

CLAIMS

1. A method of diagnosing lung cancer in a patient comprising the steps of:

- (i) determining the level of an RNA molecule in a blood sample from the patient, and
- (ii) comparing the level of the RNA molecule to a reference level of said RNA molecule,

wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC), and wherein the comparison allows to diagnose lung cancer in said patient.

2. The method of claim 1,

wherein the reference level is the level of the RNA molecule determined empirically by measuring a number of reference blood samples from healthy subjects, and/or

subjects having lung cancer, and

wherein

the reference level is the level of the RNA molecule determined empirically by measuring a number of reference blood samples from healthy subjects, and wherein the level of the RNA molecule above the reference level indicates that the patient suffers from lung cancer, and/or

the reference level is the level of the RNA molecule determined empirically by measuring a number of reference blood samples from subjects having lung cancer, and wherein the level of the RNA molecule comparable with the reference level indicates that the patient suffers from lung cancer.

3. A method of monitoring the course of lung cancer in a patient comprising the steps of:

- (i) determining the level of an RNA molecule in a blood sample from the patient, and
- (ii) comparing the level of the RNA molecule to a reference level of said RNA molecule,

wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC), and wherein the comparison allows to monitor the course of lung cancer in said patient.

4. The method of claim 3, wherein said monitoring comprises determining the level of the RNA molecule in a blood sample obtained from the patient at a first point in time and in at least one further blood sample obtained from said patient at a later point in time and comparing said levels determined at the different time points.

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5. The method of claim 4, wherein the level of the RNA molecule which
- (i) increases over time indicates that the patient has developed lung cancer or that lung cancer is worsening in the patient,
 - (ii) does not change over time indicates that the patient is stable or that lung cancer is not progressing in the patient, or
 - (iii) decreases over time indicates that lung cancer is improving in the patient.
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6. A method of determining whether a patient responds to a therapeutic treatment of lung cancer comprising the steps of:

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- (i) determining the level of an RNA molecule in a blood sample from the patient, and
 - (ii) comparing the level of the RNA molecule to a reference level of said RNA molecule,

wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC), and wherein the comparison allows to determine whether said patient response to the therapeutic treatment of lung cancer.

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7. The method of claim 6, wherein the patient is a patient to whom at least once a drug to be used in said therapeutic treatment, and/or another form of therapeutic treatment
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- has been administered or had been administered.

8. A method of determining the risk for a relapse of lung cancer in a patient comprising the steps of:

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- (i) determining the level of an RNA molecule in a blood sample from the patient, and
 - (ii) comparing the level of the RNA molecule to a reference level of said RNA molecule,

wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC), and wherein the comparison allows to determine the risk for a relapse of lung cancer in said patient.

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9. The method of claim 8, wherein the patient had received a therapeutic treatment of lung cancer, wherein said treatment involved the administration of a drug for lung cancer, and/or another form of therapeutic treatment of lung cancer.

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10. A method of detecting a minimal residual disease in a patient having lung cancer comprising the steps of:

- (i) determining the level of an RNA molecule in a blood sample from the patient, and
- (ii) comparing the level of the RNA molecule to a reference level of said RNA molecule,

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wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC), and wherein the comparison allows to detect a minimal residual disease in said patient.

- 15 11. The method of claim 10, wherein the patient has received or had received a therapeutic treatment of lung cancer, wherein said treatment involves or involved the administration of a drug for lung cancer, and/or another form of therapeutic treatment of lung cancer.

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12. The method of any one of claims 1 to 11, wherein the lung cancer is non-small-cell lung carcinoma (NSCLC).

13. The method of any one of claims 1 to 12, wherein the blood sample is whole blood or a blood fraction.

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14. Use of an RNA molecule for diagnosing lung cancer in a blood sample obtained from a patient, monitoring the course of lung cancer in a blood sample obtained from a patient, determining in a blood sample obtained from a patient whether the patient responds to a therapeutic treatment of lung cancer, determining the risk for a relapse of lung cancer in a blood sample obtained from a patient, and/or detecting a minimal residual disease in a blood sample obtained from a patient having lung cancer, wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC).

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15. Use of a kit for diagnosing lung cancer in a blood sample obtained from a patient, monitoring the course of lung cancer in a blood sample obtained from a patient, determining in a blood sample obtained from a patient whether the patient responds to a therapeutic treatment of lung cancer, determining the risk for a relapse of lung cancer in a blood sample obtained from a patient, and/or detecting a minimal residual disease in a blood sample obtained from a patient having lung cancer, wherein said kit comprises:
means for determining the level of an RNA molecule in a blood sample from the patient, wherein the RNA molecule comprises a nucleotide sequence according to SEQ ID NO: 1 (GCCGCCGGUGAAAUACCACUAC).