Soluble Fluorescent DNA Label

Tech ID: 27281 / UC Case 2016-927-0

BRIEF DESCRIPTION

Assays or biosensors that utilize electrochemical or fluorescent techniques often employ DNA electrochemical probes. Current probes have drawbacks, as they have either electronic or fluorescent properties, are not readily water-soluble, and are poorly coupled within a DNA strand. This invention is a DNA electrochemical probe that has both electronic and fluorescent properties, is water-soluble, and can readily incorporate into a DNA strand.

FULL DESCRIPTION

Biosensors enable the selective detection of nucleic acid substrates, which are then converted into electronic signals. To be able to detect nucleic acids, biosensors rely on DNA's electrochemistry. However, electrochemical probes that can electronically integrate and remain soluble in conditions native to DNA processing are not readily available. Furthermore, current state of the art DNA probes are poorly coupled and have limited placement in DNA sequences. The invention described herein is a DNA label, which has both electronic and fluorescent properties, is water-soluble, and can be readily incorporated into the base-pair stack in any position in the DNA sequence.

ADVANTAGES

§ Molecule couples intimately with DNA stack allowing for more sensitive biosensor measurements and better understanding of physical properties of DNA strand

§ Both chemically and electronically stable in air allowing multiple measurements without degradation

§ Can be inserted into any part of a DNA sequence

§ Exhibits fluorescent behavior allowing for DNA labeling

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	10,604,540	03/31/2020	2016-927
United States Of America	Issued Patent	10,017,528	07/10/2018	2016-927

STATE OF DEVELOPMENT

Molecule has been synthesized and fully characterized. Synthesis optimized and scaled an order of a magnitude with no loss is yield (91%).

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OTHER INFORMATION

CATEGORIZED AS

» **Biotechnology**
» Other
» **Energy**
» Storage/Battery
» **Nanotechnology**
» NanoBio
» Tools and Devices
» **Research Tools**
» Nucleic Acids/DNA/RNA
» **Sensors & Instrumentation**
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