#### (19) World Intellectual Property Organization International Bureau





(43) International Publication Date 28 February 2002 (28.02.2002)

# (10) International Publication Number WO 02/015886 A3

(51) International Patent Classification7: A61K 9/20, 31/635, 31/415

(21) International Application Number: PCT/US01/25834

(22) International Filing Date: 17 August 2001 (17.08.2001)

(25) Filing Language: English

English (26) Publication Language:

(30) Priority Data: 18 August 2000 (18.08.2000) 60/226,347 US

(71) Applicant (for all designated States except US): PHAR-MACIA CORPORATION [US/US]; Corporate Patent Department, 800 North Lindbergh Boulevard, St. Louis, MO 63167 (US).

(72) Inventors; and

- (75) Inventors/Applicants (for US only): KARALI, Tugrul, T. [US/US]; 8335 N. Kildare, Skokie, IL 60076 (US). KONTNY, Mark, J. [US/US]; 2343 Huntington Lakes Drive, Libertyville, IL 60048 (US). LE, Tang, T. [US/US]; 1802 Oslo Court, Mundelein, IL 60060 (US).
- (74) Agents: FORBES, James, C. et al.; Pharmacia Corporation, 800 North Lindbergh Boulevard, 04C, St. Louis, MO 63167 (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, PH, 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, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments
- (88) Date of publication of the international search report: 25 July 2002

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: ORAL FAST-MELT DOSAGE FORM OF A CYCLOOXYGENASE-2 INHIBITOR

(57) Abstract: A process is provided for preparing an oral fast-melt composition of a selective cyclooxygenase-2 inhibitory drug comprising (a) a step of wet granulating the selective cycloorxygenase-2 inhibitory drug together with a binding agent selected from grums, polypetpides, natural and modified starches, cellulosic materials, alginic acid and salts thereof, polyethylene glycol, polyvinylpyrrolidone, polymethacrylates, silicate salts and bentonites, and (b) a step of blending with the drug a saccharide of low moldability, wherein the above steps (a) and (b) occur in any order or simultaneously to result in formation of granules. Optionally the process further comprises (c) a step of blending the granules with at least one of a lubricant, a sweetening agent and a flavoring agent to form a tableting blend, and (d) a step of compressing the tableting blend to form oral fast-melt tablets. Also provided is a composition prepared by such a process.

PCT/US 01/25834

A. CLASSIFICATION OF SUBJECT MATTER
1PC 7 A61K9/20 A61K31/635 A61K31/415

According to International Patent Classification (IPC) or to both national classification and IPC

#### B. FIELDS SEARCHED

 $\begin{array}{ll} \mbox{Minimum documentation searched (classification system followed by classification symbols)} \\ \mbox{IPC 7} & \mbox{A61K} \end{array}$ 

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, PAJ, BIOSIS, MEDLINE, EMBASE, CHEM ABS Data

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Calegory	Citation of document, with indication, where appropriate, of the relevant passages	Helevant to claim No.
X	WO OO 32189 A (GAO DANCHEN ;SEARLE & CO (US); MAZHARY AHMAD M (US); HLINAK ANTHON)	1-6, 8-20,
	8 June 2000 (2000-06-08) cited in the application	22-33
Y	page 1, paragraph 1 page 18, line 28 - line 31 page 2, line 24 -page 3, line 4 page 12, line 25 -page 13, line 4	7,21
	page 19, line 10 - line 16 page 20, line 6 - last line page 21, line 21 -page 22, line 16	
	page 31, line 11 - line 27 page 32, line 26 -page 33, line 18;	
	claims; examples 3-5 	
	-/	

Further documents are listed in the continuation of box C.	χ Patent family members are listed in annex.
"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 cltation 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	<ul> <li>'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</li> <li>'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</li> <li>'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 combined with one or more other such documents, such combination being obvious to a person skilled in the art.</li> <li>'&amp;' document member of the same patent family</li> </ul>
Date of the actual completion of the international search  7 May 2002	Date of malling of the international search report  22/05/2002
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  Marttin, E

