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(54) Title: GAS-PLASMA TREATMENT OF IMPLANTS

(57) **Abstract:** An implant for use in biological/biomedical applications may be prepared by subjecting a substrate to a gas-plasma treatment. The substrate may be a biocompatible material, including metals, ceramics, and polymers. More specifically, the substrate may be a bioresorbable polymer. The gas-plasma treatment may include subjecting the substrate to a plasma formed by a reactive gas. The gas-plasma treatment may be performed for a chosen duration at a radio frequency within a temperature range, a pressure range, and a supplied energy range. The substrate may be exposed to living cells, such that some of the living cells become coupled to the substrate. Gas-plasma treatment parameters may be chosen such that the living cells coupled to the treated substrate produce more of a cellular product than living cells coupled to an untreated substrate.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/06942

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61F 2/00; C12N 11/02, 11/08, 5/06, 5/08

US CL : 424/423, 93.7; 435/177, 180, 395

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. : 424/423, 93.7; 435/177, 180, 395

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

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| Y | US 4,927,676 A (WILLIAMS et al) 22 May 1990 (22.05.1990), see entire document. | 1-129 |
| Y | US 6,033,582 A (LEE et al) 07 March 2000 (07.03.2000), see entire document. | 1-129 |
| Y | US 5,034,265 A (HOFFMAN et al) 23 July 1991 (23.07.1991), see entire document. | 1-129 |
| Y | US 5,055,316 A (HOFFMAN et al) 08 October 1991 (08.10.1991), see entire document. | 1-129 |



Further documents are listed in the continuation of Box C.



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 |
| "P" document published prior to the international filing date but later than the priority date claimed | |

Date of the actual completion of the international search

27 September 2003 (27.09.2003)

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INTERNATIONAL SEARCH REPORT

PCT/US03/06942

Continuation of B. FIELDS SEARCHED Item 3:

WEST

search terms: gas plasma, cells, substrate, adhesion