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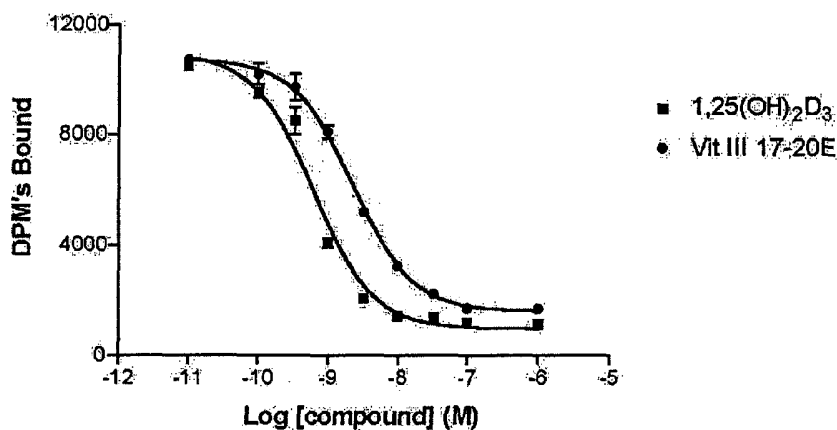
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[Continued on next page]

(54) Title: 17,20(E)-DEHYDRO VITAMIN D ANALOGS AND THEIR USES

Competitive VDR Binding



K_i : 1,25(OH)₂D₃ = 1.1×10^{-10} M
Vit-III 17-20E = 3.8×10^{-10} M

(57) Abstract: This invention discloses 17,20(E)-dehydro vitamin D analogs, and specifically 17(E)-1 α ,25-dihydroxy-17(20)-dehydro-2-methylene-19-nor-vitamin D₃ and pharmaceutical uses thereof. This compound exhibits pronounced activity in arresting the proliferation of undifferentiated cells and inducing their differentiation to the monocyte thus evidencing use as an anti-cancer agent and for the treatment of skin diseases such as psoriasis as well as skin conditions such as wrinkles, slack skin, dry skin and insufficient sebum secretion. This compound also has little, if any, calcemic activity and therefore may be used to treat autoimmune disorders and inflammatory diseases in humans as well as renal osteodystrophy and obesity.

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

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

INV. C07C401/00 A61K31/59 A61P11/06 A61P17/06 A61P35/00
A61P29/00 A61P37/00

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)

C07C 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, CHEM ABS Data, BEILSTEIN Data, BIOSIS, EMBASE, WPI 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 94/01398 A (LEO PHARMACEUTICAL PRODUCTS LTD. A/S (LOEVENS KEMIS) 20 January 1994 (1994-01-20) claim 1 tables 3,4	1, 5-7, 19-24, 31-35, 41-45, 51-55, 61-66, 73-77, 83-90
X	WO 98/24762 A (LEO PHARMACEUTICAL PRODUCTS LTD. A/S (LOEVENS KEMIS; VON DAEHNE, WELF) 11 June 1998 (1998-06-11) page 10: compounds 5 and 6 ----- -/-	1

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

☒ See patent family 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.

G document member of the same patent family

Date of the actual completion of the international search

8 May 2006

Date of mailing of the international search report

16/05/2006

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INTERNATIONAL SEARCH REPORT

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.
X	WO 99/18070 A (LEO PHARMACEUTICAL PRODUCTS LTD. A/S ; VON DAEHNE, WELF; GRUE-SOERENSE) 15 April 1999 (1999-04-15) table 4	1,5-7, 19-24, 31-35, 41-45, 51-55, 61-66, 73-77, 83-90
P,X	WO 2005/051323 A (WISCONSIN ALUMNI RESEARCH FOUNDATION; CLAGETT-DAME, MARGARET; DELUCA,) 9 June 2005 (2005-06-09) paragraph [0031]; claim 28 page34: compound VIT-I	1-98

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2005/041670

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 19 - 98 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/US2005/041670

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