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(54) **Title:** COMPOSITIONS AND METHODS FOR SEQUENCING MULTIPLE REGIONS OF A TEMPLATE MOLECULE USING READ-CAPPING NUCLEOTIDE ANALOGS

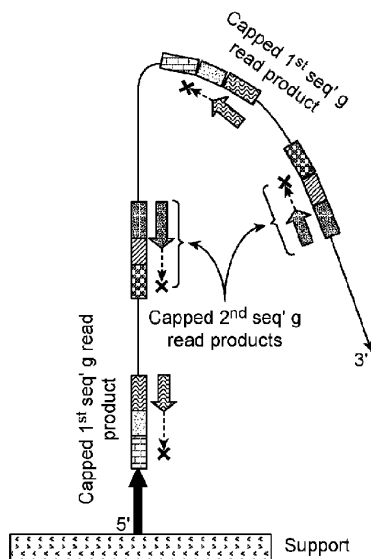


FIG. 7A

(57) **Abstract:** The present disclosure provides compositions comprising read-capping nucleotide analogs, and methods using the read-capping nucleotide analogs for sequencing. The read-capping nucleotide analogs can be incorporated at the terminal 3' end of a sequencing read product when sequencing a first region of a template molecule is completed to generate a first capped sequencing read product. The first capped sequencing read products are not removed from the template molecules prior to sequencing a second region of the template molecules. Removal of the first capped sequencing read product from the template molecule is obviated because the incorporated read-capping nucleotide analog blocks binding and incorporation of nucleotide reagents used to sequence a second region of the nucleic acid template molecule. Using the read-capping nucleotide analogs, without the need to remove the sequencing read products, reduces damage to the template molecules and preserves intact template molecules after numerous sequencing cycles.

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