**What is claimed is:**

1. A method of assessing quality of a sample collected from a subject comprising detecting the level of each of N biomarker proteins in the sample, wherein N is at least 2, and wherein at least 2 of the N biomarker proteins are selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH, wherein the sample is a plasma sample.

2. A method comprising:

a) measuring the level of each of N biomarker proteins in a plasma sample from a subject, wherein N is at least 2, and wherein at least 2 of the N biomarker proteins are selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH; and

b) identifying the sample as an analysis sample or negative sample based on the level of the N biomarker proteins;

wherein the analysis sample is a sample that is suitable for use in one or more of the following: protein biomarker discovery analysis, protein expression level analysis, a diagnostic method, or a prognostic method, and the negative sample is a sample that is not suitable for use as an analysis sample.

3. A method comprising:

a) contacting a plasma sample from a subject with a set of capture reagents, wherein each capture reagent has affinity for a different biomarker protein of N biomarker proteins wherein N is at least 2, and wherein at least 2 of the N biomarker proteins are selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH; and

b) measuring the level of each N biomarker protein with the set of capture reagents.

4. The method of any one of claims 1-3, wherein the sample was processed, frozen, and thawed after the sample collection and prior to the detecting.

5. The method of any one of claims 1-4, comprising determining the approximate fasting time that elapsed from meal until sample collection.

6. The method of claim 5, wherein the determining is based on comparing the detected levels of the N biomarker proteins to reference levels, wherein the reference levels are average levels of the N biomarker proteins present in samples having fasting times of 0.5, 1, 3, or 12 hours.

7. The method of claim 6, wherein the detected levels of each of the N biomarker proteins compared to the reference levels indicate that the approximate time that elapsed from

meal to sample collection was greater than 0.5, greater than 1, greater than 1, greater than 3, greater than 4, greater than 5, greater than 6, greater than 7, greater than 8, greater than 9, greater than 10, greater than 11, or greater than 12 hours.

8. The method of any one of claims 4-7, comprising performing protein biomarker discovery analysis, protein expression level analysis, a diagnostic method, or a prognostic method on the sample.

9. The method of any one of claims 1-8, comprising identifying the sample as passing a quality assessment or failing a quality assessment, wherein the identifying is based, at least in part, on the detected levels of the N biomarker proteins.

10. The method of claim 9, wherein the sample is identified as passing if the approximate fasting time that elapsed from meal until sample collection is determined to be greater than 3 hours, greater than 4 hours, greater than 5 hours, greater than 6 hours, greater than 7 hours, greater than 8 hours, greater than 9 hours, greater than 10 hours, greater than 11 hours, greater than 12 hours, greater than 13 hours, greater than 14 hours, greater than 15 hours, greater than 16 hours, greater than 17 hours, greater than 18 hours, greater than 19 hours, greater than 20 hours, greater than 21 hours, greater than 22 hours, greater than 23 hours, or greater than 24 hours.

11. The method of claim 9, wherein the sample is identified as failing if the approximate fasting time that elapsed from meal until sample collection is determined to be less than 0.5 hour, less than 1 hour, less than 2 hours, less than 3 hours, less than 4 hours, less than 5 hours, less than 6 hours, less than 7 hours, less than 8 hours, less than 9 hours, less than 10 hours, less than 11 hours, less than 12 hours, less than 13 hours, less than 14 hours, less than 15 hours, less than 16 hours, less than 17 hours, less than 18 hours, less than 19 hours, less than 20 hours, less than 21 hours, less than 22 hours, less than 23 hours, or less than 24 hours.

12. The method of any one of claims 1-11, comprising detecting the level of each of N biomarkers in a plurality of samples from a plurality of subjects

13. A method for comparing a plurality of samples collected from a plurality of subjects comprising detecting the level of each of N biomarker proteins in each of the plurality of samples, wherein N is at least 1, and wherein at least 1 of the N biomarker proteins is selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH, wherein the sample is a plasma sample.

14. The method of claim 13, comprising a) determining the approximate fasting time that elapsed from meal until sample collection and b) comparing the determined approximate times for each of the plurality of samples.

15. The method of claim 14, wherein the determining is based on comparing the detected levels of each of the N biomarker proteins to reference levels, wherein the reference levels are average levels of the N biomarker proteins present in samples having fasting times of 0.5, 1, 3, or 12 hours.

