Esther Rincon, J Cell Sci Ther 2012, 3:7
http://dx.doi.org/10.4172/2157-7013.S1.004

OMICS Group Conferences
Accelerating Scientific Discovery

International Conference on
Emerging Cell Therapies

October 1-3, 2012 DoubleTree by Hilton Chicago-North Shore, USA

# Safety and efficacy of repeated infusions of Celyvir in children with metastatic neuroblastoma

**Esther Rincon**
National Institute of Health Carlos III, Spain

Metastatic and refractory solid tumors carry a dismal prognosis and new therapies are much needed for this situation. We published a preliminary experience infusing CELYVIR, autologous mesenchymal cells carrying an oncolytic adenovirus in children with neuroblastoma (Cancer Gene Therapy, 2010, 17: 476). We have extended this compassionate-use program in a new group of children with metastatic tumors. Seven kids with NB and one with rhabdomyosarcoma, refractory to at least 3 lines of therapies, received weekly doses of CELYVIR, minimum 6 and maximum 31. The single maximal dose was 5 x 106 cells per kilo (total 100 x 106). The maximal accumulated dose in a single patient was 1200 x 106 cells, corresponding to 2,4 x 1013 viral particles. The treatment was very well tolerated, with autolimited fever as the most common toxicity event. Patients were evaluated for clinical responses after 6 doses, with 5 progressive diseases (PD), 1 partial response (PR), 1 stable disease (SD) and 1 complete remission (CR). We found several changes in immune cells both at peripheral blood (PB), primary tumor and metastasis, related with the therapy. Increase of circulating CD4 and CD8 T lymphocytes in PB was documented by flow cytometry. Increase of metabolic activity (Ki67 expression) of tumor infiltrating lymphocytes and of tumor infiltrating macrophages appeared after therapy when analyzing tumor biopsies. All these results indicated an immune-related effect of the treatment with CELYVIR, in agreement with the known immune stimulating capacity of oncolytic viruses. We studied some characteristics of the mesenchymal cells we used as cell carriers. We found that the cells of the kid that achieved a CR presented the highest expression levels of CD29, CD44 and CD106, all of them adhesion molecules that may have a role in the homing of the infused cells into the metastatic sites. In addition, one third of the cells of the same kid naturally expressed HLA-DR, suggesting that the cells may function as antigen presenting cells in the autologous setting. Our results confirm that CELYVIR is a safe therapy in patients with metastatic and refractory tumors, and may be of benefit through an oncolytic and an immune-based mechanism of action. The expression of particular cell adhesion molecules by the mesenchymal cells that compose CELYVIR might enhance their ability to target metastasis. The expression of HLA class II molecules by the mesenchymal cells might allow them to present antigens and enhance the antitumor immune response.

## Biography

Esther Rincon has completed his Ph.D from Universidad Autonoma de Madrid and postdoctoral studies from National Institute of Health in Spain and University of Chicago Medical Center, Stanford University School of Medicine.

estheringi@gmail.com