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

(54) Title: DIAGNOSTICS AND THERAPEUTICS FOR DISEASES ASSOCIATED WITH G PROTEIN-COUPLED P2Y PURINORECEPTOR 6 (P2Y6)

(57) Abstract: The invention provides a human P2Y6 which is associated with the cardiovascular disorders, cancer disorders, gastrointestinal and liver diseases, hematological disorders, inflammatory diseases, reproduction disorders and urological disorders. The invention also provides assays for the identification of compounds useful in the treatment or prevention of cardiovascular disorders, cancer disorders, gastrointestinal and liver diseases, hematological disorders, inflammatory diseases, reproduction disorders and urological disorders. The invention also features compounds which bind to and/or activate or inhibit the activity of P2Y6 as well as pharmaceutical compositions comprising such compounds.
### INTERNATIONAL SEARCH REPORT

#### A. CLASSIFICATION OF SUBJECT MATTER
**IPC 7** G01N33/68 C07K14/705

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 database consulted during the international search (name of database and where practical, search terms used)
EPO-Internal, EMBASE, PAJ, BIOSIS, WPI Data

#### C. DOCUMENTS CONSIDERED TO BE RELEVANT

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<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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<td>X</td>
<td>WO 03/016475 A (BAyer Ag ; D USRO DONATELLA (DE) ; BEFORT KATIA (FR) ; GEN HOSPITAL CORP) 27 February 2003 (2003-02-27) the whole document ___</td>
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<td>WO 02/061087 A (ROUSH CHRISTINE L ; BROWN JOSEPH P (US) ; BURMER GLENNA C (US) ; LIFESA) 8 August 2002 (2002-08-08) page 6 - page 65 ; figures 1-3 ; sequence 223 ___</td>
<td>1-26</td>
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- **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
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- **I** 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
- **A** document member of the same patent family

Date of the actual completion of the international search: 27 September 2004

Date of mailing of the international search report: 15.03.05

Patent family members are listed in annex.

Further documents are listed in the continuation of box C.

Name and mailing address of the ISA
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Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax (+31-70) 340-30 66

Authorized officer
Pinheiro Vieira, E
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<td>P,X</td>
<td>WO 03/048202 A (MATSUDA AKIO ; MURAMATSU SHUJI (JP); ASAHI CHEMICAL IND (JP)) 12 June 2003 (2003-06-12) the whole document</td>
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<td>WO 2004/073657 A (PROTEIN DESIGN LABS INC ; GISH KURT C (US); AZIZ NATASHA (US); WILSON) 2 September 2004 (2004-09-02) the whole document</td>
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# INTERNATIONAL SEARCH REPORT

**Box 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. **X** Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
   
   Although claim 26 is 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).

**Box 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:

   see additional 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 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. **X** 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.:

   1–26 (all partial)

**Remark on Protest**

*☐* The additional search fees were accompanied by the applicant's protest.

*☐* No protest accompanied the payment of additional search fees.
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-26(part)


2. claims: 1-26(part)

   Method of screening for therapeutical agents useful in the treatment of gastroenterological disorders; method for diagnosing gastroenterological disorders; pharmaceutical compositions comprising agents which bind/regulate the activity of a P2Y6 polypeptide for the treatment of gastroenterological disorders; pharmaceutical compositions for the treatment of gastroenterological disorders comprising the P2Y6 polypeptide; method for preparing a pharmaceutical composition useful for the treatment of gastroenterological disorders.

3. claims: 1-26(part)


4. claims: 1-26(claims)

   Method of screening for therapeutical agents useful in the treatment of inflammatory diseases; method for diagnosing inflammatory diseases; pharmaceutical compositions comprising agents which bind/regulate the activity of a P2Y6 polypeptide for the treatment of inflammatory diseases; pharmaceutical compositions for the treatment of inflammatory diseases comprising the P2Y6 polypeptide; method for preparing a pharmaceutical composition useful for the treatment of inflammatory diseases.
5. claims: 1-26(part)

Method of screening for therapeutical agents useful in the treatment of urological disorders; method for diagnosing urological disorders; pharmaceutical compositions comprising agents which bind/regulate the activity of a P2Y6 polypeptide for the treatment of urological disorders; pharmaceutical compositions for the treatment of urological disorders comprising the P2Y6 polypeptide; method for preparing a pharmaceutical composition useful for the treatment of urological disorders.

6. claims: 1-26(part)

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<td>WO 02061087 A</td>
<td>08-08-2002</td>
<td>WO 02061087 A2</td>
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