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(54) Title: ANTI-HER2 CAR NK CELLS, METHODS OF THEIR PRODUCTION AND USES THEREOF

Schematic representation of the anti-HER CAR genetic constructs

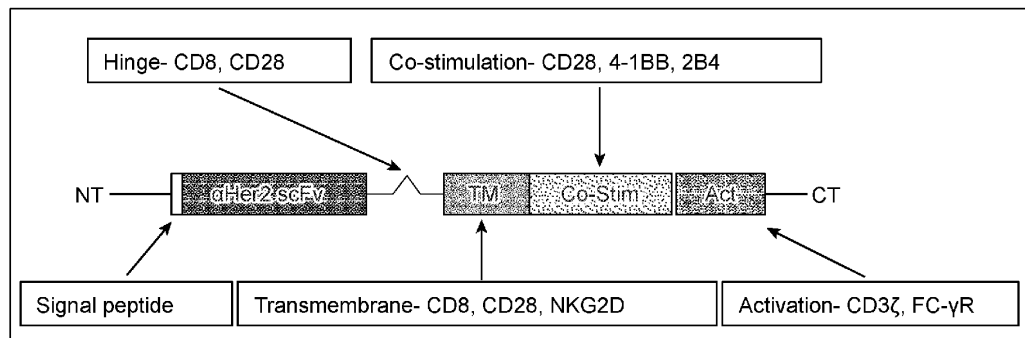


FIG. 1

(57) Abstract: A composition and method of *ex vivo* producing natural killer (NK) cells expressing a chimeric antigen receptor (CAR) or a transgenic T cell receptor (tg-TCR) capable of binding HER2 is disclosed. The method comprising: (a) expanding a population of NK cells by a method comprising: (i) culturing the population of NK cells under conditions allowing for cell proliferation, wherein the conditions comprise providing an effective amount of nutrients, serum, IL-15 and nicotinamide; and (ii) supplementing the population of NK cells with an effective amount of fresh nutrients, serum, IL-15 and nicotinamide 5-10 days following step (i) to produce expanded NK cells; so as to obtain an *ex vivo* expanded population of NK cells, and (b) upregulating expression of a CAR or a tg-TCR capable of binding HER2 in the *ex vivo* expanded population of NK cells.

[Continued on next page]

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