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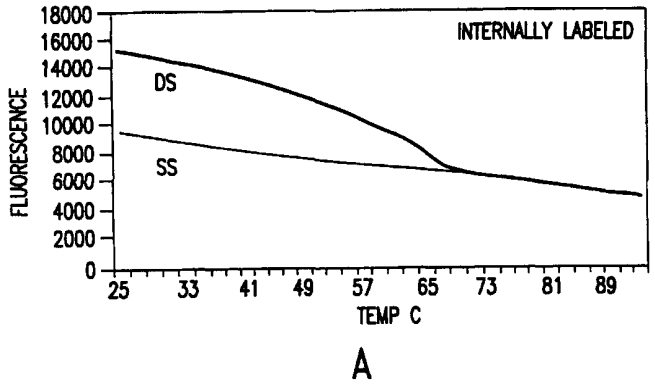
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Published:
— *with international search report*

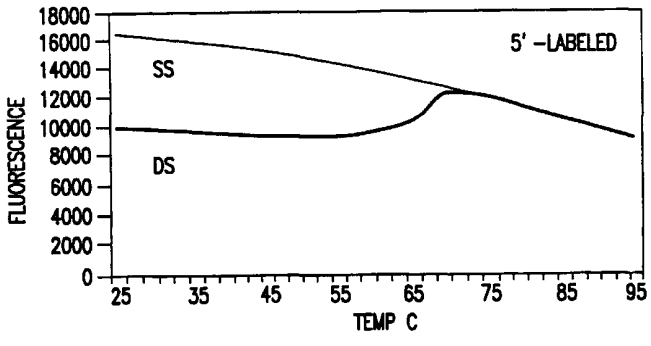
[Continued on next page]

(54) Title: IMPROVED PRIMERS AND METHODS FOR THE DETECTION AND DISCRIMINATION OF NUCLEIC ACIDS

(57) Abstract: The present invention provides novel primers and methods for the detection of specific nucleic acid sequences. The primers and methods of the invention are useful in a wide variety of molecular biology applications and are particularly useful in allele specific PCR.



A



B

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(88) Date of publication of the international search report:
17 January 2002

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

Int' tional Application No
PCT/US 00/17085

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12Q1/68

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)
IPC 7 C12Q

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal, WPI Data, PAJ, CHEM ABS Data, BIOSIS, MEDLINE, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 774 516 A (BECTON DICKINSON CO) 21 May 1997 (1997-05-21) page 2, line 8 -page 10, line 44; claims 1-10	1-5, 7-16, 20-22,47
X	EP 0 709 466 A (GEN PROBE INC (US)) 1 May 1996 (1996-05-01) page 6, line 16 -page 9, line 5	1-3,5,7, 9,10,47
X	US 5 538 848 A (LIVAK KENNETH J ET AL) 23 July 1996 (1996-07-23) column 4, line 15 -column 10; claims 1-24; figure 1	1-5, 7-16, 20-22, 41-44,47

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

° Special categories of cited documents :

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

"E" earlier document but published on or after the international filing date

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"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 February 2001	23. 05. 2001

Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Gabriels, J

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Form PCT/ISA/210 (second sheet) (July 1992)

INTERNATIONAL SEARCH REPORT

Int tional Application No
PCT/US 00/17085

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 881 302 A (BECTON DICKINSON CO) 2 December 1998 (1998-12-02) page 4, line 19 -page 13, line 26; claims 1-5,7-9 ---	1-17, 20-22, 41-47
X	WO 98 02449 A (ONCOR INC) 22 January 1998 (1998-01-22) the whole document -----	1-17, 20-22, 41-47

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INTERNATIONAL SEARCH REPORT

ernational application No.
PCT/US 00/17085

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☒ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-17, 20-22, 41-47 (complete)

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest.

☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-17,20-22,41-47 (complete)

   Invention 1:

   Methods and compositions for the detecion and/or quantification of nucleic acids based on different label properties of hybridised versus free labeled probes.

2. Claims: 18,19,55 (complete) 33-40,48-54 (partial)

   Invention 2:

   Methods and compositions for (allele specific)amplification of double stranded nucleic acids using primers comprising a label and/or a hairpin structure.

3. Claims: 23-32 (complete) 33-40,48-54 (partial)

   Invention 3:

   Methods and compositions for the discrimination between alleles using modified oligonucleotides comprising a specificity enhancing group (that renders the oligonucleotide less extendable).

INTERNATIONAL SEARCH REPORT

Information on patent family members

Int· ·ational Application No
PCI/US 00/17085

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