Methods of Producing Size-Selected Nucleic Acid Libraries and Compositions and Kits for Practicing Same

Tech ID: 33019 / UC Case 2017-257-0

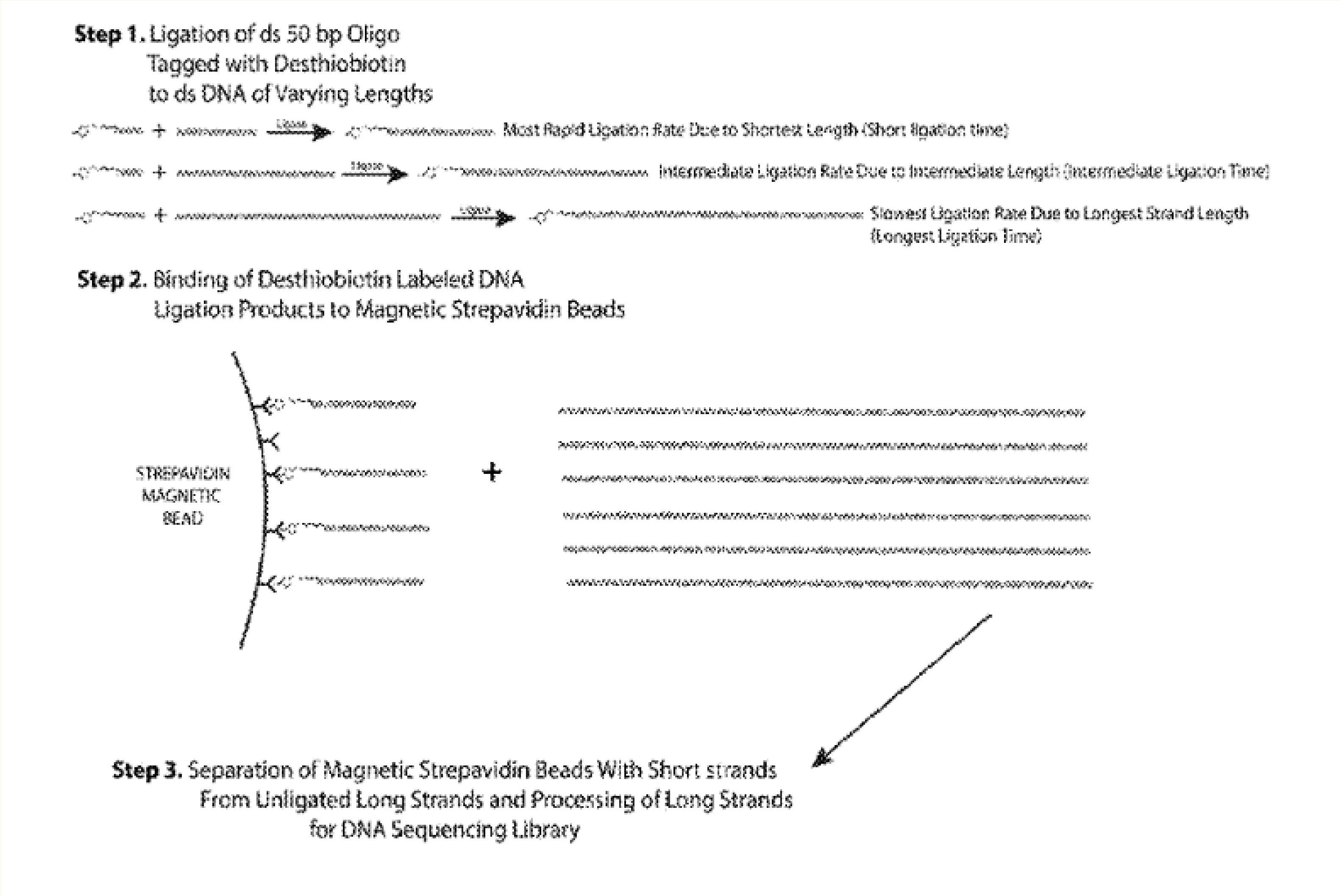
BACKGROUND

Long read sequencing technologies such as nanopore sequencing allow better visualization of whole polynucleotides than other methods. One challenge of long read sequencing, though, is that the presence of shorter nucleic acid strands reduces the efficiency of long read sequencing. There is a need for inexpensive, simpler, and rapid ways to remove unwanted shorter strands in sequencing libraries.

TECHNOLOGY DESCRIPTION

Researchers at UC Santa Cruz have developed a way to select nucleic acids, such as DNA, based on size. The method is based on the discovery that longer polynucleotides take more time to ligate to an oligonucleotide than shorter polynucleotides - particularly when the ligation is a blunt end ligation. By limiting the ligation time, polynucleotides shorter than a selected length will bind the oligonucleotide and polynucleotides longer than the selected length will not bind the oligonucleotide. The shorter polynucleotides can then be removed from solution using a tag on the oligonucleotide.

The result is a library enriched with polynucleotides that are above a selected length.



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OTHER INFORMATION

KEYWORDS

sequencing, size selection, long read sequencing, nanopore sequencing

CATEGORIZED AS

- **Biotechnology**
  - Genomics

RELATED CASES

2017-257-0

APPLICATIONS

- size selected library preparation for long read nucleic acid sequencing

ADVANTAGES

- low cost
- simple
- rapid
- compatible with current library preparation methodologies

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,999,948	06/04/2024	2017-257

Additional Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Methods For Adding Polymers Of Modified Nucleotides To Natural RNAs
- Methods for Determining Base Locations in a Polynucleotide
- Reading The 5 Prime End Of Eukaryotic Poly(A) Rna Molecules

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