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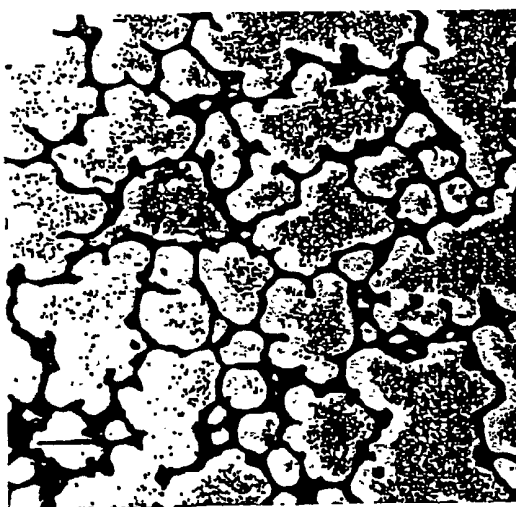
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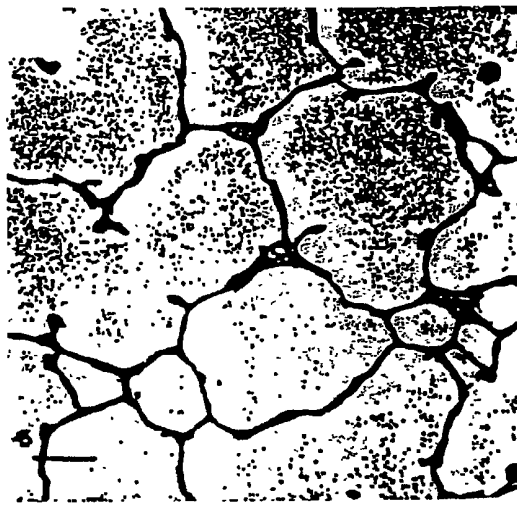
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*For two-letter codes and other abbreviations, refer to the "Guide-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: METHODS AND COMPOSITIONS FOR THE TREATMENT AND PREVENTION OF LUNG DISEASE INVOLV-
ING A SELECTIVE RAR-ALPHA AGONIST



A



B

(57) Abstract: Methods and compositions for the treatment of lung disease such as emphysema and/or bronchopulmonary dysplasia in a mammal. Also disclosed are methods and compositions promoting the formation of alveolar septa and increasing the gas-exchange surface area of a mammalian lung, and for the prevention and/or treatment of alveolar destruction.



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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 00/09494

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61P11/00 A61K45/06 A61K31/44

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)

EP0-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 5 919 970 A (SONG TAE K ET AL) 6 July 1999 (1999-07-06) the whole document	1
X	--- WO 97 19052 A (ALLERGAN INC) 29 May 1997 (1997-05-29) cited in the application page 2, line 31 page 3, line 2,3 page 7, line 22-26 page 17, line 22-31 page 23, line 3,4; table 2 page 73-77 --- -/--	1-29



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)
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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

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12/01/2001

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INTERNATIONAL SEARCH REPORT

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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.
X	WO 97 19062 A (ALLERGAN INC) 29 May 1997 (1997-05-29) cited in the application page 2, line 28 page 4, line 6-21 page 7, line 17,18 page 20, line 4,5; table 2 page 45-46 ---	1-8, 13-16, 21-24,29
X	EP 0 286 364 A (RIKER LABORATORIES INC) 12 October 1988 (1988-10-12) page 9, column 44-50; examples 1-6,8,11,15,16,20 page 2, column 30-50 ---	1-12, 21-29
X	WO 98 19999 A (ALLERGAN INC) 14 May 1998 (1998-05-14) page 8, line 6-21; table 1 page 17, line 15-17 ---	1,5,9, 13,17, 21,25
A	TENG M ET AL: "IDENTIFICATION OF A RETINOIC ACID RECEPTOR ALPHA SUBTYPE SPECIFIC AGONIST" JOURNAL OF MEDICINAL CHEMISTRY,US,AMERICAN CHEMICAL SOCIETY. WASHINGTON, vol. 39, no. 16, 2 August 1996 (1996-08-02), pages 3035-3038, XP000652115 ISSN: 0022-2623 the whole document ---	1-4
A	CHYTIL F: "The lungs and vitamin A." AMERICAN JOURNAL OF PHYSIOLOGY, (1992 MAY) 262 (5 PT 1) L517-27, XP000978073 page L523 -page L524 -----	1-4, 13-16, 21-24

FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210

Continuation of Box I.2

Present claims 1-28 relate to a methods and compositions involving compounds defined by reference to a desirable characteristic or property, namely agonism of RAR-alpha with specific RAR modulating activity, combined with non-agonism of RAR-beta and/or RAR-gamma.

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). A compound cannot be sufficiently defined by its mechanism of action and/or its pharmacological profile. 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 restricted to those parts of the application which appear to be clear, supported and disclosed, namely to the compounds referred to on page 12, lines 31-32 (as well as in claim 29) as being disclosed in US5663357, US5675024, and US5856490 (i.e. W09719052 and W09719062); with due regard to the general idea underlying the application.

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.

INTERNATIONAL SEARCH REPORT

information on patent family members

International Application No

PCT/US 00/09494

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5919970 A	06-07-1999	NONE	
WO 9719052 A	29-05-1997	US 5675024 A AU 702499 B AU 1056097 A BR 9611758 A CA 2238274 A CN 1214675 A EP 0876330 A JP 2000500499 T NZ 323581 A PL 327457 A US 6034244 A US 6124455 A US 5856490 A	07-10-1997 25-02-1999 11-06-1997 30-03-1999 29-05-1997 21-04-1999 11-11-1998 18-01-2000 29-07-1999 07-12-1998 07-03-2000 26-09-2000 05-01-1999
WO 9719062 A	29-05-1997	US 5663357 A AU 715624 B AU 1055197 A BR 9611615 A CA 2238310 A CN 1207727 A EP 0862555 A HU 9901993 A JP 2000500498 T NZ 323574 A PL 326925 A US 6051713 A US 5917048 A	02-09-1997 03-02-2000 11-06-1997 25-05-1999 29-05-1997 10-02-1999 09-09-1998 28-10-1999 18-01-2000 28-10-1999 09-11-1998 18-04-2000 29-06-1999
EP 0286364 A	12-10-1988	AU 615182 B AU 1407388 A CA 1322374 A DE 3850598 D DE 3850598 T DK 177088 A ES 2056105 T IL 85896 A JP 1261379 A JP 2514999 B KR 9609115 B NO 178619 B NZ 224079 A US 5049572 A US 5103037 A ZA 8802251 A	26-09-1991 06-10-1988 21-09-1993 18-08-1994 05-01-1995 12-01-1989 01-10-1994 14-01-1993 18-10-1989 10-07-1996 13-07-1996 22-01-1996 27-11-1990 17-09-1991 07-04-1992 29-11-1989
WO 9819999 A	14-05-1998	US 5739338 A AU 5101198 A EP 0937045 A	14-04-1998 29-05-1998 25-08-1999