

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
12 May 2005 (12.05.2005)

PCT

(10) International Publication Number
WO 2005/042472 A3

(51) International Patent Classification:

C07C 235/08 (2006.01) C07C 255/26 (2006.01)
C07C 233/18 (2006.01) A61K 31/165 (2006.01)
C07D 303/36 (2006.01) A61P 25/28 (2006.01)
C07C 271/22 (2006.01)

(21) International Application Number:

PCT/US2004/036418

(22) International Filing Date:

1 November 2004 (01.11.2004)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

60/515,908 30 October 2003 (30.10.2003) US

(71) Applicants (for all designated States except US): **ELAN PHARMACEUTICALS, INC.** [US/US]; 800 Gateway Boulevard, South San Francisco, CA 94080 (US). **PHARMACIA & UPJOHN COMPANY LLC** [US/US]; 301 Henrietta Street, Kalamazoo, MI 49007 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **TUCKER, John, A.** [US/US]; 7039 Santa Fe Canyon Place, San Diego, CA 92129 (US).

(74) Agent: **SHALTOUT, Raafat, M.**; McDonnell Boehnen Hulbert & Berghoff, 300 South Wacker Drive, Suite 3200, Chicago, IL 60606 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, 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, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

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

Published:

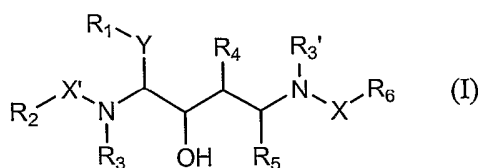
— with international search report

(88) Date of publication of the international search report:

20 July 2006

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.

(54) Title: HYDROXYPROPYL AMIDES FOR THE TREATMENT OF ALZHEIMER'S DISEASE



(57) Abstract: The present invention relates to compounds of formula (I) useful in treating Alzheimer's disease and other similar diseases. These compounds include inhibitors of the beta-secretase enzyme that are useful in the treatment of Alzheimer's disease and other diseases characterized by deposition of A beta peptide in a mammal. The compounds of the invention are useful in pharmaceutical compositions and methods of treatment to reduce A beta peptide formation.

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US2004/036418

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07C235/08 C07C233/18 C07D303/36 C07C271/22 C07C255/26
A61K31/165 A61P25/28

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 C07C C07D 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, WPI Data, BEILSTEIN Data, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 03/029169 A (ELAN PHARMACEUTICALS, INC; PHARMACIA & UPJOHN COMPANY; FISHER, JED, F;) 10 April 2003 (2003-04-10) page 82, line 8 - page 83, line 23	14-16
A	claims; examples	1,8,14, 17,18
A	----- WO 03/006013 A (ELAN PHARMACEUTICALS, INC; PHARMACIA & UPJOHN COMPANY; SCHOSTAREZ, HEI) 23 January 2003 (2003-01-23) claims; examples	1,8, 14-18
P,X	----- US 2004/039034 A1 (TUCKER JOHN A ET AL) 26 February 2004 (2004-02-26) claims; examples	1-18

☐ 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

20 May 2005

Date of mailing of the international search report

03/06/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Zervas, B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2004/036418

Box 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.:
because they relate to subject matter not required to be searched by this Authority, namely:

Although claims 9 -11 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.:
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 III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US2004/036418

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 03029169	A	10-04-2003	BR 0213139 A	10-08-2004
			CA 2462851 A1	10-04-2003
			EP 1432674 A2	30-06-2004
			WO 03029169 A2	10-04-2003
			US 2003125365 A1	03-07-2003

WO 03006013	A	23-01-2003	BR 0211118 A	26-10-2004
			CA 2453444 A1	23-01-2003
			EP 1406617 A1	14-04-2004
			JP 2005504022 T	10-02-2005
			WO 03006013 A1	23-01-2003
			US 2003083353 A1	01-05-2003

US 2004039034	A1	26-02-2004	AU 2003303141 A1	22-07-2004
			WO 2004058686 A1	15-07-2004
