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 remove CD19+ and CD14+ cells to obtain sorted PBMC cells;

(c) activating the sorted PBMC cells of step (b) at a cell density of 3×10^6 to 6×10^6 cells/ml 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 comprising an additive selected from the following group: human serum albumin, recombinant human serum albumin, plant-derived recombinant albumin or a combination thereof, preferably recombinant albumin.

4. The method according to claim 1, wherein the activating in step (c) is conducted using anti-CD3 antibodies and anti-CD28 antibodies.

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

6. The method according to claim 5, wherein the cytokine is selected from the following group: IL-2, IL-15, IL-7 or a combination thereof.

7. 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.