3

PCT/US 01/25834

C.(Continua	ntion) DOCUMENTS CONSIDERED TO BE RELEVANT	101/03/01/25054
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 44028 A (MERCK FROSST CANADA INC; HANCOCK BRUNO (CA); WINTERS CONRAD (CA);) 27 November 1997 (1997-11-27)  page 1, line 9 -page 18	1-4,8, 10,12, 13, 15-18, 22,24, 26,27, 30,31
	page 6, line 31 -page 7, line 9; claims 1,7,8,27,33,34; example 1	
X	EP 0 748 628 A (AMERICAN HOME PROD) 18 December 1996 (1996-12-18)	1,2,8, 10,12, 13,15, 16,22, 24,26, 27,30,31
	example 16	
X	WO 99 47126 A (CHU JAMES SHUNNAN; YAMANOUCHI SHAKLEE PHARMA (US); LIU FANG YU (US) 23 September 1999 (1999-09-23) page 2, line 15 -page 4, line 23 page 19, line 1 - line 9; examples 1,2,8 page 9, line 7 -page 10, line 2 page 11, line 16 - line 22 page 14, line 1 -page 15, line 5; examples 1-8	1,2, 8-16, 22-31
X	WO 99 04765 A (BRAMBILLA GAETANO ;MEZZADRI ROSA (IT); VENTURA PAOLO (IT); ACERBI) 4 February 1999 (1999-02-04) page 1, paragraph 1	15,16, 22,24, 26,27, 30,31
	page 7, line 22 - line 26; example 9	
Y	US 5 633 272 A (TALLEY JOHN J ET AL) 27 May 1997 (1997-05-27) cited in the application	7,21
A	column 3, line 33 - line 43; example 5	1-5, 16-19, 30,31
	-/ <del></del>	

3

national Application No
PCT/US 01/25834

		PC1/US 01/25834
C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Ρ,Χ	WO 01 41761 A (NADKARNI SREEKANT; DESAI SUBHASH (US); KONTNY MARK J (US); PHARMAC) 14 June 2001 (2001-06-14) page 2, line 20 -page 3, line 11 page 10, line 19 - line 20	1-5,7,8, 10-19, 21,22, 24-27, 30-33
	page 12, line 13 - line 14 page 13, line 17 - line 20 page 13, line 29 -page 14, line 4 page 14, line 15 - line 30 page 18, line 25 - line 30 page 19, line 5 - line 14 page 30, line 28 -page 20, line 22; claims; examples 2,3; table 4	
A	EP 0 839 526 A (TAKEDA CHEMICAL INDUSTRIES LTD) 6 May 1998 (1998-05-06) page 2, line 39 - line 42; claims; examples 1,2; tables 1,2	1-33

3

#### FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1-33 relate to a compound, defined by reference to a desirable characteristic or property, namely a "selective cyclooxygenase-2 inhibitory drug". This term "selective cyclooxygenase-2 inhibitory drug" defines the active agent by its pharmacological effect. However, a compound canot be sufficiently characterised by its pharmacological effect as it is done by an expression like "selective cyclooxygenase-2 inhibitory drug", because it is impossible to know which substances are encompassed in this expression.

The claims cover all compounds having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of such compounds. 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 compound 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 concept of a "selective cyclooxygenase-2 inhibitory drug", and to the compounds mentioned in the dependent claims 3-7 and 17-21, and those mentioned in the description on page 9, lines 11-17.

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.

# PCT/US 01/25834

			rc1/03	01/25834
Patent document cited in search report	Publication date		Patent family member(s)	Publication date
WO 0032189 A	08-06-2000	AU BG BR CA CN EE HR NO PL SK TR WO	1838100 A 104680 A 9908030 A 2319201 A1 1288378 T 200000437 A 1049467 A1 20000434 A1 20003815 A 341372 A1 11062000 A3 200002207 T1 0032189 A1	19-06-2000 28-02-2001 28-11-2000 08-06-2000 21-03-2001 15-06-2001 08-11-2000 31-08-2000 29-09-2000 09-04-2001 12-03-2001 21-12-2000 08-06-2000
 WO 9744028 A	27–11–1997	ZA AU BG BR CZ EE EP HR JP NO NZ PL	3004997 A 103000 A 9709097 A 9803738 A3 9800393 A 0910368 A1 970262 A1 11512754 T 985342 A 332670 A 329940 A1	29-11-2000 
EP 0748628 A	 18-12-1996	SK TR WO US ZA AU AU BR	156798 A3 9802345 T2 9744028 A1 6063811 A 9704206 A 	18-01-2000 22-03-1999 27-11-1997 16-05-2000 17-11-1997 
		CA CN CZ EA EE HU JP NO NZ PL SG SK TR	2178686 A1 1152434 A 9601702 A3 960029 A2 9600067 A 0748628 A2 9601635 A2 118636 A 9003071 A 962491 A 286791 A 314732 A1 46737 A1 74396 A3 961062 A2	14-12-1996 25-06-1997 16-04-1997 31-12-1996 16-12-1996 18-12-1996 28-04-1997 17-02-2000 07-01-1997 16-12-1996 26-01-1998 23-12-1996 20-02-1998 09-04-1997 21-12-1996
	23-09-1999	US ZA AU CA CN EP FI	5958445 A 9604928 A 3197399 A 2325577 A1 1303275 T 1063972 A1 20002042 A	28-09-1999 10-12-1997 

