



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : C12Q 1/70, 1/68, A61K 31/70</p>	<p>A3</p>	<p>(11) International Publication Number: WO 97/03345 (43) International Publication Date: 30 January 1997 (30.01.97)</p>
<p>(21) International Application Number: PCT/GB96/01660 (22) International Filing Date: 12 July 1996 (12.07.96) (30) Priority Data: 9514325.1 13 July 1995 (13.07.95) GB (71) Applicant (for all designated States except US): ROYAL FREE HOSPITAL SCHOOL OF MEDICINE [GB/GB]; Rowland Hill Street, London NW3 2PF (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): EMERY, Vincent, Clive [GB/GB]; Department of Virology, Division of Pathology & Communicable Diseases, Rowland Hill Street, London NW3 2PF (GB). GRIFFITHS, Paul [GB/GB]; Department of Virology, Division of Pathology & Communicable Diseases, Rowland Hill Street, London NW3 2PF (GB). (74) Agents: BRASNETT, Adrian, Hugh et al.; J.A. Kemp & Co., 14 South Square, Gray's Inn, London WC1R 5LX (GB).</p>	<p>(81) Designated States: JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 13 March 1997 (13.03.97)</p>	
<p>(54) Title: DETECTION AND QUANTIFICATION OF HUMAN HERPESVIRUS 7 BY ENZYMATIC AMPLIFICATION OF DNA VIRUS DNA</p>		
<p>(57) Abstract</p> <p>An isolated nucleic acid molecule comprising: (i) a primer portion consisting of a contiguous sequence of from 10 to 50 nucleotides capable of hybridising to (a) the target nucleic acid molecule represented by SEQ. ID No. 1, or (b) to the complementary stand thereof; and optionally (ii) a further portion comprising from 1 to 25 nucleotides joined to and immediately 5' to the 5' end of the primer portion.</p>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LR	Liberia	SK	Slovakia
CM	Cameroon	LK	Sri Lanka	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France	MR	Mauritania	UZ	Uzbekistan
GA	Gabon			VN	Viet Nam

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 96/01660

A. CLASSIFICATION OF SUBJECT MATTER IPC 6 C12Q1/70 C12Q1/68 A61K31/70				
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 6 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)				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category [*]	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
Y	JOURNAL OF MEDICAL VIROLOGY, vol. 45, March 1995, pages 282-83, XP000614412 PORTOLANI M ET AL: "Isolation of human Herpesvirus 7 from an infant with Febrile Syndrome" see the whole document ---	7-17		
Y	ARCHIVES OF VIROLOGY, vol. 136, 1994, pages 183-90, XP000614406 YALCIN S ET AL: "Human herpesvirus 6 and human herpesvirus 7 infections in renal transplant recipients and healthy adults in Turkey" see the whole document ---	7-17		
-/--				
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.				
<input checked="" type="checkbox"/> Patent family members are listed in annex.				
* Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;"> *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 *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *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 </td> <td style="width: 50%; border: none; vertical-align: top;"> *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 </td> </tr> </table>			*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 *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *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
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 *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) *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 <p style="text-align: center;">24 January 1997</p>	Date of mailing of the international search report <p style="text-align: center;">12.02.97</p>			
Name and mailing address of the ISA 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	Authorized officer <p style="text-align: center;">Osborne, H</p>			

3

INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 96/01660

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>PEDIATRICS, vol. 95, no. 2, February 1995, pages 187-90, XP000614347 ASANO Y ET AL: "Clinical features and viral excretion in an infant with primary human herpesvirus 7 infection" see the whole document ---</p>	7-17
Y	<p>WO,A,94 10344 (THE GOVERNMENT OF THE UNITED STATES OF AMERICA) 11 May 1994 see the whole document ---</p>	7-17
Y	<p>HEPATOLOGY, vol. 19, no. 5, May 1994, pages 871-75, XP000614397 NAITO M ET AL: "Serum hepatitis c virus RNA quantity and histological features of hepatitis c virus carriers with persistently normal ALT levels" see page 862, paragraph 3 - page 863, paragraph 2 ---</p>	7-17
Y	<p>GENETIC ANALYSIS TECHNIQUES AND APPLICATIONS, vol. 11, no. 1, 1994, page 1-6 XP000446393 CLEMENTI M ET AL: "competitive polymerase chain reaction and analysis of viral activity at the molecular level" see page 3, paragraph 2 ---</p>	7-17
A	<p>WO,A,92 01816 (THE UNITED STATES OF AMERICA) 6 February 1992 see claims 13,15 ---</p>	7-17,20
X	<p>WO,A,94 00140 (LUDWIG ISTITUTE FOR CANCER RESEARCH) 6 January 1994 see SEQ ID NO 145 -----</p>	1

INTERNATIONAL SEARCH REPORT

international application No.

PCT/GB 96/01660

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:
Please see Further Information sheet enclosed.
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:

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.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International Application No. PCT/GB 96/ 01660

FURTHER INFORMATION CONTINUED FROM PCT/ISA/210

Remark: Although claims 18, 19 as far as they concern an in vivo method, are directed to a method of treatment of the human/animal body the search has been carried out and based on the alleged effects of the compound/composition.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No PCT/GB 96/01660
--

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-9410344	11-05-94	AU-A- 5447194	24-05-94
WO-A-9201816	06-02-92	US-A- 5230997	27-07-93
		AU-A- 8406591	18-02-92
WO-A-9400140	06-01-94	US-A- 5530109	25-06-96
		AU-A- 4769493	24-01-94
		CA-A- 2139136	06-01-94
		EP-A- 0653940	24-05-95
		JP-T- 8509357	08-10-96
		PT-A- 101297	30-06-94
		ZA-A- 9304711	14-06-94