CLAIMS

1. A method of manufacturing a diabetic foot patient-specific skin regeneration sheet, comprising:

A) providing autologous adipose tissue;

B) removing fibers in the autologous adipose tissue using a first filter having a pore diameter of 2 to 3 mm;

C) crushing the autologous adipose tissue from which the fibers are removed by sequentially passing it through a second filter having a pore diameter of 450 to 550 μm and a third filter having a pore diameter of 150 to 250 μm;

D) acquiring an adipose tissue extract by filtering the crushed autologous adipose tissue by a fourth filter having a pore diameter of 25 to 75 μm, removing the filtrate, and collecting the residue collected by the fourth filter;

E) obtaining 3D data of the skin defect area of a patient using a 3D scanner, and then based on the data, manufacturing a 3D mold corresponding to the skin defect area using a 3D printer;

F) forming a proto-layer by applying a first solution containing the adipose tissue extract and fibrinogen to the inside of the 3D mold;

G) curing the proto-layer into a skin regeneration layer by applying a second solution containing thrombin onto the proto-layer; and

H) removing the 3D mold.

2. The method of claim 1, wherein Step B) to Step G) are accomplished within 30 minutes.

3. The method of claim 1, wherein the first filter is a syringe filter formed of stainless steel.

4. The method of claim 1, wherein, in Step C), the fiber-removed autologous adipose tissue is injected into a filter bag, and then an external pressure is applied to pass the fiber-removed autologous adipose tissue through the filter so as to crush the fiber-removed autologous adipose tissue.

5. The method of claim 1, wherein the fibrinogen in the first solution is a 40 vol.% to 60 vol.% dilution of 60 IU fibrinogen.

6. The method of claim 1, wherein the thrombin in the second solution is a 40 vol.% to 60 vol.% dilution of 500 IU thrombin.

7. The method of claim 1, wherein the volume ratio of the adipose tissue extract and the fibrinogen in the first solution is 3:1 to 5:1.

8. The method of claim 1, wherein the first solution comprises at least one selected from the group consisting of insulin, insulin-like growth factors, granulocytes, lymphocytes, endothelial cells, monocytes, macrophages, adipose-derived stem cells, adipocytokines, adiponectin, leptin, IL-6, IL-1β, MCP-1 and PAI-1.

9. The method of claim 1, further comprising:

forming an additional proto-layer by applying an additional first solution containing

an adipose tissue extract, fibrinogen and keratinocytes onto the skin regeneration layer, and then applying an additional second solution containing thrombin onto the additional proto-layer to cure the proto-layer into an epidermal regeneration layer.

10. The method of claim 1, wherein the diabetic foot patient-specific skin regeneration sheet has a thickness of at least 1 mm.

11. A diabetic foot patient-specific skin regeneration sheet manufactured by the method of claim 1.