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(54) Title: PATTERNED POLYMERIC STRUCTURES, PARTICULARLY MICROSTRUCTURES, AND METHODS FOR MAKING SAME

(57) Abstract: Methods of adhering polymeric materials to a substrate, either directly or through linker molecules, are disclosed. Structures, for example, microstructures, including microwells and arrays of microwells, may be readily formed using the methods. In some embodiments, microstructures formed completely from polymeric materials are provided, making it possible to tailor the chemical and physical properties of the microstructures. For example, microwells having a bottom comprising a polar polymeric material and well sides/top comprising a non-polar polymeric material are provided. Biochemical reagents may be easily delivered to such "smart wells" because the intrinsic attraction of the well bottom for the reagents and the intrinsic repulsion between the well sides/top combine to direct the reagents to the wells.



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**INTERNATIONAL SEARCH REPORT**

International application No.

PCT/US02/24675

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC: **G03F 7/00**( 2006.01),**7/004**( 2006.01)

USPC: 430/270.1,311;427/551

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. : 430/270.1, 311; 427/551

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)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,022,597A (YAN et al) 08 February 2000, entire document	1-53
A	US 5,830,539 A (YAN et al) 03 November 1998, entire document	1-53
A	US 6,699,527 A (MOLONEY et al ) 02 March 2004, column 10, lines 40-67	1-53
A	US 5,582,955 A (KEANA et al) 10 December 1996, entire document	1-53
A	US 5,580,697 A (KEANA et al ) 10 December 1996, entire document	1-53
A	Prucker et al. Photochemical Attachment of Polymer Films to Solid Surfaces via Monolayers of Benzophenone Derivatives. Journal of the American Chemical Society , 23 March 1999, Vol 121, pages 8766-8770.	1-53

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"B" earlier application or patent published on or after the international filing date	"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
"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)	"&"	document member of the same patent family
"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		

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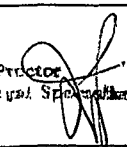
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## INTERNATIONAL SEARCH REPORT

## C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	YAN et al, Micro/Nanowell Arrays Fabricated from Covalently Immobilized Polymer Thin Films on a Flat Substrate. Journal of the American Chemical Society. 2002, Vol 2, No. 4, pages 275-278	1-53