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- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
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Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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(54) Title: A PROCESS FOR PREPARATION OF MEROPENEM

(57) **Abstract:** The present invention relates to a novel, cost-effective process for the preparation of Sterile Meropenem Trihydrate, which is prepared by a) condensation of 1-Azabicyclo[3.2.0]hepta-2-ene-2-carboxylic acid, 3- [(diphenoxyphosphinyl)oxy]-6-(1-hydroxyethyl)-4-methyl-7-oxo-(4-nitrobenzyl) methyl ester, [4R-[4a,5b,6b(R*)]] with (2S,4S)-2-(Dimethylaminocarbonyl)-4-mercapto-1-(p-nitrobenzyloxycarbonyl)-1-pyrrolidine to obtain diprotected Meropenem; b) deprotection and hydrogenation of diprotected Meropenem to obtain non-sterile Meropenem Trihydrate; c) conversion of NS Meropenem Trihydrate into Sterile Meropenem Trihydrate by using water, methanolic ammonia solution and purging carbon dioxide gas.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/IN 12/00369

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C07D 487/04; A61K 31/40 (2012.01)

USPC - 540/350; 514/413

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(8): C07D 487/04; A61K 31/40 (2012.01)

USPC: 540/350; 514/413

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)

PubWEST (PGPB,USPT,USOC,EPAB), Google Scholar, PatBase

Search terms: meropenem, trihydrate, sterile, beta-lactam, antibiotic, alcoholic base, methanolic ammonia, diprotected, carbonated water, carbapenem, para-nitrobenzyl, p-nitrobenzyl

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2009/0264643 A1 (SURULICHAMY et al.) 22 October 2009 (22.10.2009) para [0001]-[0002], [0012], [0015]-[0019], [0032]-[0033], [0038], [0049], [0053]-[0054]	1-15
Y	US 3,036,120 A (HAMMER et al.) 22 May 1962 (22.05.1962) col 1, ln 10-13; col 7, ln 25-30	1-15
Y	WO 2009/047604 A1 (UDAYAMPALAYAM et al.) 16 April 2009 (16.04.2009) pg 9, ln 1-24	6-15
Y	US 4,962,103 A (SUNAGAWA et al.) 09 October 1990 (09.10.1990) col 1, ln 7-9; col 51, ln 10-51	10

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"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

03 November 2012 (03.11.2012)

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