Haematological clinical research has traditionally focused on haematological malignancies, aplasia and syndromes. Now, with advances in immunotherapy, haematologists play a key role in research on novel immunotherapeutic approaches, the role of the immune response to tumours, or the role of infection and inflammation in cancer.

In the Haematological Malignancies Clinical Research Unit at CNIO we investigate:

- Traditional haematological neoplasms (leukaemia, myeloma, lymphoma): new diagnostic approaches, biomarkers, and treatments.
- Aplastic haematological malignancies such as bone marrow failures: new drivers and molecular mechanisms.
- Novel diagnosis and tumour burden monitoring: liquid biopsy and minimal residual disease.
- Role of inflammation and infection in haematological neoplasms.
- Novel immunotherapeutic approaches in haematological malignancies: NK-CARs, BITES.
- Traditional immunotherapeutic approaches in haematological malignancies and paediatric cancers: T-CARs and immune checkpoints inhibitors.

“Teclistamab, a bispecific anti-CD3 and anti-BCMA monoclonal antibody, marker of myeloma cells, has demonstrated a high rate of deep and durable response in relapsed multiple myeloma patients.”
**Research Highlights**

Teclastimarab in relapsed or refractory multiple myeloma

Teclastimarab is a bispecific anti-CD19 chimeric antigen receptor (CAR) T-cell therapy approved for different B-cell lymphomas. In 2022 we published, in collaboration with other groups in the consortium, an article in the New England Journal of Medicine describing the results of second-line teclastimarab in aggressive B-cell lymphoma. Our results showed that teclastimarab was not superior to standard salvage therapy in this trial.

However, in another clinical trial, the ELARA phase 2 multinational trial against follicular lymphoma, we reported its safety and effectiveness in high-risk patients with relapsed follicular lymphoma. This work was recently published in Nature Medicine.

Infection prediction in multiple myeloma

Infections are among the most common complications in multiple myeloma, in association with morbidity and mortality. We analysed the clinical variables of 4 clinical trials of the Spanish Myeloma Group with n=1,347 patients. We discovered that an increased risk of severe infection correlates with serum albumin, ECOG, gender, and non-IgA type multiple myeloma. These simple variables led to the stratification into low, intermediate, and high-risk of severe infection. Patients with intermediate and high risk could candidates for prophylactic antibiotic therapy. This work was published in Blood Cancer Journal.

**Publications**

- Maratok, J, Putilo S, Rodríguez-Aguilera A, Mosquera-Orgueira A, Fernández-Mir, D, García-Sanz R, Martínez-López J, Laheru, D, Esparza E. Combination of CAR-NK cells and tisagenlecleucel for the treatment in hepatic and ocular (r/h) follicular lymphoma who received tisagenlecleucel infusion. FIGURE 2 Kaplan–Meier curves for patients with relapsed or refractory (r/h) follicular lymphoma who received tisagenlecleucel infusion.

**Clinical Research Programme**

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