

Talk

## Beyond Borders: Stem Cell Therapy in Pediatric Brain Tumors



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### ABSTRACT

The number of people that survive cancer is increasing due to advances in early detection and treatments for cancer. For this reason, more attention is being paid to the impact of cancer treatments on patients' health and quality of life. Radiotherapy is one of the most common treatments for cancer. Around 50% of all tumor patients receive radiation at a given time. However, radiotherapy comes with short- and long-term side effects. In particular, radiation for brain tumors causes neurofunctional sequelae, which may be progressive and permanent. The most frequently described neurological alterations of cranial radiation include learning and memory difficulties, problems in executive functions, reduced processing speed, attention deficits, visual alterations and intellectual decline among others. These neurological sequelae primarily affect pediatric patients because the developing brain is more sensitive to radiation. Our group is interested in developing cell-based therapies to improve outcomes of brain tumor pediatric patients, thus promoting a healthy cancer-free life. We have demonstrated the efficacy and safety of intranasally delivered MSCs in mouse models. Currently, we are using humanized models to advance our understanding of the therapeutic actions of MSCs, boosting their translation into clinical applications.

### REFERENCES

1. Generation of mesenchymal stromal cells from urine-derived iPSCs of pediatric brain tumor patients. Baliña-Sánchez C, Aguilera Y, Adán N, Sierra-Párraga JM, Olmedo-Moreno L, Panadero-Morón C, Cabello-Laureano R, Márquez-Vega C, Martín-Montalvo A, Capilla-González V. *Front Immunol.* 2023 Jan 26;14:1022676. doi: 10.3389/fimmu.2023.1022676. eCollection 2023.