

Monoclonal Antibodies Core Unit



Giovanna Roncador

Unit Head

Giovanna Roncador was born in Trento (Italy) in 1967. In 1994 she obtained her degree in Biology from the *Università di Bologna* for her thesis on apoptotic and proliferative activities in non-Hodgkin's lymphoma.

From 1994 to 1996 she was in charge of the routine diagnostic immunohistochemistry laboratory, the Department of Haemolymphopathology, *Università di Bologna*. In 1997 she moved to Oxford (UK) where she worked at the Nuffield Department of Clinical Laboratory Sciences, Oxford University. She specialised in mAb technology focusing on the production and characterisation of mAbs for the diagnosis of lymphomas.

In October 2000 she joined the CNIO as Head of the Monoclonal Antibodies Unit to set up monoclonal antibodies technology.

Her Unit has developed more than 60 high quality mAbs. The characterisation and application of these mAbs are described in more than 35 publications, mostly in collaboration with research groups from the CNIO as well as other institutions.

In 2009, in collaboration with the Leukaemia Research Fund Antibody Facility at Oxford University, she set up the first European Network of laboratories specialised in the production of mAbs (<http://euomabnet.com>).

Summary

Our understanding of cancer biology and its various classifications improves with the identification of molecular markers that are selectively expressed by specific tumour subtypes. The isolation and identification of molecules involved in tumour transformation have been possible thanks to monoclonal antibodies (mAbs) which have become indispensable tools for basic research.

The Monoclonal Antibodies Core Unit provides CNIO research groups with the generation of mAbs "à la carte" which can then be used as tools to isolate, identify, and characterise new pathways for the diagnosis, prevention and treatment of cancer. The Unit is also focused on the development of alternative techniques for production of mAbs, such as genetic immunisation, mAbs produced in genetically modified mice and rat mAbs. The development of alternative methods for mAb production is essential to meet the increasing demand for these reagents in diagnosis, drug development, research and therapy.

Main Objectives

- Produce high quality mouse monoclonal antibodies
- Produce rat monoclonal antibodies
- Develop new strategies for monoclonal antibody production
- Characterise antibodies
- Create a European monoclonal antibody network

Highlights

In recent years, genetic approaches have been used extensively at the CNIO for the functional analysis of genes directly implicated in tumour transformation and progression. The study of mouse models has been hampered by the absence of reliable mouse-specific antibodies that can be used on paraffin-embedded tissues. For this reason, in collaboration with the CNIO's Comparative Pathology Core Unit, we have tested and developed a panel of high quality mouse-specific monoclonal antibodies that have the capacity of detecting their target molecules on paraffin mouse tissue sections by immunohistochemistry (Figure). To-date we have obtained a panel of 12 mAbs generated in both rats as well as genetically modified mice.

In 2009, in collaboration with Oxford University, we created the first European network of laboratories specialised in the production of monoclonal antibodies – EuroMabNet. The goal of EuroMabNet is to connect investigators working in the field of mAb production, facilitating communication and better exchange of information regarding technologies and scientific research, as well as create a common strategy to increase and standardise mAb production. The EuroMabNet web page can be accessed by visiting: www.euromabnet.com.

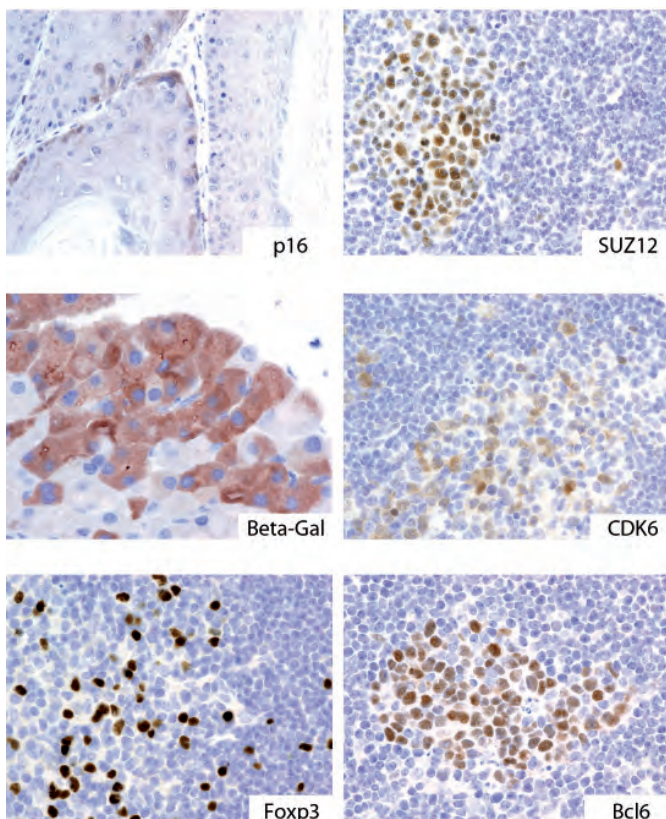
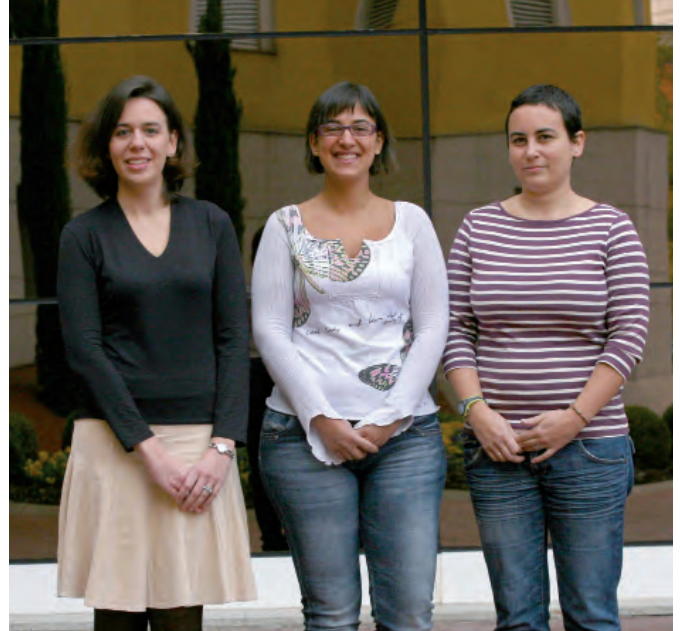


Figure: Examples of mouse-specific monoclonal antibodies produced in our Monoclonal Antibodies Unit, visualised by immunohistochemistry on paraffin sections of reactive mouse tissues.



Technicians: Lorena C. Maestre, Rocio Ramos and Ana I. Reyes.

The following monoclonal antibodies have been produced and are currently available at the Unit: CD5, CD15, CD30, CD43, Bcl-6, Blimp-1, AID, GAPDH, HLA-DP-DQ-DR, GST, MBP, pol-mu, LKB1, PSGL-1, EstrogenR, BMP4, FOXP3, Lipocalin-2, XSub1, Gastrin, CDK6, Malt-1, Suz12, PSF1, PSF2, PSF3, XSGO, WRN, GCET1, BTLA, Annexin-IV, KLHL-6, E4F1, EphrinB2, EED, NS2, TdT, XBP-1(s), MNDA, MAP17, VPRES3, SPIB, LMO2, ARK5, SOX4, bcl-2, CD8, PIM2, bcl7a, p16, β -galactosidase, HP1 alpha, XMCAK, MYBL1, Gasdermin, GFP, Luciferase, PDGFB.

Publications

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