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(71) Applicant (for all designated States except US): **PRESIDENT AND FELLOWS OF HARVARD COLLEGE** [US/US]; 17 Quincy Street, Cambridge, MA 02138 (US).

(71) Applicant and

(72) Inventor: **LEE, Ann-hwee** [KR/US]; 60 Sherman Road, Chestnut Hill, MA 02467 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **GLIMCHER, Laurie, H.** [US/US]; 51 Hampshire Street, West Newton, MA 02165 (US).

(74) Agents: **DECONTI, Giulio A.** et al.; Lahive & Cockfield, LLP, One Post Office Square, Boston, MA 02109-2127 (US).

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Published:

- with international search report (Art. 21(3))
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))

(88) Date of publication of the international search report:

11 September 2009

(54) Title: METHODS FOR MODULATING DE NOVO HEPATIC LIPOGENESIS BY MODULATING XBP-1 ACTIVITY

(57) Abstract: The invention provides methods and compositions for modulating the expression, processing, post-translational modification, stability and/or activity of XBP-1 protein, or a protein in a signal transduction pathway involving XBP-1 to treat dyslipidemias and steatosis disorders. The present invention also pertains to methods for identifying compounds that modulate the expression, processing, post-translational modification, and/or activity of XBP-1 protein or a molecule in a signal transduction pathway involving XBP-1.



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# INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/030976

## A. CLASSIFICATION OF SUBJECT MATTER

INV. A61K48/00 A61K31/70 C12N15/11

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)

A61K C12N

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, EMBASE, BIOSIS

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                                       | Relevant to claim No. |
|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A         | <p>SRIBURI RUNGTAWAN ET AL: "XBP1: a link between the unfolded protein response, lipid biosynthesis, and biogenesis of the endoplasmic reticulum."<br/>THE JOURNAL OF CELL BIOLOGY 11 OCT 2004, vol. 167, no. 1, 11 October 2004 (2004-10-11), pages 35-41, XP002531816<br/>ISSN: 0021-9525<br/>the whole document</p> <p style="text-align: center;">-----<br/>-/--</p> | 1-68                  |

☒ Further documents are listed in the continuation of Box C.

☐ See patent family 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.

\*&\* document member of the same patent family

Date of the actual completion of the international search

12 June 2009

Date of mailing of the international search report

09/07/2009

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

Sprinks, Matthew

# INTERNATIONAL SEARCH REPORT

International application No

PCT/US2009/030976

| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |                                                                                                                                                                                                                                                                                                                                                                                       |                       |
|------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| Category*                                            | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                                                    | Relevant to claim No. |
| A                                                    | <p>SRIBURI RUNGTAWAN ET AL: "Coordinate regulation of phospholipid biosynthesis and secretory pathway gene expression in XBP-1(S)-induced endoplasmic reticulum biogenesis."</p> <p>THE JOURNAL OF BIOLOGICAL CHEMISTRY 9 MAR 2007,<br/>vol. 282, no. 10,<br/>9 March 2007 (2007-03-09), pages<br/>7024-7034, XP002531817<br/>ISSN: 0021-9258<br/>the whole document</p> <p>-----</p> | 1-68                  |

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2009/030976

### 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:  
  
Although claims 1-38 and 41-68 are directed, at least in part, to methods of treatment/diagnosis of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers allsearchable 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 reportcovers 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.