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- of inventorship (Rule 4.17(iv))

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))

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30 August 2012

(54) Title: HYBRID COOPERATIVE COMPLEXES OF HYALURONIC ACID

(57) Abstract: Describes cooperative hybrid complexes of hyaluronic acid, a simple and economical method for production thereof and use thereof in the area of medicine, cosmetics and food.



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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2011/065633

A. CLASSIFICATION OF SUBJECT MATTER
INV. C08B37/08 C08L5/08 A61K31/728 C08B31/00 C08B37/00
ADD. C08J3/28

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)
C08B C08L A61K C08J

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)

EPO-Internal, BIOSIS, EMBASE, MEDLINE, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 442 053 A (DELLA VALLE FRANCESCO [IT] ET AL) 15 August 1995 (1995-08-15) example 4	1-14,17, 19
X	----- NISHIMURA M ET AL: "Role of chondroitin sulfate-hyaluronan interactions in the viscoelastic properties of extracellular matrices and fluids", BIOCHIMICA ET BIOPHYSICA ACTA - GENERAL SUBJECTS, ELSEVIER SCIENCE PUBLISHERS, NL, vol. 1380, no. 1, 12 March 1998 (1998-03-12), pages 1-9, XP027200057, ISSN: 0304-4165 [retrieved on 1998-03-12] the whole document ----- -/--	1-10,15, 16



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 another 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

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INTERNATIONAL SEARCH REPORT

International application No

PCT/EP2011/065633

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2004/092222 A2 (CORNEAL IND [FR]; LEBRETON PIERRE [FR]) 28 October 2004 (2004-10-28) example 4 -----	1-10, 17-19
X	LOWRY KAREN M ET AL: "Thermal stability of sodium hyaluronate in aqueous solution", JOURNAL OF BIOMEDICAL MATERIALS RESEARCH, vol. 28, no. 10, 1994, pages 1239-1244, XP002621037, ISSN: 0021-9304 figures 1-10; tables 1-2 -----	1-10
X	US 2010/098794 A1 (ARMAND GERARD [US]) 22 April 2010 (2010-04-22) paragraph [0016] - paragraph [0018] -----	1-10
X	WO 2007/131546 A1 (GOBBO SANDRA [CH]; PETRELLA ROBERT [CA]) 22 November 2007 (2007-11-22) page 13 - page 14 -----	1-10, 17, 19
X	BERRIAUD N ET AL: "Rheological study on mixtures of different molecular weight hyaluronates", INTERNATIONAL JOURNAL OF BIOLOGICAL MACROMOLECULES, ELSEVIER BV, NL, vol. 16, no. 3, 1 January 1994 (1994-01-01), pages 137-142, XP023460107, ISSN: 0141-8130, DOI: DOI:10.1016/0141-8130(94)90040-X [retrieved on 1994-01-01] the whole document -----	1-10
X	KARLSSON G ET AL: "Determination of the distribution of molecular masses of sodium hyaluronate by high-performance anion-exchange chromatography", JOURNAL OF CHROMATOGRAPHY, ELSEVIER SCIENCE PUBLISHERS B.V, NL, vol. 986, no. 1, 31 January 2003 (2003-01-31), pages 67-72, XP004401765, ISSN: 0021-9673, DOI: DOI:10.1016/S0021-9673(02)01955-6 the whole document -----	1-10

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2011/065633

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.:
because they relate to subject matter not required to be searched by this Authority, namely:
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:

see additional sheet

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 fees, this Authority did not invite payment of additional fees.
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.:
1-16, 18, 19(completely); 17(partially)
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-16

Binary mixtures of high molecular weight HA and low molecular weight HA

2. claims: 18(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for bio-revitalization

3. claims: 19(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for the treatment of intra-articular viscosupplementation

4. claims: 20(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for the intra-bladder treatment of cystitis

5. claims: 21(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for the treatment of vaginal inflammatory diseases

6. claims: 22(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for the treatment of alveolar diseases

7. claims: 23(completely); 17(partially)

Binary mixtures of high molecular weight HA and low molecular weight HA for the treatment of oral diseases

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/EP2011/065633

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