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(54) Title: 6-CHLORO-3-(PHENYL-D₅)-INDEN-1-ONE AND USE THEREOF

(57) Abstract: The present invention discloses the compound 6-chloro-3-(phenyl-d₅)-inden-1-one (I) and routes of synthesis to ob-
tain (I). In a further aspect the present invention discloses the use of (I) for the synthesis of (S)-6-chloro-3-(phenyl-d₅)-indan-1-one.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2013/077314

A. CLASSIFICATION OF SUBJECT MATTER
INV. C07C49/697
ADD.

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

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 practicable, search terms used)

EPO-Internal, CHEM ABS Data, WPI Data, BEILSTEIN Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CLARK W M ET AL: "A HIGHLY ENANTIOSELECTIVE CONJUGATE REDUCTION OF 3-ARYLINDEN-1-ONES USING BAKER'S YEAST OF THE PREPARATION OF (S)-3-ARYLINDAN-1-ONES", ORGANIC LETTERS, AMERICAN CHEMICAL SOCIETY, US, vol. 1, no. 11, 1 January 1999 (1999-01-01), pages 1839-1842, XP002951487, ISSN: 1523-7060, DOI: 10.1021/OL991111+ cited in the application	17
A	See scheme 4, page 1840; paragraph 2, page 1841 ----- -/--	1-16



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 application or patent 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

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"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

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Date of the actual completion of the international search

1 July 2014

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INTERNATIONAL SEARCH REPORT

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PCT/EP2013/077314

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 2005/016901 A1 (LUNDBECK & CO AS H [DK]; BANG-ANDERSEN BENNY [DK]; BOEGESOE KLAUS PETE) 24 February 2005 (2005-02-24) See, e.g. preparation of compound (IV) in page 10 -----	1-16
X,P	WO 2012/176066 A1 (LUNDBECK & CO AS H [DK]; JORGENSEN MORTEN [DK]; ANDERSEN PETER HONGAAR) 27 December 2012 (2012-12-27) See paragraph 20, page 5; schema on pages 21 and 24 -----	1-17

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2013/077314

Box No. 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:
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 No. 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:

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 fees, this Authority did not invite payment of additional fees.
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 and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-16

compound of formula (I) 6-chloro-3-(phenyl-d₅)-inden-1-one,
processes for its preparation and its use in the preparation
of the pharmaceutical agent 4-((1R,3S)-6-chloro-3-(phenyl-d₅
)-indan-1-yl)-1(d₃),2,2-trimethyl-piperazine

2. claim: 17

processes for the preparation of the non-deuterated
6-chloro-3-(phenyl)-inden-1-one and its subsequent use

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2013/077314

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2005016901	A1	24-02-2005	
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