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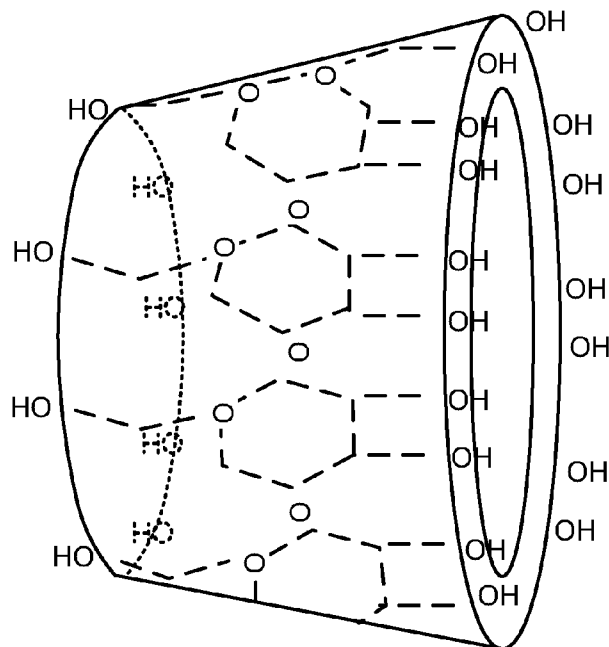
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[Continued on next page]

(54) Title: COMPOSITION AND METHOD FOR STABILIZATION AND DELIVERY OF THERAPEUTIC MOLECULES



(57) Abstract: A composition and treatment method are disclosed for one or more of alpha, beta, and gamma- Cyclodextrin and a natural molecule or fragment thereof wherein the natural molecule is sometimes Glutathione, is non- acetylated, non-Esterified, and non-fatty acid attached, and the composition is administered parenterally and non-interveneously.

FIG. 4



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4 April 2013

- *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))*

**A. CLASSIFICATION OF SUBJECT MATTER**

**A61K 47/40(2006.01)i, A61K 47/48(2006.01)i, A61K 9/08(2006.01)i, A61K 9/12(2006.01)i, A61K 9/20(2006.01)i, A61K 9/48(2006.01)i, A61K 48/00(2006.01)i, A61K 31/122(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)

A61K 47/40; C08B 37/16; A61K 8/31; A61K 7/035; A61K 31/724; A61K 7/135; A61K 31/047; B01J 20/00

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) & Keywords: glutathione, cyclodextrin, ascorbic acid, coenzyme Q10

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                       | Relevant to claim No. |
|-----------|----------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X         | BUSCHMANN, H.-J. et al., "Applications of cyclodextrins in cosmetic products: A review", J. Cosmet. Sci., 2002, vol. 53, pages 185-191. See pp. 186-190. | 1-9,23                |
| X<br>A    | US 2007-0243180 A1 (TANAKA, H. et al.) 18 October 2007<br>See claims 1, 3-5, 11, and 23; and paragraphs [0031] and [0041].                               | 1-4,7-9<br>5,6,23     |
| X<br>A    | US 5407667 A (MATSUURA, I. et al.) 18 April 1995<br>See claim 1; and column 2, lines 40-45.                                                              | 1-4,8,9,23<br>5-7     |
| A         | KR 10-1993-0010889 B1 (LUCKY CO. et al.) 17 November 1993<br>See claims 1 and 2.                                                                         | 1-9,23                |
| A         | US 2002-0010154 A1 (UCHIYAMA, H. et al.) 24 January 2002<br>See claims 1, 38, and 39; and paragraphs [0014] and [0053].                                  | 1-9,23                |



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

"&" document member of the same patent family

Date of the actual completion of the international search

29 JANUARY 2013 (29.01.2013)

Date of mailing of the international search report

**30 JANUARY 2013 (30.01.2013)**

Name and mailing address of the ISA/KR



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**INTERNATIONAL SEARCH REPORT**International application No.  
**PCT/US2012/042997****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.: 10-22  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 10-22 pertain to a method for treatment of the human by therapy, 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 Regulations under the PCT, to search.
2. ☐ Claims Nos.:  
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:
3. ☐ Claims Nos.:  
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/US2012/042997**

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s)                                                                                                                                                                                                                                                                | Publication<br>date                                                                                                                                                                                                          |
|-------------------------------------------|---------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| US 2007-0243180 A1                        | 18.10.2007          | CN 1870982 A<br>CN 1870982 B<br>EP 1681053 A1<br>JP 4732898 B2<br>KR 10-2006-0100402 A<br>WO 2005-041945 A1                                                                                                                                                                               | 29.11.2006<br>26.05.2010<br>19.07.2006<br>27.07.2011<br>20.09.2006<br>12.05.2005                                                                                                                                             |
| US 5407667 A                              | 18.04.1995          | AT 106236 T<br>DE 69102157 D1<br>DE 69102157 T2<br>EP 0442420 A1<br>EP 0442420 B1<br>JP 03-236305 A<br>JP 2954634 B2                                                                                                                                                                      | 15.06.1994<br>07.07.1994<br>20.10.1994<br>21.08.1991<br>01.06.1994<br>22.10.1991<br>27.09.1999                                                                                                                               |
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| US 2002-0010154 A1                        | 24.01.2002          | AR 028560 A1<br>AT 372372 T<br>AU 2001-261403 B2<br>AU 6140301 A<br>CA 2405836 A1<br>CA 2405836 C<br>DE 60130332 D1<br>DE 60130332 T2<br>EP 1282680 A1<br>EP 1282680 B1<br>ES 2292586 T3<br>JP 2003-533588 A<br>JP 4069969 B2<br>KR 10-0767983 B1<br>MX PA02011254 A<br>WO 2001-088076 A1 | 14.05.2003<br>15.09.2007<br>06.04.2006<br>26.11.2001<br>22.11.2001<br>28.07.2009<br>18.10.2007<br>29.05.2008<br>12.02.2003<br>05.09.2007<br>16.03.2008<br>11.11.2003<br>02.04.2008<br>18.10.2007<br>10.03.2003<br>22.11.2001 |