Claims

[Claim 1] A modified macrophage, comprising
a macrophage phenotype, characterized by $CD14^{+}CD206^{+}$; and
the expression of 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
the expression of 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; and
(b) a pharmaceutically acceptable carrier or excipient.

[Claim 7] A pharmaceutical composition, comprising:
(a) the modified monocyte of claim 4; and
(b) a pharmaceutically acceptable carrier or excipient.

[Claim 8] 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 a musculoskeletal disease that is arthritis, degenerative disc disease, intervertebral disc degeneration or a condition that affects the muscle, tendon or ligament.

[Claim 9] The use of claim 8, wherein the arthritis is osteoarthritis, autoimmune arthritis or traumatic arthritis.

[Claim 10] The use of claim 8, 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 11] The use of claim 8, wherein the condition that affect the muscle, tendon or ligament is tendinitis.

[Claim 12] The use of claim 8, wherein the modified monocyte or the modified

macrophage is to be administered by intra-articular injection.

[Claim 13] The use of claim 8, wherein the medicament is to be conjointly administered with an agent selected from hyaluronic acid 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 14] Use of 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 in need thereof.

[Claim 15] An *in vitro* method of inducing differentiation of monocytes into the modified macrophages of claim 1, comprising contacting peripheral blood mononuclear cells with a composition comprising

(a) a cell culture medium that is RPMI-1640 or Iscove's modified Dulbecco's Medium (IMDM); and

(b) 2 -100 ng/mL of a polarization mixture comprises at least one of the following: IL-4, GM-CSF, G-CSF, or M-CSF.

[Claim 16] The method of claim 15, wherein the contact time of the modified macrophage with the composition for 2 hours± 10% to 7 days± 10%.

[Claim 17] The method of claim 15, where in the polarization mixture is IL-4 and M-CSF.

[Claim 18] The method of claim 15, wherein the polarization mixture contains less than 5 % of IL-10, IL-13 or TGF-β.

[Claim 19] The modified macrophage of claim 1 or the modified monocyte of claim 4, for use in therapy.