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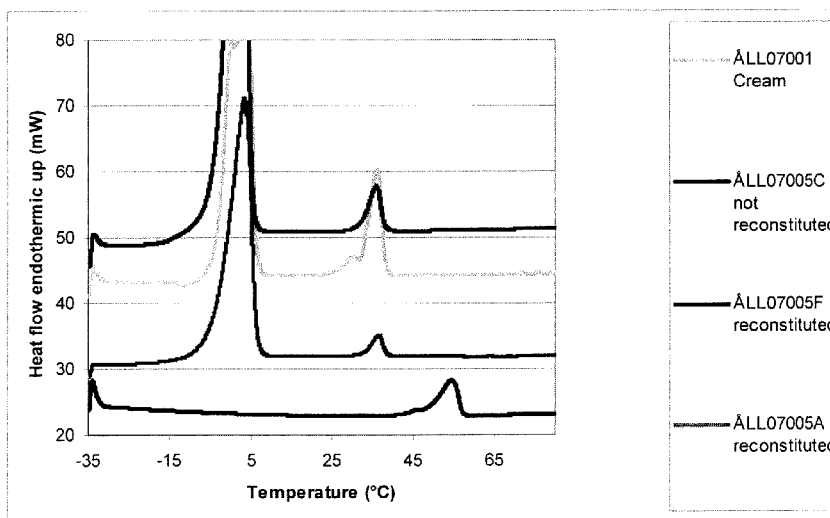
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(54) Title: TOPICAL COMPOSITIONS FOR DELIVERY OF PROTEINS AND PEPTIDES

FIGURE 1



(57) Abstract: Aspects of this invention relate to compositions and methods for the stabilization, storage, and delivery of biologically active agents, in particular peptides and nucleic acids. Particularly preferred embodiments include compositions that comprise a recombinant naturally occurring human hepatocyte growth factor (HGF), such as dHGF, a five amino acid truncated HGF variant, and at least one monoglyceride that remains in crystalline form at body temperature. Optionally, a gelling agent such as, hydroxyethylcellulose, and/or an antipathogenic compound (e.g., bupivacaine) can be included in the composition. Methods of use of these compositions to improve, ameliorate, or treat skin conditions are also embodiments.

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A. CLASSIFICATION OF SUBJECT MATTER
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B. FIELDS SEARCHED

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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 practical, search terms used)

EPO-Internal, BIOSIS, CHEM ABS Data, FSTA, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 92/18147 A1 (AFFINITY BIOTECH INC [US]) 29 October 1992 (1992-10-29)	1-2, 5-8, 11-13
Y	claims, 3, 7, 13, 24, 29, 30 etc. Examples 18, 17	1-57
X	US 5 753 259 A (ENGSTROM SVEN [SE] ET AL) 19 May 1998 (1998-05-19)	1
Y	claim 18	1-57
X	WO 2007/008557 A1 (ARCHER DANIELS MIDLAND CO [US]; BASEETH SHIREEN S [US]; MORRIS CHARLES) 18 January 2007 (2007-01-18) [0058]	1
X	US 5 633 226 A (OWEN ALBERT J [US] ET AL) 27 May 1997 (1997-05-27)	1-2
Y	Examples 21, 23; claims 3, 7	1-57
	-/--	

Further documents are listed in the continuation of Box C.

See patent family annex.

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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.
X	US 2002/197328 A1 (KIM MYUNG-JIN [KR] ET AL) 26 December 2002 (2002-12-26) comparative example 3; composition before drying	1-3
X	WO 2005/033274 A2 (STERRENBELD BIOTECHNOLOGIE NOR [US]; MELO CARLOS ALBERTO [AR]; BARANAO) 14 April 2005 (2005-04-14) Example 7; claims	1-2
X	WO 2007/051243 A1 (ACRUX DDS PTY LTD [AU]; WOLPERT JOHN [AU]; WILKINS NINA [AU]) 10 May 2007 (2007-05-10) pages 19, 20/21; claims	1-2
Y		1-57
Y,P	US 2008/299228 A1 (HARRIS ALAN GERALD [US] ET AL) 4 December 2008 (2008-12-04) [0054]	1-57
Y	WO 2004/054549 A1 (JAGOTEC AG [CH]; VERGNAULT GUY [FR]; GRENIER PASCAL [FR]; NHAMIAS ALAI) 1 July 2004 (2004-07-01) claims 3-5	1-57
Y	WO 2004/084878 A1 (NEXMED HOLDINGS INC [US]; LU MINGQI [US]; WANG QIN [US]; YEAGER JAMES) 7 October 2004 (2004-10-07) Example 1; Tables 10, 21; claims	1-57

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2008/003954

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9218147	A1	29-10-1992	AT 183099 T 15-08-1999
			AU 668509 B2 09-05-1996
			AU 1896692 A 17-11-1992
			CA 2108266 A1 20-10-1992
			DE 69229779 D1 16-09-1999
			DE 69229779 T2 23-12-1999
			DK 580778 T3 31-01-2000
			EP 0580778 A1 02-02-1994
			ES 2136620 T3 01-12-1999
			GR 3031718 T3 29-02-2000
			IE 921212 A1 21-10-1992
			IL 101613 A 22-02-1998
			JP 6507172 T 11-08-1994
			PT 100400 A 31-08-1993
US 5444041 A 22-08-1995			
US 5753259	A	19-05-1998	NONE
WO 2007008557	A1	18-01-2007	NONE
US 5633226	A	27-05-1997	US 5646109 A 08-07-1997
US 2002197328	A1	26-12-2002	NONE
WO 2005033274	A2	14-04-2005	AR 047720 A1 15-02-2006
			AR 047721 A1 15-02-2006
			AU 2004278747 A1 14-04-2005
			AU 2004278763 A1 14-04-2005
			BR PI0415146 A 28-11-2006
			BR PI0415147 A 28-11-2006
			CA 2540667 A1 14-04-2005
			CA 2540854 A1 14-04-2005
			EP 1687421 A2 09-08-2006
			EP 1685245 A2 02-08-2006
			JP 2007507510 T 29-03-2007
			JP 2007507232 T 29-03-2007
			WO 2005033281 A2 14-04-2005
WO 2007051243	A1	10-05-2007	DE 112006002834 T5 30-10-2008
			GB 2446341 A 06-08-2008
			US 2008319370 A1 25-12-2008
US 2008299228	A1	04-12-2008	WO 2008150929 A1 11-12-2008
WO 2004054549	A1	01-07-2004	AT 411010 T 15-10-2008
			AU 2002356294 A1 09-07-2004
WO 2004054549	A1		BR 0215979 A 01-11-2005
			CA 2509101 A1 01-07-2004
			CN 1741794 A 01-03-2006
			EP 1569623 A1 07-09-2005
			JP 2006511525 T 06-04-2006
			MX PA05006311 A 08-02-2006
			US 2006067892 A1 30-03-2006
WO 2004084878	A1	07-10-2004	AU 2004224329 A1 07-10-2004
			BR PI0408454 A 04-04-2006
			CA 2517828 A1 07-10-2004

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2008/003954

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
		EP 1605928 A1	21-12-2005
		JP 2006520801 T	14-09-2006
		KR 20050119135 A	20-12-2005
		MX PA05009816 A	05-12-2005
