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(71) Applicant (for all designated States except US): DUKE UNIVERSITY [US/US]; Office of Science and Technology, P.O. Box 90083, Durham, NC 27708-0083 (US).

- (72) Inventors; and
- (75) Inventors/Applicants (for US only): CULLEN, Bryan, R. [US/US]; c/o Duke University, Office Of Science And Technol, ogiy, P.O. Box 90083, Durham, North Carolina 27708-0083 (US). ZENG, Yang [CN/US]; c/o Duke University, Office Of Science And Technol, ogy, P.O. Box 90083, Durham, North Carolina 27708-0083 (US).
- (74) Agent: WILSON, Mary, J.; Nixon & Vanderhye P.C., 1100 North Glebe Road, Suite 800, Arlington, VA 22201-4714 (US).

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(54) Title: A METHOD OF REGULATING GENE EXPRESSION

(57) Abstract: The present invention relates, in general, to gene expression and, in particular, to a method of inhibiting the expression of a target gene and to constructs suitable for use in such a method.

INTERNATIONAL SEARCH REPORT

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PCT/US03/13923

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : C12Q 1/68; A01N 43/04; C07H 21/04; A61K 31/07 US CL : 435/6, 375, 325, 91.1; 536/24.1, 24.5, 23.1; 514/44 According to International Patent Classification (IPC) or to both national classification and IPC				
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Minimum documentation searched (classification system followed by classification symbols) U.S.: 435/6, 375, 325, 91.1; 536/24.1, 24.5, 23.1; 514/44				
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 practicable, search terms used) Please See Continuation Sheet				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
	ation of document, with indication, where a		Relevant to claim No.	
	-QUITANA et al. Identification of Novel		1-30	
Y LEE an	RNAs. Science, October, 2001, Vol. 294, pages 853-857. LEE and AMBROS. An Extensive Class of Small RNAs in Caenorhabditis elegans. Science, October 2001. Vol. 294, pages 862-864.			
Y LAU et	LAU et al. An Abundant Class of Tiny RNAs with Probable Regulatory Roles in Caenorhabditis elegans. Science, October, 2001, pages 858-861			
Y FIRE et	FIRE et al. Potent and Specific Genetic Interference by double-stranded RNA in Caenorhabditis elegans. Nature, February 1998, Vol. 391, pages 806-811.		1-30	
A AMBRO	AMBROS, V. microRNAs: Tiny Regulators with Great Potential. Cell, December 2001, Vol. 107, pages 823-826.		1-30	
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Further documen	ats are listed in the continuation of Box C.	See patent family annex.		
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Continuation of B. FIELDS SEARCHED Item 3:	İ
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