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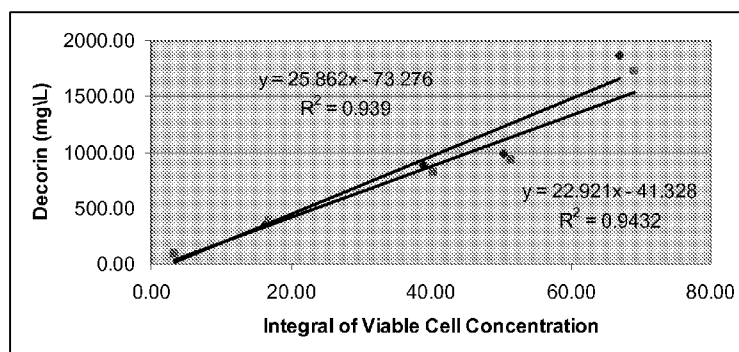
— with international search report (Art. 21(3))

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(88) Date of publication of the international search report:
24 April 2014

(54) Title: DECORIN COMPOSITIONS AND USE THEREOF

Figure 3



(57) Abstract: The present invention relates to improved decorin compositions and methods of their production. In one embodiment, a method is disclosed of producing a non-gagylated decorin core protein by providing host cells expressing non-gagylated decorin core protein, culturing said host cell so that said non-gagylated decorin core protein is produced, and purifying said non-gagylated decorin core protein.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US2012/028911

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - C12P 21/02 (2012.01)

USPC - 435/69.7

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(8) - C07K 1/00, 16, 18, 14/47; C12N 5/10, 15/09, 62, 64, C12P 21/00, 02 (2012.01)

USPC - 435/69.7, 69.9, 320.1, 325; 530/300, 344, 350, 412, 413

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)

PatBase, NCBI, Google Patents, Google

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	US 6,509,314 B1 (RUOSLAHTI et al) 21 January 2003 (21.01.2003) entire document	1-3 ----- 4-21, 26-28
X -- Y	US 2005/0160483 A1 (MEADE et al) 21 July 2005 (21.07.2005) entire document	22-25, 29-31 ----- 26-28
Y	US 2003/0124152 A1 (PANG) 03 July 2003 (03.07.2003) entire document	4-11, 14, 15, 17
Y	WO 2011/012726 A2 (HASSLACHER et al) 03 February 2011 (03.02.2011) entire document	12-14, 17
Y	SEO et al. Decorin core protein secretion is regulated by n-linked oligosacchardie and glycosaminoglycan additions. The Journal of Biological Chemistry, 280(52):42774-42778. 30 December 2005. entire document	16
Y	US 5,567,807 A (CRAIG et al) 22 October 1996 (22.10.1996) entire document	18-21
Y	US 2010/0145020 A1 (OHIGASHI) 10 June 2010 (10.06.2010) entire document	7, 8, 10, 11

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

* 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/US2012/028911

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 Extra 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 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.:
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

International application No.

PCT/US2012/028911

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees need to be paid.

Group I: claims 1-21 are drawn to purified decorin core protein.

Group II: claims 22-31 are drawn to a fusion protein.

The inventions listed in Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1, because under PCT Rule 13.2 they lack the same or corresponding special technical features for the following reasons:

The special technical features of Group I, a non-gagylated decorin core protein from cultured host cells by contacting, washing, eluting, and filtering the decorin by one or more purifying exchange media, are not present in Group II; and the special technical features of Group II, a fusion protein comprising a heterologous signal peptide operably linked to a sequence encoding decorin, are not present in Group I.

Groups I and II share the technical feature of a decorin core protein. However, these shared technical features do not represent a contribution over the prior art. Specifically, US 2005/0160483 A1 to Meade et al. teaches a transgenically produced decorin and methods of making and using transgenically produced decorin (Abstract) including a heterologous peptide (Para. [0133] transgene means a nucleic acid sequence (encoding, e.g., one or more decorin polypeptides), which is partly or entirely heterologous) and a sequence encoding decorin (Paras. [0220] and [0221] sequence encoding decorin is known; see also Paras. [0008] through [0018]).

Groups I and II therefore lack unity under Rule 13 because they do not share a same or corresponding special technical feature.