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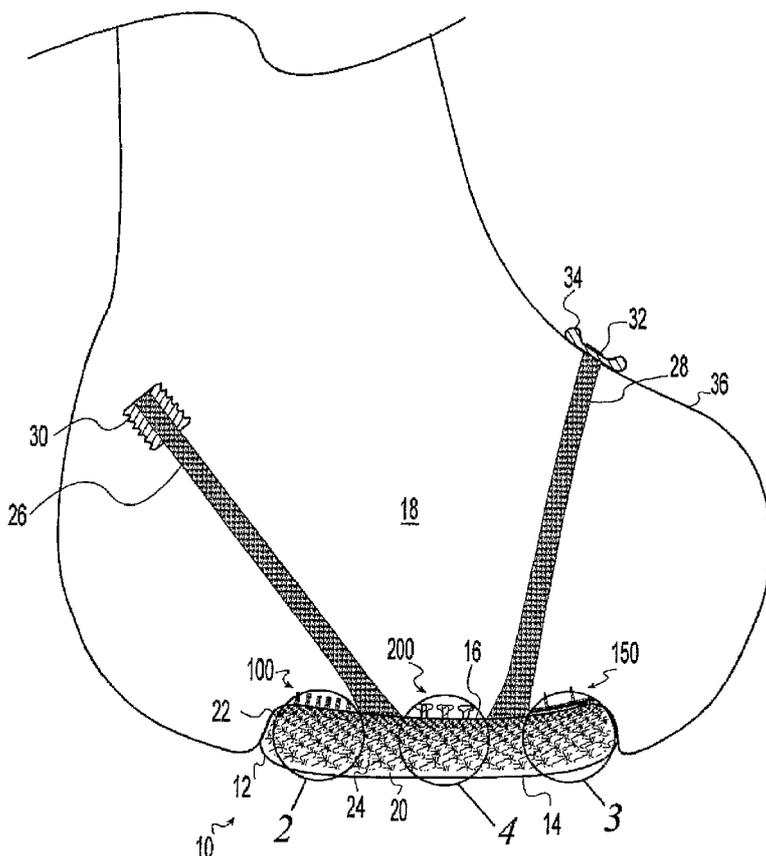
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[Continued on next page]

(54) Title: CARTILAGE RESURFACING IMPLANT



(57) Abstract: A cartilage resurfacing implant (10) is provided for replacing cartilage of an articulating portion of a bone at a skeletal joint having opposed joint surfaces. The cartilage resurfacing implant includes a body (12) having a bearing surface (14) and a bone interface (16). The bearing surface is able to support articulation with an opposing joint surface.

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| <p>A. CLASSIFICATION OF SUBJECT MATTER<br/>INV. 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)<br/>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)<br/>EPO-Internal</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>X<br/>Y</td> <td> <p>DE 203 03 205 U (AESCULAP)<br/>30 April 2003 (2003-04-30)</p> <p>page 11, line 10 - page 12, line 12<br/>page 14, lines 12-22; claims 16,23,24;<br/>figures 3,5,6,11</p> </td> <td> <p>1,2,6,7</p> <p>3-5,<br/>8-14,16,<br/>20-25</p> </td> </tr> <tr> <td>X</td> <td> <p>US 4 502 161 A (WALL)<br/>5 March 1985 (1985-03-05)<br/>column 1, lines 9-12<br/>column 3, lines 17-64<br/>column 5, lines 12-46; claims 9-11,13;<br/>figures 1,2,5-12</p> <p style="text-align: center;">-----<br/>-/--</p> </td> <td> <p>1</p> </td> </tr> </tbody> </table>   |  |   | Category*  | Citation of document, with indication, where appropriate, of the relevant passages   | Relevant to claim No. | X<br>Y | <p>DE 203 03 205 U (AESCULAP)<br/>30 April 2003 (2003-04-30)</p> <p>page 11, line 10 - page 12, line 12<br/>page 14, lines 12-22; claims 16,23,24;<br/>figures 3,5,6,11</p> | <p>1,2,6,7</p> <p>3-5,<br/>8-14,16,<br/>20-25</p> | X | <p>US 4 502 161 A (WALL)<br/>5 March 1985 (1985-03-05)<br/>column 1, lines 9-12<br/>column 3, lines 17-64<br/>column 5, lines 12-46; claims 9-11,13;<br/>figures 1,2,5-12</p> <p style="text-align: center;">-----<br/>-/--</p> | <p>1</p> |
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| <p><input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C.      <input checked="" type="checkbox"/> See patent family annex.</p>   |  |   |  |  |                       |        |   |   |   |   |          |
| <p>* Special categories of cited documents :</p> <table border="0"> <tr> <td style="vertical-align: top;"> <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> </td> <td style="vertical-align: top;"> <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>"&amp;" document member of the same patent family</p> </td> </tr> </table> |  |   | <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>"&amp;" document member of the same patent family</p> |                       |        |   |   |   |   |          |
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| <p>Date of the actual completion of the international search<br/><br/>30 January 2008</p>   |  | <p>Date of mailing of the international search report<br/><br/>06/02/2008</p> |  |  |                       |        |   |   |   |   |          |
| <p>Name and mailing address of the ISA/<br/>European Patent Office, P.B. 5818 Patentlaan 2<br/>NL - 2280 HV Rijswijk<br/>Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,<br/>Fax: (+31-70) 340-3016</p>  |  | <p>Authorized officer<br/><br/>Klein, Christophe</p>                          |  |  |                       |        |   |   |   |   |          |

