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*A61P 35/00* (2006.01)
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- (81) **Designated States (unless otherwise indicated, for every  
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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,  
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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,  
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KM, ML, MR, NE, SN, TD, TG).

**Published:**

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WO 2014/106459 A3

(54) **Title:** METHOD FOR TREATING TUMOR BY USING RECOMBINANT INTERFERON WITH CHANGED SPATIAL CONFIGURATION

(57) **Abstract:** The present invention provides methods for treating tumors in subjects by using a recombinant interferon (rSI-FN-coand optionally, methods for treating solid tumors, such as lung cancer among others with or without prior surgery and as a first line or second line monotherapy or in combination with one or more other anti-tumor therapies. The present invention further provides non-surgical methods for eliminating tumors or reducing tumor sizes in subjects, and/or preventing postoperative tumor recurrence and/or metastases in subjects by using the recombinant interferon (rSIFN-co) which comprises a unique spatial configuration, alone or in conjunction with radiotherapy, chemotherapy, and/or one or more anti-tumor drugs such as biological agents, targeted drugs, small molecules, Traditional Chinese Medicine (TCM) and the like.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2014/000019

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
A61K 38/12(2006.01); A61P 35/00(2006.01)i; A61P 35/02(2006.01)i		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
A61K.; A61P		
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)		
CNABS; DWPI; SIPOABS; CNKI; Google scholar; Pubmed: interferon, Infergen, tumor, cancer, carcinoma, neoplasm, lung cancer, NSCLC, recurrence, pleural effusion, ascite, pericardial effusion, lesion, sequences search based on SEQ ID NOs: 1-3		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 102294020 A (HUIYANG TECH USA INC ET AL.) 28 December 2011 (2011-12-28)	1-481
A	CN 101001644 A (HUIYANG TECH USA INC ET AL.) 18 July 2007 (2007-07-18)	1-481
A	Zheng, J. et al., . "Effect of Recombinant Super-compound Interferon (rSIFN-co) on Human Breast Cancer Cells in vitro, " <i>J Sichuan Univ (Med Sci Edi)</i> , vol. 41, no.1, 28 February 2010 (2010-02-28), pages 29-34,	1-481
A	Chen, Y. et al., . "The Growth Inhibition and Apoptosis-promoting Effect of rSIFN-co to the Cervical Carcinoma Cells in vitro, " <i>Journal of Practical Obstetrics and Gynecology</i> , vol. 125, no. 4, 30 April 2014 (2014-04-30), pages 216-219,	1-481
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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	"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
"E"	earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search		Date of mailing of the international search report
02 April 2014		16 July 2014
Name and mailing address of the ISA/ STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA(ISA/CN) 6,Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China		Authorized officer  LL,Kangqi
Facsimile No. (86-10)62019451		Telephone No. (86-10)62411034

**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.: **1-481**  
because they relate to subject matter not required to be searched by this Authority, namely:
  - [1] Claims 1-481 relate to methods for treating a tumor or symptoms related in a subject by a recombinant interferon, which may be excluded from international search according to Rule 39.1(iv). Claims 1-481 might be reasonably expected to be direct to the alleged uses of a recombinant interferon for the manufacture of pharmaceutical compositions for the treatment of tumors such as lung cancers, tumor recurrence, tumor metastasis, tumor-related symptoms such as pleural effusion, ascites and pericardial effusion, and lesions caused by tumor invasion. The international search is carried out on the basis of said condition.
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).

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/CN2014/000019**

Patent document cited in search report	Publication date (day/month/year)	Patent family member(s)	Publication date (day/month/year)
CN 102294020 A	28 December 2011	US 2005208019 A1	22 September 2005
		US 2011027228 A1	03 February 2011
		KR 20130027500 A	15 March 2013
		US 2009220456 A1	03 September 2009
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CN 101001644 A	18 July 2007	CN 1910195 A	07 February 2007
		CN 101001644 B	21 September 2011
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