ImmunoTools IT-Box-139 Award 2013

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Adoptive Cell Therapy of solid tumours: focus on Renal Cell Carcinoma

Adoptive cell therapy (ACT) involves the transfer of T cells to treat tumours after *ex vivo* manipulation. T cells can be derived either from peripheral blood mononuclear cells (PBMCs) or tumour infiltrating lymphocytes (TILs). Encouraging results have been achieved by Rosenberg and colleagues after TILs transfer in patients with metastatic melanoma at the Surgery Branch, NIH; more recently, Carl June and colleagues treated chronic lymphoblastic leukemia patients with PBMCs transduced with an anti-CD19 chimeric antigen receptor achieving complete and durable responses after a year of follow-up. Unfortunately, attempts to use ACT with other solid tumours failed to obtain good clinical responses.

This project focuses upon the optimization of the ACT protocol in order to treat renal cell carcinomas (RCC), using TILs.

Once isolated from the samples, TILs are characterised by flow cytometry with a broad panel of surface markers to establish their differentiation status within the tumour. TILs are subsequently subjected to a 15-day expansion phase and re-characterised at the end with the same panel of markers used after isolation to verify the impact of the expansion process on their status.

The ImmunoTools antibodies will be used in the characterisation panel at the beginning and at the end of the expansion phase. This characterisation is very important to determine the differentiation status as T cells with less differentiated phenotypes have been correlated with enhanced engraftment, persistence and anti-tumour activity in melanoma patients. Consequently, an expansion protocol that impacts minimally on the T cell status is fundamental and ImmunoTools antibodies would provide highly beneficial tools to standardize the experimental analysis.

ImmunoTools *IT-Box-139.2* for **Vania Baldan** includes 100 antibodies

FITC - conjugated anti-human CD1a, CD3, CD4, CD5, CD6, CD7, CD8, CD14, CD15, CD16, CD19, CD21, CD25, CD29, CD35, CD36, CD41a, CD42b, CD45, CD45RA, CD45RB, CD45RO, CD49d, CD53, CD57, CD61, CD63, CD80, CD86, HLA-DR, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE - conjugated anti-human CD3, CD4, CD8, CD11b, CD15, CD14, CD18, CD19, CD20, CD21, CD22, CD31, CD33, CD38, CD40, CD45, CD45RB, CD50, CD52, CD56, CD58, CD62p, CD72, CD95, CD105, CD147, CD177, CD235a, HLA-ABC, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

PE/Dy647 -tandem conjugated anti-human CD3, CD4, CD8, CD14, CD19, CD20, CD25, CD54

APC -conjugated anti-human CD2, CD3, CD4, CD8, CD10, CD11a, CD11c, CD14, CD16, CD27, CD37, CD42b, CD44, CD45, CD59, CD62L, CD69, CD71, IL-6, Control-IgG1, Control-IgG2a, Control-IgG2b, Annexin V

DETAILS