Abstrac: The present invention relates to compounds of Formula 4 and to antimicrobial compounds and antimicrobial compositions based on the compounds of Formula 4: wherein; X comprises sulphur or selenium; Y comprises a pharmaceutically acceptable anion; R¹ and R² are each independently hydrogen, optionally substituted alkyl, optionally substituted alkoxy, optionally substituted aryl, optionally substituted halogen or optionally substituted amine or halogen; and R³, R⁴, R⁵ and R⁶ are each independently hydrogen, optionally substituted alkyl, optionally substituted alkoxy, optionally substituted aryl, optionally substituted halogen or optionally substituted amine or halogen. The nitrogen atoms to which they are attached form an optionally substituted, optionally saturated 6 or 7-membered ring with R² or R³ and/or R⁴ or R⁵ respectively; and with the proviso that the compounds are not of Formula 3a or 3b.
A. CLASSIFICATION OF SUBJECT MATTER

INV. C07D279/18 A61K31/5415 A61P31/00

According to International Patent Classification (IPC) and to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C07D

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, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
</tr>
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<tbody>
<tr>
<td>A</td>
<td>GB 2 373 787 A (UNIV CENTRAL LANCASHIRE [GB]) 2 October 2002 (2002-10-02) examples</td>
<td>1-49</td>
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<tr>
<td>A</td>
<td>WAINWRIGHT, MARK ET AL; &quot;phenothonium-based photobactericidal materials&quot; JOURNAL OF PHOTOCHEMISTRY AND PHOTOBIOLOGY</td>
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<td>vol. 84, 2006, pages 227-230, XP025227644 figure 1</td>
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D. Further documents are listed in the continuation of Box C

X See patent family annex

Further 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

X. document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another document 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

F. document member of the same patent family

Date of the actual completion of the international search: 23 March 2009

Date of mailing of the international search report: 27/03/2009

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

Menegaki, Fotini
INTERNATIONAL SEARCH REPORT

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. [X] Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
   Although claims 45-49 are directed to a method of treatment 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).

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 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 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

## Information on patent family members

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<td>WO 2005054217 A</td>
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