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(54) Title: MULTIPLEX REAL-TIME PCR

(57) Abstract: The present invention relates to a real-time Polymerase Chain Reaction (PCR) method for the detection and quantification of variants of nucleic acid sequences which differ in the probe-binding site. The method is based on the complete or partial amplification of the same region of the variants and the addition of two or more oligonucleotide probes to the same PCR mixture, each probe being specific for the probe-binding site of at least one variant. The method can be applied e.g. to estimate the viral load in a sample, to differentiate between subgroups, subtypes isolates or clades of a viral species or to estimate the impact of the viral load on tumorigenesis.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC 7 C12Q1/68 C12Q1/70

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, STRAND, WPI Data, PAJ, MEDLINE, BIOSIS, EMBASE, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	LETTENEGGER C ET AL: "Rapid feline immunodeficiency virus provirus quantitation by polymerase chain reaction using the TAQMAN.RTM. fluorogenic real-time detection system" JOURNAL OF VIROLOGICAL METHODS, NL, AMSTERDAM, vol. 78, no. 78, January 1999 (1999-01), pages 105-116, XP002103560 ISSN: 0166-0934 cited in the application the whole document <div style="text-align: center;">--- -/--</div>	1-9, 12, 16-21, 23-25, 29, 30

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP 00/00677

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>HEID C A ET AL: "REAL TIME QUANTITATIVE PCR" GENOME RESEARCH,US,COLD SPRING HARBOR LABORATORY PRESS, vol. 6, no. 10, 1 October 1996 (1996-10-01), pages 986-994, XP000642795 ISSN: 1088-9051 cited in the application the whole document</p> <p style="text-align: center;">---</p>	
A	<p>VAHLENKAMP T W ET AL: "COMPETITIVE REVERSE TRANSCRIPTION-POLYMERASE CHAIN REACTION FOR QUANTITATION OF FELINE IMMUNODEFICIENCY VIRUS" JOURNAL OF VIROLOGICAL METHODS,NL,AMSTERDAM, vol. 52, no. 3, 1 April 1995 (1995-04-01), pages 335-346, XP000609892 ISSN: 0166-0934 the whole document</p> <p style="text-align: center;">---</p>	
A	<p>GERARD ET AL: "IMPROVED QUANTITATION OF MINIMAL RESIDUAL DISEASE IN MULTIPLE MYELOMA USING REAL-TIME POLYMERASE CHAIN REACTION AND PLASMID-DNA COMPLEMENTARITY DETERMINING REGION III STANDARDS" CANCER RESEARCH,US,AMERICAN ASSOCIATION FOR CANCER RESEARCH, BALTIMORE, MD, vol. 58, 1 September 1998 (1998-09-01), pages 3957-3964, XP002095189 ISSN: 0008-5472 the whole document</p> <p style="text-align: center;">---</p>	
A	<p>WO 96 40268 A (AMERICAN HOME PROD) 19 December 1996 (1996-12-19) abstract page 15, line 14</p> <p style="text-align: center;">---</p>	
P,X	<p>KLEIN D ET AL.: "Proviral load determination of different feline immunodeficiency virus isolates using real-time polymerase chain reaction: Influence of mismatches on quantification" ELECTROPHORESIS, vol. 20, 1999, pages 291-299, XP000924950 the whole document</p> <p style="text-align: center;">---</p>	<p>1-9,12, 16-25, 29,30</p>
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INTERNATIONAL SEARCH REPORT

International Application No

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>VET J A M ET AL.: "Multiplex detection of four pathogenic retroviruses using molecular beacons" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES USA, vol. 96, 1999, pages 6394-6399, XP002145609 the whole document</p> <p style="text-align: center;">-----</p>	<p>1-5,7, 18-22, 29,30</p>

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP 00/00677

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