

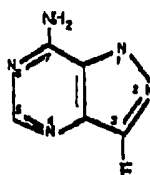


INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

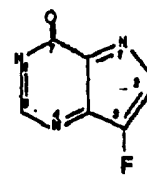
<p>(51) International Patent Classification ⁵ : C07H 21/00, C12Q 1/68 C07F 9/6561, C07H 19/04, 19/10 C07H 19/20</p>	A3	<p>(11) International Publication Number: WO 93/16094</p> <p>(43) International Publication Date: 19 August 1993 (19.08.93)</p>
<p>(21) International Application Number: PCT/US93/01338</p> <p>(22) International Filing Date: 12 February 1993 (12.02.93)</p> <p>(30) Priority data: 07/834,456 12 February 1992 (12.02.92) US</p> <p>(71) Applicant: CHROMAGEN, INC. [US/US]; 17085 Vio del Campo, San Diego, CA 92127 (US).</p> <p>(72) Inventor: CONRAD, Michael, J. ; 11336 Penanova Street, San Diego, CA 92129 (US).</p> <p>(74) Agents: WHITLOCK, Ted, W. et al.; Saliwanchik & Saliwanchik, 2421 N.W. 41st Street, Suite A-1, Gainesville, FL 32606 (US).</p>		<p>(81) Designated States: CA, JP, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).</p> <p>Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p> <p>(88) Date of publication of the international search report: 30 September 1993 (30.09.93)</p>

(54) Title: APPLICATIONS OF FLUORESCENT N-NUCLEOSIDES AND FLUORESCENT STRUCTURAL ANALOGS OF N-NUCLEOSIDES**(57) Abstract**

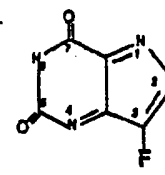
Structural analogs of the six non-fluorescent N-nucleosides commonly found in RNA and DNA, which are inherently fluorescent under physiological conditions, are identified and methods for their preparation provided. Such analogs may be incorporated into DNA and/or RNA oligonucleotides via either enzymatic or chemical synthesis to produce fluorescent oligonucleotides having prescribed sequences. Such analogous sequences may be identical to, or the analogous complement of, template or target DNA or RNA sequences to which the fluorescent oligonucleotides can be hybridized. Methods of preparing either RNA or DNA oligonucleotide probes of the invention, intermediates used in such methods, and methods of using the probes of the invention in oligonucleotide amplification, detection, identification, and/or hybridization assays are also provided.



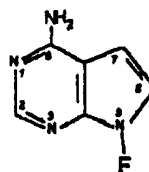
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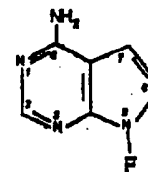
FORMYCIN B



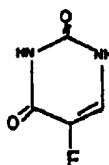
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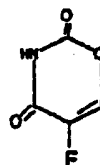
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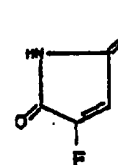
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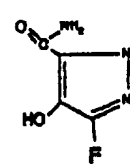
PSEUDOURIDINE



MINIMYCIN



SHOWDOMYCIN



PYRAZOMYCIN

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 93/01338

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all) ⁶		
According to International Patent Classification (IPC) or to both National Classification and IPC		
Int.Cl. 5 C07H21/00; C07H19/10;	C12Q1/68; C07H19/20	C07F9/6561; C07H19/04
II. FIELDS SEARCHED		
Minimum Documentation Searched ⁷		
Classification System	Classification Symbols	
Int.Cl. 5	C07H ; C12Q ; C07F	
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁸		
III. DOCUMENTS CONSIDERED TO BE RELEVANT⁹		
Category ^o	Citation of Document, ¹¹ with indication, where appropriate, of the relevant passages ¹²	Relevant to Claim No. ¹³
X	EP,A,0 235 301 (TEIJIN LIMITED) 9 September 1987 see page 36, line 20 - page 39, line 34 ---	1-29
X	US,A,3 960 840 (UNIVERSITY OF ILLINOIS FOUNDATION) 1 June 1976 see column 1 - column 2 ---	1-3
A	PATENT ABSTRACTS OF JAPAN vol. 12, no. 139 (C-491)27 April 1988 & JP,A,62 255 499 (TEIJIN LTD) 7 November 1987 see abstract ---	1
-/--		
<p>^o Special categories of cited documents : ¹⁰</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"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</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"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.</p> <p>"&" document member of the same patent family</p>		
IV. CERTIFICATION		
Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report	
24 AUGUST 1993	25. 08. 93	
International Searching Authority	Signature of Authorized Officer	
EUROPEAN PATENT OFFICE	DAY G.J.	

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)		
Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	PATENT ABSTRACTS OF JAPAN vol. 11, no. 259 (C-441)21 August 1987 & JP,A,62 059 293 (TEIJIN LTD) 14 March 1987 see abstract	1
A	--- JOURNAL OF THE AMERICAN CHEMICAL SOCIETY. vol. 103, 1981, GASTON, PA US pages 932 - 933 ROBINS M.J. AND WILSON J.S. 'Smooth and Efficient Deoxygenation of Secondary Alcohols. A General Procedure for the Conversion of Ribonucleosides to 2'-Deoxynucleosides' cited in the application See Scheme 1 -----	30-32

**ANNEX TO THE INTERNATIONAL SEARCH REPORT
ON INTERNATIONAL PATENT APPLICATION NO.**

US 9301338
SA 70783

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report. The members are as contained in the European Patent Office EDP file on
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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP-A-0235301	09-09-87	DE-A- 3686150	27-08-92
		WO-A- 8701373	12-03-87
		US-A- 4965350	23-10-90
US-A-3960840	01-06-76	None	