

The immunotherapy network in Europe

New dimensions for clinics and new treatment methods...

Immunotherapy is the use of components of the immune system (antibodies, cytokines, dendritic cells, etc.) in medicine for the treatment of various illnesses, such as cancer, allergy, and autoimmune and infectious diseases. Immunotherapy also includes the use of vaccines for the prevention of infectious diseases or for the treatment of allergies or tumours. Immunotherapy adds new dimensions to clinical practice, providing new ways of curing diseases that have clear advantages over other drug therapies, such as lower secondary effects, higher efficacy and better tolerance, which enable physicians to develop personalised therapies.

Thanks to the SUDOE-Feder programme, 13 partners from the southwest of Europe are working in a coordinated manner in the network called IMMUNONET (with funding of over €1m for the period 2009-2011).

The main objectives of Immunonet are:

- To establish a stable network of quality research in immunotherapy in Southwestern Europe, with a virtual centre of support, where various research groups can cooperate and share facilities, equipment and knowledge, as well as exchange information with universities, public bodies, companies, private initiatives and the general public;
- To develop pharmaceutical products with immunotherapy potential for tumours, allergy, autoimmune illnesses, etc., and to initiate preclinical and clinical trials.

The network is working towards a better understanding of immune-mediated diseases, and in the

The IMMUNONET project includes:

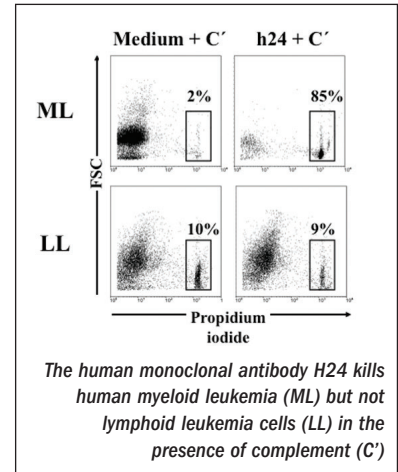
- **Five groups in Spain:** University of Vigo (coordinator África González-Fernández), and four partners: the Clínica Universitaria de Navarra and the Fundación Universitaria de Navarra (José Luis Pérez Gracia and Ignacio Melero); Hospital de la Princesa (Cecilia Muñoz) and Hospital Puerta de Hierro (Luis Álvarez Vallina), the latter two are in Madrid;
- **Two in Portugal:** Instituto de Medicina Molecular in Lisbon (Luis Graça), and the University of Porto in Porto (Manuel Vilanova);
- **Two in France:** CNRS in Montpellier (Javier Hernández) and INSERM in Toulouse (Roland Liblau);
- **Four associate partners:** INSERM-París (Agnes Lebon), Instituto de Salud Alto Ave in Portugal and the companies Digna-Biotech, SL and Biotechnol.

development of vaccines for the prevention of infectious diseases and of new tools for immunotherapy in cancer, allergy and autoimmune processes. There are varied, interrelated areas of research interest from basic to applied research, from in vitro studies to preclinical and clinical trials.

The main lines of research of the groups involved in IMMUNONET are:

Cancer

Several groups are trying to develop new tools for therapy on human tumours. Some of the approaches



being undertaken include: the search for potential therapeutic targets on tumour cells, the development of new monoclonal antibodies or new forms of antibodies (trimeric, bispecific), and the use of dendritic cells against tumours.

A number of clinical trials have been approved, and the following are under way at the Clínica Universitaria de Navarra (Navarra University Clinic): immunotherapy with dendritic cells and tumour-infiltrating lymphocytes in solid tumours; efficacy and safety of autologous dendritic cell vaccination in glioblastoma multiforme after complete surgical resection; and immunotherapy for patients with liver metastases from colorectal cancer.

Private sector companies involved in the network are focusing their attention on new immunotherapeutic products, also primarily in the oncology field.

Autoimmune diseases

Some groups are working on the breaking of self-immunotolerance, which could explain the process of autoimmunity. Diabetes Type I, rheumatoid arthritis and multiple sclerosis are the diseases studied in the network.



Immunonet meeting

The objective of IMMUNONET

The objective of the immunotherapy research network in the Southwestern Europe is to support:

- Basic and applied research;
- Immunotherapy of cancer, allergy, autoimmunity and infectious diseases;
- Specialised training of students and researchers;
- Mobility of researchers, exchange of tools and knowledge;
- Transfer of technology to industry.

IMMUNONET (SUDOE-FEDER)

Coordinator of Project:

- África González-Fernández MD, PhD, Immunologist, Professor of Immunology at the University of Vigo and Director of Biomedical Research Centre (CINBIO).

Infectious diseases

Another line of research is centred on improving the understanding of the host-pathogen interaction, and on the

development of efficient vaccines. New and friendlier routes of administration are also being analysed, focusing on the intranasal route using new nanotechnology products called nanovaccines.

Allergy

This highly prevalent health problem is another focus for in-depth research to show how the intensity and course of disease can be modified by immunotherapy.

The network strongly advocates the sharing of technology, research protocols, animal models and the infrastructure at each centre with the other partners in the group. Researchers are encouraged to move from one centre to another to learn techniques, become familiar with a variety of sophisticated equipment, share ideas as well as reagents, develop coordinated research, supervise PhD students, etc. The results of the research groups in the network are being published in prestigious

journals, such as Nature Medicine, Blood, J.Immunol, Rheumatology, Arthritis Rheum, Gene Therapy and many others.

The network is open to researchers interested in the field of immunotherapy. Moreover, associations of patients and the general public are invited to the courses and seminars organised by IMMUNONET.



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