

Oncology/Haematology and Transplantation

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DESCRIPTION

The group develops translational and clinical research in the field of blood cancer and hematopoietic transplants, focusing on the prognostic impact of molecular markers and promoting early and late clinical trials with innovative therapies. The group also includes other well-known clinicians and scientists with prominent roles in International research groups.

The group is intensively focused on the study of innovative genetically modified T cells with antigen-specific chimeric receptors (CARs) and their clinical application in patients with hematological cancer.

MAIN LINES OF RESEARCH

- Clinical trials of CART cells for Hodgkin and B cell non-Hodgkin Lymphoma. J. Briones, AC Caballero.
- Development of memory-enriched CART cells under GMP conditions for clinical application. L. Escribá, C. Ujaldón, J. Briones, AC Caballero.
- Preclinical development of fourth-generation CART cells for hematological malignancies. E. Escudero, L. Escriba, J. Briones.
- Study of the prognostic value of clinical and biological parameters in acute myeloid leukemia. J. Sierra, A. Garrido, G. Oñate.
- Study of the molecular and cellular pathophysiology of lymphoma, myeloma, and chronic lymphocytic leukemia. J. Briones, AC Caballero, J. López, M. Argüello, A. Muntañola.
- Design of new modalities of chemotherapy, biotherapy and drug treatment targeting molecular



05.1.2 Oncohematologic Diseases Area

mechanisms. J, Sierra, J. Briones, AC Caballero, J. López, M. Argüello, A Muntañola.

- Design of new modalities of haematopoietic stem-cell transplantation. R. Martino, I. García Cadenas, A. Esquirol, S. Redondo.

SCIENTIFIC CHALLENGES

- Development of academic CAR-T cell therapies.
- Novel CART generation with enhanced antitumor efficacy.
- Implementation and full development of Phase I/II clinical trials with In-House created CART cells.
- Identify new prognostic parameters for risk and therapeutic stratifications in leukemia and lymphoma.
- Molecularly characterize acute myeloid leukemia and determine the prognostic value of known genes and other genes of uncertain significance (with the Diagnosis Hematology Laboratory).
- Establish Liquid biopsy for monitoring hematological neoplasm: acute leukemia, lymphoma and myeloma.
- Reduce toxicity and increase availability of allogeneic transplants. New conditioning treatments.

ACTIVE GRANTS

- Briones Mejjide, Javier. Non-invasive tumor immunoglobulin gene next generation sequencing from circulating tumor DNA in diffuse large B cell lymphoma: prognostic implications and assessment of tumor response. GILEAD 2019-1. Gilead Sciences INC. Duration: 2019-2023. 49.995,00 €.
- Briones Mejjide, Javier. Ensayo fase I-II de inmunoterapia con células HSP-CAR30 para pacientes con linfoma de HODGKIN y linfoma T con expresión CD30 refractario o en recidiva. ICI19/00060. Instituto de Salud Carlos III (ISCIII). Duration: 2020-2023. 1.175.051,90 €.
- Moreno Atanasio, Carolina. Nuevas estrategias para monitorizar la enfermedad mínima residual (EMR) en la Leucemia Linfática Crónica. PI19/00753. Instituto de Salud Carlos III (ISCIII). Duration: 2020-2023. 99.220,00 €.
- Oñate Hospital, Guadalupe. Contractes Rio Hortega 2020. CM20/00061. Instituto de Salud Carlos III (ISCIII). Duration: 2021-2023. 53.732,00 €.

- Sierra Gil, Jordi. Humanized nanomedicines selectively killing CXCR4+ cancer cells for Acute Myeloid Leukemia therapy. MARATO 201941-30. Fundació La Marató de TV3. Duration: 2020-2023. 18.750,00 €.
- Pratcorona Marta/Sierra Gil, Jordi. Poblaciones subclonales de LMA y células madre leucémicas identificadas mediante secuenciación de ARN de una sola célula y citometría de flujo multiparamétrica: impacto en la respuesta al tratamiento. PI20/01621. Instituto de Salud Carlos III (ISCIII). Duration: 2021-2023. 304.920,00 €.
- Briones Mejjide, Javier/Sierra Gil, Jordi. RICORS TERAV. RD21/0017/0011. Instituto de Salud Carlos III (ISCIII). Duration: 2022-2024. 169.222,90 €.

