# ImmunoTools *special* Award 2014

**Viviana R. Rozados,** PhD

Instituto de Genética Experimental Facultad de Ciencias Médicas UNR, Universidad Nacional de Rosario, Santa Fe 3100 - S2002KTR Rosario, Argentina

## CHARACTERIZATION OF A MURINE MAMMARY ADENOCARCINOMA MODEL SUITABLE FOR THE STUDY OF CANCER IMMUNOEDITING

Cancer immunoediting is a dynamic process composed of three phases: elimination (EL), equilibrium (EQ), and escape (ES), that encompasses the potential host-protective and tumor-sculpting functions of the immune system throughout tumor development. Animal models have been in the past, are still at present and almost surely will continue to be in the future very useful tools in biomedical investigation. CBi is an inbred mouse strain derived from an outbred population generated by crossing BALB/c, Rockland, NIH and Swiss mice. It was generated to be used as a base population of broad genetic basis, and as the control line of an experiment of artificial body-conformation selection which gave rise, among others, to CBi$^-$ and CBi/L mice lines. During selection, the lines were inbred by limiting the population size until an average theoretical inbreeding coefficient of approximately 0.985 was reached. The mammary adenocarcinoma M-406 developed spontaneously in CBi mouse. When CBi are s.c. challenged with M-406, the tumor growths exponentially in 100% of animals, in CBi$^-$ the tumor growths briefly and then begins a rejection process in 100% of the animals. While in CBi/L tumor shows the three phases: 51.6% in ES, 18.5% in EQ, and 29.8% in EL.

The present study was designed to characterize the interaction between mammary adenocarcinoma M-406 and CBi, CBi$^-$ and CBi/L mouse lines like a model to study the cancer immunoediting. The recognition of the mechanisms involved in the

different phases of tumor growth, would lead to design different strategies for breast cancer treatment or prevention.

The studies that were carried out until now : 1) the Th1 cytokine profile (IL-2/IFN-γ); Th2 (IL-4/IL-10) in serum, and 2) the percentage of tumor cells proliferation in the conditioned media from CBi/L mononuclear cells. Those studies did not allow classifying each different phase of tumor growth into a classical Th1 or Th2 type of immune response. The higher proliferation of M-406 cells observed when cultured with mononuclear conditioned media from naïve CBi/L and CBi mice indicated that these media would contain factor/s, yet to be identified, capable to stimulate tumor growth. IL-2 and IFN-γ were not present in the conditioned media. The IL-4 levels found did not correlate with the M-406 proliferation percentage. IL-10 levels showed a negative correlation with M-406 proliferation. In serum, we observed the presence of high levels of IFN-γ in the ES condition, compared with EQ and EL. Also, we found that IL-10 was increased in EL, and IL-4 presented high levels in ES followed by EQ and then EL. On the other hand, IL-2 did not show significant variation between conditions. Both, experiments *in vivo* and *in vitro* would allow us to conclude that IL-10 might act as an inhibitor of tumor growth in our model.

The ImmunoTools *special* Award 2014 would be of great benefit to investigate, in the animal model CBi-M406 the different phases of tumor immunoedition.

**ImmunoTools** *special* AWARD for **Viviana R. Rozados** includes 17 reagents

FITC - conjugated anti-mouse CD4; CD11b; a/bTCR; isotype control IgG2b,

PE - conjugated anti-mouse CD8a; CD44; g/d TCR; isotype control IgG2b,

APC - conjugated anti-mouse NK-cells; isotype control IgG2b,

recombinant mouse cytokines: rm IL-2; rm IL-4; rm IL-10; rm IL-13; rm IL-17; rm IFNgamma; rm VEGF

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