

CLAIMS

1. A method for diagnosing prostate cancer in a subject comprising:
 - (1) determining a level of one or more prostate cancer related markers selected from the group consisting of filamin B, and keratin 19 in a biological sample from the subject; and
 - (2) comparing the level of the one or more prostate cancer related markers in the biological sample with the level of the one or more prostate cancer related markers in a non-cancer control sample, wherein an increased level of the one or more prostate cancer related markers in the biological sample relative to the non-cancer control sample is indicative of prostate cancer in the subject.
2. The method of claim 1, wherein no increase in the detected level of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B and keratin 19 in the biological sample relative to the non-cancer control sample is indicative of a normal prostate state in the subject.
3. The method of claim 1 or claim 2, further comprising detecting the level of prostate specific antigen (PSA) in the biological sample.
4. The method of claim 3, further comprising comparing the level of PSA in the biological sample to the level of PSA in a non-cancer control sample.
5. The method of claim 4, wherein an increase in the level of one or more prostate cancer related markers selected from the group consisting of filamin B and keratin 19 in the biological sample relative to the non-cancer control sample, in combination with an increase in the level of PSA in the biological sample relative to the level of PSA in the non-cancer control sample is indicative of prostate cancer in the subject.
6. The method of claim 5, wherein no increase in the detected level of expression of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B and keratin 19 in the biological sample relative to the non-cancer control sample, in combination with a decreased or normal level of PSA in the biological sample as compared to

the level of PSA in the non-cancer control sample, is indicative of a normal prostate state in the subject.

7. The method of any one of claims 1-6, wherein the one or more prostate cancer markers selected from the group consisting of filamin B and keratin 19 is: filamin B; keratin 19; or filamin B and keratin 19.

8. The method of claim 1, wherein the prostate cancer is androgen-dependent prostate cancer.

9. The method of claim 1, wherein the prostate cancer is androgen-independent prostate cancer.

10. The method of claim 1, wherein the prostate cancer is aggressive prostate cancer.

11. The method of claim 1, wherein the prostate cancer is non-aggressive prostate cancer.

12. A method for identifying a subject as being at increased risk for developing prostate cancer, the method comprising:

(1) determining a level of one or more prostate cancer related markers selected from the group consisting of filamin B and keratin 19 in a biological sample from the subject; and

(2) comparing the level of the one or more prostate cancer related markers in the biological sample with the level of the one or more prostate cancer related markers in a non-cancer control sample, wherein an increased-level of the one or more prostate cancer related markers in the biological sample relative to the non-cancer control sample is indicative of an increased risk for developing prostate cancer in the subject.

13. The method of claim 12, wherein no increase in the detected level of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B and keratin 19 in the biological sample relative to the non-cancer control sample is indicative of no increased risk for developing prostate cancer in the subject.

14. The method of claim 12 or claim 13, further comprising detecting the level of prostate specific antigen (PSA) in the biological sample.

15. The method of claim 14, further comprising comparing the level of PSA in the biological sample to the level of PSA in a non-cancer control sample.

16. The method of claim 15, wherein an increase in the level of one or more prostate cancer related markers selected from the group consisting of filamin B and keratin 19 in the biological sample relative to the non-cancer control sample, in combination with an increase in the level of PSA in the biological sample as compared to the level of PSA in the non-cancer control sample is indicative of an increased risk for developing prostate cancer in the subject.

17. The method of claim 15, wherein no increase in the detected level of expression of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B, and keratin 19 in the biological sample relative to the non-cancer control sample, in combination with a decreased or non-cancer level of PSA in the biological sample as compared to the level of PSA in the non-cancer control sample, is indicative of no increased risk for developing prostate cancer in the subject.

18. The method of any one of claims 11-17, wherein the one or more prostate cancer related markers selected from the group consisting of filamin B and keratin 19 is: filamin B; keratin 19; or filamin B and keratin 19.

19. The method of any one of the preceding claims, further comprising comparing the level of the one or more prostate cancer related markers in the biological sample with the level of the one or more prostate cancer related markers in a control sample selected from the group consisting of: a sample obtained from the same subject at an earlier time point than the biological sample, a sample from a subject with benign prostatic hyperplasia (BPH), a sample from a subject with non-metastatic prostate cancer, a sample from a subject with metastatic prostate cancer, a sample from a subject with androgen sensitive prostate cancer, a sample from a subject with androgen insensitive prostate cancer, a sample from a subject with aggressive prostate cancer, and a sample from a subject with non-aggressive prostate cancer.

