Universidad de Navarra
Facultad de Ciencias

MÁSTER EN INVESTIGACIÓN BIOMÉDICA
Research Project Proposal
Academic year 2023-2024

Project Nº 07 ASIGNADO

Title: Overcoming resistance to oncolytic viruses in pediatric brain tumors

Department/ Laboratory *PRogram of Solid tumors, Lab 2.03 Biological Therapies for Pediatric Solid Tumors*

Director 1 Marta M Alonso
Contact: mmalonso@unav.es
Codirector: Marisol Gonzalez Huarriz
Contact: mhuarriz@unav.es

Summary

We have previously shown that the administration of the oncolytic adenovirus Delta-24-RGD is safe and lead to long-term survivors in murine models of brain tumors. However, in order to further increase the antitumor effect of Delta-24-RGD by boosting the immune response, we constructed a new adenovirus, Delta-24-ACT, which incorporates 4-1BBL.

We demonstrated that in in vivo models of DMG, Delta-24-ACT led to a significant increase of survival, which was greater than radiotherapy or Delta-24-RGD treatments, leading to long-term survivors. Moreover, it showed protective immunological memory. We characterized the tumor microenvironment after Delta-24-ACT treatment and observed that it was more infiltrated by the immune system than in the control group. In fact, we observed a significant increase of all the populations tested by flow cytometry, demonstrating and active phenotype in the case of T cells and NK cells. However, we also observed a significant increase of the immunosuppressive populations In this project the goal will be will to decipher how to overcome the resistance to these immunosuppressive populations. Then, the student will construct a new virus and characterize its efficacy in animal models of pediatric brain tumors. Therefore, the student will be exposed to a plethora of techniques including cloning, cell culture, flow cytometry, animal models and others.

yes	x
no	

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