

NOVEL IMMUNOTHERAPY FOR CANCER TREATMENT: CHIMERIC ANTIGEN RECEPTORS TARGETING CD70 ANTIGEN

SUMMARY

The National Cancer Institute's Surgery Branch seeks partners interested in licensing or co-developing chimeric antigen receptors targeting CD70 antigen for the treatment of cancer.

REFERENCE NUMBER

E-021-2015

PRODUCT TYPE

- Diagnostics
- Therapeutics

KEYWORDS

- Chimeric Antigen Receptor
- CD70
- T-cell reprogramming
- CARs

COLLABORATION OPPORTUNITY

This invention is available for licensing.

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DESCRIPTION OF TECHNOLOGY

Scientists at the NCI's [Surgery Branch](#) have developed anti-CD70 chimeric antigen receptors (CARs) to treat cancers. CD70 is an antigen that is expressed on a variety of human cancers such as renal cell carcinoma, glioblastoma, non-Hodgkin's lymphoma, and chronic lymphocytic leukemia. The anti-CD70 CARs are hybrid proteins consisting of a receptor portion that recognizes CD70 antigen, and intracellular T cell signaling domains selected to optimally activate the CAR expressing T cells. Genetically engineered T cells that express this CARs will bind to CD70 on the cancer cells and will be activated to induce an immune response that promotes robust tumor cell elimination when infused into cancer patients. This technology can rapidly generate a vigorous T-cell response from the patient's own blood, targeting CD70 expressing cancer cells, and potentially induce tumor rejection.

POTENTIAL COMMERCIAL APPLICATIONS

- Immunotherapeutics to treat cancers that overexpress CD70, such as renal cell carcinoma, glioblastoma, non-Hodgkin's lymphoma, and chronic lymphocytic leukemia.
- A personalized cancer treatment strategy for patients whose tumor cells express CD70 whereby the patient's own T cells are isolated, engineered to express the anti-CD70 CARs, and re-infused into the same patient to attack the tumor(s).

COMPETITIVE ADVANTAGES

- CD70-specific CARs expressed on T cells will increase the likelihood of successful targeted therapy.
- CAR-T cells targeting only CD70 expressing cells and thus may generate fewer side effects than other cancer treatment approaches.
- T-cell transfer can provide much larger numbers of anti-tumor immune cells compared to other approaches such as vaccines.
- With the advent of Provenge(R), and Yervoy(R), immunotherapy is now more widely accepted as a viable cancer treatment option.

INVENTOR(S)

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DEVELOPMENT STAGE

- Pre-clinical (in vivo)

PUBLICATIONS

[Wang QJ, et al. PMID 23071066](#)

PATENT STATUS

- **U.S. Filed:** U.S. Patent Application No. 62/088,882 filed 08 Dec 2014

THERAPEUTIC AREA

- Cancer/Neoplasm