extensive washing that leads to increasing total time and costs involved in the isolation or recovery process. Additionally, processes as known in the art also require a significant amount of manual handling by technicians that increases the risks of contamination.

[0007] In view of the problems encountered in the art, there is a need to provide an alternative method for recovering stromal vascular fraction from a sample.

SUMMARY OF THE INVENTION

[0008] In one aspect, there is provided a method for recovering stromal vascular fraction from a sample. In one example, the method comprises providing a mechanical force capable of breaking the sample into a single cell suspension whilst maintaining intact stromal vascular fraction cells' cellular structures, wherein the mechanical force is mincing and/or homogenization, wherein the method is a non-enzymatic digestion, wherein the homogenization is carried out at about 1000 rpm to about 10,000 rpm.

[0009] In another aspect, there is provided the use of the stromal vascular fraction obtained from the method of claim 1 or parts thereof in the manufacture of a medicament for treating a subject in need of cell therapy, wherein the subject in need of cell therapy requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus~~stromal vascular fraction obtained from the method of the present disclosure or parts thereof for use in treating a subject in need of cell therapy. In another aspect, there is provided use of the stromal vascular fraction obtained from the method of the present disclosure or parts thereof in the manufacture of a medicament for treating a subject in need of cell therapy~~.

[0010] In yet another aspect, there is provided the use of the adipose-derived stem cells obtained from the method of claim 13 in the manufacture of a medicament for treating a subject in need of cell therapy, wherein the subject in need of cell therapy requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus~~adipose-derived stem cells obtained from the method of the present disclosure for use in treating a subject in need of cell therapy. In yet another aspect, there is provided use of the adipose-derived stem cells obtained from the method of the present disclosure in the manufacture of a medicament for treating a subject in need of cell therapy~~.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] The invention will be better understood with reference to the detailed description when considered in conjunction with the non-limiting examples and the accompanying drawings, in which:

Claims

1. A method for recovering stromal vascular fraction from a sample, the method comprising providing a mechanical force capable of breaking the sample into a single cell suspension whilst maintaining intact stromal vascular fraction cells cellular structures, wherein the mechanical force is mincing and/or homogenization, wherein the method is a non-enzymatic digestion, wherein the homogenization is carried out at about 1000 rpm to about 10,000 rpm.

2. The method according to claim 1, wherein the sample is an adipose tissue.

3. The method according to claim 1, wherein the method further comprises the step of isolating the stromal vascular fraction from the single cell suspension.

4. The method according to claim 3, wherein the step of isolating the stromal vascular fraction is performed by density gradient, flow cytometry, membrane filtration, membrane adsorption or centrifugation.

5. The method according to claim 1, wherein the stromal vascular fraction comprises any one of the following cells: adipose-derived stem cells, mesenchymal cells, hematopoietic cells, hematopoietic stem / progenitor cells, chondrocytes, osteoblasts, osteoclasts, endothelial precursor or progenitor cells, endothelial cells, smooth muscle cells, pericytes, CD34+ cells, CD29+ cells, CD166+ cells, Thy-1+ or CD90+ stem cells, CD44+ cells and immune cells selected from the group consisting of monocytes, leukocytes, lymphocytes, B and T cells, NK cells, macrophages, dendritic cells, neutrophil leukocytes, neutrophils, eosinophils, basophils, granulocytes, erythrocytes, megakaryocytes, platelets.

6. The method according to claim 1, wherein the sample is obtained from a mammal.

7. The method according to claim 6, wherein the mammal is a human.

8. The method according to claim 1, wherein the method is performed within 72 hours of harvest of the sample.

9. The method according to claim 1, wherein the method is performed at about 0°C to about 42°C.

10. The method according to claim 1, wherein the method is performed with agents capable of enhancing lipolysis of fat cells.

11. The method according to claim 10, wherein the agents capable of enhancing lipolysis of fat cells is any one of the following agents: epinephrine, isobutylmethylxanthine and isoprenaline.

12. The method according to any one of claims 1 to 11, wherein the mechanical force is applied for about 5 seconds to 20 minutes.

13. The method according to claim 1, further comprising a step of isolating adipose-derived stem cells from the stromal vascular fraction obtained from the method of claim 1.

