Autologous dendritic cells loaded with apoptotic tumor cells induce T cell-mediated immune responses against breast cancer in vitro

2009;257(1-2):23-31.Cell Immunol.

. Kokhaei P , Atri M , Shokrgozar MA , Shokri F , Moazzeni SM , Delirezh N

Source

Department of Cellular and Molecular Biotechnology, Institute of Biotechnology, Urmia University, Urmia, Iran. n.delirezh@urmia.ac.ir

Abstract

Dendritic cell (DCs) based immunotherapy has received increased interest in the treatment of specific malignancies including breast cancer. In this in vitro study, T cell responses, which are induced by monocyte-derived DCs pulsed with apoptotic breast tumor cells (ApTC), were analyzed in terms of proliferation, specific cytotoxicity, and cytokine release. Nylon wool-enriched T lymphocytes from five patients with breast cancer stimulated with monocyte-derived DCs pulsed with apoptotic tumor cells in vitro and their proliferation response were analyzed by [(3)H] thymidine uptake and specific cytotoxic activity of tumor antigen-primed T cells after three rounds of weekly stimulation by flow cytometry. Interferon-gamma (IFN-gamma) and interleukin-4 (IL-4) cytokine release assay was carried out 24h after the last stimulation. The supernatant from primed T cells was collected and analyzed using commercially available ELISA kits. T cell proliferation assays revealed that DCs pulsed with apoptotic tumor cell could stimulate an autologous T cell proliferation response with stimulation indices of 5-21. The T cell-mediated cytotoxicity assay demonstrated that tumor antigen-primed T cells could kill significantly more autologous tumor cells than normal cells (P