

## Journal Article



### Antitumor effects of a xenogeneic survivin bone marrow derived dendritic cell vaccine against murine GL261 gliomas

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**Abstract** Survivin is a member of the inhibitor of apoptosis protein family. Gliomas and many other tumors express survivin at high levels; whereas, normal fully differentiated cells generally do not. Therefore, survivin represents a tumor-specific target for cancer vaccine therapy. It has been shown that it is possible to produce a MHC-I-restricted cellular immunologic response to survivin vaccines. To study differences in immunogenicity between murine and human survivin proteins, we vaccinated C57BL/6 mice with bone marrow dendritic cells (BMDC) transfected with expression vectors containing the murine and human survivin genes. Mice vaccinated with BMDCs expressing a truncated human survivin protein developed cytotoxic T lymphocyte to subcutaneous GL261 glioma cells and exhibited prolonged tumor-free survival compared to mice vaccinated with BMDCs transfected with vector alone ( $P < 0.01$ ). While mice challenged with intracerebral GL261 cells had increased survival, no cures were observed. In contrast, vaccinated mice that fully resisted subcutaneous tumor challenge were rendered resistant to intracerebral GL261 re-challenge. BMDCs transfected with the full-length human survivin molecule were significantly more effective at prolonging survival than BMDCs expressing the full-length murine survivin gene ( $P = 0.0175$ ). Therefore, xenogeneic differences between human and murine sequences might be exploited to develop more immunogenic tumor vaccines.

**Keywords** Dendritic cell - Glioma - Survivin - Tumor antigen - Vaccine

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