



MASTER'S DEGREE IN BIOMEDICAL RESEARCH

Research Project Proposal

Academic year 2023-2024

Project Nº 52

Title: Safety and efficacy of CAR-TCD19 cell therapy in refractory lupus nephritis patients

Department/ Laboratory

Nephrology Department, CUN and Cellular Therapy Area of CUN

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Summary

Lupus nephritis (LN) is the most common severe organ involvement in systemic lupus erythematosus (SLE), a disease of young women. Despite current therapy, 30% of patients develop refractory LN, who are usually excluded from trials and progress to dialysis or transplantation. The chronic relapsing nature of LN and adverse effects of immunosuppressive therapies result in high comorbidity, cardiovascular risk and healthcare and human costs and low quality of life and life expectancy. B cells are key to the pathogenesis of LN. However, current drugs are unable to eliminate all autoreactive B lymphocytes from peripheral tissues. Recent case reports have shown that CAR-T/CD19+ cells can induce complete remission in refractory SLE patients and allows stopping other immunosuppressants. These preliminary data lack adequate sample size and follow-up, have not used Spanish academic cells, nor included a Hispanic population, which are at high risk of refractory LN. The present application will test CAR-T cells to eliminate autoreactive B cells in refractory LN, testing novel CAR-T regimes that may be safer than those currently used for oncohematological malignancy in a concerted effort by 3 RICORS ISCIII networks with ample representation of Autonomous Communities. This phase I/IIa multi-center clinical trial aims at assessing safety and early clinical efficacy of Spanish academic CAR-T/ CD19+ cell therapy in 20 patients with refractory LN. Secondary objectives will evaluate tolerability, clinical and serological remission of disease at different times post-treatment and with a maximum follow-up of 720 days.

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| yes | <input checked="" type="checkbox"/> |
| no | <input type="checkbox"/> |

Does the project include the possibility of supervised animal manipulation to complete the training for animal manipulator?