16. The method of any one of claims 13-15, wherein the detected levels of each of the N biomarker proteins compared to the reference levels indicates that the approximate fasting time that elapsed from meal to sample collection was greater than 0.5, greater than 1, greater than 1, greater than 3, greater than 4, greater than 5, greater than 6, greater than 7, greater than 8, greater than 9, greater than 10, greater than 11, or greater than 12 hours; or wherein the levels of each of the N biomarker proteins used in a linear regression model predicts the approximate fasting time that elapsed from meal to sample collection was greater than 0.1, greater than 0.5, greater than 1, greater than 1, greater than 3, greater than 4, greater than 5, greater than 6, greater than 7, greater than 8, greater than 9, greater than 10, greater than 11, or greater than 12 hours.

17. The method of any one of claims 4-7 or 13-16, wherein the determining is based on a panel of N biomarker proteins having an $R^2$ value of at least 0.600, at least 0.650, at least 0.700, at least 0.750, at least 0.800, at least 0.850, at least 0.900, or at least 0.950.

18. The method of any one of claims 13-17, comprising performing protein biomarker discovery analysis, protein expression level analysis, a diagnostic method, or a prognostic method on the plurality of samples.

19. The method of claim 18, comprising modifying a panel of proteins in the protein biomarker discovery analysis, the protein expression level analysis, the diagnostic method, or the prognostic method based on the determined approximate times for each of the plurality of samples; or identifying one or more proteins in the sample as being affected by the approximate fasting time that elapsed from meal to sample collection; or identifying the level of one or more proteins in the sample as being affected by the approximate fasting time that elapsed from meal to sample collection; or changing the proteins used in a diagnostic, a prognostic, or a health assessment related test based on the predicted approximate fasting time that elapsed from meal to sample collection; or removing the proteins used in a diagnostic, a prognostic, or a health

assessment related test based on the predicted approximate fasting time that elapsed from meal to sample collection.

20. The method of claim 19, wherein the panel of biomarker proteins is reduced in number of biomarker proteins measured.

21. The method of any one of claims 14-20, wherein the determining measures compliance with a clinical trial sample collection and processing protocol.

22. The method of any one of claims 13-21, wherein the plurality of samples are collected at more than one sample collection site, optionally, wherein the plurality of samples from a first sample collection site are compared to a second plurality of samples from a second sample collection site.

23. The method of any one of claims 13-22, wherein one or more of the plurality of samples may be removed based on the fasting time.

24. The method of any one of claims 1-3 or 13-23, wherein at least one of the N biomarker proteins is FGFP1 or TMEDA; or

wherein 2 of the N biomarker proteins are FGFP1 and TMEDA; or

wherein 2 of the N biomarker proteins are FGFP1 and Glucagon; or

wherein 2 of the N biomarker proteins are FGFP1 and GIP; or

wherein 2 of the N biomarker proteins are FGFP1 and FABPL; or

wherein 2 of the N biomarker proteins are FGFP1 and Insulin; or

wherein 2 of the N biomarker proteins are FGFP1 and PH; or

wherein 2 of the N biomarker proteins are TMEDA and Glucagon; or

wherein 2 of the N biomarker proteins are TMEDA and GIP; or

wherein 2 of the N biomarker proteins are TMEDA and FABPL; or

wherein 2 of the N biomarker proteins are TMEDA and Insulin; or

wherein 2 of the N biomarker proteins are TMEDA and PH; or

wherein 2 of the N biomarker proteins are Glucagon and GIP; or

wherein 2 of the N biomarker proteins are Glucagon and FABPL; or

wherein 2 of the N biomarker proteins are Glucagon and Insulin; or

wherein 2 of the N biomarker proteins are Glucagon and PH; or

wherein 2 of the N biomarker proteins are GIP and FABPL; or

wherein 2 of the N biomarker proteins are GIP and Insulin; or

wherein 2 of the N biomarker proteins are GIP and PH; or

wherein 2 of the N biomarker proteins are FABPL and Insulin; or

wherein 2 of the N biomarker proteins are FABPL and PH; or

wherein 2 of the N biomarker proteins are Insulin and PH.

25. The method of any one of claims 1-3 or 13-24, wherein N is 3, N is 4, N is 5, N is 6, or N is 7.

26. The method of claim 25, wherein all of the N biomarker proteins are selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH.

27. The method of any one of claims 13-26, wherein the sample was processed, frozen, and thawed after the sample collection and prior to the detecting.

28. The method of any one of claims 1-27, wherein the detecting comprises performing mass spectrometry, an aptamer based assay, and/or an antibody based assay.

