Methods for Determining Base Locations in a Polynucleotide

Tech ID: 33177 / UC Case 2015-531-0

BACKGROUND

An abasic site (i.e., an apurinic or apyrimidinic site) in a DNA or RNA strand is one in which the base is not present, but the sugar phosphate backbone remains intact. UC Santa Cruz researchers discovered that nanopore sequencers can readily detect the positions of abasic sites within a DNA strand during sequencing. This invention capitalizes on this discovery by using enzymes to generate abasic sites at places on a DNA strand that contain modified bases. The DNA strand can then be sequenced using nanopore sequencing, thereby providing a way of detecting modified bases.

TECHNOLOGY DESCRIPTION

This invention involves a method of detecting epigenetically modified cytosines in genomic DNA using nanopore sequencing. The DNA containing or suspected of containing such modified cytosines are treated with a deaminase and glycosylase. Doing so creates abasic sites, which can readily be detected using nanopore sequencing.

APPLICATIONS

- DNA sequencing
- genetic analysis
- identifying epigenetic markers

ADVANTAGES

- detects a wide spectrum of modified DNA bases

INTELLECTUAL PROPERTY INFORMATION

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,760,117	09/01/2020	2015-531

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OTHER INFORMATION

CATEGORIZED AS

- **Biotechnology**
  - Genomics
  - Other

RELATED CASES

2015-531-0

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Methods For Adding Polymers Of Modified Nucleotides To Natural RNAs
- Methods of Producing Size-Selected Nucleic Acid Libraries and Compositions and Kits for Practicing Same
- Reading The 5 Prime End Of Eukaryotic Poly(A) Rna Molecules