20. The method of any one of claims 1-11, further comprising detecting the size of the prostate tumor in the subject.
21. The method of any one of claims 1-11, wherein the method further comprises selecting a subject who has or is suspected of having prostate cancer.
22. The method of any one of claims 1, 3-5, and 7-11, wherein the method further comprises selecting a treatment regimen for the subject based on the level of the one or more prostate cancer markers.
23. The method of any one of claims 1, 3-5, and 7-11, wherein the method further comprises treating the subject with a treatment regimen comprising one or more treatments selected from the group consisting of surgery, radiation, hormone therapy, antibody therapy, growth factor therapy, cytokine therapy, and chemotherapy.
24. A method for monitoring prostate cancer in a subject, the method comprising
- (1) determining a level of one or more prostate cancer related markers selected from the group consisting of filamin B and keratin 19 in a first biological sample obtained at a first time from a subject having prostate cancer;
 - (2) determining a level of expression of the one or more prostate cancer related markers in a second biological sample obtained from the subject at a second time, wherein the second time is later than the first time; and
 - (3) comparing the level of the one or more prostate cancer related markers in the second sample with the level of the one or more prostate cancer related markers in the first sample, wherein an increase in the level of the one or more prostate cancer related markers in the second sample as compared to the first sample is indicative of progression of the prostate cancer in the subject.
25. The method of claim 24, wherein the subject is actively treated for prostate cancer prior to obtaining the second sample.
26. The method of claim 24, wherein the subject is not actively treated for prostate cancer prior to obtaining the second sample.

27. The method of any of claims 24-26, wherein no increase in the detected level of expression of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B and keratin 19 in the second biological sample as compared to the first biological sample is indicative of non-progression of the prostate cancer in the subject.

28. The method of any one of claims 24-26, further comprising determining the level of prostate specific antigen (PSA) in the first biological sample and the second biological sample.

29. The method of claim 28, further comprising comparing the level of PSA in the second biological sample to the level of PSA in the first biological sample.

30. The method of claim 29, wherein an increased level of the one or more prostate cancer related markers selected from the group consisting of filamin B, and keratin 19 in the second biological sample relative to the level of the one or more prostate cancer related markers in the first biological sample, in combination with an increase in the level of PSA in the second biological sample relative to the level of PSA in the first biological sample, is indicative of progression of the prostate cancer in the subject.

31. The method of claim 29, wherein no increase in the detected level of expression of each of the one or more prostate-cancer related markers selected from the group consisting of filamin B and keratin 19 in the second biological sample relative to the level of the one or more prostate cancer related markers in the first biological sample, in combination with a decreased or same level of PSA in the second biological sample relative to the level of PSA in the first biological sample, is indicative of non-progression of the prostate cancer in the subject.

32. The method of any one of claims 24-31, further comprising determining the level of prostate specific antigen (PSA) in the first biological sample and the second biological sample.

33. The method of claim 32, further comprising comparing the level of PSA in the second biological sample to the level of PSA in the first biological sample.

34. The method of any one of claims 24-33, further comprising comparing the level of the one or more prostate cancer related markers in the first biological sample or the second biological sample with the level of the one or more prostate cancer related markers in a control sample selected from the group consisting of: a non-cancer control sample, a sample from a subject with benign prostatic hyperplasia (BPH), a sample from a subject with non-metastatic prostate cancer, a sample from a subject with metastatic prostate cancer, a sample from a subject with androgen sensitive prostate cancer, a sample from a subject with androgen insensitive prostate cancer, a sample from a subject with aggressive prostate cancer, and a sample from a subject with non-aggressive prostate cancer.

35. The method of any one of claims 25-33, further comprising detecting the size of the prostate tumor in the subject.

36. The method of claim 27, wherein the method further comprises withholding an active treatment of the prostate cancer in the subject based on non-progression of the prostate cancer in the subject.

37. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises isolating a component of the biological sample.

38. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises labeling a component of the biological sample.

39. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises processing the biological sample.

40. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises contacting a

prostate cancer related marker to be detected with a prostate cancer related marker binding agent.

41. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises forming a complex between a prostate cancer related marker to be detected and a prostate cancer related marker binding agent.

42. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises contacting each of the one or more prostate cancer related markers with a prostate cancer related marker binding agent.

43. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises forming a complex between each of the one or more prostate cancer related markers and a prostate cancer related marker binding agent.

44. The method of any one of the preceding claims, wherein detecting or determining a level of one or more prostate cancer related markers in a biological sample comprises attaching a prostate cancer related marker to be detected to a solid surface.

45. A panel of reagents for use in a method for the diagnosis of prostate cancer, the panel comprising at least two detection reagents selected from the group consisting of: a detection reagent specific for the detection of filamin B, a detection reagent specific for the detection of LY9, and a detection reagent specific for the detection of keratin 19.

46. Use of the panel of claim 45 in the method of any one of claims 1-44.

47. A kit for the diagnosis of prostate cancer, comprising:

at least two detection reagents selected from the group consisting of: a detection reagent specific for the detection of filamin B, a detection reagent specific for the detection of LY9, and a detection reagent specific for the detection of keratin 19.

48. The kit of claim 47, further comprising at least one detection reagent specific for the detection of PSA.