Title (en)

METHODS FOR SEPARATING SHORT SINGLE-STRANDED NUCLEIC ACID FROM LONG SINGLE- AND DOUBLE-STRANDED NUCLEIC ACID, AND ASSOCIATED BIOMOLECULAR ASSAYS

Title (de)

VERFAHREN ZUR TRENNUNG KURZER EINZELSTRANGNUKLEINSÄURE VON LANGER EINZEL- UND DOPPELSTRANGNUKLEINSÄURE SOWIE DAMIT VERBUNDENE BIOMOLEKULARE TESTS

Title (fr)

PROCEDES DE SEPARATION D'ACIDE NUCLEIQUE A BRIN UNIQUE COURT D'ACIDE NUCLEIQUE A BRIN UNIQUE ET DOUBLE LONG, ET DOSAGES BIOMOLECULAIRES ASSOCIES

Publication

EP 1848823 A4 20080625 (EN)

Application

EP 06719184 A 20060123

Priority

- US 2006002233 W 20060123
- US 64582105 P 20050121

Abstract (en)

[origin: WO2006079009A2] Methods and kits are provided for detecting the presence or absence of target nucleic acid sequences in a sample. The methods and kits involve the use of negatively charged nanoparticles and the electrostatic interactions between the metal nanoparticles and nucleic acid molecules. The methods rely upon the differential interaction of ss-nucleic acids and ds-nucleic acids with the negatively charged nanoparticles that differentiate between tagged oligonucleotide probes that hybridize with a target and those that do not. Improvements in sensitivity for a fluorescent variation of the method have been obtained by including a step of separating the ds-nucleic acids in solution from the negatively charged nanoparticles to which ss-nucleic acids have been bound, and then detecting for the presence of the ds-target nucleic acids in the solution. The same separation protocols can be used to make the detection approach viable with electrochemical or radioactive tags.

IPC 8 full level

G01N 33/00 (2006.01); **C12Q 1/68** (2006.01)

CPC (source: EP)

C12Q 1/6813 (2013.01); **C12Q 1/6816** (2013.01); **C12Q 1/6827** (2013.01); **C12Q 1/6832** (2013.01); **C12Q 1/6834** (2013.01)

Citation (search report)

- [X] WO 2004111602 A2 20041223 - UNIV ROCHESTER [US]
- [Y] EP 0667398 A2 19950816 - KYOTO DAIICHI KAGAKU KK [JP]
- [Y] WO 9804740 A1 19980205 - UNIV NORTHWESTERN [US], et al
- [A] WO 03027678 A1 20030403 - PSYCHIATRIC GENOMICS INC [US], et al
- [Y] JIN R: "What controls the melting properties of DNA-linked gold nanoparticle assemblies?", JOURNAL OF THE AMERICAN CHEMICAL SOCIETY, AMERICAN CHEMICAL SOCIETY, WASHINGTON, DC, US, vol. 125, 15 January 2003 (2003-01-15), pages 1643 - 1654, XP002294467, ISSN: 0002-7863
- [A] ELGHANIAN ET AL: "Selective colorimetric detection of polynucleotides based on the distance-dependent optical properties of gold nanoparticles", SCIENCE, WASHINGTON, DC, vol. 277, 27 August 1997 (1997-08-27), pages 1078 - 1081, XP002294466, ISSN: 0036-8075
- [A] DEMERS L M ET AL: "A FLUORESCENCE-BASED METHOD FOR DETERMINING THE SURFACE COVERAGE AND HYBRIDIZATION EFFICIENCY OF THIOL-CAPPED OLIGONUCLEOTIDES BOUND TO GOLD THIN FILMS AND NANOPARTICLES", ANALYTICAL CHEMISTRY, AMERICAN CHEMICAL SOCIETY. COLUMBUS, US, vol. 72, no. 22, 15 November 2000 (2000-11-15), pages 5535 - 5541, XP001204824, ISSN: 0003-2700
- [A] DUBERTRET B ET AL: "Single-mismatch detection using gold-quenched fluorescent oligonucleotides", NATURE BIOTECHNOLOGY, NATURE PUBLISHING GROUP, NEW YORK, NY, US, vol. 19, no. 4, 1 April 2001 (2001-04-01), pages 365 - 370, XP002224627, ISSN: 1087-0156
- See references of WO 2006079009A2

Cited by

CN108298502A

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2006079009 A2 20060727; **WO 2006079009 A3 20071108**; EP 1848823 A2 20071031; EP 1848823 A4 20080625; JP 2008527999 A 20080731

DOCDB simple family (application)

US 2006002233 W 20060123; EP 06719184 A 20060123; JP 2007552328 A 20060123