Claims

1. A fibrous structure comprising an assembly of hair follicle cells within a fibrous matrix, wherein the fibrous matrix is made up of a plurality of polyionic fibers, and wherein said assembly comprises human dermal papilla cells in the form of spheroids, wherein said spheroids are at least partially surrounded by normal human epidermal keratinocytes.

~~2. The fibrous structure of claim 1, wherein said hair follicle cells are selected from the group consisting of human dermal fibroblasts, human dermal papilla fibroblasts, human dermal microvascular endothelial cells, human keratinocytes, human melanocytes, hair follicle dermal papilla cells, human dermal papilla cells, hair follicle outer root sheath cells, normal human epidermal keratinocytes and outer root sheath keratinocytes.~~

~~3. The fibrous structure of claim 2, wherein said assembly comprises human dermal papilla cells and normal human epidermal keratinocytes.~~

~~4. The fibrous structure of claim 3, wherein said human dermal papilla cells aggregate to form spheroids and wherein said normal human epidermal keratinocytes at least partially surround the spheroids.~~

~~5.~~ 2. The fibrous structure of claim ~~4~~1, wherein the diameter of the spheroids is in the range of 80 μm to 120 μm.

~~6. The fibrous structure of claim 1, wherein the fibrous matrix is made up of a plurality of polyionic fibers.~~

~~7.~~3. The fibrous structure of claim ~~6~~1, wherein said polyionic fibers comprise at least one polycationic

polymer and at least one polyanionic polymer, said polycationic polymer and polyanionic polymer being biocompatible or biodegradable.

~~8.~~4. A method of forming a fibrous structure comprising the step of providing an assembly of hair follicle cells within a fibrous matrix, said fibrous matrix comprising a plurality of polyionic fibers and wherein said assembly of hair follicles comprises human dermal papilla cells in the form of spheroids, wherein said spheroids are at least partially surrounded by normal human epidermal keratinocytes.

~~9.~~5. The method of claim ~~8~~4, wherein said providing step comprises the step of drawing a fiber from the interface between a polyanionic polymer solution and a polycationic polymer solution to form said fibrous matrix, wherein said hair follicle cells are present in at least one of said polycationic polymer solution and polyanionic polymer solution.

~~10. The method of claim 8, wherein said hair follicle cells are selected from the group consisting of human dermal fibroblasts, human dermal papilla fibroblasts, human dermal microvascular endothelial cells, human keratinocytes, human melanocytes, hair follicle dermal papilla cells, human dermal papilla cells, hair follicle outer root sheath cells, normal human epidermal keratinocytes and outer root sheath keratinocytes.~~

~~11.~~6. The method of claim ~~8~~5, wherein two or more types of hair follicle cells are present in at least one of said polycationic polymer solution and said polyanionic polymer solution.

~~12.~~7. The method of claim ~~8~~4, wherein two or more types of hair follicle cells are present in two or more polycationic polymer solutions.

~~13.~~8. The method of claim ~~12~~7, wherein when two polycationic polymer solutions are used, human dermal papilla cells are present in one polycationic polymer solution and normal human epidermal keratinocytes are present in the other polycationic polymer solution.

~~14.~~9. The method of claim ~~8~~4, wherein two or more types of hair follicle cells are present in two or more polyanionic polymer solutions.

~~15.~~10. The method of claim ~~14~~9, wherein when two polyanionic polymer solutions are used, human dermal papilla cells are present in one polyanionic polymer solution and normal human epidermal keratinocytes are present in the other polyanionic polymer solution.

~~16.~~11. The method of claim ~~11~~6, wherein the concentration of said hair follicle cells in at least one of said polycationic polymer solution and said polyanionic polymer solution is in the range of 70 to 110 million cells/ml.

~~17.~~12. The method of claim ~~11~~6, comprising the step of fusing ~~a~~ said plurality of ~~formed~~ polyionic fibers to thereby form said fibrous matrix.

~~18.~~13. The method of claim ~~17~~12, wherein said fusing step comprises the step of rotating a base plate supporting the plurality of formed fibers.

~~19.~~14. ~~19.~~ The method of claim ~~18~~13, comprising the step of treating the fibrous matrix in a polycationic polymer solution followed by a polyanionic polymer solution.

15. ~~20.~~ Use of the fibrous structure of claim 1 for testing drugs used in hair treatment.