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**Datasheet for the decision
of 26 November 2007**

Case Number: W 0010/07 - 3.3.01

Application Number: PCT/EP 2006/002160

Publication Number: WO 2006/094799

IPC: C07D 401/04

Language of the proceedings: EN

Title of invention:
Novel Heterocyclic Compounds

Applicant:
Glaxo Group Ltd.

Opponent:
-

Headword:
Pyridone derivatives/GLAXO

Relevant legal provisions:
EPC Art. 154(3)
PCT Art. 17(3)(a)
PCT R. 13.1, 13.2, 40.1, 40.2

Keyword:
"Obligation under Rule 40.1 PCT to specify reasons not fulfilled in view of PCT-Guidelines"

Decisions cited:
G 0001/89, W 0007/86, W 0003/94, W 0020/06

Catchword:
-



Case Number: W 0010/07 - 3.3.01

International Application No. PCT/EP 2006/002160

D E C I S I O N
of the Technical Board of Appeal 3.3.01
of 26 November 2007

Applicant: Glaxo Group Ltd.
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Decision under appeal: Protest according to Rule 40.2(c) of the Patent Cooperation Treaty made by the applicants against the invitation (payment of additional fees) of the European Patent Office (International Searching Authority) dated 10 August 2006.

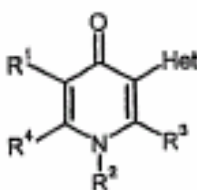
Composition of the Board:

Chairman: A. Nuss
Members: J. Jonk
T. Bokor

Summary of Facts and Submissions

I. International patent application PCT/EP 2006/002160 published under number WO 2006/094799 and having the title "Novel heterocyclic compounds" was filed on 2 March 2006 with 17 claims, Claim 1 reading as follows:

"At least one chemical entity chosen from the compounds of Formula I:



Wherein:

Het represents a 6-membered monocyclic heteroaromatic ring containing at least one nitrogen atom, wherein any carbon atom of Het is substituted with one or more groups Z, wherein Z represents a group selected from the list:

- i) phenyl or methylenedioxyphenyl, either of which is optionally substituted with one or more groups selected from R^x;
- ii) -OC₁₋₆alkylphenyl, wherein the phenyl group is optionally substituted with one or more groups selected from R^x;
- iii) C₁-C₁₀-alkyl, -Oaryl, -C₁₋₆alkylaryl,

-C₂₋₆alkenylaryl or -C₂₋₆alkynylaryl, wherein any aryl group is optionally substituted with one or more groups selected from R^x;

R^x represents halogen, cyano, -NR^AR^B, C₁₋₆alkyl, C₁₋₆alkoxy or C₁₋₆alkylS(O)_m-;

m represents 0-2;

R¹ represents halogen or hydrogen or cyano;

R² represents hydrogen, hydroxy, -C(O)R^Y, C(O)OH or C₁₋₆alkyl optionally substituted by halogen, hydroxy, -C(O)OH, -C(O)R^Y or -NR^AR^B;

R^A and R^B independently represent hydrogen or C₁₋₆alkyl;

R^Y represents C₁₋₆alkoxy or C₁₋₆alkyl;

R³ and R⁴ are independently C₁₋₆alkyl;

and pharmaceutically acceptable derivatives thereof."

- II. In a communication dated 10 August 2006, the European Patent Office (EPO), acting as International Search Authority (ISA) under Article 16 PCT and Article 154 EPC, informed the applicant that the application did not comply with the requirement of unity of invention (Rule 13.1 PCT) and invited the applicant pursuant to Article 17(3)(a) and Rule 40(1) PCT to pay within a time limit of one month five additional search fees giving a total amount of additional fees of EUR 8.075.

III. In this invitation to pay the additional search fees (IPAF), the ISA considered that the application in suit comprised six different inventions, namely:

1. Claims: 1-3(part), 4, 7-17(part):

"subject-matter relating to compounds with Z=i)"

2. Claims: 1-3(part), 5, 7-17(part):

"subject-matter relating to compounds with Z=ii)"

3. Claims: 1-3(part), 6-17(part):

"subject-matter relating to compounds with Z=iii)"

4. Claims: 1-3(part), 6-17(part):

"subject-matter relating to compounds with
Z=O-aryl (part of iii))"

5. Claims: 1-3(part), 6-17(part):

"subject-matter relating to compounds with
Z=alkylaryl, alkenylaryl or alkynylaryl (part of
iii))"

6. Claims: 1-3(part), 8-17(part):

"subject-matter relating to compounds without Z
(Z=absent)"

IV. The reasons for the finding of non-unity by the ISA were specified as follows:

"The common structural feature of the compounds according to Claim 1 of the present application is the pyridinone moiety. This unit is, however, known from the document D1 (WO 91/13873), which is considered as the closest state of the art for the present application.

