CLAIMS

1. A method for isolating a cell population from human adipose tissue, wherein the cells of said cell population present a phenotype characterized in that (i) they do not express markers specific for antigen-presenting cells (APCs), wherein the markers specific for APCs are CD11b, CD11c, CD14, CD45 and HLAII; (ii) they do not express indolamine-2,3-dioxygenase (IDO) constitutively; (iii) they express indolamine-2,3-dioxygenase (IDO) upon stimulation with IFN-γ; and (iv) they present capacity to be differentiated into at least two cell lineages, said method comprising the steps of:
   (i) preparing a cell suspension from a sample of human adipose tissue;
   (ii) recovering the cells from said cell suspension;
   (iii) incubating said cells in a suitable cell culture medium on a solid surface under conditions which allow cells to adhere to the solid surface and proliferate;
   (iv) washing said solid surface after incubation to remove non-adhered cells;
   (v) selecting the cells which after being passaged at least twice in such medium remain adhered to said solid surface; and
   (vi) confirming that the selected cell population presents the phenotype of interest, including determining IFN-γ-inducible indolamine-2,3-dioxygenase (IDO) activity in the selected cell population.

2. The method of claim 1, wherein IFN-γ-inducible IDO activity in the cell population is determined by stimulating the cell population with IFN-γ and assaying the cell population for IDO expression.

3. The method of claim 2, wherein IDO expression is assayed by Western-blot analysis for IDO protein expression.

4. The method of any one of claims 1-3, wherein IFN-γ-inducible IDO activity in the cell population is determined by stimulating the cell population with IFN-γ and measuring the tryptophan-to-kynurenine conversion by photometric determination of the kynurenine concentration in the supernatant.

5. The method of claim 4, wherein the tryptophan-to-kynurenine conversion is measured via

High Performance Liquid Chromatography (HPLC) analysis.

6. The method of any one of claims 1-5, wherein IFN-γ-inducible IDO activity in the cell population is determined by using 5000 or more cells per square centimetre and/or 3 ng/ml or more IFN-γ.

7. The method of any one of claims 1-6, wherein IFN-γ-inducible IDO activity in the cell population results in a detectable production of kynurenine in the µM range after 24 or more hours.

8. The method of any one of claims 1-7, wherein the human adipose tissue is obtained from a donor (allogeneic).

9. The method of any one of claims 1-8, wherein the human adipose tissue is non-pathological post-natal adipose tissue.

10. The method of any one of claims 1-9, wherein the method further comprises using monoclonal antibodies against CD11b, CD11c, CD14, CD45, HLAII, CD31, CD34 and CD133 to confirm the absence of said markers in the selected cell population, and using monoclonal antibodies against CD9, CD44, CD54, CD90 and CD105 to confirm the presence or detectable expression levels of at least one of and preferably all of said markers.

11. A method for obtaining an irradiated cell population from human adipose tissue, wherein the method comprises:
    a) isolating a cell population from human adipose tissue by a method according to any one of claims 1-10; and
    b) irradiating the cell population using a suitable controlled source of ionizing radiation.

12. A method for obtaining an IFN-γ-pre-stimulated cell population from human adipose tissue, wherein the method comprises:
    a) isolating a cell population from human adipose tissue by a method according to any one of claims 1-10 or obtaining an irradiated cell population from human adipose tissue by a method according to claim 11; and
    b) pre-stimulating the cell population with IFN-γ, for example using a concentration of IFN-

γ between 3 ng/ml and 30 ng/ml and a stimulation time of more than 12 hours.

13. A method for isolating a regulatory T-cells (T-reg) cell population, wherein the method comprises the steps of:

a) isolating a cell population from human adipose tissue by a method according to any one of claims 1-10,

b) contacting the cell population with peripheral blood leukocytes, and

c) selecting the regulatory T-cells (T-reg) cell population.

14. A method for obtaining a pharmaceutical composition, wherein the method comprises the step of:

a) isolating a cell population from human adipose tissue by a method according to any one of claims 1-10; or obtaining an irradiated cell population from human adipose tissue by a method according to claim 11; or obtaining an IFN-γ-pre-stimulated cell population from human adipose tissue by a method according to claim 12; or isolating a regulatory T-cells (T-reg) cell population by a method according to claim 13; and

b) preparing a pharmaceutical composition comprising the cell population and a pharmaceutically acceptable carrier.

15. The method of claim 14, wherein the pharmaceutical composition is a sterile suspension suitable for administration to a human subject.