

Licensing Opportunity

The PACTT is proposing this technology as a basis for research collaborations, e.g. for a phase I clinical trial, or as an exclusive or non-exclusive license.

Field:

- This invention relates to a two-step immunotherapy comprising a vaccine and a local immunostimulant, which significantly improves therapeutic properties of the vaccine.

Development Phase:

- Development of clinical trials phase I to test the efficiency of the two-step immunotherapy for cervical cancer or bladder cancer treatment.
- Continuing in vivo studies to further optimize the two-step immunotherapy, including testing of other vaccines and immunostimulants.

Patent Status:

- Priority date: April 16, 2008.
- Patent application WO2009127988.

Innovative aspects:

- Subsequent local application of immunostimulants to the vaccine significantly increases its efficacy.

Additional information is available upon request (N Ref. IDF 23/07)

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Enhancing therapeutic vaccination

Background

Up to now only one therapeutic cancer vaccine has been approved in a major market (Provenge®). Several examples of promising therapeutic cancer vaccines were shown to elicit a substantial immune response in clinical trials but failed to increase the overall survival. However, an efficient therapeutic vaccination of women with premalignant cervical lesions could completely eradicate or regress lesions. Moreover, patients with small-cell lung cancer and prostate cancer show superior responses to standard therapies when they first received a therapeutic vaccine prior to conventional treatment. These examples emphasize that this promising technology holds a great potential but still needs to be enhanced.

Description of the invention

Here, a two step immunotherapeutic strategy was developed: Subsequently to the administration of a vaccine, an immunostimulant is locally applied to the site of the disease. This second step modifies the local environment in order to attract and/or activate antigen-specific T cells and to induce a favorable micro-environment for tumor cell killing. This method aims at treating local diseases and was shown to enhance a therapeutic vaccine against vaginal Human Papilloma Virus (HPV) expressing tumors in mice.

Proof of concept

In mice, when the immunostimulant is applied on the vagina or in the bladder, the two-step immunotherapy locally increases the number of CD8+ T cells by 4 to 20 fold as compared to the control. The two-step immunotherapy increases the percentage of mice with tumor regression upon vaccination by at least 2 fold when the local tumor is situated either in the vagina or s.c. in the flank.

Applications

This two-step immunotherapy is applicable to various types of diseases, like cancers (i.e. cervical cancer, bladder cancer or other localized cancers) and infections (i.e. genital Herpes Simplex (HSV), candidiosis, etc) that are amenable to local application of immunostimulants.