

Claims

1. A method for maintaining and/or culturing tissue slices; comprising:
 - (i) providing a tissue slice;
 - (ii) providing a hydrogel comprising conjugated peptides;
 - (iii) placing the tissue slice onto the hydrogel comprising conjugated peptides; and
 - (iv) maintaining and/or culturing the tissue slice on the hydrogel using a culture medium.
2. The method according to claim 1, wherein the hydrogel comprises a hyaluronan, collagen or gelatin modified with at least one chemical group.
3. The method according to claim 2, wherein the chemical group is for crosslinking the hydrogel.
4. The method according to any one of claims 1 to 3, wherein the hydrogel comprises thiolated hyaluronan with conjugated peptides.
5. The method according to any one of claims 1 to 4, wherein the peptides are for crosslinking the hydrogel and/or presenting/providing biochemical cues, and/or wherein the peptides comprise a peptide degradable by matrix metalloproteinases or other proteases.
6. The method according to claim 5, wherein the peptides comprise the sequence PQ.
7. The method according to claim 5 or 6, wherein the peptides comprises the sequence KGGGPQGIWGQGK (SEQ ID NO: 1) or a scrambled derivative.
8. The method according to any one of claims 5 to 7, wherein the hydrogel further comprises at least one further set of peptides.
9. The method according to claim 8, wherein the at least one further set of peptides present/provide biochemical cues.
10. The method according to claim 9, wherein the at least one further set of peptides comprise one or more types of extracellular matrix protein or peptides comprising a peptide sequence derived from an extracellular matrix protein, and wherein the extracellular matrix protein comprises fibronectin, collagen and/or laminin.
11. The method according to any one of claims 8 to 10, wherein the at least one further set of peptides comprises the sequence RGD or a scrambled derivative.

12. The method according to any one of claims 8 to 11, wherein the at least one further set of peptides comprises the sequence GRGDS (SEQ ID NO: 2) or a scrambled derivative.
13. The method according to any one of the preceding claims, wherein the peptides comprise acrylated peptides.
14. The method according to any one of claims 2 to 13, wherein attaining the desired stiffness of the hydrogel comprising conjugated peptide depends on the concentration of the hyaluronan in the hydrogel.
15. The method according to any one of claims 3 to 5, wherein attaining the desired stiffness of the hydrogel comprises or further comprises increasing or decreasing the concentration of crosslinkers in the hydrogel.
16. The method according to any one of claims 2 to 15, wherein step (iii) comprises placing the tissue slice on the hydrogel as crosslinking of the hydrogel takes place for achieving mechanical fixation of the tissue slice in the hydrogel.
17. The method according to any one of the preceding claims, wherein step (iv) comprises contacting the hydrogel with the culture medium, and wherein the hydrogel is substantially submerged with the culture medium and the tissue slice is partially submerged with the culture medium.
18. The method according to any one of the preceding claims, wherein the culture medium comprises at least one ROCK inhibitor.
19. The method according to any one of claims 1 to 18, further comprising testing the effect of at least one therapeutic agent or potential therapeutic agent on the tissue slice.
20. The method according to any of the preceding claims, wherein the at least one tissue slice comprises a tissue slice from a tumour.