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(54) Title: ANTI-CROSS-LINKING AGENTS AND METHODS FOR INHIBITING CROSS-LINKING OF INJECTABLE HYDROGEL FORMULATIONS

(57) Abstract: The invention relates to cross-link-resistant injectable hydrogel formulations and methods of partially or practically wholly inhibiting injectable hydrogel formulations from cross-linking during irradiation using anti-cross-linking agents, which facilitates injectability of the hydrogel formulation. The invention also relates to methods of making the cross-link-resistant, for example, irradiation cross-link resistant, injectable hydrogel formulations, and methods of administering the same in treating a subject in need.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/69766

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **B01D 21/01**(2006.01);**43/00**(2006.01);**C09K 3/00**(2006.01);**B01F 3/00**(2006.01);**17/00**(2006.01);**B01J 13/00**(2006.01);**A61F 13/00**(2006.01);**A61K 9/14**(2006.01)

 USPC: 516/9,113;424/422,484
 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. : 516/9,113;424/422,484

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

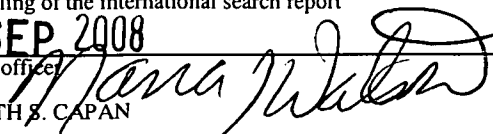
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,719,797 B1 (FERREE) 13 April 2004 (13.04.2004), entire document.	1-33
Y	US 2002/0193448 A1 (WALLACE et al) 19 December 2002 (19.12.2002) Abstract, paragraphs [0032]-[0035], [0044], [0059].	1-33
Y	US 5,540,033 B1 (FOX et al) 30 July 1996 (30.07.1996) Abstract; column 2, lines 34-60; column 4, lines 31-41.	10-23

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	"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	
"P" document published prior to the international filing date but later than the priority date claimed	"&" document member of the same patent family

Date of the actual completion of the international search 13 August 2008 (13.08.2008)	Date of mailing of the international search report 18 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:  ELIZABETH S. CAPAN Telephone No. (571) 272-1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/69766

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:
Please See Continuation 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 any 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/US07/69766

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

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 must be paid.

Group I, claim(s) 1-10; and 28-33 in part, drawn to a cross-link-resistant hydrogel formulation.

Group II, claim(s) 11-27; and 28-33 in part, drawn to a method of making a cross-link-resistant hydrogel formulation.

The inventions listed as 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 feature, a hydrogel formulation with an anti-cross-linking agent, is not novel. See US 5540033 column 2, lines 34-52 and column 4, lines 31-41; see also US 2002/0193448 paragraph [0035].

Continuation of B. FIELDS SEARCHED Item 3:

EAST, SCIRUS

search terms:hydrogel, cross-link inhibitor, ascorbic acid, polyethylene glycol