

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
13 February 2003 (13.02.2003)

PCT

(10) International Publication Number
WO 03/011342 A3

(51) International Patent Classification⁷: **A61K 47/48**,
51/10, 51/04

(21) International Application Number: PCT/GB02/03494

(22) International Filing Date: 31 July 2002 (31.07.2002)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/308,605 31 July 2001 (31.07.2001) US

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(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, 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, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

(88) Date of publication of the international search report:
16 October 2003

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

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(74) Agent: **W.P. THOMPSON & CO.**; Coopers Building, Church Street, Liverpool L1 3AB (GB).

(54) Title: TARGETED POLYMERIC DELIVERY SYSTEMS

(57) **Abstract:** The present invention relates to a method for targeting an agent towards a target site in a tissue comprising (a) administering to a tissue a multi-specific antibody (msAb) or multi-specific antibody fragment, comprising a targeting arm that binds to an antigen on the target site, and a capture arm that binds to a polymer conjugate; and (b) administering to the tissue a polymer conjugate that binds to the capture arm, with the polymer conjugate comprising a polymer conjugated to an agent selected from the group consisting of a therapeutic agent, a peptide, an enzyme and a labeled ligand. The present invention also relates to a kit, useful for targeting a target site in a tissue or tissue sample, comprising, (a) a multi-specific antibody or antibody fragment comprising a targeting arm that binds to an antigen on said target site, and a capture arm that binds to a polymer conjugate or hapten-polymer conjugate; and (b) a polymer conjugate that binds to the capture arm, with the polymer conjugate comprising a polymer conjugated to an agent selected from the group consisting of a therapeutic agent, a peptide, an enzyme and a labeled ligand.



WO 03/011342 A3

INTERNATIONAL SEARCH REPORT

 Int'l Application No
 PCT/GB 02/03494

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K47/48 A61K51/10 A61K51/04

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 7 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 practical, search terms used)

EPO-Internal, PAJ, WPI Data, EMBASE, MEDLINE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 99 66951 A (MCBRIDE WILLIAM J ;HANSEN HANS J (US); LEUNG SHUI ON (US); QU ZHEN) 29 December 1999 (1999-12-29)	1-20
Y	the whole document	1,5, 10-12

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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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 document but published on or after the international filing date
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- *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

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- *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
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Date of the actual completion of the international search

22 May 2003

Date of mailing of the international search report

17. 06. 2003

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INTERNATIONAL SEARCH REPORT

Int'l Application No

PCT/GB 02/03494

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HOES C J T ET AL: "SYNTHESIS AND BIODISTRIBUTION OF IMMUNOCONJUGATES OF A HUMAN IGM AND POLYMERIC DRUG CARRIERS" JOURNAL OF CONTROLLED RELEASE, ELSEVIER SCIENCE PUBLISHERS B.V. AMSTERDAM, NL, vol. 19, no. 1 / 3, 1 March 1992 (1992-03-01), pages 59-76, XP000261545 ISSN: 0168-3659 page 60, LH column, paragraph 2 page 60, RH column, paragraph 1 page 70, paragraph "discussion": paragraph 1 and 2 abstract ----	1,2,6,8, 10,11
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INTERNATIONAL SEARCH REPORT

In International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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International Application No
PCT/GB 02/03494

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	VUILLEZ J-P ET AL: "RADIOIMMUNOTHERAPY OF SMALL CELL LUNG CARCINOMA WITH THE TWO-STEP METHOD USING A BISPECIFIC ANTI-CARCINOEMBRYONIC ANTIGEN/ANTI-DIETHYLENETRIAMINEPENTAACETIC ACID (DTPA) ANTIBODY AND IODINE-131 DI-DTPA HAPTEN: RESULTS OF A PHASE I/II TRIAL" CLINICAL CANCER RESEARCH, THE AMERICAN ASSOCIATION FOR CANCER RESEARCH, US, vol. 5, no. 10, SUPPL, October 1999 (1999-10), pages 3259S-3267S, XP001109647 ISSN: 1078-0432 abstract ----	12
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A	EP 0 650 735 A (AKZO NOBEL NV) 3 May 1995 (1995-05-03) the whole document -----	1-20

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB 02/03494

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.:
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: 1-11, 13-20

A method for targeting an agent conjugated to a polymer towards a target site in a tissue, comprising a pretargeting step with a multispecific antibody. The agent can be selected from the group consisting of :
a therapeutic agent.

2. Claims: 1-11, 13-20

A method for targeting an agent conjugated to a polymer towards a target site in a tissue, comprising a pretargeting step with a multispecific antibody. The agent can be selected from the group consisting of :
a peptide.

3. Claims: 1-11, 13-20

A method for targeting an agent conjugated to a polymer towards a target site in a tissue, comprising a pretargeting step with a multispecific antibody. The agent can be selected from the group consisting of :
an enzyme.

4. Claims: 1-20

A method for targeting an agent conjugated to a polymer towards a target site in a tissue, comprising a pretargeting step with a multispecific antibody. The agent can be selected from the group consisting of :
a labeled ligand.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB 02/03494

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