

CLAIMS

1. miR-335 for use in a method of diagnosis, treatment, prophylaxis or alleviation of a dermatological condition such as atopic dermatitis.
2. miR-335 according to Claim 1, which comprises a polynucleotide sequence having
5 miRBase Accession Number MI0000816, or a variant, homologue, derivative or fragment thereof such as a sequence having 95%, 96%, 97%, 98% or 99% sequence identity thereto and comprising miR-335 activity.
3. An agent capable of up-regulating the expression or activity of miR-335 such as an miR-335 agonist, for use in a method of treatment, prophylaxis or alleviation of a
10 dermatological condition such as atopic dermatitis.
4. An agent according to Claim 3, which comprises a histone deacetylase (HDAC) inhibitor, such as Mocetinostat (PubChem CID: 9865515), Quisinostat, Scriptaid, LMK-235 or Belinostat
5. An agent according to Claim 3 or 4, which comprises belinostat (PubChem CID:
15 6918638)
6. A pharmaceutical composition comprising miR-335 according to Claim 1 or 2 or an agent according to Claim 3, 4 or 5 together with a pharmaceutically acceptable excipient, carrier or diluent.
7. A pharmaceutical composition according to Claim 6, which is formulated to be applied
20 topically.
8. Use of a histone deacetylase (HDAC) inhibitor such as belinostat (PubChem CID: 6918638) in the preparation of a medicament for the restoration of barrier function.
9. Use of a histone deacetylase (HDAC) inhibitor such as belinostat (PubChem CID: 6918638) in the preparation of a medicament for the treatment, prophylaxis or alleviation of a
25 dermatological condition such as atopic dermatitis.
10. A method of up-regulating the expression of miR-335 in a cell, the method comprising exposing the cell to a histone deacetylase (HDAC) inhibitor such as belinostat (PubChem CID: 6918638).

11. A method of treatment, prophylaxis or alleviation of a dermatological condition such as atopic dermatitis in an individual, the method comprising up-regulating the activity or expression level of miR-335 in the individual.

12. A method of diagnosis of a dermatological condition such as atopic dermatitis (AD) in an individual, the method comprising detecting the activity or expression level of miR-335 in a sample of or from an individual.

13. A method according to Claim 12, in which a decreased activity or expression level of miR-335 as compared to the activity or expression level of miR-335 in individual known not to be suffering from a dermatological condition such as atopic dermatitis indicates that the individual is suffering, or is likely to be suffering, from a dermatological condition such as atopic dermatitis.

14. A method according to Claim 12 or 13, in which an expression level of 95% or less, 90% or less, 85% or less, 80% or less, 75% or less, 70% or less, 65% or less, 60% or less, 55% or less, 50% or less, 45% or less, 40% or less, 35% or less, 30% or less, 25% or less, 20% or less, 15% or less, 10% or less, 5% or less of miR-335, as compared to the expression level of that miR-335 in or of an individual known not to be suffering from a dermatological condition such as atopic dermatitis, is indicative of a dermatological condition such as atopic dermatitis.

15. A method according to Claim 12, 13 or 14, in which the sample comprises a skin sample.

16. A method of treatment of a dermatological condition such as atopic dermatitis in an individual, the method comprising performing a method according to any of Claims 12 to 15 and, where the individual is determined to be suffering from, or likely to suffer from, a dermatological condition such as atopic dermatitis, administering to the individual a treatment for a dermatological condition such as atopic dermatitis.

17. A method for treating a dermatological condition such as atopic dermatitis in an individual, comprising:

- (a) obtaining the results of an analysis of the expression level of miR-335 or a variant, homologue, derivative or fragment thereof such as a sequence having at least 95%,

96%, 97%, 98% or 99% sequence identity thereto in a sample of or from an individual; and

- (b) administering a treatment for a dermatological condition such as atopic dermatitis to the individual if the expression level of miR-335 is below a reference expression level, the reference expression level being the expression level of miR-335 in a sample of or from an individual known not to be suffering from a dermatological condition such as atopic dermatitis.

