THERAPEUTIC CANCER VACCINES

Fact Sheet

Project Information

DENDRITOPHAGES

Grant agreement ID: 503583

Project closed

Start date
1 January 2004

End date
30 June 2007

Funded under
Life sciences, genomics and biotechnology for health: Thematic Priority 1 under the Focusing and Integrating Community Research programme 2002-2006.

Total cost
€ 3 006 600,00

EU contribution
€ 1 999 940,00

Coordinated by
IDM SA IMMUNO-DESIGNED MOLECULES
France

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Objective

The goal of cancer therapeutic cell vaccine is to prevent progression and tumor recurrence. Adoptive therapy in adjuvant settings will complement classical anti-cancer treatments. In this technology the patient's blood monocytes are transformed into effector monocyte-derived dendritic cells (dendritophages) which fight the patient's own disease. The therapeutic cell drug comprises dendritic cells loaded with cancer-specific antigens to activate the patient's immune system after re-injection.

This project aims to demonstrate at a multinational level, the immune and clinical efficacy, reproducibility and feasibility of anticancer cell vaccine by sequential steps: Choosing the best dendritic cell vaccination strategy by adequate pre-clinical studies (DC differentiation and maturation, tumor antigens selection and loading, dose delivered, site and vaccination schedule). Monitoring the immune response in correlation to clinical response after defining the most relevant immuno-monitoring techniques. Demonstrating the immunological and clinical efficacy of DC immunotherapy in prostate cancer.

This will require to set up the quality control criteria and data base design for the production of the cellular product, and after optimisation to start a multicenter phase II clinical trial to evaluate the cell drug on progressing prostate cancer patients. The collaboration of 4 academic teams (German, Australian, Austrian, Italian) and of 2 SMEs (French, Italian) working in synergy will allow the validation of a new vaccine technology targeted to dendritic cells for cancer therapy.' In response to urgent medical and societal needs for novel immunotherapies for cancer and chronic infections and for prophylactic vaccination, optimised delivery systems for vaccine targeting to dendritic cells will be developed and clinically evaluated.

The approach will rely on two new antigen delivery vectors, the detoxified adenylate cyclase toxoid (ACT) and the porcine parvovirus-like particles (PPV-VLP) which were recently shown to target dendritic cells very efficiently and specifically, allowing highly efficient presentation of delivered antigens to T cells. These vaccine vectors

enable the induction of strong, specific and protective immune responses and have an established record of safety and efficacy in preclinical animal models. Under this project, academia experts in immunology, vaccinology, molecular biology and structural biology have joined forces with toxicologists, clinicians and vaccine production experts of two companies, in order to translate these novel vaccine technologies from research into clinical application. Based on the preclinical record of ACT-based vaccines in animal models, the leap into safety and efficacy Phase I/II human clinical trial will be made with an ACT-based construct delivering the tyrosinase A.2 epitope as a therapeutic vaccine for metastasic melanoma. Simultaneously to GMP batch production, development and clinical testing, in-depth analysis of the cellular and molecular mechanisms and of the structural basis of ACT interaction with dendritic cells will be conducted, by placing particular emphasis on gaining new knowledge for further improvement of the delivery capacity of the ACT molecule towards enhanced efficiency and broader versatility in clinical use. The PPV-VLP vector will be developed in parallel by defining its cellular receptor and trafficking inside dendritic cells,preclinical efficacy and toxicology, in order to bring this alternative vaccine carrier to the level of clinic.

Fields of science (EuroSciVoc)

medical and health sciences > clinical medicine > oncology > **prostate cancer**

medical and health sciences > clinical medicine > oncology > skin cancer > **melanoma**

medical and health sciences > basic medicine > pharmacology and pharmacy > pharmaceutical drugs > **vaccines**

medical and health sciences > basic medicine > immunology > **immunotherapy**

medical and health sciences > medical biotechnology > **cells technologies**

Keywords

adoptive therapy | dendritic cells | prostate cancer

Programme(s)

FP6-LIFESCIHEALTH - Life sciences, genomics and biotechnology for health: Thematic Priority 1 under the Focusing and Integrating Community Research programme 2002-2006.

Topic(s)

LIFESCIHEALTH-2.2 - Combating cancer

LSH-2002-1.2.4-6 - Development of vaccine technologies targeted to dendritic cells

Call for proposal

FP6-2002-LIFESCIHEALTH
See other projects for this call

Funding Scheme

STREP - Specific Targeted Research Project

Coordinator

IDM SA IMMUNO-DESIGNED MOLECULES

EU contribution

No data

Total cost

No data

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