IgG2b-APC

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