



(43) International Publication Date
25 September 2014 (25.09.2014)

WIPO | PCT

(10) International Publication Number
WO 2014/147531 A3

- (51) **International Patent Classification:**
A61K 31/47 (2006.01) *C07D 222/04* (2006.01)
- (21) **International Application Number:**
PCT/IB2014/059771
- (22) **International Filing Date:**
14 March 2014 (14.03.2014)
- (25) **Filing Language:** English
- (26) **Publication Language:** English
- (30) **Priority Data:**
1166/CHE/2013 19 March 2013 (19.03.2013) IN
- (72) **Inventor; and**
- (71) **Applicant : KANDULA, Mahesh** [IN/IN]; Door No. 11-61, Samalkot Mandal, East Godavari District, Andhra Pradesh, G.medapadu 533434 (IN).
- (81) **Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,

HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, 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, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

- (88) **Date of publication of the international search report:**
19 February 2015

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

(57) **Abstract:** The invention relates to the compounds of formula I, formula II and formula III or its pharmaceutical acceptable salts, as well as polymorphs, solvates, enantiomers, stereoisomers and hydrates thereof. The pharmaceutical compositions comprising an effective amount of compounds of formula I, formula II or formula III; and methods for treating or preventing cancer may be formulated for oral, buccal, rectal, topical, transdermal, transmucosal, intravenous, parenteral administration, syrup, or injection. Such compositions may be used to treatment of anal cancer, bladder cancer, brain tumors, breast cancer, cervical cancer, colon/colorectal cancer, endometrial cancer, esophageal cancer, gallbladder cancer, head and neck cancer, kidney cancer, leukemia, liver cancer, lung cancer, lymphoma, mesothelioma, cervical cancer and multiple myeloma.



WO 2014/147531 A3

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2014/059771

A. CLASSIFICATION OF SUBJECT MATTER
A61K31/47, C07D222/04 Version=2014.01

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)

A61K31/47, C07D222/04

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)

STN, ORBIT, IPO INTERNAL

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	SOLOMON, V. ET AL., "Design and synthesis of chloroquine analogs with anti-breast cancer property", European Journal of Medicinal Chemistry, Volume 45, Issue 9, September 2010, Pages 3916-3923. Whole document	1-12
A	SOLOMON, V. ET AL., "Chloroquine and its analogs: A new promise of an old drug for effective and safe cancer therapies", European Journal of Medicinal Chemistry, Volume 45, Issue 2, February 2010, Pages 705-709. Whole document	1-12
A	CHANGKUN HU. ET AL., "The efficacy and selectivity of tumor cell killing by Akt inhibitors are substantially increased by chloroquine", Bioorganic & Medicinal Chemistry, Volume 16, Issue 17, 1 September 2008, Pages 7888-7893. Whole document	1-12
A	ELDERFIELD, R., "Synthesis of Potential Anticancer	1-12



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

29-10-2014

Date of mailing of the international search report

29-10-2014

Name and mailing address of the ISA/

Indian Patent Office
Plot No.32, Sector 14, Dwarka, New Delhi-110075
Facsimile No.

Authorized officer

Ravi Kumar Battini

Telephone No. +91-1125300200

INTERNATIONAL SEARCH REPORT

International application No.

PCT/IB2014/059771

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	Agents. III. Nitrogen Mustards Derived from 8-Aminoquinolines", J. Org. Chem., 1960, 25 (9), pp 1576-1583. Whole document	
	WO2012149186 A2, AMARAVADI, R. ET AL. 1 Nov 2012 (2012-11-01) Whole document	1-12

INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/IB2014/059771

Citation	Pub.Date	Family	Pub.Date
WO 2012149186 A2	01-11-2012	US 2014050696 A1	20-02-2014
		EP 2702054 A2	05-03-2014
		CA 2841452 A1	01-11-2012