

CLAIMS

1. A method comprising:

a) measuring the levels of Sonic Hedgehog (SHH) protein and PGAM1, and optionally the level of at least one, two, three, four, five, six, seven, eight, nine, ten, eleven, or twelve proteins selected from the group consisting of PGAM2, C4A.C4B, PTPN4, TNFSF14, FAM49B, RBP7, IHH, DDX39B, S100A12, IL21R, TMEM9, and ADAM9 in a sample from a human subject; and

b) identifying the sample as an analysis sample or negative sample based on the level of SHH and PGAM1, and optionally the level of the one, two, three, four, five, six, seven, eight, nine, ten, eleven, or twelve proteins;

wherein, the analysis sample is a sample that is used 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 used as an analysis sample.

2. The method of claim 1, wherein the measuring is performed using mass spectrometry, an aptamer based assay, and/or an antibody based assay.

3. The method of claim 1, wherein the sample is selected from blood, plasma, serum, or urine.

4. The method of claim 1, wherein the method comprises measuring SHH and PGAM1.

5. The method of claim 1, wherein the method comprises measuring SHH, PGAM1, and TNFSF14; SHH, PGAM1, and RBP7; SHH, PGAM1, and PTPN4; SHH, PGAM1, and DDX39B; SHH, PGAM1, and FAM49B; SHH, PGAM1, and IHH; SHH, PGAM1, and S100A12; SHH, PGAM1, and ADAM9; SHH, PGAM1, and C4A.C4B; SHH, PGAM1, and IL21R; SHH, PGAM1, and PGAM2; or SHH, TMEM9, and PGAM1.

6. The method of claim 1, wherein the method comprises measuring SHH and PGAM1, and at least two of the following proteins selected from RBP7, TNFSF14, PTPN4, DDX39B, FAM49B, S100A12, IHH, PGAM2, C4A.C4B, IL21R, TMEM9, and ADAM9.

7. The method of claim 1, wherein the method comprises measuring SHH and PGAM1, and at least three of the following proteins selected from RBP7, TNFSF14, PTPN4, DDX39B, FAM49B, S100A12, IHH, PGAM2, C4A.C4B, IL21R, TMEM9, and ADAM9.

8. A method comprising:

a) contacting a sample from a human subject with a set of capture reagents, wherein each capture reagent has affinity for a different protein of the set of proteins comprising Sonic Hedgehog (SHH) and PGAM1, and optionally at least one, two, three, four, five, six, seven, eight, nine, ten, eleven, twelve, or thirteen proteins selected from the group consisting of PTPN4, TNFSF14, FAM49B, RBP7, IHH, DDX39B, S100A12, ADAM9, PGAM2, C4A.C4B, IL21R, and TMEM9; and

b) measuring the level of each protein of the set of proteins based with the set of capture reagents to identify the sample as an analysis sample or negative sample, wherein the analysis sample is a sample that is used 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 used as an analysis sample.

9. The method of claim 8, wherein the set of capture reagents are selected from aptamers, antibodies, and combinations of aptamers and antibodies.

10. The method of claim 8, wherein the sample is selected from blood, plasma, serum, or urine.

11. The method of claim 8, wherein the method comprises measuring SHH and PGAM1.

12. The method of claim 8, wherein the method comprises measuring SHH, PGAM1, and TNFSF14; SHH, PGAM1, and RBP7; SHH, PGAM1, and PTPN4; SHH, PGAM1, and DDX39B; SHH, PGAM1, and FAM49B; SHH, PGAM1, and IHH; SHH, PGAM1, and S100A12; SHH, PGAM1, and ADAM9; SHH, PGAM1, and C4A.C4B; SHH, PGAM1, and IL21R; SHH, PGAM1, and PGAM2; or SHH, TMEM9, and PGAM1.

13. The method of claim 8, wherein the method comprises measuring SHH and PGAM1, and at least two of the following proteins selected from RBP7, TNFSF14, PTPN4, DDX39B, FAM49B, S100A12, IHH, and ADAM9.

14. The method of claim 8, wherein the method comprises measuring SHH and PGAM1, and at least three of the following proteins selected from RBP7, TNFSF14, PTPN4, DDX39B, FAM49B, S100A12, IHH, and ADAM9.

15. The method of any one of the preceding claims, wherein the protein levels are used to predict the length of time between the sample collection from the human subject and sample centrifugation and/or the length of time between sample centrifugation and sample decanting.

16. The method of claim 15, wherein the time between sample collection and sample centrifugation is from 0 hours to 0.5 hours; 0.5 hours to 1.5 hours; 1.5 hours to 3 hours; 3 hours to 9 hours; 9 hours to 24 hours; or greater than 24 hours, and/or the time between sample centrifugation and sample decanting is about from 0 hours to 0.5 hours; 0.5 hours to 1.5 hours; 1.5 hours to 3 hours; 3 hours to 9 hours; 9 hours to 24 hours; or greater than 24 hours.

17. The method of any one of claims 8-16, wherein the protein levels are used to assign a quality score to the sample, wherein the quality score is then used to determine whether the sample is an analysis sample or a non-analysis sample.

18. The method of any one of the preceding claims, wherein the protein levels are used to assign a quality score to the sample, wherein the quality score is then used to determine if the sample is used for further analysis of additional proteins in the sample.