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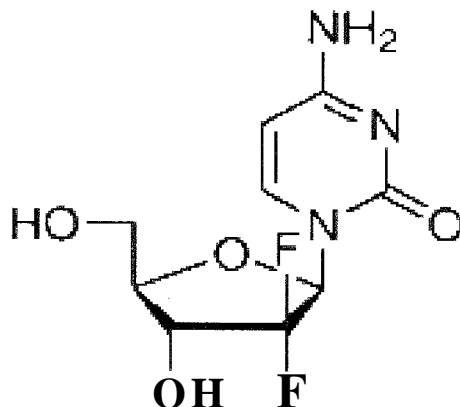
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[Continued on nextpage]

(54) Title: COMPOSITIONS AND METHODS FOR TREATING AND PREVENTING CANCER BY TARGETING AND INHIBITING CANCER STEM CELLS

FIG. 1



(57) Abstract: The invention relates to compositions and methods for treating cancer comprising administering to a subject in need a pharmaceutically effective dose of a cancer stem cell inhibitor, methods of inhibiting the growth of cancer stem cells or tumor initiating cell comprising administering to a subject in need a pharmaceutically effective dose of a cancer stem cell inhibitor, and methods of enhancing the biological effects of chemotherapeutic drugs or irradiation on cancer cells comprising administering to a subject in need a pharmaceutically effective dose of a chemotherapeutic drug and a pharmaceutically effective dose of a cancer stem cell inhibitor.



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A. CLASSIFICATION OF SUBJECT MATTER**A61K 31/352(2006.01)i, A61K 31/353(2006.01)1, A61K 31/513(2006.01)1, A61K 31/185(2006.01)1, A61P 35/00(2006.01)1**

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)

A61K 31/352; A61K 31/05; A61K 31/195; A61K 31/52; A61K 31/19; A61K 31/353; A61K 31/7068; C12M 1/12; A61P 35/00; A61K 38/20

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

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: treating cancer, non-toxic, cancer stem cell inhibitor, plant, natural sources, carrier, rottlerin, embelin

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2010-0298352 A1 (PROCHOWNIK EDWARD v. et al.) 25 November 2010 See claims 2, 4, 21, paragraph [0106].	18,19 20
X A	US 2010-0010099 A1 (CHIOU SHIH-HWA et al.) 14 January 2010 See claim 5, paragraph [0028].	18 19,20
A	US 2010-0075915 A1 (YU QIANG et al.) 25 March 2010 See claims 24, 25, 27, 28.	18-20
A	WO 2009-064300 A1 (THE JOHNS HOPKINS UNIVERSITY) 22 May 2009 See claims 1, 5, 7.	18-20
A	WO 2009-111648 A1 (VICUS THERAPEUTICS, LLC) 11 September 2009 See claims 8, 57-59	18-20

 Further documents are listed in the continuation of Box C. See patent family 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 application or patent 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 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

29 JANUARY 2013 (29.01.2013)

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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.: 1 - 17
because they relate to subject matter not required to be searched by this Authority, namely:
Claims 1-17 pertain to methods for treatment of the human body by therapy, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT, to search.
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 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. IAs all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. IAs all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. IAs 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. INo 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 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/US2012/038705

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2010-0298352 A1	25.11.2010	None	
US 2010-0010099 A1	14.01.2010	US 8183297 B2	22.05.2012
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