

[ABSTRACTS SELECTED FOR POSTER PRESENTATIONS](#)

[Gastric Cancer](#)

abstr 0951

**Gene-Modified Cellular Vaccine (GMCV) Transfected with Lipid-Cation Hsp70 Activates Innate and Adaptive Immunity in Primary and Metastatic Gastric Cancer Cells**

**J. Giannios**, E. Michailakis, S. Delis

Department of Oncology, General State Hospital of Athens, Athens, Greece

**Background:** Patients with advanced gastric cancer are often resistant to conventional anticancer therapies and develop metastases to lymph nodes, liver, lungs, and bones.

**Methods:** Animal models characterized by metastatic gastric cancer refractory to conventional treatment were developed and treated with intravenously administered gene-modified cellular vaccine(GMCV), termed as SV/AS (under patent). SV/AS is composed of autologous adipose-derived mesenchymal stem cells (AADMSCs), which have been transfected with lipid-cation immunodominant molecule Hsp70.

**Results:** Post-treatment, we observed molecular remission in all tumor/metastatic sites, and activation of CD4+ T-cells by antigen presenting cells (APCs), enhancement of MHC class I expression, generation of tumor-specific cytotoxicity with cytotoxic T-lymphocytes (CTLs) induced by the antigenic fingerprint/repertoire, activation of natural-killer cells, generation of peptide-specific tumor immunity induced by CD91 and C19 overexpression on dendritic cells, CD40 on macrophages, and LOX-1, CD14, and TLR2-4 on monocytes. Furthermore, Hsp70 induced Th1-type immune response leading to secondary necrosis (the most potent immunogenic mode of cell death); and phagocytosis of tumor cells by activated macrophages, leading to a lethal bystander effect. Finally, we observed repair of damaged tissue and organs by renewal of injured cells.

**Conclusions:** Treatment of gastric cancer cells with the GMCV consisting of autologous adipose mesenchymal stem cells expressing Hsp70 activated the innate and adaptive immunity, leading to eradication of metastatic gastric cancer cells and stem cell renewal of injured cells.