## INTERNATIONAL SEARCH REPORT

International application No

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| C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT |   |                       |
|--|---|-----------------------|
| Category*  | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
| X  | US 5 358 525 A (FOX)<br>25 October 1994 (1994-10-25)<br>column 2, line 50 - column 3, line 3;<br>figures 2,3                      | 1                     |
| Y  | US 2003/078617 A1 (SCHWARTZ)<br>24 April 2003 (2003-04-24)<br>paragraph [0159]; figures 32,33                                     | 3-5,12                |
| Y  | EP 0 528 080 A (STRYKER CORPORATION)<br>24 February 1993 (1993-02-24)<br>column 5, line 39 - column 6, line 6;<br>figure 4        | 8,9                   |
| Y  | US 2004/010312 A1 (ENAYATI)<br>15 January 2004 (2004-01-15)<br>paragraph [0046]; figures 1,2,2a,5,6,8,8a                          | 8,10,13               |
| Y  | DE 197 21 661 A (ZIMMER)<br>26 November 1998 (1998-11-26)   | 11,14,25              |
| A  | column 9, lines 40-43<br>column 10, lines 43-57; claim 10; figure 4   | 3,4                   |
| Y  | US 2004/133275 A1 (MANSMANN)<br>8 July 2004 (2004-07-08)<br>paragraphs [0097], [0100], [0105]; claim<br>1; figures 2,3            | 16,20,<br>23,24       |
| Y  | DE 102 20 368 A (BIO TISSUE TECHNOLOGIES)<br>4 December 2003 (2003-12-04)<br>abstract; claims 16,18                               | 21                    |
| Y  | DE 29 33 174 A (GEBRÜDER SULZER)<br>10 April 1980 (1980-04-10)<br>abstract; claims 3,4; figures                                   | 22                    |
| A  | WO 2005/051242 A (XIROS PLC)<br>9 June 2005 (2005-06-09)<br>page 14; claim 1; figures 1-4,6-11                                    | 2                     |
| A  | US 5 607 474 A (ATHANASIOU)<br>4 March 1997 (1997-03-04)<br>column 4, line 25 - column 5, line 65;<br>claims 1,3,5,6; figures 1,3 | 14,21,<br>23-25       |
| A  | US 6 494 917 B1 (MCKELLOP)<br>17 December 2002 (2002-12-17)<br>abstract; claim 1; figure 2  | 15                    |
| A  | US 5 658 343 A (HÄUSELMANN)<br>19 August 1997 (1997-08-19)<br>column 7, lines 19-28; claims 1,3                                   | 16,17                 |

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/061270

| Patent document cited in search report |    | Publication date | Patent family member(s)  | Publication date   |
|--|----|------------------|--|--|
| DE 20303205                            | U  | 30-04-2003       | NONE   |  |
| US 4502161                             | A  | 05-03-1985       | NONE   |  |
| US 5358525                             | A  | 25-10-1994       | NONE   |  |
| US 2003078617                          | A1 | 24-04-2003       | EP 1416879 A2<br>JP 2004535244 T<br>WO 03007788 A2<br>US 2005027307 A1   | 12-05-2004<br>25-11-2004<br>30-01-2003<br>03-02-2005   |
| EP 0528080                             | A  | 24-02-1993       | NONE   |  |
| US 2004010312                          | A1 | 15-01-2004       | US 2005143825 A1   | 30-06-2005   |
| DE 19721661                            | A  | 26-11-1998       | WO 9852498 A1<br>EP 0984745 A1   | 26-11-1998<br>15-03-2000   |
| US 2004133275                          | A1 | 08-07-2004       | NONE   |  |
| DE 10220368                            | A  | 04-12-2003       | NONE   |  |
| DE 2933174                             | A  | 10-04-1980       | AT 370989 B<br>AT 591579 A<br>CH 632923 A5<br>CH 632922 A5<br>DE 2933141 A1  | 25-05-1983<br>15-10-1982<br>15-11-1982<br>15-11-1982<br>10-04-1980   |
| WO 2005051242                          | A  | 09-06-2005       | AU 2004292380 A1<br>EP 1680050 A1<br>JP 2007509678 T<br>US 2007073394 A1   | 09-06-2005<br>19-07-2006<br>19-04-2007<br>29-03-2007   |
| US 5607474                             | A  | 04-03-1997       | AU 3619293 A<br>CA 2117379 A1<br>DE 69307299 D1<br>EP 0625891 A1<br>HK 71597 A<br>JP 7503869 T<br>JP 2004000540 A<br>WO 9315694 A1 | 03-09-1993<br>19-08-1993<br>20-02-1997<br>30-11-1994<br>06-06-1997<br>27-04-1995<br>08-01-2004<br>19-08-1993 |
| US 6494917                             | B1 | 17-12-2002       | AU 3562499 A<br>AU 4986497 A<br>EP 1028760 A1<br>EP 1071383 A1<br>WO 9816258 A1<br>WO 9952474 A1                                   | 01-11-1999<br>11-05-1998<br>23-08-2000<br>31-01-2001<br>23-04-1998<br>21-10-1999                             |
| US 5658343                             | A  | 19-08-1997       | EP 0692227 A1<br>JP 8038524 A  | 17-01-1996<br>13-02-1996   |