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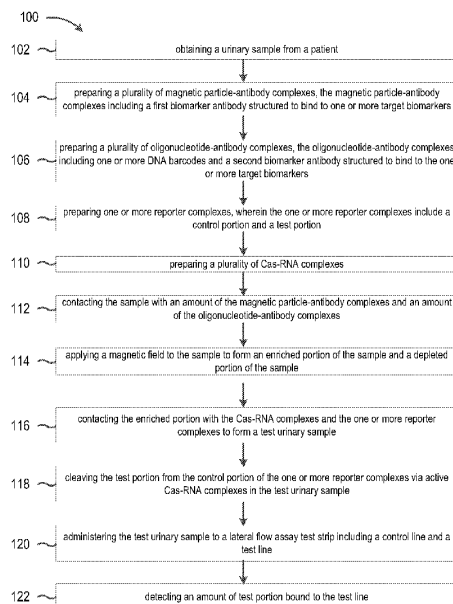


FIG. 1

(57) Abstract: Target biomarkers, e.g., chemokine ligand 9 (CXCL9), chemokine ligand 10 (CXCL10), etc., are detected in human urinary samples via magnetic particle-antibody complexes. These complexes bind to the target biomarkers in the sample and enable magnetic enrichment of the biomarkers into a portion of that sample. Sandwich structure complexes are prepared via further contact with DNA barcode-antibody complexes that include CRISPR/Cas recognition sites, e.g., for Cas9, Cas12a, Cas13a, etc. Cas-RNA complexes activate upon binding with the DNA barcodes, resulting in cleavage of reporter complexes, e.g., fluorophore-biotin (FB) reporter, fluorophore-quencher (FQ) reporter, that can be detected as an indicator of biomarker concentration in the sample. A limit of detection for urinary biomarkers of 18 pg/mL was demonstrated in a patient sample via naked-eye detection using commercially available lateral flow assay test strips configured to bind cleaved portions of the reporter complexes.

[Continued on next page]

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