



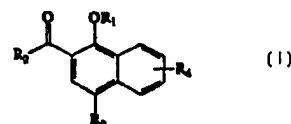
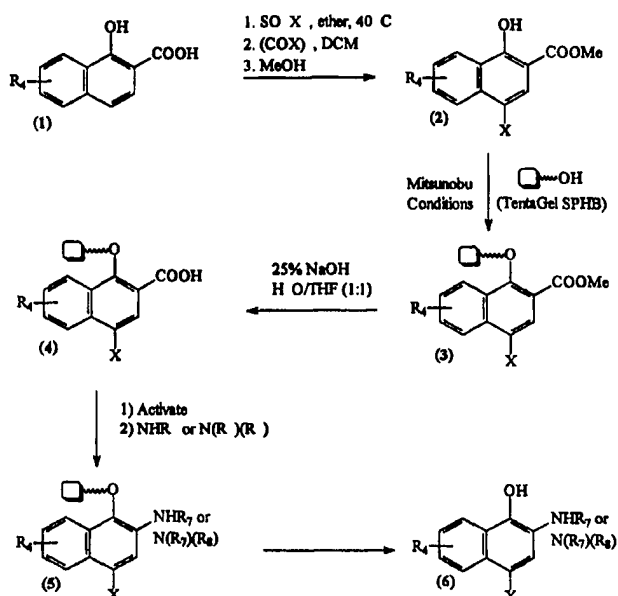
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 31/165, 31/215, 31/235, 31/24, 31/19	A3	(11) International Publication Number: WO 98/19673 (43) International Publication Date: 14 May 1998 (14.05.98)
(21) International Application Number: PCT/US97/20094 (22) International Filing Date: 4 November 1997 (04.11.97) (30) Priority Data: 08/740,711 4 November 1996 (04.11.96) US (71) Applicant (for all designated States except US): SIGNAL PHARMACEUTICALS, INC. [US/US]; 5555 Oberlin Drive, San Diego, CA 92121 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): SUTO, Carla, M. [US/US]; 12465 Picrus Street, San Diego, CA 92129 (US). WU, Jun [CN/US]; Apartment 4, 4158 Decoro Street, San Diego, CA 92122 (US). GAYO, Leah, M. [US/US]; 12555 Mannix Road, San Diego, CA 92129 (US). (74) Agents: HERMANN, Karl, R. et al.; Seed and Berry, 6300 Columbia Center, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).	(81) Designated States: AL, AM, AT, AU, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 2 July 1998 (02.07.98)	

(54) Title: ANTI-VIRAL AGENTS AND METHODS RELATING TO THE USE THEREOF

(57) Abstract

The invention relates to a method of treating viral infection in an animal (such as those caused by viruses of the Herpes virus family, like cytomegalovirus, herpes simplex virus and human lymphotropic herpes virus) by administering pharmaceutical compositions containing compounds of formula (I), including pharmaceutically acceptable salts thereof, wherein R_1 is selected from hydrogen, $-\text{COR}_5$ and $-\text{R}_6$; R_2 is selected from hydroxy, $-\text{OCOR}_5$; $-\text{OR}_6$; $-\text{NHR}_7$ and $-\text{N}(\text{R}_7)(\text{R}_8)$; R_3 is selected from hydrogen and halogen; R_4 represents from one to four substituents, wherein each substituent is independently selected from halogen, hydroxy, amino, $-\text{OR}_5$ and $-\text{R}_6$; R_5 is an unsubstituted or substituted C_{1-8} alkyl moiety; R_6 is selected from an unsubstituted or substituted C_{1-8} alkyl moiety, an unsubstituted C_{6-12} aryl moiety and an unsubstituted or substituted C_{7-12} aralkyl moiety; and R_7 and R_8 are independently selected from an unsubstituted or substituted C_{6-12} aryl moiety and an unsubstituted or substituted C_{7-12} aralkyl moiety.



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INTERNATIONAL SEARCH REPORT

Intern. Patent Application No
PCT/US 97/20094

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 A61K31/165 A61K31/215 A61K31/235 A61K31/24 A61K31/19

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 A61K C07C

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.
A	WO 96 20915 A (CELGENE CORPORATION) 11 July 1996 see abstract see page 4, line 12 see page 6	1-21
A	--- US 5 242 946 A (GUINDON Y.) 7 September 1993 see the whole document -----	1-21

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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- *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
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- *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

1 April 1998

Date of mailing of the international search report

29.04.98

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/ 20094

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.: **1-12**
because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 1-12 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.
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

Information on patent family members

International Application No

PCT/US 97/20094

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9620915 A	11-07-96	AU 4285996 A	24-07-96
		CA 2208746 A	11-07-96
		EP 0800505 A	15-10-97
		FI 972710 A	29-08-97
		PL 321072 A	24-11-97

US 5242946 A	07-09-93	CA 1323574 A	26-10-93
