Technology Portfolio

Reference Number
TO 01-0681

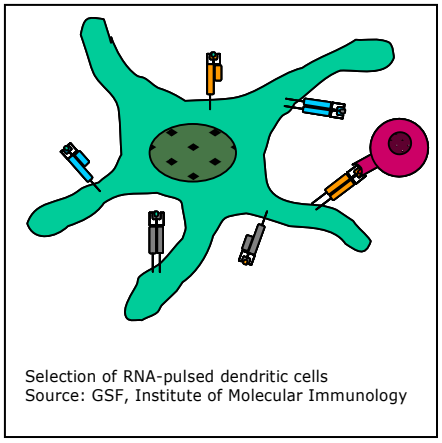
Options for T-cell based therapies in the treatment of tumors

The Challenge

Over the past few years there has been increasing number of studies evaluating T-cell therapies in the treatment of malignancies. The knowledge of the regulation of the immune system has only started to be applied as cell-based therapeutic approaches. Cell-mediated immune reactions may result in a significant reduction in tumor load and in a significant prolongation of survival time of patients. Conventional therapy approaches suffer from substantial disadvantages preventing long-term therapeutic success or severe undesirable effects (e.g. GvHD development).

The Technologies

The portfolio consists of six inventions (patent families) addressing different questions regarding optimized strategies in transferring TCR to T lymphocytes or in the application of dendritic cells (DC) as efficient anti-tumor vaccines, using semi-allogeneic vaccines (HLA-mismatched MHC-peptide ligands to stimulate alloresponses and T helper cells), in combining non-MHC-restricted T cells/NK cells and MHC-restricted cells, and using co-expression of allogeneic MHC molecules and antigens to induce peptide-specific T-cells from non-selected T-cell repertoires. The experiments performed especially apply to options to treat renal cell carcinoma (RCC), other tumor diseases can also be addressed. The improvements from the projects may accelerate the steps toward a personalized cancer therapy.



Selection of RNA-pulsed dendritic cells
Source: GSF, Institute of Molecular Immunology

Commercial Benefit

Adoptive immunotherapy and improved cellular immunotherapy approaches by genetic modification of T cells and DC provide a tremendous future option to treat, cure and/or prevent tumor formation, progression and metastasis. This portfolio forms a basis of great value for cell-based therapies within a market of about 60 billion US$ prospected for 2010.

Development Status

The data result mostly from *in vitro* experimental settings. *In vivo* proof-of-concept in mice are ongoing, but not yet finished.

Patent situation

Patents are granted in the EU (EP1372723; EP1275400), other EP- as well as US- (US 2003/0095955; US 2005/0175596), JP-, and PCT-applications are pending.

Commercial Opportunity

License to the portfolio as a whole or to single projects is being offered worldwide, on a exclusive or non-exclusive basis. In addition, cooperation in various projects can be offered and will be strongly desired.

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