【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 bioink composition of claim 1, wherein a concentration of the hyaline cartilage powder is 0.005% (w/v) to 0.1% (w/v).~~

【Claim ~~4~~3】

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

【Claim ~~5~~4】

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

【Claim ~~6~~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 ~~7~~6】

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

【Claim ~~8~~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 ~~9~~8】

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

【Claim ~~10~~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 ~~11~~10】

The method of claim ~~10~~9, wherein steps b) and c) are alternately repeated.

【Claim ~~12~~11】

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

【Claim ~~13~~12】

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

【Claim ~~14~~13】

A customized scaffold for cartilage regeneration manufactured using the method of claim ~~10~~9.