This project has received funding from the *European Union's Horizon 2020 research and innovation programme* under Marie-Sklodowska Curie grant agreement No 101034285

UNIVERSITY: Navarrabiomed-Public University of Navarre (UPNA)

WIT PROGRAMME´S RESEARCH LINE NAME:

Onco-immunology

DOCTORAL PROGRAMME: Doctorate in Health Sciences
https://www.unavarra.es/escuela-doctorado/doctorate-programs/current-plan/Health+Sciences/doctorate-in-health-sciences?languageId=1

COMPLETE DESCRIPTION OF THE LINE

The Oncoimmunology Research Unit develops translational innovative gene therapies for the treatment of cancer. Its scientific activity focuses on studying the regulation of differentiation and senescence of human T lymphocytes, the mechanisms of action of PD-L1/PD-1 immune regulatory interactions, the study of proteins of pharmaceutical interest, and the role of immunosuppressive myeloid cells in cancer. In addition, the group studies lymphocyte dysfunction in lung cancer patients intrinsically resistant to immunotherapy, and develops adoptive cell therapy strategies for the treatment of cancer. The group has extensive experience in molecular biology, gene therapy, clinical oncology, recombinant protein expression, immune regulatory mechanisms and development of vaccines against infectious diseases and cancer.

RESEARCH GROUP NAME:

Oncoimmunology Unit

COORDINATOR:

Dr. David Escors Murugarren

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- Last and first name; link to the "Portal of scientific production": Dr. David Escors Murugarren. https://scholar.google.es/citations?hl=es&user=iensY_kAAAAJ
- Department: Oncoimmunology Unit
- Email: david.escors.murugarren@navarra.es
- Telephone number: +34 848 425 742

MEMBERS OF THE LINE RESEARCH:

- Dr. David Escors.
- Dra. Grazyna Kochan.
- Dr. Hugo Arasanz Esteban.
- Dra. Ana Bocanegra Gondan.
- Esther Blanco Palmeiro.
- Miriam Echaide Gorriz.
- Luisa Chocarro de Erauso.
- Leticia Fernández Rubio
- Maider Garnica Suberviola
- Pablo Ramos Castellanos
- Gonzalo Fernández Hinojal.

ADDITIONAL RESEARCH SUBJECTS:

- Projects funded by the European Union (Horizon2020)

o Improved vaccination for older adults (ISOLDA).

- Carlos III Health Institute projects:

o FIS: Development of new T lymphocytes and antineoplastic CARs for cell transfer therapies.

o Platforms for the development of biosafe vaccines against SARS-CoV-2.

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o Multicentre phase I/II clinical trial with transposon-based CD19-specific CART cells in patients with R/R ALL CD19+ (TRANSPOCART).

- Projects funded by the Government of Navarra:

o Leadership and INnovation in cancer immunotherapy from Navarra (LINTERNA).

o Alliance in Advanced Genomics for the development of Personalised Therapies in Navarra (AGATA).

o BMED 050-2019: Design and development of "intelligent" T lymphocytes that adapt to counteract the inhibitory effects of PD-1 and LAG-3 signalling in the tumour (DDLiT).

o Strategic development of CART therapies for the treatment of haematological and solid tumours (DESCARTHES).

- Other projects of the group or recent projects:

o Impact of anti-PDL1/anti-PD1 immunotherapy on the anti-tumour capacities of human T lymphocytes at different stages of differentiation.

o Effects of immune senescence on the efficacy of anti-PDL1/anti-PD1 immunotherapies.

o Impact of PD-L1/PD-1 blockade on intracellular signalling pathways in human T cell populations undergoing tumour antigen recognition.

o Disarming the protective shield of cancer.

o Development of myeloid suppressor cells in cancer. Epigenetic, proteomic and functional studies for the identification of new therapeutic targets.

o Development of a new generation of genetic vaccines for the treatment of melanoma.

o Effects of anti-neoplastic treatments on the epigenetic, proteomic and functional regulation of myeloid suppressor cells in breast cancer.

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- Entities involved in research subjects and contact: Dr. David Escors Murugarren

✓ Academic entities:
Navarrabiomed-Miguel Servet Foundation
Public University of Navarra
Institute for Health Research of Navarra (IdiSNA)
Navarra Hospital Complex (CHN)
Institute of Agrobiotechnology (IdAB) Higher Council for Scientific Research (CSIC) - Government of Navarre
University of Navarra - Centre for Applied Medical Research (CIMA)-University of Navarra Clinic (CUN).Vrije Universiteit Brussel (VUB)
University College London (UCL)

✓ Industrial partnership:

Crescendo Biologics Limited

- Brief group overview

The OncoImmunology group was formed at UCL in 2008 working on cancer immunotherapy and viral vectors for gene therapy. In 2013 the group moved to Navarrabiomed. The research team has extensive experience on gene modification of T cells. The group contributed to the discovery of lymphocyte ageing mechanisms and is well recognised internationally in cancer immunotherapy, especially on PD-L1/PD-1 interactions. The research group discovered one of the two main mechanisms by which PD-1 inactivates T cells, and the signalling mechanisms by which PD-L1 protects cancer cells. This makes

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the group one of the most experienced in PD-L1/PD-1 molecular signalling. The CHN Department of Medical Oncology has been collaborating with the group since 2014, and they have jointly identified the mechanisms of intrinsic resistance to immunotherapy in lung cancer. Their extensive experience in molecular biology, gene therapy and clinical oncology is directed to transferring research to the patient.

- Link of the group to the "Portal of scientific production"
  - OncoInmunología | Navarrabiomed
  - https://scholar.google.es/citations?hl=es&user=iensY_kAAAAJ

- Pictures, links… to academic or industrial partners (if any)
  - Navarrabiomed, centro de investigación biomédica
  - UPNA - Portada - home (unavarra.es)
  - IdiSNA - Instituto de Investigación Sanitaria de Navarra - Instituto de Investigación Sanitaria de Navarra - Universidad de Navarra Complejo Hospitalario de Navarra - Hospital de Navarra | Ayuntamiento de Pamplona
  - Instituto de Agrobiotecnología - IDAB-CSIC
  - Portada. Universidad de Navarra - Universidad de Navarra (unav.edu)
  - Centro de Investigación. Cima Universidad de Navarra (cun.es)
  - Clínica Universidad de Navarra | Centrados en el paciente (cun.es)
  - Vrije Universiteit Brussel | Redelijk eigenzinnig (vub.be)
  - UCL - London's Global University
  - Crescendo Biologics - Proprietary, robust, and highly efficient transgenic VH domain technology

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REQUIREMENTS:

- Biological sciences
- Medical sciences