Table 2 Clinical trials using Mesenchymal Stem Cells as cell carrier for oncolytic viruses

Identifier/Status	Study title	Indication	MSCs source	Oncolytic virus used	Route and dose used	Reference
EudraCT number 2008–000364–16/Completed	Compassionate use of Celyvir – autologous marrow-derived mesenchymal stem cells (MSCs) carrying an oncolytic adenovirus – for treating children with advanced metastatic neuroblastoma	Pediatric advanced metastatic neuroblastoma	Autologous BM-MSCs	Adenovirus (ICOVIR5)	iv 2-70 administrations; 0.1-5x10^9/Kg	García-Castro et al. (2010) Melen et al. (2016)
NCT01844661/Completed	Safety and efficacy of repeated infusion of CELYVIR in children and adults with metastatic and refractory tumors	Adult and pediatric patients with relapsed/refractory solid tumors	Autologous BM-MSCs	Adenovirus (ICOVIR5)	weekly (x6) iv infusions at a dose of 2×10^6 cells/kg (children) or $0.5–1 \times 10^6$ cells/kg (adults)	Ruano et al. (2020)
EudraCT number 2019-001154-26/Recruiting	Feasibility clinical trial of the combination of AloCelyvir with chemotherapy and radiotherapy for the treatment of children and adolescents with relapsed or refractory extracranial solid tumors.	Relapsed or refractory extracranial solid tumors in children and adolescents	Allogeneic BM-MSCs	Adenovirus (ICOVIR5)	-	-
EudraCT number 2020-005207-39/Recruiting	Phase I/II study of alocelyvir in patients with metastatic uveal melanoma	Patients with metastatic uveal melanoma	Allogeneic BM-MSCs	Adenovirus (ICOVIR5)	weekly (x8) iv administration of 0,5-1x10^6 cells/Kg	-
NCT03896568/Recruiting	Oncolytic Adenovirus DNX-2401 in treating patients with recurrent high-grade glioma	Recurrent glioblastoma (GBM), gliosarcoma or wild-type IDH-1 anaplastic astrocytoma	Allogeneic BM-MSCs	Oncolytic Adenovirus Ad5-DNX-2401	ia	Yong et al (2009)
NCT02068794/Recruiting	MV-NIS infected Mesenchymal Stem Cells in treating patients with recurrent ovarian cancer	Ovarian cancer	ASCs	Oncolytic Measles virus encoding thyroidal sodium iodide symporter (MV-NIS)	ip	Mader et al. (2013)

BM-MSCs: bone marrow-MSCs; ASCs: adipose-derived MSCs; iv: intravenous; as: intra-arterial; ip: intraperitoneal