Claims

1. A method for diagnosing or determining the likelihood of lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 21, wherein 3-25 of the biomarker proteins are selected from Table 20;

measuring in a biological sample from the individual, biomarker values that each correspond to one of the N protein biomarkers in the panel; wherein said biomarker values provide an indication as to the likelihood that the individual has lung cancer, and wherein N = 3 - 86;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

2. The method of claim 1, wherein at least one of said biomarkers selected from Table 20 is MMP-12.

3. The method of claim 2, wherein said *in vitro* assay comprises at least one capture reagent corresponding to each of said biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies.

4. The method of claim 2 or claim 3, wherein the *in vitro* assay is selected from the group consisting of an immunoassay, an aptamer-based assay and a histological or cytological assay.

5. The according to any of claims 1 to 4, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

6. The method according to any of claims 1 to 5, wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

7. The method according to any of claims 1 to 6, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum.

8. The method according to any of claims 1 to 6, wherein the biological sample is serum.

9. The method of claim 1, wherein the individual is a human.

10. The method according to any of claims 1 to 9, wherein N = 4 - 86.

11. The method according to any of claims 1 to 9, wherein N = 5 - 86.

12. The method according to any of claims 1 to 11, wherein the individual is a smoker.

13. The method according to any of claims 1 to 12, wherein the individual has a pulmonary nodule.

14. The method according to any of claims 1 to 13, wherein the lung cancer is non-small cell lung cancer.

15. A computer-implemented method for indicating a likelihood of lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 21, wherein 3-25 of the biomarker proteins is selected from Table 20;

retrieving on a computer biomarker information for an individual, wherein the biomarker information comprises biomarker values that each correspond to one of the N protein biomarkers in the panel, wherein N = 3 - 86;

performing with the computer a classification of each of said biomarker values; and

indicating a likelihood that said individual has lung cancer based upon a plurality of classifications;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

16. The method of claim 15 wherein at least one of said biomarker(s) selected from Table 20 is MMP-12.

17. The method of claim 15 or claim 16, wherein indicating the likelihood that the individual has lung cancer comprises displaying the likelihood on a computer display.

18. A method for diagnosing or determining the likelihood of lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 20;

measuring in a biological sample from the individual, biomarker values that each correspond to one of the N protein biomarkers in the panel, wherein said biomarker values provide an indication as to the likelihood that the individual has lung cancer, and wherein N = 3 - 25;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

19. The method of claim 18, wherein said *in vitro* assay comprises at least one capture reagent corresponding to each of said protein biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies.

20. The method according to any of claims 18 to 19, wherein the method is selected from the group consisting of an immunoassay, an aptamer-based assay, a histological assay or a cytological assay.

21. The method according to any of claims 18 to 20, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

22. The method according to any of claims 18 to 21, wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

23. The method according to any of claims 18 to 22, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum.

24. The method of claim 23, wherein the biological sample is serum.

25. The method according to any of claims 18 to 24, wherein N = 4 - 25.

26. The method according to any of claims 18 to 24, wherein N = 5 - 25.

27. The method according to any of claims 18 to 26, wherein the individual is a smoker.

28. The method according to any of claims 18 to 27, wherein the individual has a pulmonary nodule.

29. The method according to any of claims 18 to 28, wherein the lung cancer is non-small cell lung cancer.

30. A computer-implemented method for indicating a likelihood of lung cancer, the method comprising:

retrieving on a computer biomarker information for an individual, wherein the biomarker information comprises biomarker values that each correspond to one of at least N biomarkers selected from Table 20;

performing with the computer a classification of each of said biomarker values; and

indicating a likelihood that said individual has lung cancer based upon a plurality of classifications, and wherein N = 3-25;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

31. The method of claim 30, wherein indicating the likelihood that the individual has lung cancer comprises displaying the likelihood on a computer display.

32. A method for determining information about lung cancer in an individual comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 21, wherein 3-25 of the biomarker proteins is selected from Table 20;

measuring in a biological sample from the individual, biomarker values that each correspond to one of the N protein biomarkers in the panel; wherein N = 3-86; and wherein said biomarker value provides information about the lung cancer in the individual;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

33. The method of claim 32, wherein at least one of said biomarkers selected from Table 20 is MMP-12.

34. The method of claim 32, wherein said *in vitro* assay comprises at least one capture reagent corresponding to each of said biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies.

35. The method of claim 32, wherein the *in vitro* assay is selected from the group consisting of an immunoassay, an aptamer-based assay, a histological assay or a cytological assay.

36. The method according to any of claims 32 to 35, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

37. The method according to any of claims 32 to 36, wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

38. The method according to any of claims 32 to 37, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum.

39. The method of claim 32, wherein the biological sample is serum.

40. The method according to any of claims 32 to 39, wherein N = 4 - 86.

41. The method according to any of claims 32 to 40, wherein N = 5 - 86.

42. The method according to any of claims 32 to 41, wherein the individual is a smoker.

43. The method according to any of claims 32 to 42, wherein the individual has a pulmonary nodule.

44. The method according to any of claims 32 to 41, wherein the lung cancer is non-small cell lung cancer.

45. The method according to any of claims 32 to 44, wherein the information comprises prognosis, cancer classification, prediction of disease risk, or selection of treatment.

46. A method for determining information about lung cancer in an individual comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 20;

measuring in a biological sample from the individual, biomarker values that each correspond to one of the N biomarkers in the panel, wherein N = 3-25; and wherein said biomarker values provide information about the lung cancer in the individual;

wherein measuring the biomarker values comprises performing an *in vitro* assay.

