

METHOD FOR STIMULATING DENDRITIC CELLS FOR THE AUTOLOGOUS IMMUNOTHERAPY OF SOLID HUMAN TUMOURS

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Applications:

- Stimulation method of human dendritic cells (DCs) with purified surface antigens from cancer stem cell-like cells (CSCs) obtained from solid tumours.
- Stimulation of the DCs using single epitopes or a mixture of epitopes (natural or synthetic) derived from the CSCs surface antigens.
- DCs stimulated used as a cell product for the autologous immunotherapy of solid human tumours,



Key benefits:

- Definition of a new and more specific target (identified as CSCs) for the tumour therapy, specifically for the immunotherapy with DCs.
- Vaccination with DC stimulated with the lysate of CSCs for a higher durable immune protection than that obtained from more differentiated tumor cells.
- Implications for the design of clinical trials based on the vaccination with DC and for the immunotherapy of the solid human tumours.



Offer:

- Licensing out.
- Co-Development.

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LICENSING OPPORTUNITIES



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INVENTION

An innovative method of ex-vivo stimulation of human dendritic cells with tumor sphere lysate, and a cell product thus obtained for autologous immunotherapy of solid human tumours.

BACKGROUND

Immunotherapy, including dendritic cell vaccination, is a crucial option for solid tumours. Currently, no broad and specific targets are available, and efficacy of immunotherapy is limited. The invention is based on the surprising discovery that vaccination with dendritic cells stimulated with lysate from cancer stem like cells, specifically involved in the tumor perpetuation, ensure a significant prolonged protection of patients affected by solid tumours.

TECHNOLOGY

The method allows dendritic cells isolated from patients to be stimulated with a lysate derived from cancer stem like cells immunoseparated from tumor spheres obtained from solid tumours (glioblastoma or other brain cancers, a lung carcinoma or breast carcinoma, an osteosarcoma or a melanoma). The identification of sub-populations of cells (cancer stem-like cells, CSC) which are responsible for the tumorigenic nature of different solid tumors could serve to strengthen the effects of the vaccination. The application of our invention provides that the stimulation of the dendritic cells is carried out by using single epitopes or a mixture of epitopes (natural or synthetic) derived from the surface antigens of CSCs, and constituted by the entire peptide repertory, both intracytoplasmatic and bonded to the MHCs of the tumour cells. A formulation for the subcutaneous, intradermal, intramuscular, or intratumoural administration for autologous immunotherapy of solid human tumors includes a cell product having dendritic cells stimulated ex vivo with tumour extracts or peptides.

INVENTORS

Finocchiaro Gaetano, Pellegatta Serena, Martini Alfredo.

INTELLECTUAL PROPERTY RIGHTS

Patent granted in Italy and USA.

OFFER

Licensing out & co-development.

CONTACT: tto.dirsci@istituto-besta.it