29. The method of any one of claims 1-28, wherein the method comprises contacting biomarker proteins of the sample from the subject with a set of capture reagents, wherein each capture reagent of the set of capture reagents specifically binds to one biomarker protein being detected, optionally, wherein each the capture reagents specifically binds to a different biomarker protein being detected.

30. The method of claim 29, wherein each capture reagent is an antibody or an aptamer.

31. The method of claim 30, wherein each capture reagent is an aptamer.

32. The method of claim 31, wherein at least one aptamer is a slow off-rate aptamer, optionally, wherein each slow off-rate aptamer binds to its target protein with an off rate ($t_{½}$) of ≥ 30 minutes, ≥ 60 minutes, ≥ 90 minutes, ≥ 120 minutes, ≥ 150 minutes, ≥ 180 minutes, ≥ 210 minutes, or ≥ 240 minutes.

33. The method of claim 32, wherein at least one slow off-rate aptamer comprises at least 1, at least 2, at least 3, at least 4, at least 5, at least 6, at least 7, at least 8, at least 9, or at least 10 nucleotides with modifications.

34. A kit comprising N biomarker protein capture reagents, wherein N is at least 2, and wherein at least 2 of the capture reagents bind to proteins selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH.

35. The kit of claim 34, wherein N is at least 2, and wherein at least 1 of the capture reagents binds to FGFP1 or TMEDA, or wherein N is at least 3, and wherein 3 of the capture reagents bind to proteins selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH.

36. The kit of claim 34 or 35, wherein each of the capture reagents binds to a different protein.

37. The kit of any one of claims 34-36, wherein N is 3, N is 4, N is 5, N is 6, or N is 7.

38. The kit of any one of claims 34-37, wherein N is 8, N is 9, N is 10, N is 11, N is 12, N is 13, N is 14, N is 15, N is 16, N is 17, N is 18, N is 19, or N is 20.

39. The kit of any one of claims 34-38, wherein each of the capture reagents is an antibody or an aptamer.

40. The kit of claim 39, wherein each capture reagent is an aptamer.

41. The kit of claim 40, wherein at least one aptamer is a slow off-rate aptamer, optionally, wherein each slow off-rate aptamer binds to its target protein with an off rate ($t_{½}$) of ≥ 30 minutes, ≥ 60 minutes, ≥ 90 minutes, ≥ 120 minutes, ≥ 150 minutes, ≥ 180 minutes, ≥ 210 minutes, or ≥ 240 minutes.

42. The kit of claim 41, wherein at least one slow off-rate aptamer comprises at least 1, at least 2, at least 3, at least 4, at least 5, at least 6, at least 7, at least 8, at least 9, or at least 10 nucleotides with modifications.

43. The kit of any one of claims 34-42, for use in detecting the N biomarker proteins in a sample from a subject.

44. The kit of claim 43, for use in assessing the quality of the sample based at least in part on the levels of the detected N biomarker proteins in the sample and/or for use in determining an approximate fasting time that elapsed from meal until sample collection based at least in part on the levels of the detected N biomarker proteins in the sample.

45. A method comprising detecting a level of each of at least 1, 2, 3, 4, 5, 6, or 7 biomarker proteins in a sample, wherein the biomarker proteins are selected from FGFP1, TMEDA, Glucagon, GIP, FABPL, Insulin, and PH.

46. The method of claim 45, wherein the sample is a plasma sample.

47. The method of claim 45 or 46, wherein an approximate fasting time that elapsed from meal to sample collection is determined with the level of each of the at least 1, 2, 3, 4, 5, 6, or 7 biomarker proteins.

48. The method of claim 47, wherein the determined approximate fasting time that elapsed from meal to sample collection is greater than 0.5, greater than 1, greater than 1, greater than 3, greater than 4, greater than 5, greater than 6, greater than 7, greater than 8, greater than 9, greater than 10, greater than 11, or greater than 12 hours.

49. The method of claim 48, wherein the determined approximate time is derived from the input of the level of each of at least 1, 2, 3, 4, 5, 6, or 7 biomarker proteins in a statistical model, optionally, wherein the statistical model is a linear regression model.

50. The method of claim 49, further comprising modifying a panel of proteins in a protein biomarker discovery analysis, a protein expression level analysis, a diagnostic method, or a prognostic method; identifying one or more proteins in the sample as being affected; identifying the level of one or more proteins in the sample as being affected; changing the proteins used in a diagnostic, a prognostic, or a health assessment related test; or removing one or more proteins used in a diagnostic, a prognostic, or a health assessment related test, each based on the outcome of the linear regression model.