PCT/US 01/25834

					5 01/25834
Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 9947126	Α		JP	2002506811 T	05-03-2002
			NO	20004643 A	17-11-2000
			PL	344105 A1	24-09-2001
<b></b>			WO 	9947126 A1	23-09-1999
WO 9904765	Α	04-02-1999	IT	MI971746 A1	25-01-1999
			AU	743186 B2	17-01-2002
			AU	8977798 A	16-02-1999
			BG	103253 A 9801335 A	30-09-1999 04-05-1999
			BR CN	1267215 T	20-09-2000
			WO	9904765 A2	04-02-1999
			EP	1003486 A2	31-05-2000
			HU	0003897 A2	28-08-2001
			JP	2001510789 T	07-08-2001
			NO	991376 A	25-05-1999
			PL	338502 A1	06-11-2000
			SK TR	922000 A3 9900675 T1	11-07-2000 22-11-1999
			US	6284272 B1	04-09-2001
US 5633272	Α	27-05-1997	AU	699593 B2	10-12-1998
			AU	4867196 A	04-09-1996
			BR CA	9607035 A 2212836 A1	04-11-1997 22-08-1996
			CN	1181075 A	06-05-1998
			CZ	9702546 A3	14-01-1998
			EP	0809636 A1	03-12-1997
			FΙ	973292 A	10-10-1997
			JP	3267300 B2	18-03-2002
			JP	11503722 T	30-03-1999
			NO NZ	973711 A	06-10-1997 30-08-1999
			NZ Pl	302586 A 321814 A1	22-12-1997
			WO	9625405 A1	22-08-1996
			ÜS	5859257 A	12-01-1999
			US	5985902 A	16-11-1999
WO 0141761	<del>_</del>	14-06-2001	AU	1805901 A	18-06-2001
			ΑU	1930301 A	18-06-2001
			AU	1931001 A	18-06-2001
			AU	1931101 A	18-06-2001
			AU	2041201 A	18-06-2001
			AU BR	2057101 A 0008058 A	18-06-2001 26-03-2002
			BR	0008059 A	26-03-2002
			BR	0008060 A	05-02-2002
			BR	0008088 A	09-04-2002
			CZ	20013210 A3	13-03-2002
			EP	1175214 A2	30-01-2002
					02-01-2002
			EP	1165072 A2	
			EP Ep	1150959 A1	07-11-2001
			EP EP EP	1150959 A1 1150960 A1	07-11-2001 07-11-2001
			EP EP EP NO	1150959 A1 1150960 A1 20013855 A	07-11-2001 07-11-2001 05-10-2001
			EP EP NO NO	1150959 A1 1150960 A1	07-11-2001 07-11-2001
			EP EP EP NO	1150959 A1 1150960 A1 20013855 A 20013858 A	07-11-2001 07-11-2001 05-10-2001 08-10-2001

national Application No
PCT/US 01/25834

Patent document cited in search report	Publication date		Patent family member(s)	Publication date
WO 0141761	Α	WO	0141536 A2	14-06-2001
		WO	0141761 A2	14-06-2001
		WO	0141762 A2	14-06-2001
		WO	0141760 A2	14-06-2001
		WO	0142221 A1	14-06-2001
		WO	0142222 A1	14-06-2001
		ÜS	2002006951 A1	17-01-2002
		ÜS	2002013357 A1	31-01-2002
		AU	2731401 A	03-07-2001
		WO	0145705 A1	28-06-2001
		ÜS	2002015735 A1	07-02-2002
EP 0839526	A 06-05-1998	CA	2219705 A1	30-04-1998
21 0003020		CN	1181237 A	13-05-1998
		EP	0839526 A2	06-05-1998
		ĴΡ	10182436 A	07-07-1998
		ÜS	6248357 B1	19-06-2001
		US	5958453 A	28-09-1999