CLAIMS

1. A method for diagnosing a cancer health state in a patient, comprising:

determining, in a plasma sample from said patient, one or more biomarker values that correspond to alpha-1 antitrypsin (A1AT)-containing complex structures; and

assigning the patient as having or not having cancer, or having or not having a change in cancer health state, or having or not having a risk of cancer based on said biomarker values,

wherein said cancer is selected from the group consisting of hepatocellular carcinoma (HCC), ovarian cancer (OC), and breast cancer (BC).

2. The method of claim 1, wherein determining the biomarker values comprises performing an in vitro assay, wherein said in vitro assay comprises a capture reagent for A1AT or an A1AT-containing complex structure.

3. The method of claim 2, wherein the capture reagent is an antibody.

4. The method of claim 2, wherein the in vitro assay is a capillary electrophoresis under non-reducing conditions.

5. The method of claim 2, wherein the one or more biomarker values include IP_{58}, IP_{130}, IP_{180}, or a combination thereof.

6. The method of claim 1, wherein the assigning is based on a ratio of said biomarker values selected from the group consisting of $\frac{IP_{130}}{IP_{58}}$, $\frac{IP_{180}}{IP_{58}}$, and $\frac{IP_{130}+IP_{180}}{IP_{58}}$.

7. A method for diagnosing a risk of the change or presence of a cancer in a patient, comprising:

determining, in a plasma sample from said patient, one or more biomarker values that correspond to alpha-1 antitrypsin (A1AT)-containing complex structures; and

assigning the patient as having or not having cancer, or having or not having a change in cancer health state, or having or not having a risk of cancer based on said biomarker values,

wherein said cancer is selected from the group consisting of hepatocellular carcinoma (HCC), ovarian cancer (OC), and breast cancer (BC).

8. The method of claim 7, wherein determining the biomarker values comprises performing an in vitro assay, wherein said in vitro assay comprises a capture reagent for A1AT or an A1AT-containing complex structure.

9. The method of claim 8, wherein the capture reagent is an antibody.

10. The method of claim 8, wherein the in vitro assay is a capillary electrophoresis under non-reducing conditions.

11. The method of claim 7, wherein the one or more biomarker values based on IP_{58}, IP_{130}, IP_{180}, or a combination thereof.

12. The method of claim 7, wherein the assigning is based on a ratio of said biomarker values selected from the group consisting of $\frac{IP_{130}}{IP_{58}}$, $\frac{IP_{180}}{IP_{58}}$, and $\frac{IP_{130}+IP_{180}}{IP_{58}}$.