

Claims

1. Use of a mixture in the manufacture of a medicament for engrafting cells onto and/or into an organ in a diseased or dysfunctional condition in a subject, the mixture comprising:
 - a plurality of cells and one or more biomaterials, wherein the plurality of cells are human hepatic progenitor cells or human pancreatic progenitor cells,
 - and wherein the mixture in the form of the medicament is to be introduced onto and/or into the subject, and in which at least a portion of the plurality of cells introduced take up residence on or in at least a portion of the organ *in vivo*.
2. The use according to claim 1, in which the one or more biomaterials is selected from one or more synthetic polymers, biodegradable polymers, and biocompatible polymers.
3. The use according to claim 1 or claim 2, in which the one or more biomaterials is selected from one or more of collagens, laminins, fibronectins, nidogen, elastins, proteoglycans, hyaluronans, glycosaminoglycan chains, chitosan, and alginate.
4. The use according to any one of claims 1 to 3, in which the pancreatic progenitor cells are selected from one or more of pancreatic stem cells, biliary stem cells, committed pancreatic progenitor cells, committed biliary progenitors, and islet cells.
5. The use according to any one of claims 1 to 4, in which the mixture comprises additional cells selected from one or more of angioblasts, stellate cell precursors, stellate cells, stromal cells, myofibroblasts, endothelial cell precursors, and endothelial cells.
6. The use according to claim 1, in which the mixture further comprises a basal medium, a nutrient medium, lipids, signaling molecules, extracellular matrix components, or combinations thereof.
7. The use according to claim 6, in which the signaling molecules are selected from one or more of cytokines, fibroblast growth factors (FGFs), hepatocyte growth factors (HGFs), stromal cell-derived growth factors (SGFs), epidermal growth factors (EGFs), vascular endothelial cell growth factors (VEGFs), insulin like growth factor I (IGF I), insulin-like growth factor II (IGF-II), oncostatin-M, leukemia inhibitory factors (LIF), interleukins,

transforming growth factor- β (TGF- β), transferrin, insulin, tri-iodothyronine (T3), thyroxine (T4), glucagon, glucocorticoids, growth hormone (GH), estrogens, androgens, and combinations thereof.

8. The use according to any one of claims 1 to 7, in which the plurality of cells are cultured in serum-free medium.

9. The use according to claim 8, in which the serum-free medium comprises insulin, transferrin, lipids, calcium, zinc and selenium.

10. The use according to claim 8 or claim 9, in which the serum-free medium comprises Kubota's medium.

11. The use according to any one of claims 1 to 10, in which at least a portion of the cells is obtained previously from a donor.

12. The use according to claim 11, in which the donor is a non-autologous donor.

13. The use according to claim 11, in which the donor is an autologous donor.

14. The use according to claim 11, in which the donor is a fetus, a neonate, a child, or an adult.

15. The use according to any one of claims 1 to 14, in which the medicament is for introduction via injection, biodegradable covering, or sponge.

16. The use according to claim 15, in which the biodegradable covering forms a patch.

17. Use of a mixture in the manufacture of a medicament for localizing a plurality of cells onto a surface, into an interior portion, or both of a diseased or dysfunctional organ, the mixture comprising:

a plurality of cells and one or more biomaterials, wherein the plurality of cells are human hepatic progenitor cells or human pancreatic progenitor cells,

and wherein the one or more biomaterials is capable of forming a hydrogel comprising the plurality of cells on a surface, in an interior portion, or both of the diseased or dysfunctional organ.

18. The use according to claim 17, in which the plurality of cells are not tumor cells, cancer cells, or diseased cells.

19. The use according to claim 17 or claim 18, in which the one or more biomaterials are selected from glycosaminoglycan chains, hyaluronans, proteoglycans, gelatins, collagens, laminins, fibronectins, nidogen, elastins, plant-derived matrix components and combinations thereof.

20. The use according to any one of claims 17 to 19, in which the mixture further comprises a trigger for solidification of the biomaterials.

21. The use according to claim 20, in which the trigger for solidification of the hydro-gel forming biomaterials comprises polyethylene glycol diacrylate or a disulfide-bridge inducing derivative thereof.

22. The use according to any one of claims 17 to 21, in which the pancreatic progenitor cells are selected from one or more of pancreatic stem cells, biliary stem cells, committed pancreatic progenitor cells, committed biliary progenitors, and islet cells.

23. The use according to any one of claims 17 to 22, in which the mixture comprises additional cells selected from one or more of angioblasts, stellate cell precursors, stellate cells, stromal cells, myofibroblasts, endothelial precursors, and endothelial cells.

24. The use according to any one of claims 17 to 23, in which the hydrogel possesses a shear modulus ranging from about 0.1 to about 100 kPa.

25. The use according to any one claims 17 to 24, in which the hydrogel possesses a shear modulus ranging from about 25 to 520 Pa.

26. The use according to any one of claims 17 to 25, in which the mixture is introduced into a pocket formed on a surface of the organ.

27. The use according to claim 26, in which the pocket is prepared from omentum, spider silk, insect silk, or a combination thereof.

28. The use according to any one of claims 17 to 27, in which the hydrogel forms *in situ*.

29. The use according to any one of claims 17 to 28, in which the hydrogel is allowed to form before the mixture is introduced onto a surface, into an interior portion, or both of the diseased or dysfunctional organ.