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(54) Title: COMPOSITIONS AND METHODS FOR CHEMICAL CLEAVAGE AND DEPROTECTION OF SURFACE-BOUND OLIGONUCLEOTIDES

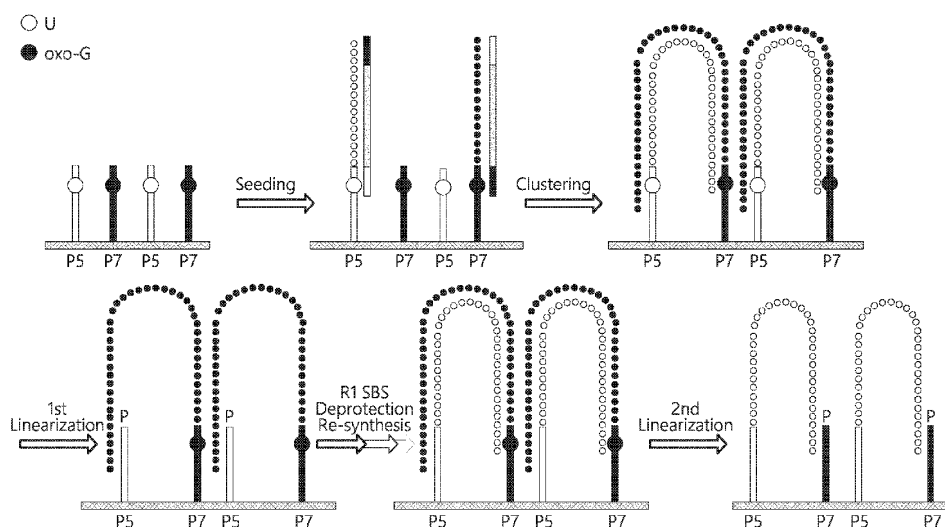


FIG. 1

(57) **Abstract:** Embodiments of the present disclosure relate to methods of preparation of templates for polynucleotide sequencing. In particular, the disclosure relates to linearization of clustered polynucleotides in preparation for sequencing by cleavage of one or more first strands of double-stranded polynucleotides immobilized on a solid support by a transition metal complex, for example, a palladium complex or a nickel complex. Further disclosure relate to linearization of clustered polynucleotides by cleaving one or more second strands of double double-stranded polynucleotides immobilized on a solid support comprising azobenzene linker by Na₂S₂O₄. Nucleotides and oligonucleotides comprising a 3' phosphate moiety blocking group, and methods of removing the same using a fluoride reagent are also disclosed.

[Continued on next page]

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