Title: MST1/STK4 PHOSPHO-THREONINE 120 (pMST-T120) ANTIBODY

Abstract: The present invention relates to prostate cancer (PCa). More specifically, the invention provides a MST1 phosphothreonine (pMST-T120) antibody that can be used in various assays to study correlations between Mst1 function and T120 site phosphorylation. The present invention can also be used to determine disease development and/or progression of prostate cancer in a subject using the antibodies disclosed herein.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC(8) - C07K 16/00; A61 K 39/395 (201 2.01)
USPC - 530/388.24; 530/387.9; 424/145.1

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)

USPC- 530/388.24; 530/387.9; 424/145.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC- 530/389.1 530/389.1 530/389.8

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PubWEST/PGP,USPT,USOC,EPAB,JPAB;
Google Patents; Google Scholar: MST1 , macrophage stimulating 1, hepatocyte growth factor-like, Macrophage stimulatory protein, hepatocyte growth factor-like protein homolog, Macrophage-stimulating protein, threonine 120, Thr120, T120, antibody, phospho-T120, phospho5, phospho"

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>
<tbody>
<tr>
<td>X</td>
<td>Yuan et al. Phosphoinositide 3-Kinase/Akt Inhibits MST1-Mediated Pro-apoptotic Signaling through Phosphorylation of Threonine 120. JBC ePUB 24 November 2009, 285(8):381 5-3824; pg 3816, col 1</td>
<td>1</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C.

Date of the actual completion of the international search: 11 February 2012 (11.02.2012)

Date of mailing of the international search report: 08 MAR 2012

Name and mailing address of the ISA/US:
Mail Stop PCT, Attn: ISA/US, Commissioner for Patents
P.O. Box 1450, Alexandria, Virginia 22313-1450
Facsimile No. 571-273-3201

Authorized officer: Lee W. Young
PCT Helpdesk: 571-272-4300
PCT OSP: 571-272-7774
INTERNATIONAL SEARCH REPORT

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:

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).

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

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1:

Group I: claim 1, drawn to an isolated antibody that specifically binds to MSTI phospho-T120.
Group II: claim 2, drawn to a composition comprising an antibody that specifically binds to MSTI phospho-T120.
Group III: claims 3-17, drawn to a method of detecting MSTI phospho-T120 in a sample.

The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

The inventions of Groups I-II do not include the inventive concept of a method of detecting MSTI phospho-T120 in a sample, as required by Group III.

SEE SUPPLEMENTAL BOX TO CONTINUE

1. □ 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 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 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 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.
In Continuation of Box III. Observations where unity of invention is lacking:

The inventions of Group I do not include the inventive concept of a composition comprising an antibody that specifically binds to MST phospho-T120, as required by Group II.

The inventions of Groups I-III share the technical feature of an isolated antibody that specifically binds to MSTI phospho-T120. However, this shared technical feature does not represent a contribution over prior art as being anticipated by an article titled "Phosphoinositide 3-Kinase/Akt Inhibits MST1-Mediated Pro-apoptotic Signaling through Phosphorylation of Threonine 120" by Yuan et al. (THE JOURNAL OF BIOLOGICAL CHEMISTRY 2009, 285(6):3815-3824) (hereinafter "Yuan") disclosing said antibody (pg 3816, col 1, "Anti-phospho-MST1-Thr120 antibody was custom-generated by New England Peptide using Ac-CRLRNK(pT)LTEDEIA-amide as antigen"). As said antibody was known in the art at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.

Groups I-III therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.