



(11) **EP 0 789 575 B8**

(12) **CORRECTED EUROPEAN PATENT SPECIFICATION**

(15) Correction information:
Corrected version no 1 (W1 B1)
Bibliography INID code(s) 73

(51) Int Cl.:
C12N 15/12 ^(2006.01) **C07K 14/705** ^(2006.01)
A61K 38/17 ^(2006.01) **C12Q 1/68** ^(2006.01)
G01N 33/68 ^(2006.01)

(48) Corrigendum issued on:
22.10.2008 Bulletin 2008/43

(86) International application number:
PCT/US1995/014251

(45) Date of publication and mention
of the grant of the patent:
03.09.2008 Bulletin 2008/36

(87) International publication number:
WO 1996/014077 (17.05.1996 Gazette 1996/22)

(21) Application number: **95939723.3**

(22) Date of filing: **02.11.1995**

(54) **PERIPHERAL NERVOUS SYSTEM SPECIFIC SODIUM CHANNELS, DNA ENCODING THEREFOR, DRUG SCREENING, AND METHODS OF MAKING AND USING THEREOF**

NATRIUM-IONENKANÄLE SPEZIFISCH FÜR DAS PERIPHÄRE NERVENSYSTEM, DNA WELCHE DIESE KODIERT, WIRKSTOFF-SUCHE UND METHODEN ZU DEREN HERSTELLUNG UND VERWENDUNG

CANAUX SODIUM SPECIFIQUES DU SYSTEME NERVEUX PERIPHERIQUE, ADN LES CODANT, CRIBLAGE MEDICAMENTEUX ET PROCEDE DE FABRICATION ET D'UTILISATION DE CES CANAUX

(84) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL
PT SE**

• **BORDEN, Laurence A.**
Hackensack, NJ 07601 (US)

(30) Priority: **02.11.1994 US 334029**
07.06.1995 US 482401

(74) Representative: **Naylor, Kathryn May et al**
Mathys & Squire LLP
120 Holborn
London
EC1N 2SQ (GB)

(43) Date of publication of application:
20.08.1997 Bulletin 1997/34

(60) Divisional application:
08102871.4

(56) References cited:
WO-A-90/09391 US-A- 4 500 530
US-A- 5 380 836

(73) Proprietors:
• **Allelix Neuroscience, Inc.**
New Castle County, Delaware 19801 (US)
• **THE RESEARCH FOUNDATION OF
STATE UNIVERSITY OF NEW YORK**
Stony Brook, NY 11794-3366 (US)

• **GAUTRON S. ET AL: "The glial voltage-gated
sodium channel: Cell- and tissue-specific mRNA
expression" PROCEEDINGS OF THE NATIONAL
ACADEMY OF SCIENCES OF THE UNITED
STATES OF AMERICA_(PROC. NATL. ACAD.
SCI. U. S. A.), 1992, 89/15 (7272-7276),
XP002146639 United States**

(72) Inventors:
• **MANDEL, Gail**
Stony Brook, NY 11794 (US)
• **HALEGOUA, Simon**
Belle Terre, NY 11777 (US)

Note: Within nine months of the publication of the mention of the grant of the European patent in the European Patent Bulletin, any person may give notice to the European Patent Office of opposition to that patent, in accordance with the Implementing Regulations. Notice of opposition shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 0 789 575 B8

