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(54) Title: ASSAYS USING CROSSLINKABLE IMMOBILIZED NUCLEIC ACIDS

(57) Abstract

Improved methods for *in situ* hybridization assays of cellular and subcellular systems and tissue sections, and immobilization-based assay techniques such as Northern blotting, Southern blotting, dot blots, and the like, and assay techniques wherein the probes are bound to substrates are disclosed. The subject invention employs crosslinker containing hybridization probes capable of forming covalent bonds between the probe and the target nucleic acid. Upon activation, the crosslinker will, if the probe has hybridized with its essentially complementary target, form covalent bonds with the complementary strand to covalently crosslink the probe to the target. Subsequently, stringent wash conditions may be employed to reduce background signals due to non-specific absorption or probes or targets, while retaining all crosslinked probe/target hybrids. Also disclosed are diagnostic kits for use in clininical and diagnostic laboratories.