Inhibitory effects of a dendritic cell vaccine loaded with radiation-induced apoptotic tumor cells on tumor cell antigens in mouse bladder cancer

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ABSTRACT. Herein, the preparation of a dendritic cell (DC) vaccine with radiation-induced apoptotic tumor cells and its immunological effects on bladder cancer in C57BL/6 mice was investigated. We used radiation to obtain a MB49 cell antigen that was sensitive to bone marrow-derived DCs to prepare a DC vaccine. An animal model of tumor-bearing mice was established with the MB49 mouse bladder cancer cell line. Animals were randomly allocated to an experimental group or control group. DC vaccine or phosphate-buffered saline was given 7 days before inoculation with tumor cells. Each group consisted of 2 subgroups in which tumor volume and the survival of tumor-bearing mice were recorded. Tumor volumes and average tumor masses of mice administered DC vaccine loaded with radiation-induced apoptotic cells were significantly lower than those in the control group (P < 0.01).
Survival in the experimental group was also longer than that in the control group, and 2 mice survived without tumor formation. In the DC vaccine group, 2 mice were alive without tumor growth after 30 days, and no tumor was observed at 30 days after subcutaneous inoculation of MB49 cells. The DC vaccine loaded with radiation-induced apoptotic tumor cells had an anti-tumor effect and was associated with increased survival in a bladder cancer model in mice.

**Key words:** Dendritic cells; Bladder tumor; Dendritic cell vaccine; MB49 cells