



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C07K 14/52, 5/00, 7/00, C07D 303/22, A61K 51/08, G01N 33/534	A3	(11) International Publication Number: WO 99/40947 (43) International Publication Date: 19 August 1999 (19.08.99)
(21) International Application Number: PCT/CA99/00101 (22) International Filing Date: 11 February 1999 (11.02.99) (30) Priority Data: 60/074,420 11 February 1998 (11.02.98) US (71) Applicant (for all designated States except US): RESOLUTION PHARMACEUTICALS INC. [CA/CA]; 6850 Goreway Drive, Mississauga, Ontario LV4 1V7 (CA). (72) Inventors; and (75) Inventors/Applicants (for US only): FAUCONNIER, Theresa [CA/CA]; 56A Jackman Avenue #3, Toronto, Ontario M4K 2X6 (CA). POLLAK, Alfred [CA/CA]; Apartment 1400, 135 Marlee Avenue, Toronto, Ontario M6B 4C6 (CA). THORNBACKE, John [GB/CA]; 6 Poplar Plains Crescent, Toronto, Ontario M4V 1E8 (CA). ESHIMA, Dennis [US/CA]; 16 McCabe Crescent, Bolton, Ontario L7E 5W9 (CA). (74) Agent: DEETH WILLIAMS WALL; National Bank Building, Suite 400, 150 York Street, Toronto, Ontario M5H 3S5 (CA).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, 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, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 23 March 2000 (23.03.00)
(54) Title: ANGIOGENESIS TARGETING MOLECULES (57) Abstract The present invention relates to compounds that are effective for targeting sites of angiogenesis for diagnostic and therapeutic purposes. The compounds are of the Formula (I): A-(B)_n-C, wherein A is a chelator moiety capable of complexing a radionuclide metal or a moiety capable of binding to a halogen; B is a spacer group; C is an angiogenesis targeting molecule; and n is selected from the integers 0 and 1. The invention also relates to a method of imaging sites of angiogenesis and treating patients through the administration of the compounds of the present invention.		

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 99/00101

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C07K14/52 C07K5/00 C07K7/00 C07D303/22 A61K51/08
G01N33/534

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 C07K A61K G01N C07D

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	TAKAGI, H. ET AL.: "Identification and characterization of vascular endothelial growth factor receptor ..." DIABETES, vol. 45, August 1996 (1996-08), pages 1016-1023, XP002115744 * page 1016-1017; fig. 2 *	1-4, 25-27, 29,31-35
Y	WO 95 17419 A (RESOLUTION PHARMACEUTICALS INC.) 29 June 1995 (1995-06-29) * pages 1,2,7-11; claims *	1-4, 25-27, 29,31-35
Y	TAUNTON, J.: "How to starve a tumor" CHEMISTRY & BIOLOGY, vol. 4, July 1997 (1997-07), pages 493-496, XP002115745 * abstract *	1-4, 25-27, 29,31-35

☒ 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
- *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

7 January 2000

Date of mailing of the international search report

21 January 2000 (21.01.00)

Name and mailing address of the ISA

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/CA 99/00101

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	YANAI, S. ET AL.: "Antitumor activity of a medium chain triglyceride solution of the angiogenesis inhibitor TNP-470 ..." J. PHARM. EXP. THER., vol. 271, no. 8, 1994, pages 1267-1273, XP002115746 * page 1267 *	1-4, 25-27, 29,31-35
X	--- EP 0 359 347 A (NEORX CORPORATION) 21 March 1990 (1990-03-21) * pages 2-5; page 17, lines 45-58; claims 1,5,12,16 *	1,4, 25-27, 29,31-35
Y	--- WO 94 11499 A (MAX-PLANCK-GESELLSCHAFT) 26 May 1994 (1994-05-26) * claims 18,19,22,25,30; SEQ ID NO: 2 *	1-4, 25-27, 29,31-35
A	--- WO 96 06641 A (PRIZM PHARMACEUTICALS, INC.) 7 March 1996 (1996-03-07) * pages 1-3 *	1-4, 25-27, 29,31-35

INTERNATIONAL SEARCH REPORT

International application No.
PCT/CA 99/00101

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.:
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 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:

see additional sheet

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.:
2,4 completely; 1,3,25-27,29,31-35 partially
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 2 completely; 1, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" is fumagillin or an analogue thereof; related compositions, methods, kits.

2. Claims: 4 completely; 1, 3, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" incorporates the sequence R-X-K-X-H or I-X-X-I; related compositions, methods, kits.

3. Claims: 5 completely; 1, 3, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" incorporates the sequence D-E-X-X-E; related compositions, methods, kits.

4. Claims: 12-14 completely; 1, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" includes the sequence R-G-D-S or dR-G-dD-dS; related compositions, methods, kits.

5. Claims: 15 completely; 1, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" includes the sequence L-D-V; related compositions, methods, kits.

6. Claims: 16 completely; 1, 25-27, 29, 31-35 all partially

A compound of formula (I) for the imaging and treatment of angiogenesis, wherein "C" includes the sequence NGR or RPK; related compositions, methods, kits.

7. Claims: 1, 6-11, 25-27, 29, 31-35 all partially

Other compounds of claim 1 for the imaging and treatment of angiogenesis which are structurally different from the compounds of subjects 1-6, and which are only characterized by functional features; related compositions, methods, kits.

8. Claims: 18-21 completely; 17, 24, 27, 29,

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

31-33 all partially

Compounds as such, comprising the constant moiety C(acm) and a comparatively well-defined moiety "B"; related compositions, methods.

9. Claims: 17, 24, 27, 29, 31-33 all partially

Other compounds of claim 17; related compositions, methods.

10. Claims: 22,28 completely; 31-33 partially

A compound (which does not have the structure of formula I) for the imaging and treatment of angiogenesis, comprising labelled VEGF; related compositions, methods.

11. Claims: 23,30 completely; 31-33 partially

Other labelled compounds for the imaging and treatment of angiogenesis; related compositions, methods.

12. Claim : 34 partially

A composition comprising a compound of formula I and a stannous ion (without any limitation to medical use).

13. Claims: 31-33, all partially

Second medical or diagnostic use of known compounds, which fall within the scope of claims 1,17,22,23.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 99/00101

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9517419 A	29-06-1995	US 5480970 A AU 1378395 A CA 2179379 A EP 0733060 A JP 9506870 T	02-01-1996 10-07-1995 29-06-1995 25-09-1996 08-07-1997
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