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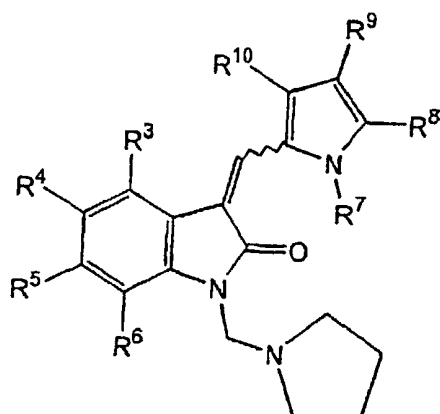
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ning of each regular issue of the PCT Gazette.

(54) Title: -(PYRROLIDIN-1-YLMETHYL)-3-(PYRROL-2-YLMETHYLIDENE)-2-INDOLINONE DERIVATIVES AND  
THEIR USE AS MODULATORS OF PROTEIN KINASES



(1)

(57) Abstract: The present invention is directed to 1-pyrrolidin-1-ylmethyl-3-(pyrrol-2-ylmethylidene)-2-indolinone derivatives of the formula that modulate the activity of protein kinases ("PKs"). Pharmaceutical compositions comprising these compounds, methods of treating diseases related to abnormal PK activity utilizing pharmaceutical compositions comprising these compounds and methods of preparing them are also disclosed.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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)

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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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 99 61422 A (SUGEN, INC.) 2 December 1999 (1999-12-02) cited in the application claims ---	1,6
A	WO 00 08202 A (SUGEN, INC.) 17 February 2000 (2000-02-17) claims ---	1,6
E	WO 01 90068 A (SUGEN, INC.) 29 November 2001 (2001-11-29) claims -----	1-21

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Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 9961422	A	02-12-1999	AU 4410299 A	13-12-1999
			CN 1311775 T	05-09-2001
			EP 1082305 A1	14-03-2001
			NO 20005916 A	29-01-2001
			PL 344477 A1	05-11-2001
			SK 18062000 A3	11-06-2001
			WO 9961422 A1	02-12-1999
WO 0008202	A	17-02-2000	AU 5468499 A	28-02-2000
			WO 0008202 A2	17-02-2000
WO 0190068	A	29-11-2001	WO 0190103 A2	29-11-2001
			WO 0190104 A2	29-11-2001
			WO 0190068 A2	29-11-2001