

CLAIMS

- 1 1. A method of purifying noncultured Wharton's Jelly stem cells, the method comprising
2 separating noncultured Wharton's Jelly stem cells from a digested tissue comprising Wharton's
3 Jelly.
- 1 2. The method of claim 1, further comprising digesting a tissue comprising Wharton's
2 Jelly.
- 1 3. The method of claim 2, wherein the digestion comprises exposure of the tissue to an
2 enzyme.
- 1 4. The method of claim 3, wherein the enzyme is a collagenase.
- 1 5. The method of claim 3, wherein the enzyme is not a collagenase.
- 1 6. A method according to any one of claims 2-5, further comprising mechanically
2 increasing the surface area of the tissue.
- 1 7. The method of claim 6, comprising cutting the tissue.
- 1 8. The method of claim 6, comprising mincing the tissue.
- 1 9. The method according to any one of claims 2-8, further comprising removing arteries
2 and veins from a tissue comprising Wharton's Jelly prior to digesting the tissue.
- 1 10. A method according to any one of claims 2-9, further comprising separating digested
2 and undigested tissue.
- 1 11. The method of claim 10, comprising sedimenting the undigested tissue.
- 1 12. The method of claim 11, wherein centrifugation is used for sedimenting the undigested
2 tissue.
- 1 13. The method of claim 10, comprising filtering the digested tissue.

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- 1 14. The method of claim 13, wherein the noncultured Wharton's Jelly stem cells are
2 separated from the filtrate.
- 1 15. A method according to any one of claims 10-14, further comprising washing or diluting
2 the digested tissue before separating it from the undigested tissue.
- 1 16. A method of purifying cultured and noncultured Wharton's Jelly stem cells, the method
2 comprising:
3 purifying noncultured Wharton's Jelly stem cells according to any one of claims 10-15;
4 and
5 culturing mesenchymal stem cells from the undigested tissue.
- 1 17. The method of claim 16, wherein the mesenchymal stem cells are cultured in digested
2 Wharton's Jelly.
- 1 18. Purified, noncultured Wharton's Jelly stem cells substantially free of semi-solid
2 Wharton's Jelly.
- 1 19. Purified, noncultured Wharton's Jelly stem cells at a temperature below -20°C.
- 1 20. Wharton's Jelly stem cells according to claim 18 or 19, wherein the cells have reduced
2 CD73 and reduced CD105 levels compared to cultured mesenchymal stem cells.
- 1 21. Wharton's Jelly stem cells according to any of the claims 18-20, wherein the Wharton's
2 Jelly stem cells are maintained in a sterile solution.
- 1 22. Wharton's Jelly stem cells according to any one of claims 17, 18, 20 or 21, for
2 administration to a subject.
- 1 23. A method of treating a subject, the method comprising administering to the subject
2 Wharton's Jelly stem cells according to any one of claims 17, 18, 20 or 21.
- 1 24. The Wharton's Jelly stem cells of claim 22 or the method of claim 23, wherein the cells
2 are autologous or allogeneic to the subject.
- 1 25. A homogeneous solution comprising Wharton's Jelly.

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- 1 26. The solution of claim 25, wherein the solution has been depleted of cells.
- 1 27. A solution according to claim 25 or 26, wherein the solution is frozen.
- 1 28. The solution of claim 27, wherein the solution is frozen at -20°C or below.
- 1 29. A method of maintaining a cell comprising mixing the cell in the solution of claim 25 or
2 26.
- 1 30. The method of claim 29, wherein the cell is cultured *in vitro*.
- 1 31. A method according to claim 29 or 30, wherein the cell is a pluripotent stem cell.
- 1 32. A method according to claim 29 or 30, wherein the cell is a multipotent stem cell.

CLAIMS

1. A method of purifying and storing noncultured Wharton's Jelly stem cells, the method comprising:

(a) digesting a tissue comprising Wharton's Jelly, wherein the digesting consists of mincing the tissue;

(b) diluting the tissue;

(c) subsequently filtering the tissue to generate a filtrate comprising the noncultured Wharton's Jelly stem cells; and

(d) storing the noncultured Wharton's Jelly stem cells at a temperature below -20°C.

2. The method of claim 1, further comprising removing arteries and veins from the tissue prior to digesting the tissue.

3. The method of claim 1, comprising sedimenting the noncultured Wharton's Jelly stem cells from the filtrate generated in step (c).

4. The method of claim 3, wherein centrifugation is used for sedimenting.

5. A method of purifying cultured and noncultured Wharton's Jelly stem cells, the method comprising:

purifying the noncultured Wharton's Jelly stem cells according to the method of claim 1, whereby undigested tissue is filtered from digested tissue in step (c); and

culturing mesenchymal stem cells from the undigested tissue.

6. A composition comprising noncultured Wharton's Jelly stem cells purified according to the method of claim 1 and a solution comprising plasma, a cryoprotectant, or human serum albumin, wherein the composition is at a temperature below -20°C.

7. A composition according to claim 6, wherein the purified, noncultured Wharton's Jelly stem cells have reduced CD73 and reduced CD105 levels compared to cultured mesenchymal stem cells.

8. A composition according to claim 6, wherein the solution is sterile.
9. Purified, noncultured Wharton's Jelly stem cells, for use as a medicament.
10. The method of claim 9, wherein the cells are autologous or allogeneic to the subject.