

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
7 September 2007 (07.09.2007)

PCT

(10) International Publication Number
WO 2007/100541 A3

(51) International Patent Classification:
A61K 8/00 (2006.01)

(21) International Application Number:
PCT/US2007/004327

(22) International Filing Date:
21 February 2007 (21.02.2007)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/776,117 23 February 2006 (23.02.2006) US
60/817,546 29 June 2006 (29.06.2006) US

(71) Applicant (for all designated States except US): **RE-SEARCH FOUNDATION OF THE STATE UNIVERSITY OF NEW YORK** [US/US]; P.O. Box 9, Albany, NY 12201 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **SUNKARA, Sasi, Kumar** [IN/US]; 97 Merrimac Avenue, Buffalo, NY 14214 (US). **CIANCIO, Sebastian, G.** [US/US]; 136 Ruskin Road, Eggertsville, NY 14214 (US). **SACHS, Federick** [US/US]; 173 Allen Street, Buffalo, NY 14201 (US). **SOJAR, Hakimuddin, T.** [IN/US]; 156 Princeton Avenue #1, Amherst, NY 14214 (US).

(74) Agents: **SOMMER, Peter, K.** et al.; Phillips Lytle LLP, 3400 HSBC Center, Buffalo, NY 14203 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, 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, LV, LY, MA, MD, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, 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, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Declarations under Rule 4.17:

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
11 December 2008

(54) Title: METHOD OF TREATING PERIODONTITIS AND OF REDUCING DENTINAL SENSITIVITY

(57) Abstract: An improved method of treating periodontitis includes the steps of: creating a formulation containing a lanthanide-containing protease inhibitor; and applying the formulation to a periodontal area. The lanthanide may be cerium chloride, samarium chloride, lutetium chloride, cerium chloride heptahydrate, lutetium chloride hexahydrate, samarium chloride hexahydrate, gadolinium, gadolinium nitrate, gadolinium chloride, gadolinium chloride hexahydrate and gadolinium nitrate hexahydrate. The invention also provides an improved method of reducing dentinal sensitivity, including the steps of: creating a formulation containing at least one of gadolinium and a gadolinium-containing compound; and applying the formulation to a sensitive dentinal area. The formulation may be a paste, a solution or a powder.

WO 2007/100541 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/04327

A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61K 8/00(2006.01)

USPC: 424/49

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)

U.S. : 424/49

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)
Pubmed, STN

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	US 2003/0109491 (ULMER et al) 12 JAN 2003 (12.1.2003), entire document	1-3 and 6 -----
Y		4-5, 7-11 and 14
Y ---	US 4,218,434 (ROLLA et al) 19 AUG 1980 (19.08.1980), entire document	4-5, 7-11 and 14 -----
A		1-3 and 6
A	US 4,199,563 (MUHLEMANN et al) 22 APR 1980 (19.04.1980), entire	1-14

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A"	document defining the general state of the art which is not considered to be of particular relevance	"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
"E"	earlier application or patent published on or after the international filing date	"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
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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
"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search

24 August 2008 (24.08.2008)

Date of mailing of the international search report

29 SEP 2008

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

Frederick Krass

Telephone No. (571) 272-1600