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9 February 2017

(54) Title: COMPOSITIONS AND METHODS FOR THE TREATMENT OF CANCER

(57) Abstract: The compositions and compounds of Formula I, Formula II, Formula III, Formula IV which includes topoisomerase inhibitor molecular conjugates or its polymorphs, enantiomers, stereoisomers, solvates, and hydrates thereof. These compounds may be formulated as pharmaceutical compositions. The pharmaceutical compositions may be formulated for oral administration, delayed release or sustained release, transmucosal, syrup, intravenous, topical, parenteral administration, injection, subdermal, oral solution, rectal administration, nanoparticle, buccal administration or transdermal administration. Such compositions may be used to treatment of metastasis, neoplasms, metastatic carcinoma of the colon or rectum, metastatic breast cancer, platinum-resistant ovarian cancer, bevacizumab (avastin)-refractory high-grade glioma, non-small cell lung cancer (NSCLC), small cell lung cancer (SCLC), GI and solid tumors.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2016/053457

A. CLASSIFICATION OF SUBJECT MATTER
A61K31/00 Version=2016.01

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

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 practicable, search terms used)

Patseer, IPO Internal Database

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	D1:EP2269580 A2 (BIOCOMPATIBLES UK LIMITED) 05 Jan 2011 (05.01.2011) Abstract and Claims -----	1, 3-5
Y	D2:US20110144342 A1 (CADILA HEALTHCARE LTD) 16 Jun 2011 (16.06.2011) Abstract and Claims -----	1, 3-5
Y	D3:WO2012096832 A2 (CRYSTAL BIOPHARMACEUTICAL LLC) 19 Jul 2012 (19.07.2012) Abstract and Claims -----	1, 3-5
Y	D4:US4604463 A (KABUSHIKI KAISHA YAKULT HONSHA) 5 Aug 1986 (05.08.1986) Abstract and Claims	1, 3-5

☐ 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 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

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INTERNATIONAL SEARCH REPORT

International application No.
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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.:
because they relate to subject matter not required to be searched by this Authority, namely:

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:
Claims 1 and 3-5

Subject matter relates to Formula III and Its composition and their use.

2.Claims 2 and 6-8

Subject matter relates to Formula IV and Its composition and their use.

3.Claims 9 and 11-13

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 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. ☒ 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.:
1 and 3-5 only.

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.

Continuation of Observations where unity of invention is lacking (Box III)

Subject matter relates to Formula I and Its composition and their use.

4. Claims 10 and 14-16

Subject matter relates to Formula I and Its composition and their use.

Subject matter as disclosed in the claims 1-16 are not comes under single inventive concept because the basic structure of the all independent claims are not same.

INTERNATIONAL SEARCH REPORT
Information on patent family members

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Citation	Pub.Date	Family	Pub.Date
EP 2269580 A2	05-01-2011	US 20120276151 A1	01-11-2012
		WO 2006027567 A2	16-03-2006
US 20110144342 A1	16-06-2011	US 8546573 B2	01-10-2013
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		CN 103313992 A	18-09-2013
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		EP 0137145 A1	17-04-1985