(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

CORRECTED VERSION

(19) World Intellectual Property Organization
International Bureau

(43) International Publication Date
25 November 2010 (25.11.2010)

PCT

(10) International Publication Number
WO 2010/133306 A8

(51) International Patent Classification:
C07D 409/12 (2006.01) *A61P 25/00* (2006.01)
A61K 38/05 (2006.01)

(21) International Application Number:
PCT/EP2010/002884

(22) International Filing Date:
11 May 2010 (11.05.2010)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
MI2009A000897 21 May 2009 (21.05.2009) IT

(71) Applicant *(for all designated States except US)*: **MALESCI ISTITUTO FARMACOBIOLOGICO S.P.A.** [IT/IT]; Via Lungo l'Ema, 7, I-50012 Bagno A Ripoli (FI) (IT).

(72) Inventors; and
(75) Inventors/Applicants *(for US only)*: **BONACCORSI, Fabrizio** [IT/IT]; Via della Meridiana, 11, I-57100 Livorno (LI) (IT). **FEDI, Valentina** [IT/IT]; Via Limite, 8, I-50013 Campi Bisenzio (Fl) (IT). **GIANNOTTI, Danilo** [IT/IT]; Via Roma, 128, I-55011 Altopascio (LU) (IT).

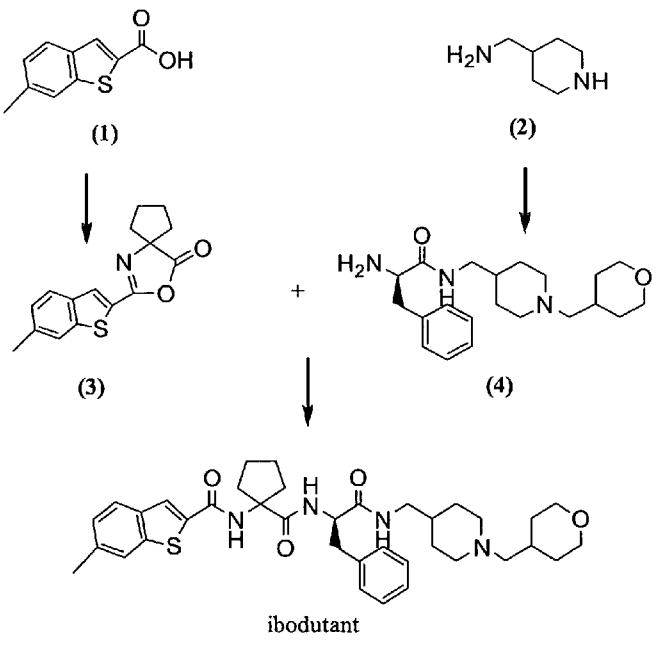
(74) Agent: **BANFI, Paolo**; Bianchetti Bracco Minoja S.r.l., Via Plinio, 63, I-20129 Milano (IT).

(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, RO, RS, RU, 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.

(84) Designated States *(unless otherwise indicated, for every kind of regional protection available)*: ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,

[Continued on next page]

(54) Title: PROCESS FOR THE PREPARATION OF IBODUTANT (MEN15596) AND RELATED INTERMEDIATES



Figure

(57) Abstract: This invention relates to a novel process for synthesising the product ibodutant shown in the figure below, consisting of a small number of high- yield steps involving reagents and solvents with low environmental impact, characterised by the coupling of two portions, compounds (3) and (4), one of which (3) is synthesised by coupling of 6-methyl-2- benzo[b]thiophenecarboxylic acid (1) with 1-amino-alpha-alpha-cyclopentan carboxylic acid and subsequent cyclization with oxazolone, while the other, compound (4), is obtained from suitable highly selective functionalisations of 4-aminomethylpiperidine (2).

WO 2010/133306 A8

ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report (Art. 21(3))*

(48) Date of publication of this corrected version:
3 February 2011

(15) Information about Correction:
see Notice of 3 February 2011