WHAT IS CLAIMED IS:

1. Use of metabolic markers for diagnosing stages of lung cancer and one or more of a detection reagent of the metabolic markers for diagnosing stages of lung cancer in preparation of a kit for diagnosing the stages of lung cancer; wherein

the metabolic markers for diagnosing stages of lung cancer are selected from the group consisting of dehydroisoandrosterone-3-sulfate, 4-hydroxy-1-(3-pyridyl)-1-butanone, L-leucyl-L-leucine, L-octanoylcarnitine, phosphatidylcholine 34:3e, acyl carnitine 10:0, N-formyl-L-methionine, 5'-methylthioadenosine, phosphatidylcholine 36:3e, fatty acid 22:6, L-tryptophyl-L-phenylalanine, acyl carnitine 10:1, hypoxanthine, L-alanyl-L-aspartic acid, iminodiacetic acid, betaine, choline, O-palmitoyl-L-carnitine, and L-glutamic acid.

2. The use according to claim 1, wherein the detection reagent detects the metabolic markers for diagnosing stages of lung cancer through liquid chromatography-mass spectrometry (LC-MS).

3. The use according to claim 1 or 2, wherein a sample detected by the detection reagent comprises a blood sample.

4. The use according to claim 3, wherein the blood sample is selected from the group consisting of a plasma and a serum.

5. The use according to claim 4, wherein the detection reagent detects the metabolic markers for diagnosing stages of lung cancer through the LC-MS comprises the following steps:

separating an organic phase and an aqueous phase from the plasma; and

detecting the organic phase and the aqueous phase through the LC-MS respectively to detect the metabolic markers for diagnosing stages of lung cancer.

6. The use according to claim 5, wherein liquid chromatography (LC) for detecting the organic phase comprises:

a C8 chromatographic column as a stationary phase;

a mobile phase comprising a mobile phase A and a mobile phase B, wherein the mobile phase A is an aqueous solution containing 0.08% weight per volume (w/v) to 0.12% (w/v) of acetic acid

and 0.08% (w/v) to 0.12% (w/v) of ammonium acetate; and the mobile phase B is a mixed solution of acetonitrile and isopropanol at a volume ratio of (6.5-7.5):(2.5-3.5) containing 0.08% (w/v) to 0.12% (w/v) of the acetic acid and 0.8% (w/v) to 1.2% (w/v) of the ammonium acetate; and

an elution method comprises gradient elution, and a procedure of the gradient elution comprises:

at 0 min to 12 min, the mobile phase B has a volume percentage increasing from 55% to 89%; and

at 12 min to 19.5 min, the mobile phase B has a volume percentage increasing from 89% to 100%.

7. The use according to claim 5, wherein LC for detecting the aqueous phase comprises:

a T3 chromatographic column as a stationary phase;

a mobile phase comprising a mobile phase A and a mobile phase B, wherein the mobile phase A is an aqueous solution containing 0.08% (w/v) to 0.12% (w/v) of formic acid; and the mobile phase B is an acetonitrile solution containing 0.08% (w/v) to 0.12% (w/v) of the formic acid; and

an elution method comprises gradient elution, and a procedure of the gradient elution comprises:

at 0 min to 13 min, the mobile phase B has a volume percentage increasing from 1% to 70%; and

at 13 min to 18 min, the mobile phase B has a volume percentage increasing from 70% to 99%.

8. The use according to claim 5, wherein mass spectrometry (MS) comprises:

conducting acquisition in two modes of a Full MS mode and a Full MS/dd-MS2 mode, wherein the two modes each comprise positive and negative modes;

the Full MS mode has a resolution of 35,000 to 70,000, a scan range of 100 m/z to 1,500 m/z, an automatic gain control (AGC) of 3E+6, and a Maximum injection time (Maximum IT) of 150 ms to 250 ms; and

the Full MS/dd-MS2 mode has a secondary MS resolution of 17,500 to 35,000, a quadrupole rod window of 1.2 m/z to 1.6 m/z, an AGC of 1E+5, a maximum injection time of ion of 45 ms to 55 ms, and a high-energy collision dissociation (HCD) relative collision energy of 10 eV to 45 eV.

9. The use according to claim 5, wherein the separating the organic phase and the aqueous phase from the plasma comprises:

extracting the plasma with a solvent 1 to obtain an extract; wherein the solvent 1 comprises methyl tert-butyl ether (MTBE) and methanol; and

extracting the extract with a solvent 2, and conducting layering to collect an obtained upper layer to obtain the organic phase and collect an obtained lower layer to obtain the aqueous phase; wherein the solvent 2 comprises methanol and water.

10. A kit for diagnosing stages of lung cancer, comprising the metabolic markers for diagnosing stages of lung cancer and one or more of the detection reagent of the metabolic markers for diagnosing stages of lung cancer according to any one of claims 1 to 9.