

CLAIMS

1. Use of miRNA expression data of mesenchymal stem cells (MSCs) from donors or different donors (or categories of donors), which data is derived from a panel of miRNAs comprising at least one miRNA known or determined to correlate with indoleamine-2,3-dioxygenase (IDO) induction of MSCs by interferon-gamma (IFN- γ), to identify, determine or infer the propensity or relative propensity of those MSCs for IDO induction by IFN- γ to identify, determine or infer the propensity or relative propensity of those MSCs for efficacy in the treatment of inflammatory conditions, T-cell proliferation-mediated conditions or Graft versus Host disease.
2. Use according to Claim 1, to identify, determine or infer the propensity or relative propensity of MSCs for efficacy in the treatment of Graft versus Host disease.
3. Use according to Claim 1 or 2, in which the propensity of the MSCs for indoleamine-2,3-dioxygenase (IDO) induction by interferon-gamma (IFN- γ) is identified, determined or inferred by assaying the MSCs against the panel of miRNAs, generating miRNA expression data of the MSCs for the assayed panel of miRNAs and identifying, determining or inferring therefrom a propensity of the MSCs for the IDO induction by IFN- γ .
4. Use according to Claim 1, 2 or 3, in which the miRNA expression data of the MSCs is deemed to infer a propensity of the MSCs for indoleamine-2,3-dioxygenase (IDO) induction by interferon-gamma (IFN- γ) when it correlates with the miRNA or panel of miRNA with a correlation factor of at least plus or minus 0.7.
5. Use according to any preceding claim, in which the miRNA expression data is derived from an miRNA or panel of miRNAs that comprises miRNA selected from one or more of hsa-miR-10b-5p, hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.
6. Use according to Claim 5, in which the panel of miRNA comprises at least one miRNA positively correlated with IDO induction by IFN- γ and at least one miRNA negatively correlated with IDO induction by IFN- γ .
7. Use according to Claim 6, in which at least one miRNA positively correlated with IDO induction by IFN- γ is hsa-miR-10b-5p and in which at least one miRNA negatively correlated

with IDO induction by IFN- γ is selected from hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.

8. Use according to any preceding claim, in which the panel of miRNAs comprises up to six miRNAs.

5 9. A method of inferring propensity of MSCs from a donor or different donors (or categories of donors) to identify, determine or infer the propensity or relative propensity of those MSCs for indoleamine-2,3-dioxygenase (IDO) induction by interferon-gamma (IFN- γ), the method comprising assaying the MSCs against a pre-determined panel of miRNAs comprising at least one miRNA known or determined to correlate with indoleamine-2,3-
10 dioxygenase (IDO) induction of MSCs by interferon-gamma (IFN- γ), generating miRNA expression data of the MSCs for the assayed panel of miRNAs and identifying, determining or inferring therefrom a propensity of the MSCs for the IDO induction by IFN- γ to identify, determine or infer the propensity or relative propensity of those MSCs for efficacy in the treatment of inflammatory conditions, T-cell proliferation-mediated conditions or Graft versus
15 Host disease.

10. A method according to Claim 9, to identify, determine or infer the propensity or relative propensity of MSCs for efficacy in the treatment of Graft versus Host disease.

11. A method according to Claim 9 or 10, which further comprises selecting donors for MSC donation for the treatment of indications by an IDO induction-mediated therapy based
20 on the determined propensity or relative propensity of the MSCs for indoleamine-2,3-dioxygenase (IDO) induction by interferon-gamma (IFN- γ).

12. A method according to Claim 11, in which the selection is of donors for donation of MSC populations for use in therapy, the selection based on those MSC populations that better demonstrate propensity for IDO induction by IFN- γ , or meet or exceed a pre-determined
25 threshold for propensity.

13. A method according to any of Claims 9 to 12, in which the miRNA expression data of the MSCs is deemed to infer a propensity of the MSCs for indoleamine-2,3-dioxygenase (IDO) induction by interferon-gamma (IFN- γ) when it correlates with a correlation factor of at least plus or minus 0.7.

14. A method according to any of Claims 9 to 13, in which the pre-determined panel of miRNAs comprises miRNA selected from one or more of hsa-miR-10b-5p, hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.
- 5 15. A method according to Claim 14, in which the panel of miRNA comprises at least one miRNA positively correlated with IDO induction by IFN- γ and at least one miRNA negatively correlated with IDO induction by IFN- γ .
16. A method according to Claim 15, in which at least one miRNA positively correlated with IDO induction by IFN- γ is hsa-miR-10b-5p and in which at least one miRNA negatively
10 correlated with IDO induction by IFN- γ is selected from hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.
17. A method according to any of Claims 9 to 16, in which the panel of miRNA comprises up to six miRNAs.
18. A kit for use to identify, determine or infer the propensity or relative propensity of
15 MSCs from donors or different donors or categories of donors for IDO induction by interferon-gamma (IFN- γ) to identify, determine or infer the propensity or relative propensity of those MSCs for efficacy in the treatment of inflammatory conditions, T-cell proliferation-mediated conditions or Graft versus Host disease, the kit comprising primers for use in quantitative PCR (polymerase chain reaction), primers being for a panel of miRNAs
20 comprising at least one miRNA known or determined to correlate with indoleamine-2,3-dioxygenase (IDO) induction of MSCs by interferon-gamma (IFN- γ).
19. A kit according to Claim 18, in which the panel of miRNAs comprises miRNA selected from one or more of hsa-miR-10b-5p, hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.
- 25 20. A kit according to Claim 19, in which the panel of miRNA comprises at least one miRNA positively correlated with IDO induction by IFN- γ and at least one miRNA negatively correlated with IDO induction by IFN- γ .
21. A kit according to Claim 20, in which at least one miRNA positively correlated with IDO induction by IFN- γ is hsa-miR-10b-5p and in which at least one miRNA negatively

correlated with IDO induction by IFN- γ is selected from hsa-miR-136-5p, hsa-miR-140-3p, hsa-miR-23a-3p, hsa-miR-3651, hsa-miR-491-3p, hsa-miR-574-3p and hsa-miR-574-5p.

22. A kit according to any of Claims 18 to 21, in which the panel of miRNAs comprises up to six miRNAs.