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(71) Applicant and

(72) Inventor: VACHON, David [US/US]; 3305 E. Moran Vista Lane, Spokane, WA 99223 (US).

(74) Agent: HYTA, Robert, C.; Wells St. John, P.s., 601 W. First Ave., #1300, Spokane, WA 99201 (US).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv))

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(54) Title: COMPOSITIONS AND METHODS FOR PROMOTING THE HEALING OF TISSUE OF MULTICELLULAR ORGANISMS

(57) Abstract: Methods are provided for promoting the healing of tissue of a multicellular organism. The methods can include administering a therapeutically effective amount of a polysulfonated material in a liquid mixture to reduce one or both of inflammation and cancerous cell growth. The methods may alternatively or additionally include internally administering a therapeutically effective amount of a polysulfonated material associated with a solid material to reduce one or both of inflammation and cancerous cell growth. Compositions for healing the tissue of a multicellular organism are provided that can include a sulfonated material in a liquid mixture, as well as solid particles.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/02780

A. CLASSIFICATION OF SUBJECT MATTER IPC: A61L 29/16 (2006.01); 31/16 (2006.01); C08G 75/24 (2006.01); C08L 81/08 (2006.01); B65D 83/60 (2006.01); A61L 27/14 (2006.01); A61K 9/70 (2006.01) USPC: 215/15;424/443;528/126 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. : 215/15;424/443;528/126 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)		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2004/0142910 A1 (VACHON et al) 22, July 2004 (22.07.2004), abstract, paragraphs 0007, 0039, 0063-64, 0079, 0093-95, 0106-110, claims 3 and 6).	1-5 and 8-20
Y	US 2003/0077301 A1 (MAIBACH et al.) 24 April 2003 (24.04.2003), paragraphs 108, 118, 137.	1 and 6-7
☐ 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	"&" document member of the same patent family
"P"	document published prior to the international filing date but later than the priority date claimed	
Date of the actual completion of the international search 24 October 2007 (24.10.2007)		Date of mailing of the international search report 04 DEC 2007
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 Heather Calamita Telephone No. 571-273-1600

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/02780

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.: 1-20

- 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

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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) 1-20, drawn to method for promoting healing of tissue of a multicellular organism, comprising administering a therapeutically effective amount of a polysulfonated material in a liquid mixture to reduce one or both of inflammation and cancerous cell growth.

Group II, claim(s) 21-26, drawn to a method for promoting healing of tissue of a vertebrate organism, comprising administering a therapeutically effective amount of a polysulfonated material associated with a solid material to reduce one or both of inflammation and cancerous cell growth.

Group III, claim(s) 27-62, drawn to a composition for healing the tissue of a multicellular organism.

The inventions listed as Groups I to III 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 inventions are linked by the technical feature of a method of promote tissue healing comprising administering a polysulfonated material to reduce one or both of inflammation and cancerous cell growth. However, this feature is not special because it does not constitute an advance over the prior art. Maibach et al. (US 2003/0077301 A1) provided a topical pharmaceutical composition with the use of an active agent such as polysulfonates, e.g. polystyrene sulfonate and polyvinyl sulfonate (see paragraph 0108). Therefore, Groups I to III do not meet the requirement of unity of invention.