18. A kit for detecting a dermatological condition such as atopic dermatitis in an individual or susceptibility of the individual to a dermatological condition such as atopic dermatitis, the kit comprising means for detection of the activity or expression level of miR-335 in the individual or a sample taken from him or her, in which the means for detection preferably comprises an miR-335 polynucleotide or a fragment thereof or a complementary nucleotide to a an miR-335 polynucleotide or a fragment thereof.

CLAIMS

1. Use of an agent capable of up-regulating the expression or activity of miR-335 such as an miR-335 agonist, in the preparation of a medicament for the treatment, prophylaxis or alleviation of a dermatological condition such as atopic dermatitis.
- 5 2. Use according to Claim 1, in which the agent comprises a histone deacetylase (HDAC) inhibitor, such as Mocetinostat (PubChem CID: 9865515), Quisinostat, Scriptaid, LMK-235 or Belinostat.
3. Use according to Claim 1 or 2, in which the agent comprises belinostat (PubChem CID: 6918638)
- 10 4. Use according to Claim 1, 2 or 3, in which the medicament comprises a pharmaceutically acceptable excipient, carrier or diluent.
5. Use according to any preceding claim, in which the agent is to be applied topically.
6. Use of a histone deacetylase (HDAC) inhibitor such as belinostat (PubChem CID: 6918638) in the preparation of a medicament for the restoration of barrier function.
- 15 7. Use of a histone deacetylase (HDAC) inhibitor such as belinostat (PubChem CID: 6918638) in the preparation of a medicament for the treatment, prophylaxis or alleviation of a dermatological condition such as atopic dermatitis.
8. An *in vitro* or *ex-vivo* method of up-regulating the expression of miR-335 in a cell, the method comprising exposing the cell to a histone deacetylase (HDAC) inhibitor such as

20 belinostat (PubChem CID: 6918638).
9. A method of diagnosis of a dermatological condition such as atopic dermatitis (AD) in an individual, the method comprising detecting the activity or expression level of miR-335 in a sample of or from an individual.
10. A method according to Claim 11, in which a decreased activity or expression level of

25 miR-335 as compared to the activity or expression level of miR-335 in individual known not to be suffering from a dermatological condition such as atopic dermatitis indicates that the individual is suffering, or is likely to be suffering, from a dermatological condition such as atopic dermatitis.

11. A method according to Claim 11 or 12, in which an expression level of 95% or less, 90% or less, 85% or less, 80% or less, 75% or less, 70% or less, 65% or less, 60% or less, 55% or less, 50% or less, 45% or less, 40% or less, 35% or less, 30% or less, 25% or less, 20% or less, 15% or less, 10% or less, 5% or less of miR-335, as compared to the expression
5 level of that miR-335 in or of an individual known not to be suffering from a dermatological condition such as atopic dermatitis, is indicative of a dermatological condition such as atopic dermatitis.
12. A method according to Claim 11, 12 or 13, in which the sample comprises a skin sample.
- 10 13. A kit for detecting a dermatological condition such as atopic dermatitis in an individual or susceptibility of the individual to a dermatological condition such as atopic dermatitis, the kit comprising means for detection of the activity or expression level of miR-335 in the individual or a sample taken from him or her, in which the means for detection preferably
15 comprises an miR-335 polynucleotide or a fragment thereof or a complementary nucleotide to a an miR-335 polynucleotide or a fragment thereof.
14. miR-335 for use in a method of diagnosis, treatment, prophylaxis or alleviation of a dermatological condition such as atopic dermatitis.
15. miR-335 according to Claim 14, which comprises a polynucleotide sequence having miRBase Accession Number MI0000816, or a variant, homologue, derivative or fragment
20 thereof such as a sequence having 95%, 96%, 97%, 98% or 99% sequence identity thereto and comprising miR-335 activity.