

Intradermal DNA electroporation induces survivin-specific CTLs, suppresses angiogenesis and confers protection against mouse melanoma

Lladser, Alvaro

Ljungberg, Karl

Tufvesson, Helena

Tazzari, Marcella

Roos, Anna Karin

Quest, Andrew F.G.

Kiessling, Rolf

Survivin is an intracellular tumor-associated antigen that is broadly expressed in a large variety of tumors and also in tumor associated endothelial cells but mostly absent in differentiated tissues. Naked DNA vaccines targeting survivin have been shown to induce T cell as well as humoral immune responses in mice. However, the lack of epitope-specific CD8⁺ T cell detection and modest tumor protection observed highlight the need for further improvements to develop effective survivin DNA vaccination approaches. Here, the efficacy of a human survivin DNA vaccine delivered by intradermal electroporation (EP) was tested. The CD8⁺ T cell epitope surv20-28 restricted to H-2 Db was identified based on in-silico epitope prediction algorithms and binding to MHC class I molecules. Intradermal DNA EP of mice with a human survivin encoding plasmid generated CD8⁺ cytotoxic T lymphocyte (CTL) responses cross-reactive with the mouse epitope surv20-28, as determined by intracellular IFN- γ staining, su