



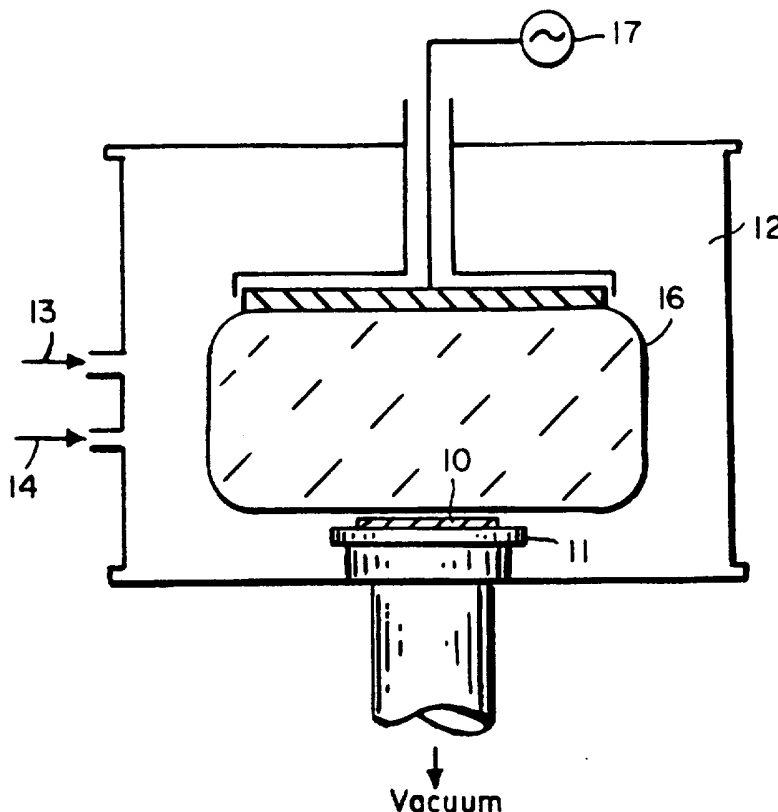
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : A61L 27/00, A61F 2/30</p>	<p>A3</p>	<p>(11) International Publication Number: WO 97/26026 (43) International Publication Date: 24 July 1997 (24.07.97)</p>
<p>(21) International Application Number: PCT/US97/01005 (22) International Filing Date: 22 January 1997 (22.01.97) (30) Priority Data: 08/589,409 22 January 1996 (22.01.96) US (71) Applicant: ETEX CORPORATION [US/US]; 38 Sidney Street, Cambridge, MA 02139 (US). (72) Inventors: LEE, Dosuk, D.; Apartment 518, 50 Longwood Avenue, Brookline, MA 02146 (US). NAGRAS, Atul; Apartment 2, 38 Seawall Street, Somerville, MA 02145 (US). (74) Agent: SCOZZAFAVA, Mary, Rose; Choate, Hall & Stewart, Exchange Place, 53 State Street, Boston, MA 02109-2891 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. 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: 28 August 1997 (28.08.97)</p>	

(54) Title: SURFACE MODIFICATION OF MEDICAL IMPLANTS

(57) Abstract

A method of obtaining a porous titanium surface suitable for medical implants is provided. The titanium surface is exposed to a plasma comprising a reactive plasma gas, the reactive plasma gas comprising an active etching species and a sputtering gas. The plasma conditions are effective to modify the titanium surface and provide surface porosity. The plasma conditions are effective to non-uniformly etch and sputter the titanium surface.



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INTERNATIONAL SEARCH REPORT

International Application No
PC1/US 97/01005

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC 6 A61L27/00 A61F2/30</p> <p>According to International Patent Classification (IPC) or to both national classification and IPC</p>																				
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC 6 A61L A61F</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practical, search terms used)</p>																				
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>WO 86 06617 A (PLASMAINVENT AG) 20 November 1986 see the whole document ---</td> <td>1-17, 19-42</td> </tr> <tr> <td>Y</td> <td>EP 0 447 744 A (REPENNING DETLEV) 25 September 1991 see claims ---</td> <td>1-17, 19-42</td> </tr> <tr> <td>Y</td> <td>WO 94 25637 A (ETEX CORP) 10 November 1994 see claims & US 5 543 012 A cited in the application ---</td> <td>1-17, 19-42</td> </tr> <tr> <td>A</td> <td>EP 0 606 566 A (NOBELPHARMA AB) 20 July 1994 see claims ---</td> <td>1-17, 19-42</td> </tr> <tr> <td></td> <td style="text-align: center;">-/--</td> <td></td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	WO 86 06617 A (PLASMAINVENT AG) 20 November 1986 see the whole document ---	1-17, 19-42	Y	EP 0 447 744 A (REPENNING DETLEV) 25 September 1991 see claims ---	1-17, 19-42	Y	WO 94 25637 A (ETEX CORP) 10 November 1994 see claims & US 5 543 012 A cited in the application ---	1-17, 19-42	A	EP 0 606 566 A (NOBELPHARMA AB) 20 July 1994 see claims ---	1-17, 19-42		-/--	
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<p><input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex.</p>																				
<p>* Special categories of cited documents :</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 when the document is taken alone</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>																				
<p>1 Date of the actual completion of the international search</p> <p>24 June 1997</p>	<p>Date of mailing of the international search report</p> <p>08.07.1997</p>																			
<p>Name and mailing address of the ISA</p> <p>European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+ 31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+ 31-70) 340-3016</p>	<p>Authorized officer</p> <p>ESPINOSA, M</p>																			

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/01005

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5 258 098 A (WAGNER DONALD J ET AL) 2 November 1993 see the whole document -----	1-17, 19-42

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 97/01005

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claim(s) 18
is(are) directed to a method of treatment of the human/animal
body, the search has been carried out and based on the alleged
effects of the compound/composition.
2. Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such
an extent that no meaningful International Search can be carried out, specifically:
3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all
searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment
of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report
covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is
restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest.
- No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 97/01005

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