

of cell death, and phagocytosis of tumour cells by activated macrophages leading to a lethal bystander effect. Finally, we observed repair of damaged tissue and organs by renewal of injured cells.

Conclusion The Gene Modified Cellular Vaccine (GMCV) consisting of autologous adipose mesenchymal stem cells expressing Hsp70 activated the innate and adaptive immunity leading to eradication of metastatic pancreatic Ca cells, while there was stem cell renewal of injured cells.

Competing interests None.

Keywords gene modified cellular vaccine, mesenchymal stem cells, Hsp70, innate and adaptive immunity, pancreatic Ca.

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**GENE MODIFIED CELLULAR VACCINE (GMCV)
COMPOSED OF AUTOLOGOUS ADIPOSE-DERIVED
MESENCHYMAL STEM CELLS (AAD-MSCS)
TRANSFECTED WITH LIPID-CATION HSP70
ACTIVATED INNATE AND ADAPTIVE IMMUNITY
AFTER TARGETING METASTATIC PANCREATIC CA
CELLS**

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Introduction Metastatic pancreatic Ca leads to fatalities due to resistance in conventional anticancer therapies. By activation of immunological mechanisms we aim to circumvent the chemoresistant mechanisms.

Methods Animal models characterized by metastatic pancreatic Ca refractory to conventional treatment were developed and treated with IV administration of the Gene-Modified Cellular Vaccine(GMCV) termed as SV/AS (under patent), which is composed of Autologous Adipose-derived Mesenchymal Stem Cells (AADMSCs), which were transfected with lipid-cation immunodominant molecule Hsp70.

Results Post-treatment, we observed molecular remission in all tumour/metastatic sites, and activation of CD4+ T-cells by antigen presenting cells (APC), enhancement of MHC class I expression, generation of tumor-specific cytotoxicity with CTLs induced by the antigenic fingerprint/repertoire, activation of natural-killer (NK) cells, generation of peptide-specific tumour immunity induced by CD91 and C19 over-expression on dendritic cells (DCs), CD40 on macrophages, and LOX-1, CD14 and TLR2–4 on monocytes. Furthermore, hsp70 induced Th1-type immune response inducing secondary necrosis, which is the most potent immunogenic mode