

CLAIMS

1. A method of characterising ~~CD1c⁺~~ dendritic cells, the method comprising:

5 determining an expression of one or more of CD5, CD14 and CD163 in the dendritic cells.~~;~~

~~2. The method according to claim 1,~~ wherein where the dendritic cells are determined to be CD5⁻, CD14⁺ and ~~for~~ CD163⁺, identifying the dendritic cells as pro-inflammatory dendritic cells, and.

~~3. The method according to any one of the preceding claims,~~ wherein where the dendritic cells are determined to be CD163⁺CD14⁺, identifying the dendritic cells as highly pro-inflammatory dendritic cells that are more pro-inflammatory than CD163⁻ or CD14⁻ dendritic cells.

~~2.4.~~ The method according to any one of the preceding claims, the method further comprising determining a proportion of CD163⁺CD14⁺ dendritic cells.

~~35.~~ The method according to any one of the preceding claims, the method further comprising determining an expression of one or more of CD11b, CD36, CD64, CD87, CD107a, CD206, CD274, CD354, FcεRIα, HLA-DQ, CD2, CD59, CD81, CD166, CD229, CD271 and Integrin β7 in the dendritic cells.

~~46.~~ The method according to any one of the preceding claims, wherein the dendritic cells have one or more of the following properties:

- (i) is a ~~CD1c⁺~~ conventional dendritic cell 2 (cDC2);
- (ii) is dependent on IRF4 for differentiation;
- (iii) is dependent on KLF4 for differentiation;
- (iv) is dependent on FLT3 ligand (FLT3L) for differentiation; and
- (v) is capable of activating and/or polarizing T cells.

57. A method of characterising inflammation and/or inflammatory disease in a subject, the method comprising:

determining a proportion of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells ~~among CD1c⁺ dendritic cells~~ in the a subject's sample,

wherein the proportion positively correlates with the level of inflammation and/or the severity of inflammatory disease in the subject,

wherein the inflammation and/or inflammatory disease is selected from the group consisting of psoriasis, atopic dermatitis, Systemic Lupus Erythematosus (SLE), systemic sclerosis (SSc) and/or hepatocellular carcinoma.

68. The method according to claim 57, wherein where the proportion of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells ~~among CD1c⁺ dendritic cells~~ in the subject's sample is greater than a threshold proportion derived from a control sample, identifying the presence of inflammation and/or inflammatory disease in the subject,

wherein the control sample is a sample obtained from a person who is not suffering from the disease, or a healthy or undiseased sample.-

79. The method according to claim 57, wherein where the proportion of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells ~~among CD1c⁺ dendritic cells~~ in the sample is greater than the proportion in an earlier sample from the same subject, identifying a worsening of inflammation and/or inflammatory disease in the subject, and

wherein where the proportion of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells ~~among CD1c⁺ dendritic cells~~ in the sample is lower than the proportion in the earlier sample, identifying an improvement of inflammation and/or inflammatory disease in the subject.

~~10. The method according any one of claims 7-9, wherein the inflammatory disease is selected from the group consisting of systemic inflammatory disease, metabolic disorder, autoimmune disease and cancer.~~

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~~11. The method according to claim 10, wherein the inflammatory disease is selected from the group consisting of inflammatory skin disease, inflammatory bowel diseases, asthma, acute respiratory distress syndrome, chronic obstructive pulmonary disease, acute lung injury, bronchopulmonary dysplasia, cystic fibrosis, bronchitis, bronchiolitis, arthritis, osteoarthritis, ankylosing spondylitis and rheumatism.~~

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~~12. The method according to claim 10, wherein the metabolic disorder is selected from the group consisting of obesity, diabetes satiety and endocrine deficiencies related to aging.~~

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~~13. The method according to claim 10, wherein the autoimmune disease is selected from the group consisting of Systemic Lupus Erythematosus (SLE), diabetes, rheumatoid arthritis (RA), multiple sclerosis (MS), myasthenia gravis (MG), scleroderma, Crohn's disease, ulcerative colitis, Hashimoto's disease, Graves' disease, Sjögren's syndrome, polyendocrine failure, vitiligo, peripheral neuropathy, graft-versus-host disease, autoimmune polyglandular syndrome type I, acute glomerulonephritis, Addison's disease, adult-onset idiopathic hypoparathyroidism (AOIH), alopecia totalis, amyotrophic lateral sclerosis, ankylosing spondylitis, autoimmune aplastic anemia, autoimmune hemolytic anemia, Behcet's disease, Celiac disease, chronic active hepatitis, CREST syndrome, dermatomyositis, dilated cardiomyopathy, eosinophilia-myalgia syndrome, epidermolysis bullosa acquisita (EBA), giant cell arteritis, Goodpasture's syndrome, Guillain-Barré syndrome, hemochromatosis, Henoch-Schönlein purpura, idiopathic IgA nephropathy, insulin-dependent diabetes mellitus (IDDM), juvenile~~

