Title (en)

POSITIVELY CHARGED WATER-SOLUBLE PRODRUGS OF ASPIRIN

Title (de)

POSITIV GELADENE WASSERLÖSLICHE PRODRUGS VON ASPIRIN

Title (fr)

PROMÉDICAMENTS HYDROSOLUBLES À CHARGE POSITIVE DE L'ASPIRINE

Publication

EP 2038251 A4 20100421 (EN)

Application

EP 06780025 A 20060709

Priority

IB 2006052318 W 20060709

Abstract (en)

[origin: WO2008007171A1] The novel positively charged prodrugs of acetylsalicylic acid and its analogues in the general formula(1) "Structure 1" were designed and synthesized. The compounds of the general formula(1) "Structure 1" indicated above can be prepared from functional derivatives of ASA or its analogues,(for example acid halides or mixed anhydrides), by reaction with suitable alcohols, thiols, or amines. The positively charged amino groups of these pro-drugs not only largely increases the solubility of the drugs, but also bonds to the negative charge on the phosphate head group of membranes and push the pro-drug into the cytosol. The experiment results suggest that the pro-drug, diethylaminoethyl acetylsalicylate.AcOH, diffuses through human skin ~400 times faster than acetylsalicylic acid itself and ~100 times faster than ethyl acetylsalicylate. In plasma, 80% of these pro-drugs can change back to the drug in a few minutes. The pro-drugs can be used medicinally in treating any aspirin-treatable conditions in humans or animals and be administered not only orally, but also transdermally for any kind of medical treatments and avoid most of the side effects of aspirin, most notably GI disturbances such as dyspepsia, gastroduodenal bleeding, gastric ulcerations, and gastritis. Controlled transdermal administration systems of the prodrug enables the aspirin to reach constantly optimal therapeutic blood levels to increase effectiveness and reduce the side effects of aspirin.

IPC 8 full level

C07C 219/14 (2006.01); **A61K 31/235** (2006.01); **A61P 29/00** (2006.01); **C07C 235/60** (2006.01); **C07C 327/30** (2006.01)

CPC (source: EP)

A61P 1/02 (2017.12); **A61P 1/04** (2017.12); **A61P 3/10** (2017.12); **A61P 7/02** (2017.12); **A61P 9/10** (2017.12); **A61P 13/12** (2017.12); **A61P 19/02** (2017.12); **A61P 21/00** (2017.12); **A61P 25/04** (2017.12); **A61P 27/02** (2017.12); **A61P 29/00** (2017.12); **A61P 35/00** (2017.12); **C07C 219/14** (2013.01); **C07C 235/60** (2013.01); **C07C 327/30** (2013.01)

Citation (search report)

- [X] EP 0152379 A2 19850821 - CIBA GEIGY AG [CH]
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- [X] CHANAL, J. L. ET AL: "Study on the distribution and elimination of dimethylaminoethyl acetylsalicylate in the rat. Effect of the carbon-14 labeling position", BOLLETTINO CHIMICO FARMACEUTICO , 119(6), 331-8 CODEN: BCFAAI; ISSN: 0006-6648, 1980, XP008119887
- [X] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 1981, WOLINSKI, JERZY ET AL: "Search for anticholinergic compounds. XX. Synthesis of aminoalkyl o-, m-, and p-hydroxybenzoates and o-, m-, and p-acetoxybenzoates", XP002571760, retrieved from STN Database accession no. 1981:424459 & WOLINSKI, JERZY ET AL: "Search for anticholinergic compounds. XX. Synthesis of aminoalkyl o-, m-, and p-hydroxybenzoates and o-, m-, and p-acetoxybenzoates", ACTA POLONIAE PHARMACEUTICA , 37(3), 275-80 CODEN: APPHAX; ISSN: 0001-6837, 1980, XP008119888
- [X] DATABASE CA [online] CHEMICAL ABSTRACTS SERVICE, COLUMBUS, OHIO, US; 1966, MACHON, ZDZISLAW ET AL: "Synthesis of benzoylcholine derivatives", XP002571761, retrieved from STN Database accession no. 1966:412012 & MACHON, ZDZISLAW ET AL: "Synthesis of benzoylcholine derivatives", DISSERTATIONES PHARMACEUTICAE , 17(4), 491-6 CODEN: DIPHAH; ISSN: 0301-1615, 1965
- See references of WO 2008007171A1

Designated contracting state (EPC)

AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC NL PL PT RO SE SI SK TR

DOCDB simple family (publication)

WO 2008007171 A1 20080117; AU 2006346195 A1 20080117; AU 2006346195 B2 20130307; CA 2656858 A1 20080117; CA 2656858 C 20160119; CN 101484415 A 20090715; CN 101484415 B 20130814; EP 2038251 A1 20090325; EP 2038251 A4 20100421; EP 2610242 A1 20130703; JP 2009542797 A 20091203; JP 5759672 B2 20150805

DOCDB simple family (application)

IB 2006052318 W 20060709; AU 2006346195 A 20060709; CA 2656858 A 20060709; CN 200680055301 A 20060709; EP 06780025 A 20060709; EP 13155198 A 20060709; JP 2009518987 A 20060709