

### CLAIMS

What is claimed is:

1. A method for treating pain in a subject in need thereof, the method comprising: obtaining an expression level of a blood biomarker in a sample obtained from the subject; obtaining a reference expression level of the blood biomarker; identifying a difference in the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker; and administering a treatment, wherein the treatment reduces the difference between the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker to mitigate pain in the subject.
2. The method of claim 1, wherein the biomarker is selected from the group of biomarkers listed in Table 1 and combinations thereof.
3. The method of claim 1, wherein the biomarker is selected from the group consisting of microfibril associated protein 3 (MFAP3), phosphatidylinositol-4,5-Bisphosphate 3-Kinase Catalytic Subunit Delta (PIK3CD), Sushi, Von Willebrand Factor Type A, EGF And Pentraxin Domain Containing 1 (SVEP1), TNF Receptor Superfamily Member 11b (TNFRSF11B), ElaC Ribonuclease Z 2 (ELAC2), and combinations thereof.
4. The method of claim 1, wherein the treatment is selected from the group listed in Tables 1, 2A, 2B and 7 and combinations thereof.
5. The method of claim 1, wherein the biomarker is decreased in response to the treatment.
6. The method of claim 1, wherein the biomarker is increased in response to the treatment.
7. A method for determining intensity of pain in a subject in need thereof, the method comprising: obtaining an expression level of a blood biomarker in a sample obtained from the subject; obtaining a reference expression level of the blood biomarker; and identifying a difference in the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker, wherein the difference in the expression level of the blood biomarkers in the sample obtained from the subject and the reference expression level of the blood biomarkers determines the intensity of pain.

8. The method of claim 7, wherein the biomarker is selected from the group of biomarkers listed in Table 1 and combinations thereof.
9. The method of claim 7, wherein the biomarker is selected from the group consisting of microfibril associated protein 3 (MFAP3), phosphatidylinositol-4,5-Bisphosphate 3-Kinase Catalytic Subunit Delta (PIK3CD), Sushi, Von Willebrand Factor Type A, EGF And Pentraxin Domain Containing 1 (SVEP1), TNF Receptor Superfamily Member 11b (TNFRSF11B), ElaC Ribonuclease Z 2 (ELAC2), and combinations thereof.
10. The method of claim 7, wherein the expression level of the blood biomarker in the sample obtained from the subject is increased as compared to the reference expression level of the biomarker.
11. The method of claim 7, wherein the expression level of the blood biomarker in the sample obtained from the subject is decreased as compared to the reference expression level of the biomarker.
12. A method for predicting a future medical care facility visit for pain in a subject in need thereof, the method comprising: obtaining an expression level of a blood biomarker in a sample obtained from the subject; obtaining a reference expression level of the blood biomarker; identifying a difference in the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker, wherein the difference in the expression level of the blood biomarkers in the sample obtained from the subject and the reference expression level of the blood biomarkers determines the likelihood of future medical facility visits for pain.
13. The method of claim 12, wherein the biomarker is selected from the group of biomarkers listed in Table 1 and combinations thereof.
14. The method of claim 12, wherein the expression level of the blood biomarker in the sample obtained from the subject is increased as compared to the reference expression level of the biomarker.
15. The method of claim 12, wherein the expression level of the blood biomarker in the sample obtained from the subject is decreased as compared to the reference expression level of the biomarker.

16. A method for mitigating pain in a subject in need thereof, the method comprising: obtaining an expression level of a blood biomarker in a sample obtained from the subject; obtaining a reference expression level of the blood biomarker; identifying a difference in the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker; and administering a treatment, wherein the treatment reduces the difference between the expression level of the blood biomarker in the sample and the reference expression level of the blood biomarker to mitigate pain in the subject.

17. The method of claim 16, wherein the treatment is selected from the group listed in Tables 1, 2A, 2B and 7, and combinations thereof.

18. The method of claim 16, wherein the treatment is selected from the group consisting of SC-560, pyridoxine, methylergometrine, LY-294002, haloperidol, cytosine, cyanocobalamin, betaescin, amoxapine, apigenin and combinations thereof.

19. The method of claim 16, wherein the treatment is selected from the group listed in Table 2B, and combinations thereof.

20. A method for identifying a blood biomarker for pain, the method comprising: obtaining a first biological sample from a subject and administering a first pain intensity test to the subject; obtaining a second biological sample from the subject and administering a second pain intensity test to the subject; identifying a first cohort of subjects by identifying subjects having a change from low pain intensity to high pain intensity as determined by a difference between the first pain intensity test and the second pain intensity test; identifying candidate biomarkers in the first cohort by identifying biomarkers having a change in expression between the first biological sample and the second biological sample.

21. The method of claim 20 further comprising prioritizing the candidate biomarkers by identifying candidate biomarkers known to be associated with pain.

22. The method of claim 20, wherein the pain intensity test is selected from the group consisting of Visual Analog Scale for Pain (VAS Pain), Numeric Rating Scale for Pain (NRS Pain), McGill Pain Questionnaire (MPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Chronic Pain Grade Scale (CPGS), Short Form-36 Bodily Pain Scale (SF-36 BPS), Measure of Intermittent and Constant Osteoarthritis Pain (ICOAP), and combinations thereof.