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Published:

- *with international search report (Art. 21(3))*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

(88) Date of publication of the international search report:

12 November 2009

(54) Title: TOOTH SEALANT

(57) Abstract: The invention provides a method of treating sensitive teeth comprising attaching a sealant composition comprising a basic amino acid to a person's tooth and allowing the basic amino acid to be slowly released over time in order to reduce chrome and/or acute tooth sensitivity together with compositions and methods of use.



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## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2009/033312****A. CLASSIFICATION OF SUBJECT MATTER***A61K 6/02(2006.01)i, A61K 8/20(2006.01)i, A61Q 11/00(2006.01)i, A61K 8/44(2006.01)i, A61K 8/02(2006.01)i*

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)

IPC as above

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)  
eKOMPASS(KIPO internal), PubMed, "Keywords: dental & amino acid, arginine, fluoride "**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                     | Relevant to claim No. |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X         | WO 2000/078270 A1 (THE RESEARCH FOUNDATION OF STATE UNIVERSITY OF NEW YORK,) 28 Dec 2000<br>See page 8, example 3 and claims 13,16,20                                                                                                                                                  | 15-17,24              |
| A         | US 06166102 A (AHN et al.) 26 Dec 2000<br>See abstract and claims                                                                                                                                                                                                                      | 15-17,24              |
| A         | ACEVEDO et al., "The inhibitory effect of an arginine bicarbonate/calcium carbonate (CaviStat)-containing dentifrice on the development of dental caries in Venezuelan school children", The Journal of clinical dentistry, 2005, v.16, no.3, pp.63-70, ISSN 0895-8831<br>See abstract | 15-17,24              |
| A         | JP 2005-015435 A (SUN MEDICAL CO LTD) 20 Jan 2005<br>See claim 3, 6, 10 & [0035]                                                                                                                                                                                                       | 15-17,24              |
| A         | US 06616933 B1 (BRETON et al.) 9 Sep 2003<br>See claims                                                                                                                                                                                                                                | 15-17,24              |

☐ 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

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&amp;" document member of the same patent family

Date of the actual completion of the international search

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Name and mailing address of the ISA/KR

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**INTERNATIONAL SEARCH REPORT**

International application No.

**PCT/US2009/033312****Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)**

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.: 1-14  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 1-14 pertain to methods for treatment (or screening) of the human body by therapy/diagnostic methods, and thus relate to a subject matter which this International Searching Authority is not required, under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulation under the PCT, to search.
2. ☒ Claims Nos.: 21  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
Claims 21 can not make meaningful search because they refer to multiple dependent claims not to be drafted in accordance with the second and third sentences of Rule 6.4(a).
3. ☒ Claims Nos.: 18-20,22-23  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2009/033312**

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)                                                                                                                                                                                                         | Publication<br>date                                                                                                                                                                |
|-------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| WO 2000-078270 A1                         | 28.12.2000          | AT 365526 T<br>AU 5890800 A<br>AU 2000-58908 A1<br>CA 2377598 A1<br>DE 60035344 D1<br>DE 60035344 T2<br>DK 1187593 T3<br>EP 1187593 A1<br>EP 1187593 B1<br>ES 2288862 T3                                                           | 15.07.2007<br>09.01.2001<br>23.06.2000<br>28.12.2000<br>09.08.2007<br>14.02.2008<br>29.10.2007<br>20.03.2002<br>27.06.2007<br>01.02.2008                                           |
| US 06166102 A                             | 26.12.2000          | AU 2000-16678 A1<br>CA 2354038 A1<br>CN 1334714 A<br>CN 1334714 A0<br>EP 1137388 A1<br>JP 2002-531475 A<br>KR 10-2001-0101153 A<br>WO 2000-033792 A1                                                                               | 08.12.1999<br>15.06.2000<br>06.02.2002<br>06.02.2002<br>04.10.2001<br>24.09.2002<br>14.11.2001<br>15.06.2000                                                                       |
| JP 2005-015435 A                          | 20.01.2005          | None                                                                                                                                                                                                                               |                                                                                                                                                                                    |
| US 06616933 B1                            | 09.09.2003          | AT 415147 T<br>CA 2245206 A1<br>CA 2245206 C<br>DE 69840253 D1<br>EP 0904777 A1<br>EP 0904777 B1<br>FR 2768624 A1<br>FR 2768624 B1<br>JP 3712328 B2<br>JP 03-712328 B2<br>JP 11-158027 A<br>JP 2002-193834 A<br>US 2003-0202994 A1 | 15.12.2008<br>25.03.1999<br>23.05.2006<br>08.01.2009<br>31.03.1999<br>26.11.2008<br>26.03.1999<br>12.11.1999<br>02.11.2005<br>26.08.2005<br>15.06.1999<br>10.07.2002<br>30.10.2003 |