14. The stromal vascular fraction obtained from the method of claim 1 or parts thereof for use in treating a subject in need of cell therapy.

15. The stromal vascular fraction or parts thereof of claim 14, wherein the subject requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

16. The adipose-derived stem cells obtained from the method of claim 13 for use in treating a subject in need of cell therapy.

17. The adipose-derived stem cells of claim 16, wherein the subject requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic

diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

18. Use of the stromal vascular fraction obtained from the method of claim 1 or parts thereof in the manufacture of a medicament for treating a subject in need of cell therapy, wherein the subject in need of cell therapy requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

19. Use of the adipose-derived stem cells obtained from the method of claim 13 in the manufacture of a medicament for treating a subject in need of cell therapy, wherein the subject in need of cell therapy requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

Claims

1. A method for recovering stromal vascular fraction from a sample, the method comprising providing a mechanical force capable of breaking the sample into a single cell suspension whilst maintaining intact stromal vascular fraction cells cellular structures, wherein the mechanical force is mincing and/or homogenization,wherein the method is a non-enzymatic digestion.

2. The method according to claim 1, wherein the sample is an adipose tissue.

3. The method according to claim 1, wherein the method further comprises the step of isolating the stromal vascular fraction from the single cell suspension.

4. The method according to claim 3, wherein the step of isolating the stromal vascular fraction is performed by density gradient, flow cytometry, membrane filtration, membrane adsorption or centrifugation.

5. The method according to claim 1, wherein the stromal vascular fraction comprises any one of the following cells: adipose-derived stem cells, mesenchymal cells, hematopoietic cells, hematopoietic stem / progenitor cells, chondrocytes, osteoblasts, osteoclasts, endothelial precursor or progenitor cells, endothelial cells, smooth muscle cells, pericytes, CD34+ cells, CD29+ cells, CD166+ cells, Thy-1+ or CD90+ stem cells, CD44+ cells and immune cells selected from the group consisting of monocytes, leukocytes, lymphocytes, B and T cells, NK cells, macrophages, dendritic cells, neutrophil leukocytes, neutrophils, eosinophils, basophils, granulocytes, erythrocytes, megakaryocytes, platelets.

6. The method according to claim 1, wherein the sample is obtained from a mammal.

7. The method according to claim 6, wherein the mammal is a human.

8. The method according to claim 1, wherein the method is performed within 72 hours of harvest of the sample.

9. The method according to claim 1, wherein the method is performed at about 0°C to about 42°C.

10. The method according to claim 1, wherein the method is performed with agents capable of enhancing lipolysis of fat cells.

11. The method according to claim 10, wherein the agents capable of enhancing lipolysis of fat cells is any one of the following agents: epinephrine, isobutylmethylxanthine and isoprenaline.

12. The method according to any one of claims 1 to 12, wherein the homogenization is carried out at about 1000 rpm to about 10,000 rpm.

13. The method according to any one of claims 1 to 13, wherein the mechanical force is applied for about 5 seconds to 20 minutes.

14. The method according to claim 1, further comprising a step of isolating adipose-derived stem cells from the stromal vascular fraction obtained from the method of claim 1.

15. The stromal vascular fraction obtained from the method of claim 1 or parts thereof for use in treating a subject in need of cell therapy.

16. The stromal vascular fraction or parts thereof of claim 15, wherein the subject requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

17. The adipose-derived stem cells obtained from the method of claim 14 for use in treating a subject in need of cell therapy.

18. The adipose-derived stem cells of claim 17, wherein the subject requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.

19. Use of the stromal vascular fraction obtained from the method of claim 1 or parts thereof in the manufacture of a medicament for treating a subject in need of cell therapy.

20. Use of the adipose-derived stem cells obtained from the method of claim 14 in the manufacture of a medicament for treating a subject in need of cell therapy.

21. The use of claim 19 or 20, wherein the subject in need of cell therapy requires any one of the following: tissue grafts, bone and cartilage repair, repair from ischemic diseases, repair from peripheral vascular diseases, soft tissue augmentation and reconstructive surgery, wound healing, repair from or treatment of immune and inflammatory diseases, repair from or treatment of diabetes mellitus.