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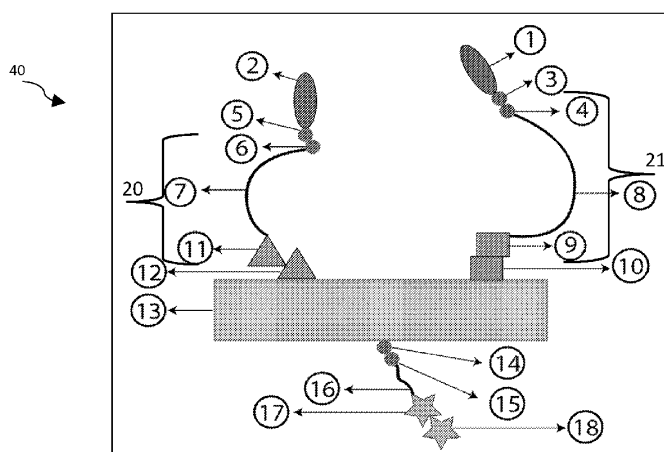


FIG. 1

(57) Abstract: Provided herein are structures and methods for detecting one or more analyte molecules present in a sample. In some embodiments, the one or more analyte molecules are detected using one or more supramolecular structures. In some embodiments, the one or more supramolecular structures are specifically designed to minimize cross-reactivity with each other. In some embodiments, the supramolecular structures are bi-stable, wherein the supramolecular structures shift from an unstable state to a stable state through interaction with one or more analyte molecules from the sample. In some embodiments, the stable state supramolecular structures are configured to provide a signal for analyte molecule detection and quantification. In some embodiments, the signal correlates to a DNA signal, such that detection and quantification of an analyte molecule comprises converting the presence of the analyte molecule into a DNA signal.

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WO 2022/060728 A1

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