D1 discloses a pyridinone compound falling within the scope of the application as originally filed and having the same qualitative activity, namely against malaria.

Since D1 discloses a compound which corresponds to a compound of the present application in which Z is absent (D1, compound 87, Het=pyridyl), a single general inventive concept between compounds with and without Z is not detectable.

Furthermore, claim 1 of D1 explicitly mentions that R2 (the substituent in D1 corresponding to Het in the present application) can be an heterocyclic group (which is exemplified by said example 87), the heterocyclic group according to claim 1 of D1 is, however, not limited to unsubstituted rings, it can be substituted by i.a. alkyl, or (x)-phenyl-R6, in which x is i.a. -O-, -O-CH2-, -CYZ-CH2- or a direct bond.

Therefore, a single general inventive concept as required by Rule 13.1 PCT between the different possibilities for Z is also not detectable.

This single inventive concept is defined as "involving one or more of the same or corresponding special technical features" (Rule 13.2 PCT), which serve to distinguish the current application from the prior art (establishes novelty) and are responsible for the inventive activity."

- V. With facsimile dated 8 September 2006, the applicant requested the debiting of four additional fees giving a total amount of EUR 6.460, from its deposit account. The payment was made under protest according to Rule 40.2(c) PCT.

The applicant argued that Example 87 of D1 did not fall under the scope of Claim 1 of the present application, since according to said Claim 1 the groups Z could not be absent. Therefore, "invention 6" as defined in the invitation to pay was actually not claimed in the present application. Furthermore, he accepted that the 4-pyridone compounds of formula I as defined in Claim 1 of the present application partially overlapped with the compounds as defined in claim 1 of D1, but he considered that the area of overlap represented a novel selection over D1, because D1 did not disclose 4-pyridone compounds having at the 6-position a group -Het-Z as defined in the present application. This novel common structural feature formed therefore a single general inventive concept, so that the requirement of unity of invention was fulfilled.

- VI. On 26 January 2007 the ISA invited the applicant according to Rule 40.2(e) PCT to pay the protest fee within a time limit of one month for the examination of the protest.

VII. The reasons for the decision of the review body that the protest was not justified and not to refund the protest fee in accordance with Rule 40.2(c), (d) and (e) PCT (as in force from 1 April 2005) read as follows:

"If it was not intended to claim compounds in which no Z is present, only the first 5 inventions remain, for which the fees have been paid under protest.

The applicant argues that the common structural feature of the claimed invention is not only the "pyridinone moiety" but the "(Z-Het)-6-pyridinone".

The Z-Het-group is indeed present in all compounds of inventions 1-5, however, the inventions 1-5 relate to compounds with different Z-Het-groups, which are not linked as required by Rule 13.1 PCT, because groups corresponding to Z-Het are known from D1: Claim 1 of D1 explicitly mentions that R2 (the substituent in D1 corresponding to Het in the present application) can be an heterocyclic group (which is exemplified by said example 87), the heterocyclic group according to claim 1 of D1 is, however, not limited to unsubstituted rings, it can be substituted by i.a. alkyl, or (x)-phenyl-R6, in which x is i.a. -O-, -O-CH2-, -CYZ-CH2- or a direct bond (as explained in the "invitation to pay additional fees").

The applicant formulates the inventive concept as compounds which are expected to be useful as anti-malarial agents and which have an improved pharmacokinetic profile as compared with the compounds of D1. However, the pharmacokinetic profile was

compared with compounds X, Y and Z of D1, in all of which a phenyl ring is present in stead of the Het group, although the "invitation to pay additional fees" mentioned explicitly compound 87 of D1, which contains a pyridine ring (which falls within the definition of Het). According to the last line of page 99 of the application the solubility of compound 87 of D1 (referred to as compound W) was not measured.

Therefore, the invitation to pay additional fees was justified and no refund is possible."

