

CRISPR-BASED GRAPHENE BIOSENSOR FOR DIGITAL DETECTION OF DNA MUTATIONS

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PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,905,552	02/20/2024	2018-137

Additional Patent Pending

BRIEF DESCRIPTION

UC Berkeley and Keck Institute researchers have reported the development and testing of a graphene-based field-effect transistor that uses CRISPR technology to enable the digital detection of a target sequence within intact genomic material. Termed CRISPR-Chip, the biosensor uses the gene-targeting capacity of catalytically deactivated Cas9 complexed with a specific single-guide RNA and immobilized on the transistor to yield a label-free nucleic-acid-testing device whose output signal can be measured with a simple handheld reader.

SUGGESTED USES

- » Diagnostics
- » Research tools

ADVANTAGES

CRISPR-Chip generates, within 15 min, with a sensitivity of 1.7 fM and without the need for amplification, a significant enhancement in output signal relative to samples lacking the target sequence.

RELATED MATERIALS

- » [Detection of unamplified target genes via CRISPR-Cas9 immobilized on a graphene field-effect transistor - 03/25/2019](#)

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- ▶ [Neuro-protective Effect of Human Pluripotent Stem Cell-derived Secretome in ALS](#)

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OTHER INFORMATION

KEYWORDS

CRISPR chip, biosensor, graphene

CATEGORIZED AS

- » **Research Tools**
- » Nucleic Acids/DNA/RNA
- » **Sensors & Instrumentation**
- » Biosensors

RELATED CASES

2018-137-0

