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(54) Title: BIOMARKERS FOR DETERMINING A CANCER DISEASE STATE, RESPONSE TO IMMUNO-ONCOLOGY, STAGES OF FIBROSIS IN NON-ALCOHOLIC STEATOHEPATITIS, OR APPLICATION OF AGE OR SEX RELATED BIOMARKER PANEL FOR QUALITY CONTROL

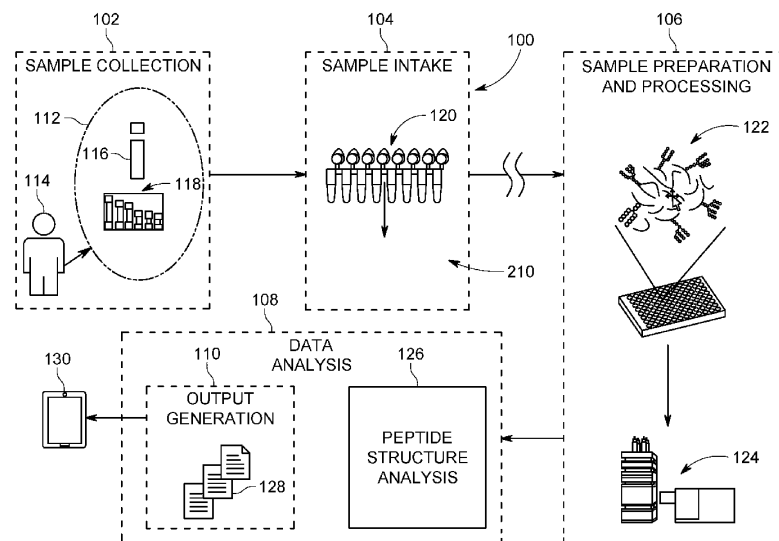


FIG. 1

(57) Abstract: Provided herein are methods, devices, and kits for identifying glycosylated polypeptide biomarkers and signatures for progression of a disease or a condition, such as cancer or NASH, or and response of the disease or condition to a treatment. Also provided herein are: i) methods of generating and analyzing glycosylated polypeptide biomarkers, ii) methods of validating a model using glycosylated polypeptides for predicting the disease or condition or for making treatment recommendation, iii) systems and methods for implementing QC of a cohort of samples by analyzing peptide structure data for each sample using a machine learning model to generate a predicted age and/or sex associated for each sample. The quality control issue may include an error of mislabeled samples or an error from sample preparation, or a systemic measurement or an instrument error.

[Continued on next page]

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