(57) Abstract: The invention relates to therapeutic polypeptides originally isolated from human early pregnancy urine, now synthetically produced, as well as functional equivalents of these polypeptides. The therapeutic polypeptides and their functional equivalents are useful in treating and/or preventing various medical conditions. Examples of therapeutic effects of the therapeutic polypeptides include anti-HIV, anti-cancer, anti-wasting, pro-hematopoietic (e.g., anti-infections of anti-inflammatory bone marrow damage, and trauma-mediated blood loss), and anti-angiogenic effects. The invention also provides pharmaceutical compositions comprising the therapeutic polypeptides, functional equivalents and/or pharmaceutical compositions in the treatment and/or prevention of such medical conditions.


Published: — with international search report

(88) Date of publication of the international search report: 23 August 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C07K14/59 C12N1/21 C07K16/26 G01N33/53

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 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 practical, search terms used)

EPO-Internal, WPI Data, PAJ, BIOSIS, STRAND

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<tr>
<td>X</td>
<td>WO 97 49373 A (BRYANT JOSEPH; GALLO ROBERT C (US); LUNARDI ISKANDAR YANTO (US); U) 31 December 1997 (1997-12-31) cited in the application the whole document ---</td>
<td>1-5, 9-12, 15-18</td>
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<td>WO 91 16922 A (UNIV NEW JERSEY MED) 14 November 1991 (1991-11-14) the whole document ---</td>
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<td>X</td>
<td>BIRKEN S ET AL: &quot;STRUCTURE OF THE HUMAN CHORIONIC GONADOTROPIN BETA-SUBUNIT FRAGMENT FROM PREGNANCY URINE&quot; ENDOCRINOLOGY, vol. 123, no. 1, 1988, pages 572-583, XP002155576 ISSN: 0013-7227 the whole document ---</td>
<td>1,9,10, 15-18</td>
</tr>
</tbody>
</table>

* Further documents are listed in the continuation of box C.

** Patent family members are listed in annex.

*C 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.

** S document member of the same patent family

Date of the actual completion of the international search 16 March 2001

Date of mailing of the international search report 22.03.01

Name and mailing address of the ISA
European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk
Tel. (+31-70) 340-3040, Tx. 31 651 epo nl, Fax (+31-70) 340-3016

Authorized officer
Oderwald, H

Form PCT/SA/0210 (second sheet) (July 1992)
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<td>WO 94 20859 A (LAFON LABOR ; BELLET DOMINIQUE (FR); TROALEN FREDERIC (FR); ROUAS F) 15 September 1994 (1994-09-15) the whole document -----</td>
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</table>
INTERNATIONAL SEARCH REPORT

Box I  Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(g) for the following reasons:

1. □ Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:

2. [X] Claims Nos.: 1(c), 7, 8, 13, 14 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:

   see FURTHER INFORMATION sheet PCT/ISA/210

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 II  Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

   see additional sheet

1. [X] 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 fee, this Authority did not invite payment of any additional fee.

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.

   [X] No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: {1-5, 7-15 partially}, {6, 16-18 complete}

   A cell comprising an isolated nucleic acid encoding therapeutic MA or pMA polypeptides or fragments thereof (SEQ ID NO: 2-14). A cell line, a therapeutic polypeptide produced by said cell line, an isolated antibody which binds to said peptide, a cell producing said antibody, an anti-idiotypic antibody which binds to said antibody, methods of detecting and purifying said polypeptide.

2. Claims: {1-5, 7-15 partially}

   same as invention 1 but comprising the amino acid sequences as in SEQ ID NO: 15-18.
Continuation of Box I.2

Claims Nos.: 1(c), 7, 8, 13, 14

In view of the fact that polypeptides have not been defined in claim 1(c) and that the cell lines of claims 7, 8, 13 and 14 have not been defined. Accordingly, these claims fail to comply with the clarity and conciseness requirements of Article 6 PCT (see also Rule 6.1(a) PCT) to such an extent that a meaningful search is impossible. Consequently, no search has been carried out for those parts of the application.

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.
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
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