【CLAIMS】

【Claim 1】

A two-liquid type bioink composition for cartilage regeneration, the bioink composition comprising:

a first liquid comprising an adipose tissue-derived stromal vascular fraction, hyaline cartilage powder, and fibrinogen; and

a second liquid comprising thrombin,

wherein a concentration of the hyaline cartilage powder is 0.005% (w/v) to 0.1% (w/v).

【Claim 2】

The two-liquid type bioink composition of claim 1, wherein a content of the adipose tissue-derived stromal vascular fraction is 10^5 to 10^7 cells per ml of the first liquid.

【Claim 3】

The two-liquid type bioink composition of claim 1, wherein the first liquid further comprises aprotinin.

【Claim 4】

The two-liquid type bioink composition of claim 1, wherein the second liquid is thrombin dispersed in a calcium chloride solution.

【Claim 5】

The two-liquid type bioink composition of claim 1, wherein the adipose tissue-derived stromal vascular fraction is extracted from an autologous adipose tissue.

【Claim 6】

The two-liquid type bioink composition of claim 1, wherein the hyaline cartilage powder is derived from allogeneic hyaline cartilage.

【Claim 7】

The two-liquid type bioink composition of claim 1, wherein the hyaline cartilage powder has a particle diameter of 30 μm to 300 μm.

【Claim 8】

The two-liquid type bioink composition of claim 1, wherein the hyaline cartilage powder is derived from costal cartilage.

【Claim 9】

A method for manufacturing a customized scaffold for cartilage regeneration, the method comprising:

a) obtaining 3D data of a defect cartilage site using a 3D scanner, and manufacturing a mold for scaffolding using a 3D printer;

b) using a first liquid comprising an adipose tissue-derived stromal vascular fraction, hyaline cartilage powder, and fibrinogen and applying the first liquid in the mold for scaffolding to form a first layer;

c) applying a second liquid comprising thrombin onto the first layer to form a second layer; and

d) forming a customized scaffold for cartilage regeneration by allowing the first layer and the second layer to react with each other,

wherein a concentration of the hyaline cartilage powder is 0.005% (w/v) to 0.1% (w/v).

【Claim 10】

The method of claim 9, wherein steps b) and c) are alternately repeated.

【Claim 11】

The method of claim 9, wherein step d) is completed within 10 minutes.

【Claim 12】

The method of claim 9, wherein steps b) and c) are performed using inkjet printing or 3D printing.

【Claim 13】

A customized scaffold for cartilage regeneration manufactured using the method of claim 9.