GRANTS AWARDED

- Briones Mejjide, Javier. Consorcio Estatal en Red para el desarrollo de Medicamentos de Terapias Avanzadas (CERTERA). CER22/0012. Duration: 2023-2026. 1.320.633 €.

DOCTORAL THESES DEFENDED

- Caballero González, Ana Carolina. Immunotherapy with memory "STEM" T-cells modified with chimeric antigen-specific receptors (CARs) for patients with lymphoid neoplasms. 12/06/2023. Universitat Autònoma de Barcelona. Supervisors: Briones Mejjide, Francisco Javier; Álvarez Fernández, Carmen; Sierra Gil, Jordi. <http://hdl.handle.net/10803/690750>.
- Escudero López, Eva. Desarrollo de nuevas terapias de células T con receptor de antígeno quimérico (CAR) para linfoma. 20/11/2023. Universitat Autònoma de Barcelona. Supervisors: Briones Mejjide, Francisco Javier; Álvarez Fernández, Carmen; Vidal Alcorisa, Sílvia.
- Oñate Hospital, Guadalupe. Impacto de las co-mutaciones y la terapia dirigida en la leucemia mieloide aguda con mutaciones. 20/10/2023. Universitat Autònoma de Barcelona. Supervisors: Sierra Gil, Jordi; Pratcorona Canela, Marta.
- Redondo Velao, Sara. Nuevas estrategias en la prevención y tratamiento de la enfermedad injerto contra receptor: Ciclofosfamida postrasplante y terapia con Ruxolitinib. 16/10/2023. Universitat Autònoma de Barcelona. Supervisors: Martino Bojarull, Rodrigo; Sierra Gil, Jordi.



05.1.2 Oncohematologic Diseases Area

SCIENTIFIC PRODUCTION

- Albiol N, Lynton E, Aso O, Moga E, Vidal S, Gomez L, Santiago JA, Triquell M, Roch N, Lazaro E, Gonzalez I, López J, Esquirol A, Sierra J, Martino R, García I. mRNA-1273 SARS-CoV-2 vaccine in recently transplanted allogeneic hematopoietic cell transplant recipients: Dynamics of cellular and humoral immune responses and booster effect. *LEUKEMIA RESEARCH*. 2023; 132:107347. DOI:10.1016/j.leukres.2023.107347. PMID:37356281. IF:2,700 (Q3/7D). Document type: Article.
- Arguello M, Albiol N, Jara P, García I, Redondo S, Esquirol A, Novelli S, Saavedra S, Martino R, Nomdedeu J, Sierra J, Mora A, Moreno C. Evolution in the frontline treatment of patients with chronic lymphocytic leukemia: experience from one European center. *LEUKEMIA & LYMPHOMA*. 2023; 64(10)DOI:10.1080/10428194.2023.2232489. PMID:37452739. IF:2,600 (Q3/7D). Document type: Article.
- Arguello M, Albiol N, Moreno C. Frontline therapy in Chronic Lymphocytic Leukemia. *ACTA HAEMATOLOGICA*. 2023; DOI:10.1159/000534730. PMID:37899041. IF:2,400 (Q3/8D). Document type: Review.
- Bailén R, Alenda R, Herruzo B, Acosta C, Vallés A, Esquirol A, Fonseca M, Solán L, Sánchez I, Bautista G, Bento L, López O, Pérez A, Torrent A, Zanabali J, Calbacho M, Moreno MÁ, Pascual MJ, Guerra L, China A, García I, López L, Boix F, López JL, Humala K, Duarte R, Sampol A, Heras I, Vicario JL, Balas A, Oarbeascoa G, Fernández P, Anguita J, Kwon M, Grupo Español de Trasplante Hematopoyetico Terapia Celular (GETH Y. Results of haploidentical transplant in patients with donor-specific antibodies: a survey on behalf of the Spanish Group of Hematopoietic Transplant and Cell Therapy. *Frontiers in Immunology*. 2023; 14:1165759. DOI:10.3389/fimmu.2023.1165759. PMID:37304258. IF:7,300 (Q1/3D). Document type: Article.
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05.1.2 Oncohematologic Diseases Area

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05.1.2 Oncohematologic Diseases Area

Review of the Literature. *Transplantation And Cellular Therapy*. 2023; 29(7):473.e1-473.e6. DOI:10.1016/j.jtct.2023.04.008. PMID:37086849. IF:3,200 (Q2/5D). Document type: Review.

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05.1.2 Oncohematologic Diseases Area

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05.1.2 Oncohematologic Diseases Area

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