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(54) Title: SURFACTANT-CONTAINING FORMULATIONS FOR EXTENDED RELEASE OF SOMATOTROPIN

(57) Abstract: The present invention provides compositions comprising biologically-active somatotropin formulated for extended release and methods of preparing and methods of using the same. These compositions comprise somatotropin, at least a first bioavailability-enhancing constituent (BEC), and a substantially non-aqueous, hydrophobic excipient, and optionally a second BEC. The first BEC is typically a surfactant (preferably a non-ionic surfactant) or a cyclodextrin compound. The optional second BEC may comprise (i) amino acids or amino acid derivatives; (ii) hydroxamate derivatives; (iii) non-reducing carbohydrates; (iv) oxo-acid salts; or (v) a mixture of two or more compounds from within the foregoing classes (i)-(iv).

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I. INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/20345

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K38/27 A61K47/00

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 7 A61K

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, WPI Data, PAJ, CHEM ABS Data, MEDLINE, EMBASE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KATAKAM, MANOHAR: "Use of non-ionic surfactants to stabilize recombinant human growth hormone and to develop its sustained release formulation" DISS. ABSTR. INT., vol. 57, no. 5, 1996, page 3149 XP001057527 abstract	1-17
X	WO 98 29131 A (MONSANTO CO) 9 July 1998 (1998-07-09) abstract examples 1-4 claims 1-16	1-17



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* 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 document 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.

Z document member of the same patent family

Date of the actual completion of the international search

6 March 2002

Date of mailing of the international search report

21/03/2002

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II INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 01/20345

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 97 29767 A (CSL LTD ;UNIV MONASH (AU); MCNAMARA MICHAEL KEVIN (AU); CHARMAN WI) 21 August 1997 (1997-08-21) abstract examples 1-3 claims 1-11 ---	1-17
X	EP 0 303 746 A (INT MINERALS & CHEM CORP) 22 February 1989 (1989-02-22) abstract examples 1-4 claims 1-12 ---	1-17
X	US 4 917 685 A (VISWANATHAN RAVI ET AL) 17 April 1990 (1990-04-17) cited in the application abstract examples 1-3 claims 1-20 ---	1-17
X	US 4 816 568 A (HAMILTON JR EDWIN J ET AL) 28 March 1989 (1989-03-28) cited in the application abstract examples 1-4 claims 1-33 -----	1-17

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 1,9-11,13

In view of the following broad and/or vague expressions used,

"a non-ionic surfactant" (claim 1);
"an amino acid derivative" (claims 1 and 10);
"substantially non-aqueous" (claims 9 and 13);
"a histidine derivative" (claim 11)

present claims 1, 9-11 and 13 relate to an extremely large number of possible compositions. In fact, the claims cover so many possible compositions that a lack of clarity (and/or conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible.

Furthermore, the application provides support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for only a very limited number of compositions falling within these definitions. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to:

non-ionic surfactants as disclosed on p.14, lines 9-13.

The word "substantially" has been ignored for the purposes of the search. The options "amino acid derivative" and "histidine derivative" have not been searched.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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