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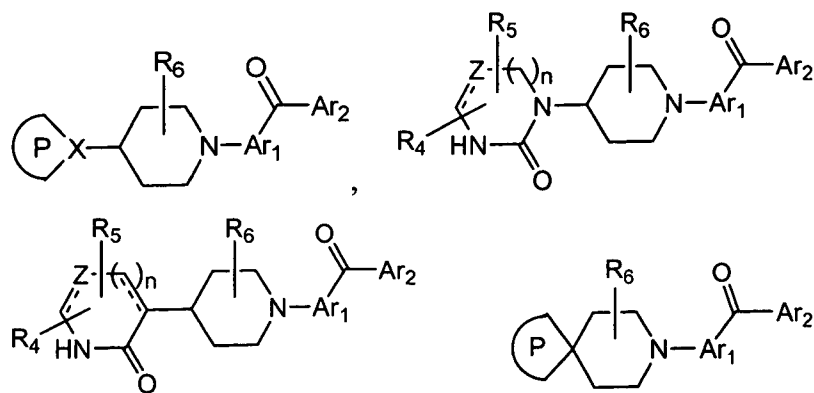
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(54) Title: BIARYL KETONE-SUBSTITUTED PIPERIDINES



(57) Abstract: Biaryl ketone-substituted piperidines of the following Formulas are provided:, and in which the variables are as described herein. Such compounds may be used to modulate calcitonin gene-related peptide (CGRP) receptor activity in vivo or in vitro, and are particularly useful in the treatment of conditions responsive to CGRP modulation in humans, domesticated companion animals and livestock animals, including headache such as migraine. Pharmaceutical compositions and methods for using them to treat such disorders are provided, as are methods for using such compounds for receptor localization studies and various in vitro assays.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 07/24717

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(8) - A01N 43/40; A61K 31/445 (2008.01) USPC - 514/315 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) USPC - 514/315  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched USPC - 514/675 (see search terms below)  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) USPTO-WEST - PGPB,USPT,USOC,EPAB,JPAB keywords: CGRP, piperidin-4-yl, 3,4-dihydroquinazolin, pyridin-2-yl, 1H-benzo[d]imidazol-2(3H)-one, composition, aryl halide, coupling, secondary amine, C-N bonds, ketone, spiro, X-ray crystal structure. INTERNET search - Google - same search terms as for USPTO-WEST.		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2004/091514 A2 (BURGEY et al.) 28 October 2004 (28.10.2004) Abstract; pg 4, ln 4 to pg 10, ln 8; pg 12, ln 8 to pg 18, ln 20; pg 41, ln 5 to pg 44, ln 3	1-13 and 65
Y	WO 2001/66248 A2 (NOLAN et al.) 13 September 2001 (13.09.2001) pg 2 to pg 4; pg 21 to pg 26	1-13, 30-41 and 65
Y	CONNER et al. The Second Intracellular Loop of the Calcitonin Gene-related Peptide Receptor Provides Molecular Determinants for Signal Transduction and Cell Surface Expression. J. Biol. Chem., 20 January 2006, Vol 281, Iss 3, pp 1644-1651, Abstract	1-13, 30-41 and 65
Y	WO 2006/052378 A1 (CHATURVEDULA et al.) 18 May 2006 (18.05.2006), Abstract; pg 3, ln 15 to pg 6, ln 15; pg 8, ln 1-5; pg 171, Ex. 23	30-41
Y	US 6,268,474 B1 (SMITH et al.) 31 July 2001 (31.07.2001) col 5, ln 9 to col 7, ln 14; col 10, ln 24-33	65
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/>		
* 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 application or patent 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		
Date of the actual completion of the international search 04 March 2008 (04.03.2008)		Date of mailing of the international search report  <b>02 APR 2008</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201		Authorized officer:  Lee W. Young  PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774

INTERNATIONAL SEARCH REPORT

International application No.

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**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.:  
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.: 14-29, 42-64 and 66-71  
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 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.