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61/385,471 22 September 2010 (22.09.2010) US(71) Applicant (for all designated States except US): **SURFACE LOGIX, INC.** [US/US]; 50 Soldiers Field Place, Brighton, MA 02135 (US).

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- 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))

[Continued on next page]

(54) Title: METABOLIC INHIBITORS

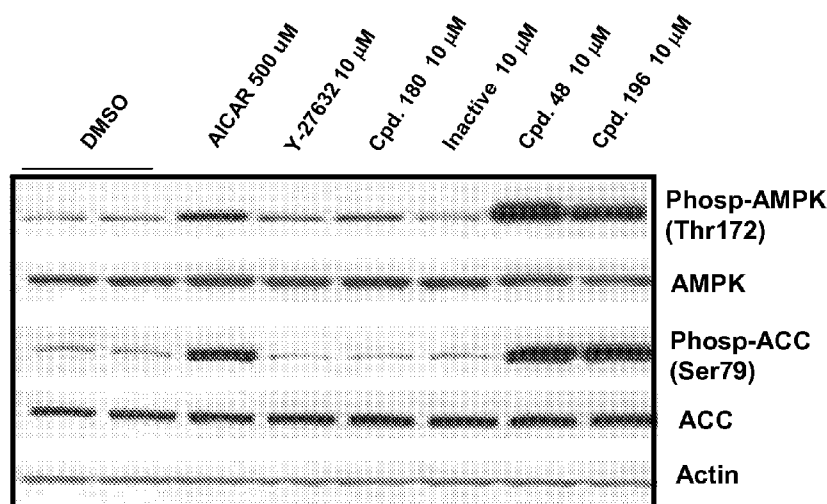


Fig. 1

(57) Abstract: The invention provides compounds useful for treating diseases, including neoplasias and metabolic disorders. Compounds of the invention modulate GLUT1 function and/or AMPK activity.



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

18 May 2012

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 11/52816

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - A61K 31/517 (2012.01)

USPC - 514/266.4

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(8): A61K 31/517 (2012.01)

USPC: 514/266.4

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
USPC: 514/266.1, 266.31; 544/283 (text search) Find search terms below

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST (PGPB,USPT,EPAB,JPAB), Google Scholar

quinazoline, 4-aminoquinazoline, 4-amino-2-phenylquinazoline, \$pyrazol\$, \$phenylpyrazol\$, cancer, tumor, diabetes, obesity, metabolic; disease, disorder

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0083327 A1 (DAVIES et al.) 01 May 2003 (01.05.2003) para [0002], [0014], [0193], Table 2	1, 3-5
Y	US 2010/0048567 A1 (JIA et al.) 25 February 2010 (25.02.2010) para [0029], [0768]	1, 3-5
A	US 2008/0207614 A1 (LEE et al.) 28 August 2008 (28.08.2008) para [0022]-[0066], Table I	1, 3-5
A	US 2004/0097503 A1 (CAI et al.) 20 May 2004 (20.05.2004) para [0038]-[0761], Table I	1, 3-5

☐ Further documents are listed in the continuation of Box 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 application or patent 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

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 11/52816

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:

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.: 15-16
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:

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. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

Group I+: claims 1-6, 17-18, drawn to a compound of Formula I. The first invention is restricted to a compound of Formula III. Should an additional fee(s) be paid, Applicant is invited to elect an additional compound(s) of a specific Formula(s) to be searched.
[Note: Claims 2, 6 and 17-18 were not searched because they are drawn to the non-elected compounds.]

Group II: claims 7-9, drawn to a compound of Formula X.

Group III: claims 10-14, drawn to a compound of Formula XV.

--SEE CONTINUATION IN EXTRA SHEET--

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.:
Claims 1-6, 17-18, restricted to a compound of Formula III.

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.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 11/52816

ATTACHMENT TO BOX III:

-Continuation--

The inventions listed as Groups I+ through III 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:

A special technical feature of the inventions listed as Groups I+ through III is a compound of the specific formula recited therein. The inventions do not share a special technical feature, because said formulas are distinct, and further because a compound of Formula I, as in claim 2, and Formula IV was known in the art at the time of the invention, as evidenced by WO 2008/054599 A2 to Bartolozzi et al. (hereinafter "Bartolozzi") that teaches a quinazoline derivative having Rho kinase inhibitory activity and utility in treating a neoplastic disease (para [0019]) having a structure of formula I, wherein

R1 is -NH-C(=O)-(CH₂)_y-NR₁₃R₁₄, wherein y is 1; R₁₃ and R₁₄ are selected from H and C₁ alkyl; n is 0;

R₃ and R₄ are each H;

R₅ is H;

R₆ is the group of formula (IA), wherein Ring A is a 5-membered ring comprising one additional heteroatom selected from N and is unsubstituted;

m is 0 (para [0234], pg 110, Example 14, N-(3-(4-(1H-indazol-5-ylamino)quinazolin-2-yl) phenyl)-2-(methylamino)acetamide). Without a shared special technical feature, the inventions lack unity with one another.

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

Note re item 4:

Claims 15-16 are not drafted in accordance with the second and third sentences of Rule 6.4 (a). These claims are improper multiple dependent claims.