Claims

1. A method to produce human cardiac tissue-derived cells, comprising the steps of:

a. Obtaining human heart tissue;

b. Dissociating the human heart tissue;

c. Digesting the human heart tissue to release cells;

d. Removing cardiomyocytes from the released cells; and

e. Culturing the remaining cells; wherein the cells do not express telomerase and ISL-1 and express CD105 and CD117.

2. The method of claim 1, wherein the heart tissue is dissociated manually.

3. The method of claim 1 or claim 2, wherein the heart tissue is dissociated mechanically.

4. The method of any one of claims 1 to 3, wherein the heart tissue is digested with at least one enzyme selected from the group consisting of collagenase and dispase.

5. The method of any one of claims 1 to 4, wherein an entire heart is used as the source for the cardiac tissue.

6. The method of claim 1, wherein the human cardiac tissue-derived cells further express at least one of the following markers: CD49e, CD59, CD81 and CD34.

7. The method of any one of claims 1 to 6, wherein the human cardiac tissue-derived cells further do not express at least one of the following markers: MDR, CD19, CD16, CD31, CD45, CD46 and CD106.

8. A purified population of human cardiac tissue-derived cells that do not express telomerase and ISL-1, that express CD105 and CD117, and that further express at least one of the following markers: CD49e, CD59, CD81 and CD34, wherein the cells are suitable for use in repairing damaged myocardium and wherein the cells are obtainable by the method of any one of claims 1 to 5.

9. A purified population of human cardiac tissue-derived cells that do not express telomerase and ISL-1, that express CD105 and CD117, that do not express at least one of the following markers: MDR, CD19, CD16, CD46 and CD106, wherein the cells are suitable for use in repairing damaged myocardium, and wherein the cells are obtainable by the method of any one of claims 1 to 5.

10. The purified population of human cardiac tissue-derived cells of claim 8 or claim 9, wherein the cells express GAT4 and Nkx2.5.

11. A purified population of human cardiac tissue-derived cells that do not express telomerase, ISL-1, CD16, CD31 and CD45 and that express CD117, GATA4, Nkx2.5, CD105 and CD90 suitable for use in repairing damaged myocardium wherein the purified population of human cardiac tissue-derived cells is obtainable by the method of any one of claims 1 to 5.

12. A purified population of human cardiac tissue-derived cells obtained by the method of any one of claims 1 to 5.

13. The method of any one of claims 1 to 5 further comprising cryopreserving the population.

14. The method of claim 4, wherein the heart tissue is digested with at least one enzyme selected from the group consisting of collagenase and dispase for about 5 minutes to about 5 hours.

15. The method of claim 4, wherein the heart tissue is digested with collagenase and dispase.

16. The method of claim 4, wherein the heart tissue is digested with at least collagenase.

17. The method of claim 16, wherein the heart tissue is digested with at least about 0.1 U/ml to about 10 U/ml of collagenase.

18. The method of claim 4, wherein the heart tissue is digested with at least dispase.

19. The method of claim 18, wherein the heart tissue is digested with at least about 0.5 U/ml to about 50 U/ml of dispase.

20. The method of claims 6 or 7, wherein the human cardiac tissue-derived cells express GATA4 and Nkx2.5.

21. The method of any one of claims 1 to 5, wherein the human cardiac tissue-derived cells do not express telomerase, ISL-1, CD16, CD31, and CD45 and express CD117, GATA4, Nkx2.5, CD105 and CD90.

22. A human cardiac tissue-derived cell when produced by the method according to any one of claims 1 to 7 or 13 to 21.

23. Use of: a population of human cardiac tissue-derived cells according to any one of claims 8 to 12; or a human cardiac tissue-derived cell according to claim 22, in the manufacture of a medicament for repairing or treating damaged myocardium.