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(71) Applicant (for all designated States except US):  
**SMITHKLINE BEECHAM CORPORATION**  
[US/US]; One Franklin Plaza, P.O. Box 7929, Philadelphia, PA 19101 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **DHANAK, Dashyant** [GB/US]; 1250 South Collegeville Road, Collegeville, PA 19426 (US). **KNIGHT, Steven, David** [US/US]; 1250 South Collegeville Road, Collegeville, PA 19426 (US).

(74) Agents: **PENG, Tony, W.** et al.; Glaxosmithkline, Corporate Intellectual Property, Uw2220, 709 Swedeland Road, P.O. Box 1539, King Of Prussia, PA 19406-0939 (US).

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**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))
- of inventorship (Rule 4.17(iv))

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
6 March 2008

(54) Title: THIAZOLONES FOR USE AS PI3 KINASE INHIBITORS

(57) Abstract: Invented is a method of inhibiting the activity/function of PI3 kinases using substituted thiazolones. Also invented is a method of treating one or more disease states selected from: autoimmune disorders, inflammatory diseases, cardiovascular diseases, neurodegenerative diseases, allergy, asthma, pancreatitis, multiorgan failure, kidney diseases, platelet aggregation, cancer, sperm motility, transplantation rejection, graft rejection and lung injuries by the administration of substituted thiazolones.



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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/63113

## 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.: repeat numbered claim 3 and claims 4-13  
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:  
Please See Continuation Sheet
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 all searchable claims.
  2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of any 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.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/63113

## A. CLASSIFICATION OF SUBJECT MATTER

IPC: A61K 31/426( 2006.01);A61K 31/498( 2006.01)

USPC: 548/146

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)

U.S. : 548/146

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 practicable, search terms used)

Please See Continuation Sheet

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                        | Relevant to claim No. |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| X          | WO 2004/006916 A1 (DE LUCA) 22 January 2004 (22.01.2004); page 3, lines 17-19; pages 15 and 16.                                                                                           | 1-2                   |
| A          | GAHANE et al. Mannich reaction products of 5-arylidene-2-phenylimino-4-thiazolidiones as anticonvulsants. Indian Journal of Pharmaceutical Sciences. 1998, Vol. 60, No. 5, pages 275-279. | 1-2                   |



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                                                                | "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                                              |
| "E" earlier application or patent published on or after the international filing date                                                                                   | "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                                                                     |
| "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) | "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 |
| "O" document referring to an oral disclosure, use, exhibition or other means                                                                                            | "&" document member of the same patent family                                                                                                                                                                                                    |
| "P" document published prior to the international filing date but later than the priority date claimed                                                                  |                                                                                                                                                                                                                                                  |

Date of the actual completion of the international search

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Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Authorized officer

MAURY AUDET

Telephone No. 571-272-1600

*Felicia D. Roberts*  
*for*

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/63113

### Continuation of Box II Reason 2:

Repeat numbered claim 3 and claims 4-13 are unsearchable because they relate to parts of the international application that do not comply with the prescribed requirement to such an extent that no meaningful international search can be carried out, because claim 3 is a duplicate and so claims 4 through 13 are misnumbered.

### Continuation of B. FIELDS SEARCHED Item 3:

US-PGPUP, USPAT, EPO, ESPACENET, SCIRUS, MEDLINE. SEARCH TERMS: Phosphoinositides 3-kinases, PI3Ks, Inhibitor, Substituted Thiazolones, Autoimmune, Inflammatory, Sperm motility, Cancer.