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For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.

(54) Title: SODIUM CHANNEL REGULATORS AND MODULATORS

(57) Abstract: The present invention provides a method of identifying a modulator of a voltage gated sodium channel (VGSC), which method comprises bringing into contact a VGSC, a p11 peptide and a test compound under conditions where the VGSC and the p11 peptide are capable of forming a complex in the absence of the test compound; and measuring an activity of the VGSC, wherein a change in the activity of the VGSC relative to the activity in the absence of the test compound indicates that the test compound is a modulator of said VGSC. Compounds identified in such screening methods are proposed for use in the treatment of VGSC-related conditions, for example in the treatment or prevention of pain. Also provided are methods of enhancing the functional expression of a voltage gated sodium channel (VGSC) in a cell comprising the step of increasing the level of p11 in the cell.



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## INTERNATIONAL SEARCH REPORT

Inventor's Application No

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01N33/68 C12N5/10 A61P29/02 A61K39/395 C12N15/11  
 C07K7/06 C07K7/08 C07K14/47

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 7 G01N C07K

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)

MEDLINE, EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                 | Relevant to claim No. |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| P,X        | OKUSE KENJI ET AL: "Annexin II light chain regulates sensory neuron-specific sodium channel expression."<br>NATURE. ENGLAND 6 JUN 2002,<br>vol. 417, no. 6889,<br>6 June 2002 (2002-06-06), pages 653-656,<br>XP001121255<br>ISSN: 0028-0836<br>the whole document | 1-27,29               |
| A          | WO 01 57024 A (SELWOOD DAVID ;UNIV LONDON (GB); WISHART GRANT (GB); KLING MARCEL)<br>9 August 2001 (2001-08-09)<br>the whole document                                                                                                                              | 1-27,29               |
| A          | US 5 892 018 A (WELSH MICHAEL J ET AL)<br>6 April 1999 (1999-04-06)<br>abstract; claims                                                                                                                                                                            | 1-27,29               |
|            | ---<br>-/--                                                                                                                                                                                                                                                        |                       |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* 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
- \*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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GONCALVES M L F C

# INTERNATIONAL SEARCH REPORT

Int Application No  
PCT/GB 02/03852

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                   | Relevant to claim No. |
|------------|----------------------------------------------------------------------------------------------------------------------|-----------------------|
| A          | US 5 990 295 A (OLIVERA BALDOMERO M ET AL) 23 November 1999 (1999-11-23)<br>abstract<br>---                          | 1-27, 29              |
| A          | WO 97 01577 A (UNIV LONDON)<br>16 January 1997 (1997-01-16)<br>cited in the application<br>abstract; claims<br>----- | 1-27, 29              |

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Claims Nos.: 28, 30-39

Present claims 28 and 30-36 relate to an extremely large number of possible compounds and their uses. In fact, the claims contain so many options that a lack of clarity (and/or conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible.

Present claims 37-39 relate to an extremely large number of possible peptides. In fact, the claims contain so many variables that a lack of clarity (and/or conciseness) within the meaning of Article 6 PCT arises to such an extent as to render a meaningful search of the claims impossible.

Consequently, the search has been carried out for those parts of the application which do appear to be clear (and/or concise), namely the methods of claims 1-27 and the host cell of claim 29.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

## INTERNATIONAL SEARCH REPORT

ational application No.  
PCT/GB 02/03852

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 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.: 28, 30-39  
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:  
see FURTHER INFORMATION sheet PCT/ISA/210
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 II Observations where unity of invention is lacking (Continuation of item 2 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 an additional fee, this Authority did not invite payment of any additional fee.
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.
- ☐ No protest accompanied the payment of additional search fees.

## INTERNATIONAL SEARCH REPORT

Inter Application No

PCT/GB 02/03852

| Patent document<br>cited in search report |   | Publication<br>date | Patent family<br>member(s)                                                                                                         | Publication<br>date                                                                                          |
|-------------------------------------------|---|---------------------|------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| WO 0157024                                | A | 09-08-2001          | AU 3200201 A<br>EP 1252156 A1<br>WO 0157024 A1                                                                                     | 14-08-2001<br>30-10-2002<br>09-08-2001                                                                       |
| US 5892018                                | A | 06-04-1999          | NONE                                                                                                                               |                                                                                                              |
| US 5990295                                | A | 23-11-1999          | US 5719264 A<br>US 5739276 A                                                                                                       | 17-02-1998<br>14-04-1998                                                                                     |
| WO 9701577                                | A | 16-01-1997          | AU 721798 B2<br>AU 6234596 A<br>CA 2221294 A1<br>EP 1281717 A2<br>EP 0835261 A1<br>WO 9701577 A1<br>JP 11509090 T<br>US 6451554 B1 | 13-07-2000<br>30-01-1997<br>16-01-1997<br>05-02-2003<br>15-04-1998<br>16-01-1997<br>17-08-1999<br>17-09-2002 |