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~~rheumatoid arthritis, Lambert-Eaton syndrome, linear IgA dermatosis, myocarditis, narcolepsy, necrotizing vasculitis, neonatal lupus syndrome (NLE), nephrotic syndrome, pemphigoid, pemphigus, polymyositis, primary sclerosing cholangitis, psoriasis, atopic dermatitis, rapidly progressive glomerulonephritis (RPGN), Reiter's syndrome, stiff-man syndrome and thyroiditis.~~

~~14. The method according to claim 10, wherein the autoimmune disease is selected from the group consisting of psoriasis, atopic dermatitis, Systemic Lupus Erythematosus (SLE) and systemic sclerosis (SSc).~~

~~15. The method according to claim 10, wherein the cancer comprises a non-solid tumour, optionally wherein the non-solid tumor is selected from the group consisting of leukaemia, multiple myelomas and lymphomas.~~

~~16. The method according to claim 10, wherein the cancer comprises a solid tumor, optionally wherein the solid tumour comprises sarcoma and/or carcinoma, further optionally wherein the sarcoma and/or carcinoma is selected from the group consisting of hepatocellular carcinoma, fibrosarcoma, myxosarcoma, liposarcoma, chondrosarcoma, osteogenic sarcoma, chordoma, angiosarcoma, endotheliosarcoma, lymphangiosarcoma, lymphangioendotheliosarcoma, synovioma, mesothelioma, Ewing's tumor, leiomyosarcoma, rhabdomyosarcoma, colon carcinoma, pancreatic cancer, breast cancer, ovarian cancer, prostate cancer, squamous cell carcinoma, basal cell carcinoma, adenocarcinoma, sweat gland carcinoma, sebaceous gland carcinoma, papillary carcinoma, papillary adenocarcinomas, cystadenocarcinoma, medullary carcinoma, bronchogenic carcinoma, renal cell carcinoma, hepatoma, bile duct carcinoma, choriocarcinoma, seminoma, embryonal carcinoma, Wilms' tumor, cervical cancer, testicular tumor, lung carcinoma, small cell lung carcinoma, bladder carcinoma, epithelial~~

~~carcinoma, glioma, astrocytoma, medulloblastoma, craniopharyngioma, ependymoma, pinealoma, hemangioblastoma, acoustic neuroma, oligodendroglioma, meningioma, melanoma, neuroblastoma, and retinoblastoma.~~

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~~17. The method according to claim 10, wherein the cancer is selected from the group consisting of hepatocellular carcinoma, follicular lymphoma, small lymphocytic lymphoma, pancreatic tumour and breast cancer.~~

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818. The method according to any one of claims 6-78-17, wherein where the presence and/or the worsening of inflammation and/or an inflammatory disease in the subject is identified, the subject is to be allocated to an inflammatory disease treatment regimen.

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919. The method according to claim 818, wherein the inflammatory disease treatment regimen comprises the administration of one or more agent selected from the group consisting of: an anti-inflammatory agent, an immunosuppressant agent, an anti-cancer agent, an inhibitor of FLT3L, ~~an agent capable of binding to CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells,~~ an agent capable of neutralising CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells, an antibody against CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells, an agent capable of reducing the proportion of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells, an agent capable of reducing an activity of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells, an agent capable of reducing a number of a precursor of CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells and an agent capable of inhibiting a differentiation of the precursor to CD5⁻, CD14⁺, CD163⁺, and/or CD14⁺CD163⁺ dendritic cells, ~~wherein the dendritic cells are CD1c⁺ dendritic cells.~~

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1020. A ~~kit for characterising CD1c⁺-dendritic cells~~, inflammation and/or inflammatory disease characterising kit, the kit comprising ~~one or more~~ reagent for detecting CD5, CD14 and ~~or~~ CD163.