WHAT IS CLAIMED IS:

1. A subfractionation culturing method of a stem cell and proliferation thereof, the method comprising: the steps of

1) culturing bone marrow isolated from an individual;

2) transferring only supernatant of step 1) to a new container and culturing the supernatant;

3) separating only supernatant of step 2), culturing the supernatant in a culture vessel at 37°C for 1 hour to 3 hours, repeating culture of the supernatant at 37°C for 12 to 36 hours 2 to 3 times, then culturing the supernatant at 37°C for 24 to 72 hours, wherein each supernatant is transferred to a new culture vessel to repeat the culture;

4) obtaining a monoclonal stem cell in the final culture vessel; and

5) inoculating the monoclonal stem cell in a culture medium supplemented with an antioxidant at a cell density of 50 to 1000 cells/cm^2 to culture the cell.

2. The method of claim 1, wherein the culture of step 5) is passage 1 to passage 5.

3. The method of claim 1, wherein the culture of step 5) is performed by inoculating the monoclonal stem cell in the culture medium at a cell density of 1000 cells/cm^2.

4. The method of claim 1, wherein the antioxidant is supplemented at a concentration of 10 μg/ml to 30 μg/ml.

5. The method of claim 1, wherein the culture medium supplemented with an antioxidant of step 5) is DMEM or α-MEM.

6. The method of claim 1, wherein the culture of step 5) is performed during passage 1 by inoculating the monoclonal stem cell in the culture medium at a cell density of 50 to 1000 cells/cm^2 to culture the cell.

7. The method of claim 1, wherein the culture of step 5) is performed during passage 2 to passage 5 by inoculating the monoclonal stem cell in the culture medium at a cell density

of 700 to 1000 cells/cm^2 to culture the cell.

8. The method of claim 1, wherein the culture medium of step 5) is supplemented with gentamycin.

9. The method of claim 1, wherein the stem cell obtained by the method is a stem cell having passage 5 to passage 10.

10. The method of claim 1, wherein the stem cell obtained by the method has an osteocyte differentiation ability.