PCT WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A61K 31/00 | A1

(11) International Publication Number: WO 99/30695

(43) International Publication Date: 24 June 1999 (24.06.99)

(21) International Application Number: PCT/EP98/08066

(22) International Filing Date: 10 December 1998 (10.12.98)

(30) Priority Data:
60/112,002 12 December 1997 (12.12.97) US

(71) Applicant *(for all designated States except AT US)*: NOVARTIS AG [CH/CH]; Schwarzwaldallee 215, CH–4058 Basel (CH).

(71) Applicant *(for AT only)*: NOVARTIS–ERFINDUNGEN VERWALTUNGSGESELLSCHAFT MBH [AT/AT]; Brunner Strasse 59, A–1235 Vienna (AT).

(72) Inventors; and

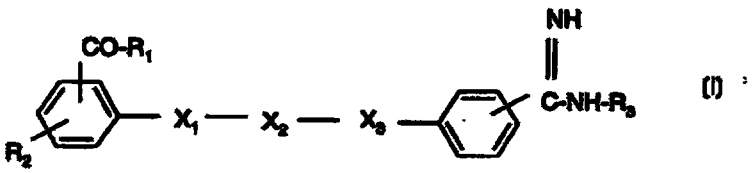
(75) Inventors/Applicants *(for US only)*: MARSHALL, Paul, James [US/US]; 4 Gary Court, Flanders, NJ 07836 (US). FUJIMOTO, Roger, Aki [US/US]; 21 Molly Stark Drive, Morristown, NJ 07960 (US).

(74) Agent: BECKER, Konrad; Novartis AG, Patent– und Markenabteilung, Lichtstrasse 35, CH–4002 Basel (CH).

(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: USE OF SUBSTITUTED AMIDINO COMPOUNDS IN THE TREATMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE



(I)

(57) Abstract

Use in medicaments for the treatment of chronic obstructive pulmonary disease of compounds of formula (I) wherein the C(=NH)–NHR$_3$ group may be in tautomeric or isomeric form, or a pharmaceutically acceptable salt thereof, in which: R$_1$ is amino which is mono– or disubstituted by a substitutent selected from an aliphatic hydrocarbon radical, an araliphatic hydrocarbon radical, an aromatic radical, and a cycloaliphatic hydrocarbon radical or is amino which is disubstituted by a divalent aliphatic hydrocarbon radical or a said radical interrupted by oxygen; R$_2$ is hydrogen, halogen, trifluoromethyl, an aliphatic hydrocarbon radical, hydroxy or is hydroxy which is etherified by an aliphatic, araliphatic or aromatic alcohol or by an aliphatic alcohol which is substituted by carboxy, by esterified carboxy or by amidated carboxy or which is esterified by an aliphatic or araliphatic carboxylic acid; R$_3$ is hydrogen or an acyl radical which is derived from an organic carbonic acid, an organic carboxylic acid, a sulfonic acid, or a carbamic acid; X$_1$ and X$_3$, independently or one another, are oxygen (–O–) or sulphur (–S–); and X$_2$ is a divalent aliphatic hydrocarbon radical which may be interrupted by an aromatic radical; wherein the phenyl rings of formula (I) may be, independently or one another, further substituted by one or more substituents selected from halogen, trifluoromethyl, an aliphatic hydrocarbon radical, hydroxy, and hydroxy which is etherified by an aliphatic alcohol or which is esterified by an aliphatic or araliphatic carboxylic acid; wherein aryl in the above definitions may be, independently of one another, further substituted by one or more substitutents selected from halogen, trifluoromethyl, an aliphatic hydrocarbon radical, hydroxy, and hydroxy which is ethereified by an aliphatic alcohol or which is esterified by an aliphatic or araliphatic carboxylic acid; wherein a cycloaliphatic hydrocarbon radical may be substituted by an aliphatic radical.