47. The method of claim 46, wherein said *in vitro* assay comprises at least one capture reagent corresponding to each of said biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies.

48. The method according to any of claims 46 to 47, wherein the method is selected from the group consisting of an immunoassay, an aptamer-based assay and a histological or cytological assay.

49. The method according to any of claims 46 to 48, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

50. The method according to any of claims 46 to 49, wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

51. The method according to any of claims 46 to 50, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum.

52. The method of claim 46, wherein the biological sample is serum.

53. The method according to any of claims 46 to 52, wherein N = 4 - 25.

54. The method according to any of claims 46 to 53, wherein N = 5 - 25.

55. The method according to any of claims 46 to 54, wherein the individual is a smoker.

56. The method according to any of claims 46 to 55, wherein the individual has a pulmonary nodule.

57. The method according to any of claims 46 to 56, wherein the lung cancer is non-small cell lung cancer.

58. The method according to any of claims 46 to 57, wherein the information comprises prognosis, cancer classification, prediction of disease risk, or selection of treatment.

Claims:

1. A method for diagnosing that an individual does or does not have lung cancer, or for providing information about a lung cancer in an individual, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 20;

detecting biomarker proteins in a biological sample from an individual, to give biomarker values that each correspond to the N biomarkers in the panel, wherein said biomarker values provide an indication as to the likelihood that the individual does or does not have lung cancer, or wherein said biomarker value provides information about the lung cancer in the individual and wherein N = 4 - 25.

2. The method of claim 1, wherein detecting the biomarker values comprises performing an *in vitro* assay.

3. The method of claim 2, wherein said *in vitro* assay that comprises at least one capture reagent corresponding to each of said protein biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies

4. The method of any one of the preceding claims, wherein the method is selected from the group consisting of an immunoassay, an aptamer-based assay and a histological or cytological assay.

5. The method of any one of the preceding claims, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

6. The method of any one of the preceding claims, wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

7. The method of any one of the preceding claims, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum, preferably serum.

8. The method of any one of the preceding claims wherein:

(a) N = 4 - 10; or

(b) N = 5 - 10.

9. The method of any one of the preceding claims, wherein the individual is a smoker.

10. The method of any one of the preceding claims, wherein the individual has a pulmonary nodule.

11. The method of any one of the preceding claims, wherein the lung cancer is non-small cell lung cancer.

12. The method of any one of the preceding claims wherein the information comprises prognosis, cancer classification, prediction of disease risk, or selection of treatment.

13. A computer-implemented method for indicating a likelihood of lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 20;

retrieving on a computer biomarker information for an individual, wherein the biomarker information comprises biomarker values that correspond to the N protein biomarkers in the panel;

performing with the computer a classification of each of said biomarker values; and

indicating a likelihood that said individual has lung cancer based upon a plurality of classifications, and wherein N = 4 - 25.

14. The method of claim 13, wherein indicating the likelihood that the individual has lung cancer comprises displaying the likelihood on a computer display.

15. A method for diagnosing that an individual does or does not have lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 21, wherein 4-25 of the biomarker proteins are selected from the proteins listed in Table 20;

detecting, biomarker proteins in a biological sample from an individual, to give biomarker values that correspond to the N biomarkers in the panel, wherein said

biomarker values provide an indication as to the likelihood that the individual does or does not have lung cancer , wherein N = 4-86.

16. The method of claim 15, wherein at least one of said biomarkers selected from Table 20 is MMP-12.

17. The method of claim 15 or claim 16, wherein detecting the biomarker values comprises performing an *in vitro* assay.

18. The method of claim 17, wherein said *in vitro* assay comprises at least one capture reagent corresponding to each of said biomarkers, and further comprising selecting said at least one capture reagent from the group consisting of aptamers and antibodies.

19. The method of any one of claims 17 or 18, wherein the *in vitro* assay is selected from the group consisting of an immunoassay, an aptamer-based assay and a histological or cytological assay.

20. The method of any one of claims 15-19, wherein each biomarker value is evaluated based on a predetermined value or a predetermined range of values.

21. The method of any one of claims 15-20 wherein the biological sample is lung tissue and wherein the biomarker values derive from a histological or cytological analysis of said lung tissue.

22. The method of any one of claims 15-21, wherein the biological sample is selected from the group consisting of whole blood, plasma, and serum, preferably serum.

23. The method of any one of claims 15-22, wherein

(a) N = 3 – 10;
(b) N = 4 – 10;
(c) N = 5 - 10.

24. The method of any one of claims 15-23, wherein the individual is a smoker.

25. The method of any one of claims 15-24, wherein the individual has a pulmonary nodule.

26. The method of any one of claims 15-25, wherein the lung cancer is non-small cell lung cancer.

27. A computer-implemented method for indicating a likelihood of lung cancer, the method comprising:

providing a biomarker panel comprising N of the biomarker proteins listed in Table 21, wherein 4-25 of said N biomarkers are selected from Table 20;

retrieving on a computer biomarker information for an individual, wherein the biomarker information comprises biomarker values that correspond to the N biomarkers in the biomarker panel;

performing with the computer a classification of each of said biomarker values; and

indicating a likelihood that said individual has lung cancer based upon a plurality of classifications, and wherein N = 4 - 86.

28. The method of claim 27 wherein at least one of said biomarker(s) selected from Table 20 is MMP-12.

29. The method of claim 27 or 28, wherein indicating the likelihood that the individual has lung cancer comprises displaying the likelihood on a computer display.