Stimulation of the immune system improves virus treatment in animal models of the most aggressive childhood brain tumor

The intratumoral administration of Delta-24-RGD virus and activation of dendritic cells open a therapeutic avenue for patients with diffuse midline glioma

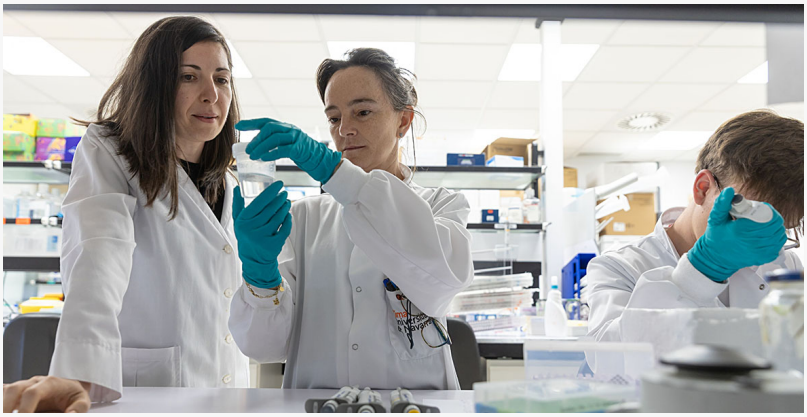
The pediatric tumor research group of the Cima Universidad de Navarra

SPAIN, July 3, 2025 /EINPresswire.com/ -- Diffuse midline glioma (DMG) is a highly aggressive pediatric brain tumor and the leading cause of death from childhood cancer. Its location in areas inaccessible to surgery and resistance to conventional treatments make the development of new effective therapies urgent.

A research group at the Cima and Clinica Universidad de Navarra has shown that stimulating the immune system improves treatment with viruses in animal models of this tumor. "Oncolytic viruses are biological agents that are showing good results in different brain tumors. In a previous study we found that local administration of Delta-24-RGD virus is safe and increases overall survival up to 17.8 months in newly diagnosed MGD patients. Additionally, it can modulate the tumor immune microenvironment, thereby favoring the recruitment of T cells, which are a hallmark of the immune system. However, the pro-inflammatory scenario in this disease is insufficient to be curative," Dr. Sara Labiano, principal investigator of the Radio-Immunotherapy Strategies for Pediatric Tumors Group at Cima, and first author of the paper, explains.

In order to address these limitations, the scientists have developed a strategy that combines Delta-24-RGD with an antibody that activates the CD40 stimulatory receptor. "Our work, which is framed at the Cancer Center Clinica Universidad de Navarra, confirms that this co-administration is safe and generates long-lasting immune responses. Specifically, it provides complete antitumor immunity in 40% of preclinical models," Dr. Marta Alonso, co-director of the Solid

Tumor Program at Cima and director of the study, adds. The results have been published in the latest issue of the scientific journal Cell Reports Medicine.



The combined strategy developed at Cima can overcome the limitations of the immunosuppressive microenvironment typical of diffuse midline glioma

Immunotherapy as a therapeutic alternative

The development of immunotherapy is seen as an alternative for the treatment of childhood brain tumors. Successful preclinical data with CAR-T cell therapy position it as a promising approach; however, some associated complications, such as neuroinflammation, need to be addressed. “Our results suggest that this combined strategy may overcome the limitations of the immunosuppressive microenvironment typical of DMGs, favoring potentially durable responses,” the scientists conclude. The next step will be to address its potential implementation in the clinic, given that antibodies are already in clinical trials.

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> *Dr. Alonso says*

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Blibliographic reference

• Cell Reports Medicine. Targeting the CD40 costimulatory receptor to improve virotherapy efficacy in diffuse midline gliomas
• https://doi.org/10.1016/j.xcrm.2025.102204

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