Control Of Chimeric Antigen Receptor Activation By Their Hinge And Transmembrane Domains

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INVENTION NOVELTY

UCSF inventors have created a hybrid sequence that, when engineered into Chimeric Antigen Receptor (CAR) T cells, promotes activation of the cells solely with CD28 antibodies or CD28 ligands. The sequence is a combination of the CD28 or IgG4 hinge region and the CD28 transmembrane, and represent a new opportunity to control T cell function. The technology has been tested *in vitro* with *in vivo* studies ongoing. The added functionality through this sequence has potential to promote survival and homeostasis of CAR T cells in the absence of CAR target and improve the specificity and toxicity profiles of current CAR T therapies.

VALUE PROPOSITION

- Utilizes previously unknown function of two structural components, the hinge region and transmembrane domain, of the Chimeric Antigen Receptor
- Incorporates extra layer of control and adaptability to CAR T cells
- Potential to control growth and survival of CAR T cells without CAR target
- Potential to reduce toxicity from trans-signal transduction

RELATED MATERIALS

- The CD28-transmembrane domain mediates chimeric antigen receptor heterodimerization with CD28 - 09/19/2020

PATENT STATUS

Patent Pending

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OTHER INFORMATION

KEYWORDS

Chimeric Antigen Receptor, CD28, T Cells, CAR T therapy

CATEGORIZED AS

- Medical
  - Therapeutics

RELATED CASES

2019-069-0

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