Claims

[Claim 1] A modified macrophage, comprising
a macrophage phenotype, characterized by $CD14^{+}CD206^{+}$; and
type II collagen.

[Claim 2] The modified macrophage of claim 1, wherein the type II collagen is expressed within the modified macrophage.

[Claim 3] The modified macrophage of claim 1, wherein the type II collagen is expressed on the surface of the modified macrophage.

[Claim 4] A modified monocyte, comprising
a monocyte phenotype, characterized by $CD14^{+}$; and
type II collagen.

[Claim 5] The modified monocyte of claim 4, wherein the type II collagen is expressed within the modified monocyte.

[Claim 6] A pharmaceutical composition, comprising
(a) the modified macrophage of claim 1 or the modified monocyte of claim 4; and
(b) a pharmaceutically acceptable carrier or excipient.

[Claim 7] The pharmaceutical composition of claim 6, comprising about 0.01% to 99.9% of the modified macrophage or the modified monocyte.

[Claim 8] ~~A method of treating a musculoskeletal disease, comprising administering an effective amount~~Use of the modified macrophage of claim 1 or the modified monocyte of claim 4, in the manufacture of a medicament for the treatment of ~~to~~ a ~~subject in need thereof to treat the~~ musculoskeletal disease.

[Claim 9] The ~~method~~ use of claim 8, wherein the musculoskeletal disease is arthritis.

[Claim 10] The ~~method~~ use of claim 9, wherein the arthritis is osteoarthritis, autoimmune arthritis or traumatic arthritis.

[Claim 11] The ~~method~~ use of claim 8, wherein the musculoskeletal disease is degenerative disc disease or intervertebral disc degeneration.

[Claim 12] The ~~method~~ use of claim 11, wherein the disc is selected from the group

consisting of the cartilage tissue portion of articulate cartilage, the cartilage tissue portion of a meniscus and the cartilage tissue portion of an intervertebral disc.

[Claim 13] The ~~method~~ use of claim 8, wherein the musculoskeletal disease is tendinitis.

[Claim 14] The ~~method~~ use of claim 8, wherein the modified monocyte or the modified macrophage is to be administered by intra-articular injection.

[Claim 15] The ~~method~~ use of claim 8, ~~further comprising administering to the subject~~ wherein the medicament is to be conjointly administered with an agent selected from hyaluronic acid or a derivative or salt thereof, growth factor, chondrogenic agent, vitamin D3 (cholecalciferol), collagen hydrolyzate, rusalatide acetate, avocado soy unsaponifiables (ASU), a steroid and a non-steroidal anti-inflammatory agent (NSAID).

[Claim 16] ~~A method for inducing cartilage formation in a body site of a subject, comprising the step~~Use of ~~administering~~ the modified macrophage of claim 1 or the modified monocyte of claim 4, in the manufacture of a medicament for inducing cartilage formation in a body site of a subject ~~to the body site of the subject in need thereof~~.

[Claim 17] An *in vitro* method of inducing differentiation of monocytes into the modified macrophages of claim 1, comprising contacting peripheral blood mononuclear cells with an effective amount of a composition comprising

(a) a cell culture medium; and

(b) a polarization mixture comprises at least one of the following: IL-4, GM-CSF, G-CSF, or M-CSF.

[Claim 18] The method of claim 17, wherein the cell culture medium is RPMI-1640 or Iscove's modified Dulbecco's Medium **(**IMDM).

[Claim 19] The method of claim 17, wherein the contact time of the modified macrophage with the composition for about 2 hours to about 7 days.

[Claim 20] The method of claim 17, where in the polarization mixture is IL-4 and M-CSF.

[Claim 21] The method of claim 17, wherein the polarization mixture is substantially

free of IL-10, IL-13 or TGF-β.

[Claim 22] The modified macrophage of claim 1 or the modified monocyte of claim 4, for use in therapy.