

Novel Antigen for Immunization in Cancer

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BACKGROUND

Vaccination against an enzyme common to a variety of human tumors might effectively mobilize the body's own immune system to attack and kill cancer cells. Telomerase, an enzyme involved in maintaining normal chromosome length during replication and key to the uncontrolled replication of cancerous cells, is considered to play a direct role in tumor transformation by allowing the immortalization of precancerous cells.

A prototype vaccine made from peptides of telomerase reverse transcriptase (hTERT) has been devised that can activate cytotoxic T-lymphocytes (CTL) in vitro. Lymphocytes from prostate cancer patients were readily activated into CTL following immunization with the prototype vaccine, leading to destruction of the cancer cells. CTL produced in prostate cancer cells were also effective in targeting hTPT peptides in other human cancer cells such as breast, colon, lung, and melanoma and in attacking and killing these cancer cells.

TECHNOLOGY DESCRIPTION

Experiments have also been conducted using transgenic mice engineered to mimic the human immune system. The prototype telomerase vaccine induced a CTL response in these mice with no apparent negative side effects, demonstrating the potential of this vaccine in an animal model.

Since telomerase is essential in the normal process of cell division, autoimmune reactions are a concern for this type of vaccine. However, in addition to the lack of side effects observed in the mouse model, tests of the vaccine on normal human stem cells, which have higher levels of telomerase than other normal cells, showed no adverse effects.

STATE OF DEVELOPMENT

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OTHER INFORMATION

CATEGORIZED AS

- [Medical](#)
- [Disease: Cancer](#)

RELATED CASES

2000-051-0

This technology is available for licensing. See U.S. patent number 7,338,071 issued on 06/17/08 “Composition and Methods for Inducing and Enhancing a Telomerase Reverse Transcriptase—Reactive Cytotoxic T Lymphocyte Response.” Also see the continuing application, U.S. Publication Number US2009/0074741.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	8,697,836	04/15/2014	2000-051
United States Of America	Issued Patent	7,388,071	06/17/2008	2000-051

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