ascenion Technologietransfer for academic research
A company of the LifeScience Foundation

REFERENCE NUMBER TO 15-00611

ENGINEERED IMMUNE CELLS TO SPECIFICALLY ELIMINATE UNDESIRED IMMUNE RESPONSES

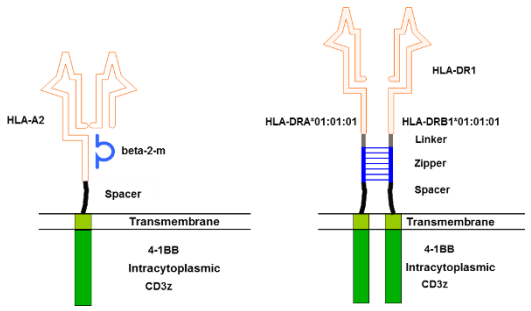
Keywords: Immunotherapy, transplantation, GvHD, CAR-T, CLR

INVENTION NOVELTY

As a CAR-T derivative, the chimeric ligand receptor (CLR) technology comprises the opportunity to selectively eradicate target-specific immune cells from the patient's immune system to suppress a specific undesired immune response. The technology can be utilized in order to induce tolerance for transplanted allogenic tissues, to remove self-antigen targeting lymphocytes in auto-immune pathologies or to counteract allergies.

VALUE PROPOSITION

The target-guided approach offers the potential to specifically remove T- and B-cells engaged in undesired interactions from the patient's lymphocyte repertoire without negatively affecting the general immune responses. The CLR is designed to direct the immune cell expressing it against the subset of patient's immune cells which cause the pathologic immune response. In great contrast to complete immunosuppression, the natural ability of the immune system to target environmental pathogens and degenerated cells remains unscathed.



Exemplary chimeric ligand receptor (CLR) constructs to selectively target and eliminate HLA-specific immune cells.

TECHNOLOGY DESCRIPTION

The chimeric ligand receptor (CLR) technology is closely related to the conventional CAR-T immunotherapy approach to selectively induce cell death utilizing natural immune cells. However, to target a specific cell population, instead of an engineered antigen receptor, the interaction partner of the immune cells destined to be removed is inserted into the desired cytotoxic cell line. In the case of allogenic graft rejection induced by an HLA-molecule mismatch of donor and recipient, the CLR comprising the donor HLA-ligand, a spacer, a transmembrane region and at least one intracellular signaling domain can be introduced into a T- or NK-cell line. The CLR serves as a target for the interaction with HLA specific immune cells and binding induces target specific cytotoxicity and cell elimination. Furthermore, an CLR can be composed of other molecules serving as a target in order to mediate the elimination of immune cells with a specificity towards the CLR.

COMMERCIAL OPPORTUNITY

Developmental cooperation and licensing.

DEVELOPMENT STATUS

In vitro proof of concept established.

PATENT SITUATION

Patent applications based on WO 2020 221902 with priority of 2019 in EP, CN and US are pending.

FURTHER READING

To be published.

Medizinische Hochschule Hannover

Ascenion GmbH
Herzogstraße 64
D-80803 München
info@ascenion.de
www.ascenion.de

Licensing Contact
Dr. Torben Söker
Technology Manager
T: +49 511-532 8918
soeker@ascenion.de

Last updated February 2022