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- (71) Applicant (for all designated States except US): NEW LIGHT INDUSTRIES, LTD [US/US]; 9715 West Sunset Highway, Spokane, WA 99204 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MCGREW, Stephen, P. [US/US]; 3610 S. Harrison Road, Spokane, WA 99224 (US). LIGHTFOOT, Donald, R. [US/US]; 1405 E. Woodcliff Road, Spokane, WA 99203 (US).
- (74) Agents: DEHLINGER, Peter, J. et al.; Perkins Coie LLP, P.O. Box 2168, Menlo Park, CA 94026 (US).
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(54) Title: MANUFACTURING METHOD AND READOUT SYSTEM FOR BIOPOLYMER ARRAYS

(57) Abstract: A method for manufacturing an array of biomolecules that have complementary binding species is disclosed. The method utilizes a master substrate containing a desired master array of binding molecules or ligands, e.g., DNA target molecules. A mixture of complementary, antiligand molecules, e.g., DNA probe molecules, are then hybridized to the ligands of the master array, forming an array of antiligand molecules reversibly bound to the molecules in the master array. The antiligand array is then transferred and bound to a separate substrate, to form a desired array of antiligand molecules on the separate substrate. The process may be repeated to produce multiple arrays or multiple generations of arrays. Also disclosed is a sensor array device and method. The device includes an array of vibratory tympanic elements, each having a specific analyte binding probe carried on the vibratory membrane of the element. A binding event is detected by a change in the vibrational resonance of a selected element.

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# INTERNATIONAL SEARCH REPORT

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**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) : C12Q 1/68; G01N 27/26  
 US CL : 435/6, 7.1, 174, 283.1, 287.2

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)  
 U.S. : 435/6, 7.1, 174, 283.1, 287.2

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)  
 EAST, DIALOG

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,051,380 A (SOSNOWSKI et al) 18 April 2000 (18.04.2000) columns 9, 19-21, 34 and Fig. 13.	1-8 ----- 9-25
X --- Y	US 2002/0115198 A1 (NERENBERG et al) 22 August 2002 (22.08.2002) paragraphs 15-19, 35-39, 50, 54, 97-101.	12-21 ----- 23
Y	US 6,451,191 B1 (BENTSEN et al) 17 September 2002 (17.09.2002) columns 7-9, 18 and Fig. 11.	1-25

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See patent family annex.

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"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
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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. (703) 305-3230

Authorized officer

*John Brulger*  
 B.J. Forman

Telephone No. (703) 308-0196