VIII. With facsimile dated 26 February 2007, the applicant requested debiting the protest fee from its deposit account.

Reasons for the Decision

1. The international filing date of the present application is 2 March 2006. Therefore, the protest is subject to the provisions of the PCT as in force from 1 April 2005.
2. Having regard to the applicable version of Rule 40 PCT and Article 154(3) EPC as still in force, as well as in accordance with the generally established principle of protection of legitimate expectations, the Board concurs with the decision W 20/06 of 3 April 2007 in that the protest is admissible and the protest fee has been duly paid.
3. In the present invitation to pay the additional fees for the indicated separate inventions, the reason given

for the ISA's non-unity objection was that the claimed compounds did not share a new structural element compared with D1, or had a new effect over that prior art.

4. The issue to be decided is thus whether the ISA thereby fulfilled its obligation to substantiate its findings as required according to Rule 40.1(i) PCT.
5. The requirement according to said Rule 40.1(i) to specify in the invitation to pay the additional fees the reasons for which the international application is not considered as complying with the requirement of unity of invention means that it must include a substantiation the applicant can follow, indicating not only the reasons why the single invention as defined in an independent claim (solution of the technical problem defined against the closest prior art) is not new or inventive, but also why, once the invention's single general inventive concept is dropped, unity no longer exists between the newly defined alternative subject-matters, if this it is not clear from this definition.
6. To establish this, the ISA must consider not only the PCT and its Regulations but also, under Article 2 of the Agreement between the EPO and WIPO dated 7 October 1987 (OJ EPO 1987, 515; see also G 1/89, point 6 of the Reasons), the search guidelines applicable, i.e. the PCT-Guidelines as in force from 25 March 2004 and whose Chapter 10 concerns unity of invention.

In this Chapter is has been indicated in part 10.11 that the so-called "Markush practice" represents a particular situation for determining unity of invention.

Moreover, it has been stipulated in part 10.17 that:

"In this particular situation, the requirement of a technical interrelationship and the same or corresponding special technical features as defined in Rule 13.2 PCT, is considered met when the alternatives are of a similar nature".

According to paragraph (a) of part 10.17 alternatives are to be regarded as "of a similar nature" where the following criteria are fulfilled:

- (A) all alternatives have a common property or activity, **and**
- (B)(1) a common structure is present, that is, as significant structural element is shared by all of the alternatives, **or**
- (B)(2) in cases where the common structure cannot be the unifying criteria, all alternatives belong to a recognised class of chemical compounds in the art to which the invention pertains.

Paragraph (c) of said part 10.17, stipulates that the words "recognized class of chemical compounds" in paragraph (a)(B)(2) above mean that there is an expectation from the knowledge in the art that members of the class will behave in the same way in the context of the claimed invention. In other words, each member could be substituted one for the other, with the

expectation that the same intended result would be achieved.

Furthermore, according to the instructions indicated in paragraph (e) of said part 10.17, when dealing with alternatives, if it can be shown that at least one Markush alternative is not novel over the prior art, the question of unity of invention should be reconsidered by the examiner. However, such reconsideration does not necessarily imply that an objection of lack of unity will be raised.

7. Thus, in the case at issue the invitation to the additional fees by the ISA can be regarded as specifying reasons within the meaning of Rule 40.1(i) PCT only if it indicates why under the present circumstances the criteria set out in paragraphs (a)(A), (a)(B)(2) and (c) of part 10.17 of the PCT-Guidelines are not fulfilled.

8. As acknowledged following reconsideration of the justification of the invitation to pay under Rule 40.2 PCT, the alternative inventions defined in the invitation concern groups of compounds which all belong to a known class compounds showing an anti-malarial activity, namely 4-pyridone compounds containing at the 6-position a substituted heteroaromatic group. The ISA's findings here would, therefore, rather tend to suggest that the alternative groups of compounds as defined in the invitation should be regarded as having unity within the meaning of the PCT-Guidelines set out in part 10.17, in particular paragraphs (a)(A) and (a)(B)(2) in conjunction with paragraph (c). Thus, there is nothing which so clearly shows lack of unity

- as to dispense with the need for more precise substantiation (see W 7/86, OJ EPO 1987, 67).
9. Hence, more detailed reasons should therefore have been given for the non-unity objection, in line with the relevant PCT-Guidelines. In their absence, the invitation to pay does not meet the requirements of Rule 40.1(i) PCT, and therefore does not provide a basis for retaining the additional search fees under protest (see also W 3/94, OJ EPC 1995, 775).
 10. Moreover, having regard to Rule 40.2(e) the protest fee shall be refunded.

Order

For these reasons it is decided that:

1. The invitation to pay the additional search fees is unfounded.
2. The reimbursement of the additional search fees and the protest fee is ordered.

The Registrar:

The Chairman:

P. Cremona

A. Nuss