

CLAIMS

1. A method of detecting and/or diagnosing non-small cell lung cancer in a subject, or predicting the possibility of a subject developing or having non-small cell lung cancer,

wherein the method comprises measuring the expression level of peripheral blood miRNA markers in a peripheral blood sample obtained from the subject, and

wherein the peripheral blood miRNA markers comprise hsa-miR-1291, hsa-miR-1-3p, hsa-miR-214-3p, hsa-miR-375, and hsa-let-7a-5p.

2. The method according to claim 1, wherein the peripheral blood is serum or plasma.

3. The method according to any one of claims 1 or 2, wherein the expression level of the peripheral blood miRNA marker is differentially regulated in the peripheral blood of a patient with non-small cell lung cancer compared to that in a control sample.

4. The method according to claim 3, wherein the control sample is from a subject not suffering from non-small cell lung cancer.

5. The method according to any one of claims 1 to 4, wherein the non-small cell lung cancer comprises squamous cell lung cancer, and adenocarcinoma lung cancer.

6. A method of detecting and/or diagnosing non-small cell lung cancer in a subject, or predicting the possibility of a subject developing or having non-small cell lung cancer, the method comprising:

- detecting the presence of miRNAs markers in a peripheral blood sample obtained from the subject;

- measuring the expression level of miRNA markers comprising hsa-miR-1291, hsa-miR-1-3p, hsa-miR-214-3p, hsa-miR-375 and hsa-let-7a-5p in the peripheral blood sample; and

- using a score calculated using a classification algorithm to predict the possibility of the subject developing or having non-small cell lung cancer.

7. The method according to claim 6, wherein the classification algorithm is selected from the group consisting of: support vector machine algorithm, logistic regression algorithm, multinomial logistic regression algorithm, Fisher's linear discriminant algorithm, quadratic classifier algorithm, perceptron algorithm, k-nearest neighbor algorithm, artificial neural network algorithm, random forest algorithm, decision tree algorithm, naive Bayes algorithm, adaptive Bayes network algorithm, and

an integrated learning method that combines multiple learning algorithms.

8. The method according to claim 7, wherein the classification algorithm is pre-trained using the expression level of a control.

9. The method according to claim 8, wherein the control is at least one selected from the group consisting of a control without non-small cell lung cancer and a non-small cell lung cancer patient.

10. The method according to any one of claims 6 to 9, wherein the classification algorithm compares the expression level in the subject with that in the control and returns a mathematical score that identifies the possibility of the subject developing or having non-small cell lung cancer.

11. The method according to any one of claims 6 to 10, wherein the expression level of the miRNAs is in any one of concentration, $\log(\text{concentration})$, Ct/Cq, and Ct/Cq power of 2.

12. The method according to any one of claims 6 to 11, wherein the non-small cell lung cancer comprises non-small cell lung cancer in various stages.

13. The method according to any one of claims 6 to 12, wherein the subject comprises, but is not limited to, Asians and Caucasians.

14. A kit for use according to the method of any one of claims 1 to 13, wherein the kit comprises reagents for detecting the following peripheral blood miRNA markers: hsa-miR-1291, hsa-miR-1-3p, hsa-miR-214-3p, hsa-miR-375 and hsa-let-7a-5p.