

# **ImmunoTools** *special* Award 2014



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## **B-cell Infiltration in Glioblastoma multiforme: Analysis of immunological Synapses in tumorigenic Parenchyma and Potentiation of immune Responses in glioma experimental Models.**

Glial tumours or gliomas, are the most common primary brain tumours with devastating prognosis. Depending on the cell phenotype displayed, they are classified as oligodendrogiomas (tumour cells resembling oligodendrocytes) or as astrocytomas, (tumor cells resembling astrocytes). Glial tumours are graded and classified by the World Health Organization (WHO), from grade I to IV, being grade IV Glioblastoma Multiforme (GBM), the most common astrocyte-derived and aggressive form of primary brain tumours.

Gliomas originate from differentiated cells that suffer particular genetic alterations and, due to the complex origin of these first cells and to diffuse malignant infiltration, current treatments such as surgery, radiotherapy and chemotherapy are not enough to completely eradicate these tumours. This can be seen with a terrible prognostication of around 1 year after a patient has been diagnosed.

It is widely known that immune cells infiltrate gliomas, so immunotherapy is suggested as a promising alternative treatment.

In my current research project, I will study B-cell infiltration in human GBM samples, as well as the possible interaction between B-cells and T-cells, which has previously been reported in different immune-mediate scenarios. For this to be fulfilled, the first approach would be immunohistochemistry in GBM samples. This analysis will allow me to study different types of cells infiltrated in these tumours. Thus, it will be of great interest to have B-cell antibodies (anti-CD19, anti-CD40L), T-cell antibodies (anti-CD3, anti-CD4, anti-CD8a), and antibodies against astrocytoma cells (anti-GFAP, anti-vimentin).

My supervisor and I also planned to study the environment of glioma samples in different glioma experimental models. Consequently, we will study cell cultures by Western blot analysis and ELISA, in order to detect the over expression of specific cytokines or chemokines in a given sample. Hence, recombinant mouse cytokines such as rm Flt3L, rm IFNy, rm IL-1beta, rm IL6, rm MCP1/CCL2, rm CD40L and rm

TNF $\alpha$  will be of great convenience, for the later study of mice tumour models induced by stereotoxic infiltration of GL261 cells. In order to study the immune cell populations in the tumours induced I will use a flow cytometry procedure, using conjugated anti-mouse CD4, CD8a, CD3, CD19 and CD40L, of different emission profiles.

For the described experiments as well as for further investigations into B-cell infiltration in GBM and B-cell interactions in tumourgenic parenchyma, I would be very grateful to use the **ImmunoTools** reagents.

## References

1. Barcia, C. Jr., Gómez, A., Gallego-Sánchez, J.M., Pérez-Vallés, A., Castro, M.G., Lowenstein, P.R., Barcia, C. Sr., Herrero, M.T. (2009). Infiltrating CTLs in human glioblastoma establish immunological synapses with tumorigenic cells. *American Journal of Pathology*, 175(2):786-98.
2. Barcia, C. Sr., Mitxitorena, I., Carrillo-de Sauvage, M.A., Gallego, J-M, Pérez-Vallés, A. and Barcia, C. Jr. (2013) Imaging the microanatomy of astrocyte–T-cell interactions in immune-mediated inflammation. *Frontiers in Cellular Neuroscience*. 7:58. doi: 10.3389/fncel.2013.00058.
3. Walker, C., Baborie ,A., Crooks, D., Wilkins, S., and Jenkinson, M.D. (2011). Biology, genetics and imaging of glial cell tumours. *The British Journal of Radiology*, 84, S90–S106

**ImmunoTools special** AWARD for **Elena Saavedra López** includes 23 reagents  
**FITC** - conjugated anti-mouse CD8a, CD11b, CD19, Control-IgG2b,  
**PE** - conjugated anti-mouse CD4, CD8a, CD11b, CD19, CD49d, Control-IgG2b,  
**APC** -conjugated anti-mouse CD4, CD11b, CD19, CD45, CD49d, Control-IgG2b,  
recombinant mouse cytokines rm Flt3L, rm IFNy, rm IL-1beta, rm IL6,  
rm MCP1/CCL2, rm CD40L and rm TNF $\alpha$

[DETAILS](#)