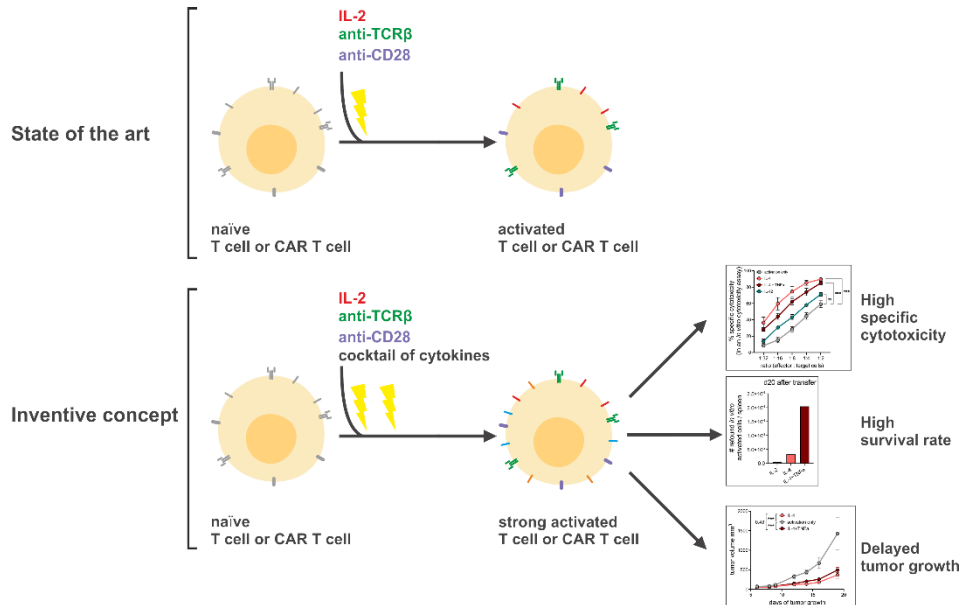


Supplements for T Cell-Based Immunotherapy

T Cell Activation and Prevention of Exhaustion in the treatment of cancer

Invention



Supplements comprising IL-2, anti-TCR β , anti-CD28 and inventive cocktail of cytokines result in a strong activation of T cells or CAR T cells and prevents exhaustion.

The concept and advantages of T cells with synthetic antigen-specific T cell receptors (CAR-T cells) are well known in the art and have become a focus of pharmaceutical research and development in recent years. CAR T cells are therapeutically used in individual medicine for the treatment of cancers such as acute lymphoblastic leukemia and B cell lymphomas. However, the success of these therapies has not yet extended to solid tumors. Solid tumors pose a therapeutic challenge as they generate an immunosuppressive milieu that limits the survival and functionality of immune cells. Therefore, key features which could enable the successful treatment of solid tumors, would be improving the survival and functionality of CAR T cells in the tumor microenvironment.

The invention is to use a new combination of supplements to stimulate isolated T cells from a patient. T cells or prepared CAR T cells are incubated in a medium comprising the supplements of anti-TCR β , anti-CD28, IL-2 and an additional inventive cocktail of cytokines. This combination not only leaves an individual activation profile on the cells which can be detected using standard technical methods, but also provides a suitable stimulus for improving the expansion, persistence, and functionality of the cells for tumor therapy, in particular of solid tumors.

Commercial Opportunities

On behalf of the University of Bonn, PROVendis offers an access to rights for method development and commercial use of this invention.

Current Status

In vitro data and mouse data have been generated, but have not been published yet.

Relevant Publications

A European Patent Application has been filed on September 29th, 2023.

An invention from the University of Bonn.

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Competitive Advantages

- Strong activation and prevention of exhaustion of T cells and CAR T cells
- High specific cytotoxicity and survival rate of activated T cells and CAR T cells
- Efficient therapeutic potential of activated T cells and CAR T cells for the treatment of cancer, especially of solid tumors

Technology Readiness Level

1 2 3 4 5 6 7 8 9

Technology validated in lab

Industries

- Therapeutic supplements
- T Cell and Immunotherapy Culture
- Pharmaceutical industry

Ref. No.

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