What is claimed is:

1. A method for evaluating a human subject for having atherosclerotic coronary artery disease (ASCAD) or as having a coronary atherosclerotic plaque, the method comprising:

measuring the levels of each analyte within a panel of analyte biomarkers in a biological sample obtained from a subject, wherein the panel of analyte biomarkers is selected from the group consisting of:

(i) a panel of biomarkers comprising valylleucine, glutamate, acisoga, urate, glucuronate, fucose, butyrylcarnitine (C4) and mannose;

(ii) a panel of biomarkers comprising acisoga, o.cresol.sulfate, threonate and cysteine.glutathione.disulfide;

(iii) a panel of biomarkers comprising N.acetylphenylalanine, N.acetylleucine, valylleucine, xylitol, 2.hydroxyhippurate (salicylurate), glycylphenylalanine, serylleucine and fucose;

(iv) a panel of biomarkers comprising glutamate, acisoga, valylleucine, mannose, glucuronate, urate, valerylcarnitine (C5) and 12.HETE;

(v) a panel of biomarkers comprising o.cresol.sulfate, acisoga, cysteine.glutathione.disulfide, glucose, 1.nonadecanoylglycerophosphocholine (19:0) and threonate;

(vi) a panel of biomarkers comprising N.acetylphenylalanine, N.acetylleucine, glycylphenylalanine, valylleucine, xylitol, 12.HETE and 2.hydroxyhippurate (salicylurate);

(vii) a panel of biomarkers comprising N.acetylthreonine, tigloylglycine, glycerate, valerylcarnitine (C5), threonate, 2.hydroxyhippurate (salicylurate), salicylate and tartronate (hydroxymalonated);

(viii) a panel of biomarkers comprising N.acetylglycine and 3.ethylphenylsulfate;

(viv) a panel of biomarkers comprising serotonin (5HT), N.acetylputrescine, leucylleucine, propionylglycine (C3), cholate, glycocholenate.sulfate, asparagine and 3.ethylphenylsulfate;

(x) a panel of biomarkers comprising acisoga, mannose, valerylcarnitine (C5), 1.linoleoyl.GPE (18.2), glycoursodeoxycholate, threonate, 2.hydroxyhippurate (salicylurate) and salicylate;

(xi) a panel of biomarkers comprising N.acetylglycine, threonate, 2.hydroxyhippurate (salicylurate), 3.ethylphenylsulfate and salicylate;

(xii) a panel of biomarkers comprising asparagine, taurine, acisoga, 1.oleoylglycerol (18:1), cholesterol, 2.hydroxyhippurate (salicylurate), 6.oxopiperidine.2.carboxylic.acid and propionylglycine (C3);

comparing the measured levels of the analytes in the biological sample with one or more reference samples, wherein the references are representative of matched human subjects; and

identifying the subject as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque if measured levels of the analytes in the biological sample are increased or decreased relative to the amounts of the analytes in the reference samples.

2. The method of claim 1, further comprising instructing a healthcare professional to complete a non-invasive cardiovascular evaluation on a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to confirm the subject has of does not have atherosclerotic coronary artery disease or a coronary atherosclerotic plaque.

3. The method of claim 1, further comprising performing a non-invasive cardiovascular evaluation on a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to confirm the subject does or does not have atherosclerotic coronary artery disease or a coronary atherosclerotic plaque.

4. The method of any one of claims 2 or 3, wherein performing a non-invasive cardiovascular evaluation comprises performing a procedure selected from the group consisting of cardiovascular computed tomography (CT) imaging, an exercise stress test, a pharmacologic stress test, myocardial perfusion imaging, stress echocardiography, and cardiovascular magnetic resonance imaging.

5. The method of any one of claims 1 to 4, further comprising selectively administering a composition comprising an effective amount of a therapeutic agent selected from the group consisting of a statin, cholesterol absorption inhibitors,

niacin-derivatives, omega-3-fatty acid compounds, bile acid sequestrants, anti-platelet agents, aldosterone blockers, angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARBs), beta blockers, diuretics, digitalis, hydralazine and nitrates, warfarin and aspirin to a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to treat the subject.

6. The method of any one of claims 1 to 5, further comprising selecting a treatment plan for a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to treat the subject.

7. The method of claim 6, wherein the treatment plan comprises selectively administering a composition comprising administering an effective amount of a therapeutic agent selected from the group consisting of a statin, cholesterol absorption inhibitors, niacin-derivatives, omega-3-fatty acid compounds, bile acid sequestrants, anti-platelet agents, aldosterone blockers, angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARBs), beta blockers, diuretics, digitalis, hydralazine and nitrates, warfarin and aspirin.

8. The method of any one of claims 1 to 7, wherein the levels are measured using mass spectrometry (MS) analysis.

9. The method of claim 8, wherein the MS analysis comprises liquid chromatography-tandem mass spectrometry (UPLC-MS/MS) or gas chromatography-mass spectrometry (GC-MS).

10. The method of any one of claims 1 to 9, wherein the CAD comprises atherosclerosis.

11. The method of any one of claims 1 to 10, wherein the biological sample is a blood sample, a serum sample or a plasma sample.

12. The method of any one of claims 1 to 11, wherein the subject presents with symptoms of atherosclerotic CAD comprising chest pain, angina, angina equivalent, dyspnea, or dyspnea on exertion.