- OH Y. ET AL: "The beta1 subunit mRNA of the rat brain Nasup + channel is expressed in glial cells" PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA (_PROC. NATL. ACAD. SCI. U. S. A._), 1994, 91/21 (9985-9989), XP002146640 United States
- OH Y. ET AL: "Rat brain Nasup + channel mRNAs in non-excitabile Schwann cells" FEBS LETTERS (_FEBS LETT._), 1994, 350/2-3 (342-346), XP002146641 Netherlands
- BECKH S.: "Differential expression of sodium channel mRNAs in rat peripheral nervous system and innervated tissues" FEBS LETTERS (_FEBS LETT._), 1990, 262/2 (317-322), XP002146642 Netherlands
- NODA M ET AL: "EXISTENCE OF DISTINCT SODIUM CHANNEL MESSENGER RNA IN RAT BRAIN" NATURE (LONDON), vol. 320, no. 6058, 1986, pages 188-192, XP002146643 ISSN: 0028-0836
- MARTIN Y C ET AL: "MOLECULAR MODELING OF RECEPTOR-LIGAND INTERACTIONS" CLINICAL PHARMACOLOGY, 1989, pages 137-171, XP000939057 ISSN: 0892-001X
- DESJARLAIS R L ET AL: "USING SHAPE COMPLEMENTARITY AS AN INITIAL SCREEN IN DESIGNING LIGANDS FOR A RECEPTOR BINDING SITE OF KNOWN THREE-DIMENSIONAL STRUCTURE" JOURNAL OF MEDICINAL CHEMISTRY, vol. 31, no. 4, 1988, pages 722-729, XP000938991 ISSN: 0022-2623
- SINGH J ET AL: "A NOVEL METHOD FOR THE MODELLING OF PEPTIDE LIGANDS TO THEIR RECEPTORS" PROTEIN ENGINEERING, vol. 4, no. 3, 1991, pages 251-262, XP000939012 ISSN: 0269-2139
- BELCHER SM ET AL: "Cloning of a sodium channel alpha subunit from rabbit Schwann cells." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA, NOV 21 1995, 92 (24) P11034-8, XP002146644 UNITED STATES
- TOLEDO-ARAL JUAN J ET AL: "Identification of PN1, a predominant voltage-dependent sodium channel expressed principally in peripheral neurons." PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES, vol. 94, no. 4, 1997, pages 1527-1532, XP002146645 1997 ISSN: 0027-8424
- PROC. NATL. ACAD. SCI. U.S.A., Volume 89, issued September 1992, AHMED et al., "Primary Structure, Chromosomal Localization and Functional Expression of a Voltage-Gated Sodium Channel from Human Grain", pages 8220-8224.
- DNA AND CELL BIOLOGY, Volume 13, Number 1, issued 1994, SHENG et al., "Molecular Cloning and Functional Analysis of the Promoter of Rat Skeletal Muscle Voltage-Sensitive Sodium Channel Subtype 2 (rSKM2): Evidence for Muscle-Specific Nuclear Protein Binding to the Core Promoter", pages 9-23.
- SCIENCE, Volume 269, issued 25 August 1995, MARSHALL, "Gene Therapy's Growing Pains", pages 1050-1055.
- BIOPHYSICAL JOURNAL, Volume 66, issued January 1994, LIPKIND et al., "A Structural Model of the Tetrodotoxin and Saxitoxin Binding Site of the Na+ Channel", pages 1-13.
- BIOCHEMISTRY, Volume 31, issued 1992, WAKAMATSU et al., "Structure-Activity Relationships of u-Conotoxin GIIIA: Structure Determination of Active and Inactive Sodium Channel Blocker Peptides by NMR and Simulated Annealing Conditions", pages 12577-12584.
- PROTEIN ENGINEERING, Volume 6, Number 1, issued 1993, SANSOM et al., "Influenza Virus M2 Protein: A Molecular Modeling Study of the Ion Channel", pages 65-74.
- D'ARCANGELO G. ET AL: 'Neuronal growth factor regulation of two different sodium channel types through distinct signal transduction pathway' THE JOURNAL OF CELL BIOLOGY vol. 122, no. 4, August 1993, UNITED STATES, pages 915 - 921
- CUMMINS T.R. ET AL: 'Slow closed-state inactivation: a novel mechanism underlying ramp currents in cells expressing the hNE/PN1 sodium channel.' THE JOURNAL OF NEUROSCIENCE vol. 18, no. 23, 01 December 1998, UNITED STATES, pages 9607 - 9619
- NASSAR MOHAMMED A. ET AL: 'Nociceptor-specific gene deletion reveals a major role for Nav1.7 (PN1) in acute and inflammatory pain.' PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA vol. 101, no. 34, 24 August 2004, pages 12706 - 12711

Remarks:

The file contains technical information submitted after the application was filed and not included in this specification