

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
3 January 2002 (03.01.2002)

PCT

(10) International Publication Number
WO 02/000617 A3

- (51) International Patent Classification⁷: **A61K 31/00**, A61P 35/00, A61K 31/40, G01N 33/53
- (74) Agents: **ALGIERI, Aldo, A.** et al.; Bristol-Myers Squibb Co., P.O. Box 4000, Lawrenceville-Princeton Rd., Princeton, NJ 08543 (US).
- (21) International Application Number: PCT/US01/19665
- (22) International Filing Date: 20 June 2001 (20.06.2001)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
- | | | |
|------------|--------------------------------|----|
| 60/214,392 | 28 June 2000 (28.06.2000) | US |
| 60/233,519 | 19 September 2000 (19.09.2000) | US |
| 60/284,438 | 18 April 2001 (18.04.2001) | US |
| 60/284,617 | 18 April 2001 (18.04.2001) | US |
| 60/284,730 | 18 April 2001 (18.04.2001) | US |
- (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, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
- (84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, 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, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).
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- Published:**
- with international search report
 - with sequence listing part of description published separately in electronic form and available upon request from the International Bureau
- (88) Date of publication of the international search report:
30 January 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.*



WO 02/000617 A3

(54) Title: SELECTIVE ANDROGEN RECEPTOR MODULATORS AND METHODS FOR THEIR IDENTIFICATION, DESIGN AND USE

(57) Abstract: Selective androgen receptor modulators (SARMs) having antagonist activity in hormone-dependent tumors while exhibiting no activity or agonist activity against other nontumor tissues containing the androgen receptor as well as methods for identifying, designing and using SARMs are provided.

INTERNATIONAL SEARCH REPORT

 International Application No
 PCT/US 01/19665

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K31/00 A61P35/00 A61K31/40 G01N33/53

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 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 practical, search terms used)

EPO-Internal, MEDLINE, WPI Data, CHEM ABS Data, PAJ, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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E	WO 02 00653 A (BALOG JAMES AARON ;SQUIBB BRISTOL MYERS CO (US); GIESE SOREN (US);) 3 January 2002 (2002-01-03) cited in the application claims	8
E	WO 02 24702 A (BALOG JAMES AARON ;PICKERING DACIA A (US); SQUIBB BRISTOL MYERS CO) 28 March 2002 (2002-03-28) cited in the application claims	8
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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
- "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

21 August 2002

Date of mailing of the international search report

13 09 02

Name and mailing address of the ISA

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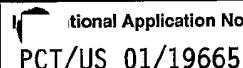
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International Application No

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P,X	WO 01 16139 A (ZHI LIN ;CHEN PENGHUI (CA); NEELAKANDHA MANI (CA); ARIENTI KRISTEN) 8 March 2001 (2001-03-08) cited in the application page 18, line 22 -page 19, line 2 ---	1-9
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P,X	WO 00 37430 A (BIOPHYSICA INC) 29 June 2000 (2000-06-29) page 9, line 13 - line 26 ---	1-9
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 International Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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P,X	<p>WO 01 27622 A (EINSPAHR HOWARD M ;SQUIBB BRISTOL MYERS CO (US); SACK JOHN S (US);) 19 April 2001 (2001-04-19) claims 1-22; table A</p> <p style="text-align: center;">---</p> <p style="text-align: center;">-/--</p>	12-24

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 01/19665

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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P,X	<p>MATIAS P M ET AL: "Structural evidence for ligand specificity in the binding domain of the human androgen receptor. Implications for pathogenic gene mutations." THE JOURNAL OF BIOLOGICAL CHEMISTRY. UNITED STATES 25 AUG 2000, vol. 275, no. 34, 25 August 2000 (2000-08-25), pages 26164-26171, XP002210457 ISSN: 0021-9258 abstract</p>	12-21
X	<p>YARBROUGH W G ET AL: "A SINGLE BASE MUTATION IN THE ANDROGEN RECEPTOR GENE CAUSES ANDROGEN INSENSITIVITY IN THE TESTICULAR FEMINIZED RAT" JOURNAL OF BIOLOGICAL CHEMISTRY, AMERICAN SOCIETY OF BIOLOGICAL CHEMISTS, BALTIMORE, MD, US, vol. 265, no. 15, 25 May 1990 (1990-05-25), pages 8893-8900, XP001062675 ISSN: 0021-9258 abstract</p>	13-16, 20,21
X	<p>WO 97 21993 A (UNIV CALIFORNIA) 19 June 1997 (1997-06-19) page 6, line 27; claims 10,38</p>	22,23

INTERNATIONAL SEARCH REPORT

International application No.
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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:

Although claims 1-7 and 9 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. Claims Nos.: 1-9,24 (partly)
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:

see FURTHER INFORMATION sheet PCT/ISA/210
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

Continuation of Box I.2

Claims Nos.: 1-9,24 (partly)

Present claims 1-9 and 24 relate to a product and its use defined by reference to a desirable characteristic or property, namely selective androgen receptor modulation characterized by antagonistic activity in a hormone-dependent tumor and no activity or agonist activity against other, nontumor tissues containing the androgen receptor.

The claims cover all products having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such products. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the product by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the products of the examples (Table 1).

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. Claims: 1-9

Selective androgen receptor modulators and their use in the treatment of a variety of conditions.

2. Claims: 10,11,24(in part)

Methods for identifying selective androgen receptor modulators.

3. Claims: 12-16,20,21

A crystal structure and parts thereof representing AR-LBD.

4. Claims: 17-19

A machine-readable data storage medium encoding crystal structure data.

5. Claims: 22,24(in part)

A computational method of designing androgen receptor synthetic ligands.

6. Claims: 23,24(in part)

A method for identifying a compound that modulates androgen receptor activity.

INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/US 01/19665

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INTERNATIONAL SEARCH REPORT
Information on patent family members

International Application No
PCT/US 01/19665

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