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- (88) Date of publication of the international search report:
2 May 2013



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(54) Title: IMMUNOGLOBULIN REDUCED IN THROMBOGENIC AGENTS AND PREPARATION THEREOF

(57) Abstract: The invention relates to an immunoglobulin composition reduced in thrombogenic agents and to methods for its preparation. One method comprises subjecting an immunoglobulin containing solution to a negative cation exchanger chromatography at a pH in the range of higher than 3.8 to equal to or lower than 5.3. The solution can also be subjected to a negative anion exchanger chromatography at a pH in the range of 7 to 8.2.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
INV. C07K1/18 C07K16/06
ADD.
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)
C07K
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, EMBASE, BIOSIS, Sequence Search, 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 5 164 487 A (KOTHE NORBERT [DE] ET AL) 17 November 1992 (1992-11-17) cited in the application	1-37, 50-53
Y	column 3, line 34 - line 63; examples 1-9	38-49
X	US 4 272 521 A (ZUFFI TIMOTHY R) 9 June 1981 (1981-06-09) cited in the application	50-53
Y	figure 1; example 1; table 3	38-49
A		1-37
X	WO 2008/145351 A1 (HOFFMANN LA ROCHE [CH]; FALKENSTEIN ROBERTO [DE]; GIESSEL CLAUDIA [DE]) 4 December 2008 (2008-12-04) cited in the application	50-53
Y	the whole document	38-49
A		1-37
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 5 December 2012	Date of mailing of the international search report 11/01/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Weikl, Martina
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2010/072381 A1 (HOFFMANN LA ROCHE [CH]; POMPIATI MARC [DE]; SCHAUBMAR ANDREAS [DE]) 1 July 2010 (2010-07-01)	38-49
A	page 3	1-37
Y	BUCHACHER ANDREA ET AL: "Purification of intravenous immunoglobulin G from human plasma - aspects of yield and virus safety", BIOTECHNOLOGY JOURNAL, WILEY-VCH VERLAG, WEINHEIM, DE, vol. 1, no. 2, 1 February 2006 (2006-02-01), pages 148-163, XP009141576, ISSN: 1860-6768	38-49
A	page 153	1-37
X	WO 99/64462 A1 (STATENS SERUMINSTITUT [DK]; LAURSEN INGA [DK]; TEISNER BOERGE [DK]) 16 December 1999 (1999-12-16)	50-53
Y	claim 1; examples 2,4	38-49
A		1-37
X	TESCHNER W ET AL: "A new liquid, intravenous immunoglobulin product (IGIV 10%) highly purified by a state-of-the-art process", VOX SANGUINIS, vol. 92, no. 1, 2007, pages 42-55, XP002683972, ISSN: 0042-9007	50-53
Y	figure 1; table 8	38-49
A		1-37

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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.:

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/IL2012/000189

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IL2012/000189

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		WO 9964462 A1	16-12-1999

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

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

1. claims: 1-37

Claims relating to a method for removing thrombogenic agents from immunoglobulin containing solutions wherein the method comprises a cation exchange step in negative mode in a pH range from 3.8 to 5.3

2. claims: 38-53

Claims relating to a method for preparing immunoglobulin compositions wherein the method comprises a cation exchange step in a pH range from 3.8 to 5.3 and an anion exchange step in the pH range from 7 to 8.2; immunoglobulin compositions obtained by such methods and therapeutic uses of such immunoglobulin compositions