13. The method of any one of claims 1 to 12, wherein the subject presents with risk factors associated with coronary artery disease selected from the group consisting of male gender, hypertension, dyslipidemia, diabetes, and a family history of coronary artery disease.

14. The method of any one of claims 1 to 11, wherein the subject has no previous history of coronary artery disease.

15. The method of any one of claims 1 to 14, wherein the reference sample is obtained from at least one individual not suffering from a cardiovascular disease.

16. The method of any one of claims 1 to 14, wherein the reference sample comprises predetermined, statistically significant reference analyte levels.

17. The method of any one of claims 1 to 16, wherein the determining step is performed using one of the multivariate methods, such as a gradient boosting algorithm, decision tree models, or by other generalized linear regression analyses.

18. The method of any one of claims 1 to 17, further comprising modifying the subject's clinical record to identify the subject as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque.

19. The method of claim 18, wherein the clinical record is stored in a computer readable medium.

20. The method of any one of claims 1 to 19, further comprising selecting a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque for treatment, wherein the treatment comprises selectively administering a composition comprising an effective amount of a therapeutic agent selected from the group consisting of a statin, cholesterol absorption inhibitors, niacin-derivatives, omega-3-fatty acid compounds, bile acid sequestrants,

anti-platelet agents, aldosterone blockers, angiotensin-converting enzyme (ACE) inhibitors, angiotensin-receptor blockers (ARBs), beta blockers, diuretics, digitalis, hydralazine and nitrates, warfarin andaspirin to a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to treat the subject.

21. The method of any one of claims 1 to 19, further comprising selecting a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque for treatment, wherein the treatment comprises performing a non-invasive cardiovascular evaluation on a subject identified as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque to confirm the subject does or does not have atherosclerotic coronary artery disease or a coronary atherosclerotic plaque.

22. The method of claim 6, wherein the treatment plan comprises prescribing therapeutic lifestyle changes.

23. The method of claim 6, wherein the treatment plan comprises performing a non-invasive cardiovascular evaluation comprises performing a procedure selected from the group consisting of cardiovascular computed tomography (CT) imaging, an exercise stress test, a pharmacologic stress test, myocardial perfusion imaging, stress echocardiography, and cardiovascular magnetic resonance imaging.

24. The method of any one of claim 1 to 23, wherein the comparing step includes analysis of the subjects age and/or gender.

25. A kit for evaluating a human subject for having atherosclerotic coronary artery disease (ASCAD) or as having a coronary atherosclerotic plaque, the kit comprising:

reagents suitable for determining levels of a plurality of analytes in a test sample, wherein the plurality of analytes comprise:

(i) a panel of biomarkers comprising valylleucine, glutamate, acisoga, urate, glucuronate, fucose, butyrylcarnitine (C4) and mannose;

(ii) a panel of biomarkers comprising acisoga, o.cresol.sulfate, threonate and cysteine.glutathione.disulfide;

(iii) a panel of biomarkers comprising N.acetylphenylalanine, N.acetylleucine, valylleucine, xylitol, 2.hydroxyhippurate (salicylurate), glycylphenylalanine, serylleucine and fucose;

(iv) a panel of biomarkers comprising glutamate, acisoga, valylleucine, mannose, glucuronate, urate, valerylcarnitine (C5) and 12.HETE;

(v) a panel of biomarkers comprising o.cresol.sulfate, acisoga, cysteine.glutathione.disulfide, glucose, 1.nonadecanoylglycerophosphocholine (19:0) and threonate;

(vi) a panel of biomarkers comprising N.acetylphenylalanine, N.acetylleucine, glycylphenylalanine, valylleucine, xylitol, 12.HETE and 2.hydroxyhippurate (salicylurate);

(vii) a panel of biomarkers comprising N.acetylthreonine, tigloylglycine, glycerate, valerylcarnitine (C5), threonate, 2.hydroxyhippurate (salicylurate), salicylate and tartronate (hydroxymalonated);

(viii) a panel of biomarkers comprising N.acetylglycine and 3.ethylphenylsulfate;

(viv) a panel of biomarkers comprising serotonin (5HT), N.acetylputrescine, leucylleucine, propionylglycine (C3), cholate, glycocholenate.sulfate, asparagine and 3.ethylphenylsulfate;

(x) a panel of biomarkers comprising acisoga, mannose, valerylcarnitine (C5), 1.linoleoyl.GPE (18.2), glycoursodeoxycholate, threonate, 2.hydroxyhippurate (salicylurate) and salicylate;

(xi) a panel of biomarkers comprising N.acetylglycine, threonate, 2.hydroxyhippurate (salicylurate), 3.ethylphenylsulfate and salicylate;

(xii) a panel of biomarkers comprising asparagine, taurine, acisoga, 1.oleoylglycerol (18:1), cholesterol, 2.hydroxyhippurate (salicylurate), 6.oxopiperidine.2.carboxylic.acid and propionylglycine (C3);

optionally one or more control samples comprising predetermined levels of the same analytes, wherein comparison of the levels of the analytes in a test sample with levels in the control samples identifies a subject as having atherosclerotic coronary artery disease or as having a coronary atherosclerotic plaque; and

instructions for use of the kit in the method of any of claims 1 to 24.