Claims

[Claim 1] A method for diagnosing a lung cancer in a human, the method comprising:
providing a biomarker panel including N of biomarker proteins listed in table 2, wherein the N is an integer at least 2; and
detecting the biomarker proteins, in a biological sample from the human, to give biomarker values that each corresponds to one of the N biomarker proteins in the panel, wherein the lung cancer is diagnosed based on the biomarker values.

[Claim 2] The method of claim 1, wherein the detecting the biomarker values includes performing an in vitro assay.

[Claim 3] The method of claim 2, wherein the in vitro assay includes one capture reagent corresponding to each of the biomarker proteins, and
wherein the method further comprises selecting the at least one capture reagent from a group consisting of aptamers, antibodies, and a nucleic acid probe.

[Claim 4] The method of claim 3, wherein the at least one capture reagent is an aptamer.

[Claim 5] The method of claim 1, wherein the biological sample is selected from a group consisting of a whole blood, a plasma, and a serum.

[Claim 6] The method of claim 1, wherein the biological sample is a serum

[Claim 7] The method of claim 1, wherein the human is an Asian.

[Claim 8] The method of claim 1, wherein the human is a smoker.

[Claim 9] The method of claim 1, wherein the human has a pulmonary malignant nodule.

[Claim 10] The method of claim 1, wherein the N is at least 3.

[Claim 11] The method of claim 1, wherein the N is at least 4.

[Claim 12] The method of claim 1, wherein the N is at least 5.

[Claim 13] The method of claim 1, wherein the N is at least 6.

[Claim 14] The method of claim 1, wherein the N is at least 7.

[Claim 15] The method of claim 1, wherein the biomarker values have measured values of Complement C9, carbonic anhydrase 6 (CA6), C-reactive protein (CRP), epidermal growth factor receptor 1 (EGFR1), matrix metalloproteinase 7(MMP7), alpha1-antiprotease (SERPINA3), and stem cell growth factor receptor (KIT).

[Claim 16] The method of claim 1, wherein the biomarker values are measured from a group consisting of real-time PCR, microarray, and Luminex

microbead assay.

[Claim 17] The method of claim 1, wherein the lung cancer is diagnosed with a statistical method.

[Claim 18] The method of claim 17, wherein the statistical method is selected from a group comprising a linear discriminant analysis, a logistic regression, a naive Bayesian classification, a support vector machine, and a random forest.

[Claim 19] A protein biomarker panel to detect non-small cell lung cancer from a human, the panel comprising N of biomarker proteins listed in table 2 which includes a KIT,
wherein the N is an integer at least 2.

[Claim 20] The panel of claim 19, wherein the N is at least 3.

[Claim 21] The panel of claim 19, wherein the N is at least 4.

[Claim 22] The panel of claim 19, wherein the N is at least 5.

[Claim 23] The panel of claim 19, wherein the N is at least 6.

[Claim 24] The panel of claim 19, wherein the N is at least 7.

[Claim 25] The panel of claim 19, the the panel has a Complement C9, a carbonic anhydrase 6 (CA6), a C-reactive protein (CRP), a epidermal growth factor receptor 1 (EGFR1), a matrix metalloproteinase 7(MMP7), a alpha1-antiprotease (SERPINA3), and a stem cell growth factor receptor (KIT).

[Claim 26] The panel of claim 19, wherein the human is an Asian.

[Claim 27] The panel of claim 19, wherein the human is a smoker.

[Claim 28] The panel of claim 19, wherein the human has a pulmonary malignant nodule.