Claims

1. A serum-free method of preparing chimeric antigen receptor T cells, wherein the method comprises steps of:

(a) providing PBMC cells in a serum-free medium;

(b) performing negative sorting on the PBMC cells of step (a) to obtain sorted PBMC cells;

(c) activating the sorted PBMC cells of step (b) to obtain activated T cells;

(d) transducing the activated T cells of step (c) with viral vectors expressing a chimeric antigen receptor to obtain transduced T cells;

(e) removing the viral vectors from the transduced T cells; and

(f) expanding the T cells obtained in step (e) in an expansion medium, wherein the expansion medium is a serum-free medium.

2. The method according to claim 1, wherein a serum-free medium is used at all steps.

3. The method according to claim 1, wherein at step (c), the activation treatment is performed in an activation medium, which contains a basic medium and an additive.

4. The method according to claim 1, wherein the basic medium is selected from the following group: LONZA X-VIVO, LIFE CTS AIM V, LIFE OpTmizer SFM, RPMI 1640, ImmunoCult™ -XF and Stemlineä.

5. The method according to claim 3, wherein the additive is selected from the following group: human serum albumin, recombinant human serum albumin, plant-derived recombinant albumin or a combination thereof, preferably recombinant albumin.

6. The method according to claim 1, wherein the expansion medium at step (f) further contains a cytokine.

7. The method according to claim 1, wherein the cytokine is selected from the following

group: IL-2, IL-15, IL-7 or a combination thereof.

8. The method according to claim 1, wherein in step (f), the T cells are expanded in a container selected from the following group: a culture flask, a culture bag, or a combination thereof.

9. Chimeric antigen receptor T cells, wherein the chimeric antigen receptor T cells are prepared by the serum-free method of preparing chimeric antigen receptor T cells as described in claim 1.

10. A cell preparation, wherein the cell preparation contains (a) the chimeric antigen receptor T cells of claim 9 and (b) a pharmaceutically acceptable carrier.