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Declarations under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))

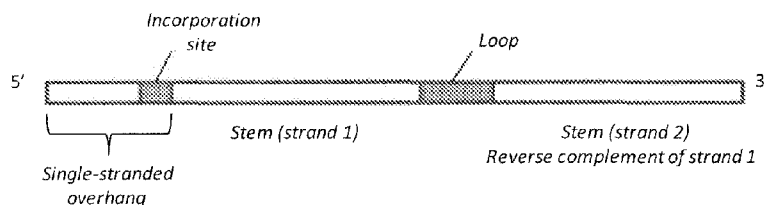
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10 December 2009

(54) Title: METHODS AND COMPOSITIONS FOR REDUCING NUCLEOTIDE IMPURITIES



(57) Abstract: The disclosure provides methods and compositions for reducing nucleotide impurities in reagents and reaction mixtures. Generally, the methods of the invention involve the inclusion of so-called 'scrubbing oligonucleotides' (or 'scrubbers') that preferentially incorporate nucleotide impurities, thereby reducing available free impurities. The disclosure further provides methods of sequencing a target nucleic acid by synthesis that utilize 'live' scrubbing. Scrubbing oligonucleotides of various structures are disclosed, including hairpin scrubbers and homopolymeric scrubbers.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 09/35823

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C12Q 1/68, C07H 21/00 (2009.01)

USPC - 435/6, 536/23.1, 536/26.6

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

USPC: 435/6, 536/23.1, 536/26.6

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC: 435/6, 536/23.1, 536/26.6

(text search)

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(PGPB,USPT,USOC,EPAB,JPAB); Google; PubMed

Search terms: sequencing, sequencing-by-synthesis, single-stranded, overhang, contaminant, hairpin, scrubbing oligonucleotide, cleaning duplex

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SEO et al. Four-color DNA sequencing by synthesis on a chip using photocleavable fluorescent nucleotides. Proc. Natl. Acad. Sci. USA. 26 April 2005 (26.04.2005), Vol. 102, No. 17, pages 5926-5931; abstract; Fig. 3-4; pg 5928, para 2 - pg 5929, para 1; pg 5930, para 2	1-25
A	AKSYONOV et al. Multiplexed DNA sequencing-by-synthesis. Anal. Biochem. 1 January 2006 (01.01.2006), Vol. 348, No. 1, pages 127-138;	1-25
A	US 2006/0172328 A1 (BUZBY) 3 August 2006 (03.08.2006)	1-25
A	US 2006/0172313 A1 (BUZBY) 3 August 2006 (03.08.2006)	1-25

☐ Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

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Date of the actual completion of the international search

12 May 2009 (12.05.2009)

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