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(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

(54) Title: DETECTION OF HUMAN PAPILLOMAVIRUS

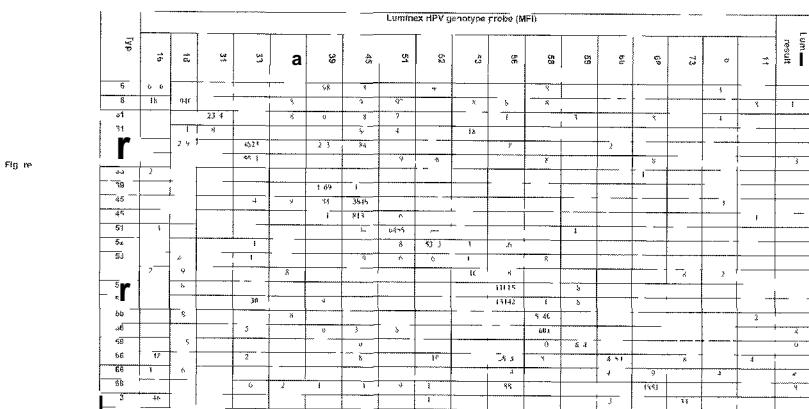
AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FT, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW

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(57) Abstract: There is provided an in vitro method of detecting human papillomavirus nucleic acid in a sample, comprising: (a) contacting said sample with forward and reverse oligonucleotide primers, wherein said primers bind to target sites in the human papillomavirus L1 gene, or the complement thereof, under conditions suitable to promote amplification of a portion of said human papillomavirus L1 gene or complement, thereby generating an amplicon; (b) contacting said amplicon with a probe, wherein the probe binds to a target site within said amplicon; and (c) detecting binding of said probe to said amplicon; wherein said forward primer binds to a target site having the sequence SEQ ID NO: 1; and wherein said reverse primer binds to a target site having the sequence SEQ ID NO: 2.

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/050080

A. CLASSIFICATION **SUBJECT MATTER**
INV. C12Q1/70

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

B. FIELDSSEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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, BIOSIS, WPI Data, EMBASE, PAJ, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/083142 A (NORCHIP AS) 9 October 2003 (2003-10-09) abstract; claims 1,16,19,20 page 3, lines 1-24 page 11 lines 29-36 page 9, lines 22-31 page 13, lines 27-37 page 14, lines 7-32 -----	1-74
X	DATABASE EMBL 10 April 1996 (1996-04-10), TING Y. ET AL.: "HPV16 specific oligonucleotide probe MY96" XP002490518 retrieved from EBI Database accession no. AAQ98589 abstract ----- -/-	55-64, 71-74

Further documents are listed in the continuation of Box C.

See patent family annex.

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- ^{1E}" earlier document but published on or after the International filing date
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- ^{1O}" document referring to an oral disclosure, use, exhibition or other means
- ^{1P}" document published prior to the international filing date but later than the priority date claimed

^{1T}" 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

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Date of the actual completion of the international search

1 August 2008

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Name and mailing address of the ISA/

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Authorized officer

Barz, Wolfgang

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/050080

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No
X	<p>DATABASE EMBL 15 June 2006 (2006-06-15) , MOON W. ET AL. : "HPV DNA probe 16LI" XP002490519 retrieved from EBI Database accession no. AEG92035 abstract</p> <p>-----</p>	55-64, 71-74
X	<p>DATABASE EMBL 20 October 2005 (2005-10-20) , LIN C. ET AL. : "HPV6 probe SEQ ID NO. 5" XP002490520 retrieved from EBI Database accession no. AEB55781 . abstract</p> <p>-----</p>	55-64, 71-74
X	<p>DATABASE EMBL 17 May 2007 (2007-05-17) , LIN C. ET AL. : "HPV6 LI gene specific probe" XP002490521 retrieved from EBI Database accession no. AER43584 abstract</p> <p>-----</p>	55-64 , 71-74
X	<p>WO 95/22626 A (STICHTING RES FONDS PATHOLOGIE) 24 August 1995 (1995-08-24) abstract ; claims 8-11 page 10, line 1 - page 14, line 27</p> <p>-----</p>	1-55, 65-74
X	<p>GRAVITT P. E. ET AL. : "Improved amplification of genital human papillomaviruses" JOURNAL OF CLINICAL MICROBIOLOGY, vol . 38, no. 1, January 2000 (2000-01) , pages 357-361, XP002490517 ISSN: 0095-1137 abstract ; figure 1; tables 1-3</p> <p>-----</p>	1-55, 65-74
X	<p>JIANG H.-L. ET AL. : "Genotyping of human papillomavirus in cervical lesions by LI consensus PCR and the Luminex xMAP system" JOURNAL OF MEDICAL MICROBIOLOGY, HARLOW, GB, vol . 55, no. 6, 1 June 2006 (2006-06-01) , pages 715-720, XP002466072 ISSN: 0022-2615 abstract ; figure 1</p> <p>-----</p> <p style="text-align: center;">-/-</p>	1-74

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/050080

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>HART K.W. ET AL.: "Novel method for detection, typing, and quantification of human papillomaviruses in clinical samples"</p> <p>JOURNAL OF CLINICAL MICROBIOLOGY, WASHINGTON, DC, US, Vol. 39, no. 9, 1 September 2001 (2001-09-01), pages 3204-3212, XP002250694 ISSN: 0095-1137 abstract; figure 1</p> <p>-----</p>	1-74

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.2

Claims Nos.: 75-79

Present claims 75-79 have not been searched, because they do not define their subject-matter in a clear manner (Article 6 PCT). The expression "substantially as hereinbefore described" is not sufficient to allow the reader to know which methods, probes, probe sets, prior sets, or kits fall under the scope of said claims.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.2), should the problems which led to the Article 17(2)PCT declaration be overcome.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2008/050080

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 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, name!:/
2. Claims NOS.: 75-79 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:
see FURTHER INFORMATION sheet PCT/ISA/210
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 No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

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

1. As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
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. IMc 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.:

Remark on Protest

- The additional search fees were accompanied by the applicants protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2008/050080

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
WO 03083142	A	09-10-2003	AU	2003212544 A1		13-10-2003
WO 9522626	A	24-08-1995	AT	222295 T		15-08-2002
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			DK	746627 T3		16-12-2002
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