(54) Title: HUMAN PANCREATIC ISLET GLUCOSE-6-PHOSPHATASE

(57) Abstract: The invention provides isolated nucleic acids encoding human pancreatic islet-specific glucose-6-phosphatase proteins and nucleic acids having diagnostic, preventive, therapeutic, and other uses. These nucleic acids and proteins are useful for diagnosis, prevention, and therapy of a number of human and other animal disorders. The invention also provides antisense nucleic acid molecules, expression vectors containing the nucleic acid molecules of the invention, host cells into which the expression vectors have been introduced, and non-human transgenic animals in which a nucleic acid molecule of the invention has been introduced or disrupted. The invention still further provides isolated polypeptides, fusion polypeptides, antigenic peptides, and antibodies. Diagnostic, screening, and therapeutic methods utilizing compositions of the invention are also provided. The nucleic acids and polypeptides of the present invention are useful as modulating agents in regulating a variety of cellular processes, including those which are aberrant in diabetes and other disorders associated with pancreatic dysfunction. The invention includes methods of modulating secretion of pancreatic hormones such as insulin and glucagon, and these methods can be used to alleviate disorders (e.g., diabetes and hyperinsulinemia) associated with aberrant secretion of these hormones.
INTERNATIONAL SEARCH REPORT

PCT/US 01/18241

A. CLASSIFICATION OF SUBJECT MATTER

<table>
<thead>
<tr>
<th>IPC 7</th>
<th>C12N9/16</th>
<th>C12N15/12</th>
<th>C07K16/40</th>
<th>G01N33/50</th>
<th>C12Q1/42</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A61P/48</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>IPC 7</th>
<th>C12N</th>
<th>C07K</th>
<th>G01N</th>
<th>C12Q</th>
<th>A61P</th>
</tr>
</thead>
</table>

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, EMBL

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>
</tr>
</thead>
</table>

Further 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 claims 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 without considering the document, or, if it 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 considered 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

18 April 2002

Date of mailing of the international search report

06/05/2002

Name and mailing address of the ISA

European Patent Office, P.O. Box 801, Patenthiere 2
NL-2280 HJ Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo.nl,
Fax (+31-70) 340-3015

Authorized officer

Lejeune, R

Form: PCT/ISA/210 (second sheet) (July 1992)
<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>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>WO 02 10363 A (HAFALIA APRIL J A ; INCYTE GENOMICS INC (US); PATTERSON CHANDRA (US) 7 February 2002 (2002-02-07) seq 3 and 13</td>
<td>1-22,24</td>
</tr>
<tr>
<td>A</td>
<td>DATABASE EMBL 'Online!' Accession U01120, 6 May 1994 (1994-05-06) LEI K ET AL: &quot;Human glucose-6-phosphatase mRNA, complete cds.&quot; XP002196642 the whole document</td>
<td>1-39</td>
</tr>
</tbody>
</table>
Continuation of Box I.1

Although claims 21,25,26,30,31,38,39 are, as far as in vivo methods are concerned, directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition, as far as these were searchable (see further remark).

Continuation of Box I.2

Claims Nos.: 21,25,26,30,31,38,39 (all partially)

Claims 21,25,26,30,31,38,39 refer to a compound that binds the h-ig6p polypeptide or enhances or inhibits its activity and/or expression without giving a true technical characterization. Moreover, no such compounds are defined in the application. In consequence, the scope of said claims is ambiguous and vague, and their subject matter is not sufficiently disclosed and supported.

No search can be carried out for such speculative claims whose wording is, in fact a mere recitation of the results to be achieved.

A partial search has been carried out as far as the compound is an antibody to the h-ig6p polypeptide.

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>
<th>Publication date</th>
</tr>
</thead>
<tbody>
<tr>
<td>WO 0210363 A</td>
<td>07-02-2002</td>
<td>WO 0210363 A2</td>
<td>07-02-2002</td>
</tr>
</tbody>
</table>