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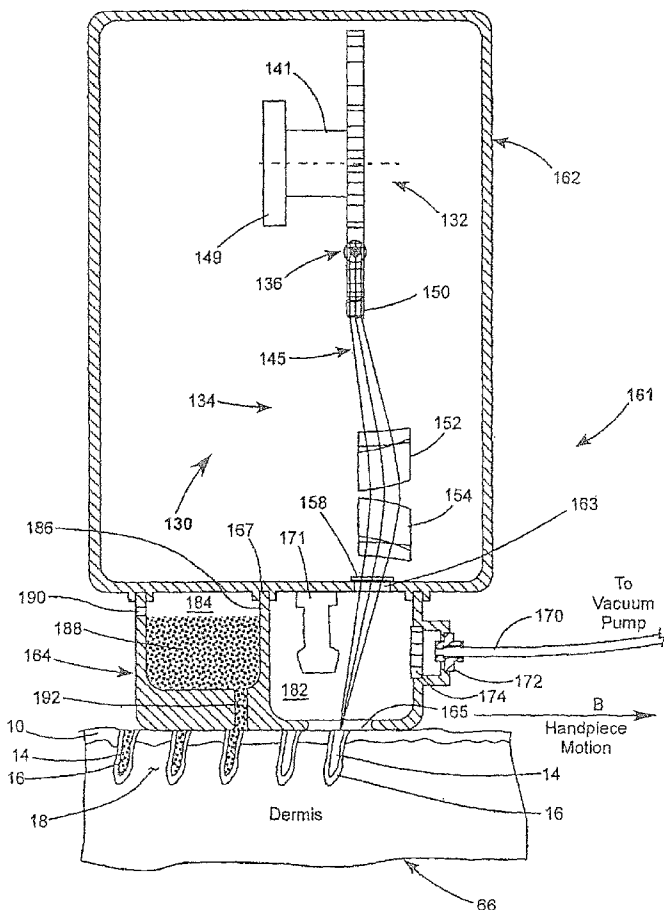
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[Continued on next page]

(54) Title: TREATMENT OF ALOPECIA BY MICROPOROUS DELIVERY OF STEM CELLS



(57) Abstract: A method of restoring hair to skin that has suffered hair loss includes optically ablating an array of spaced-apart microchannels or voids into the skin and transplanting into the voids stem cells, a scaffold and a differentiation factor for causing the stem cells to differentiate into hair follicles.

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PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM,  
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<p><b>A. CLASSIFICATION OF SUBJECT MATTER</b>                  IPC(8) - A61B 18/18; A61K 35/32 (2007.01)                  USPC - 606/9, 424/574, 977/913                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																							
<p><b>B. FIELDS SEARCHED</b></p> <p>Minimum documentation searched (classification system followed by classification symbols)                  USPC - 606/9, 424/574, 977/913</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                  USPC - 606/ 10, 11, 13, 17, 2; 424/ 520;435/325</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                  PubWEST(USPT,PGPB,EPAB,JPAB); PubMed; Google Scholar                  Search Terms Used: Alopecia, hair loss, treat, prevent, stem cell, pore,void, laser, wavelength , 10.6, 10600, basic fibroblast growth factor, bFGF, FGF-2, growth factor, differentiation factor</p>																							
<p><b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b></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>US 2005/0147652 A1 (ATKINS et al.) 7 July 2005 (07.07.2005) entire document, especially para [0003], [0009], [0010], [0018], [0020], [0022], [0024], [0028], [0032], [0035]</td> <td>1-46</td> </tr> <tr> <td>Y</td> <td>US 2005/0251242 A1 (BOUSFIELD et al.) 10 November 2005 (10.11.2005) entire document, especially para [0002], [0014], [0048] - [0056], [0078]</td> <td>1-46</td> </tr> <tr> <td>Y</td> <td>US 6,050,990 A (TANKOVICH et al.) 18 April 2000 (18.04.2000) entire document, especially col 17, ln 60- col 18, ln 5; col 20, ln 40-50; col 23, ln 5-25; col 26, ln 25- 30; col 46, ln 5-20; col 60, ln 60-65; col 62, ln 25-35; col 67, ln 55- col 68, ln 25</td> <td>1-46</td> </tr> <tr> <td>Y</td> <td>US 2005/0003341 A1 (POLANSKY) 6 January 2005 (06.01.2005) entire document, especially para [1741]</td> <td>14-17, 43-46</td> </tr> <tr> <td>Y</td> <td>US 5,879,346 A (WALDMAN et al.) 9 March 1999 (09.03.1999) entire document, especially col 1, ln 30-40</td> <td>22</td> </tr> <tr> <td>Y</td> <td>US 2004/0068284 A1 (BARROWS) 8 April 2004 (08.04.2004) entire document, especially para [0049]</td> <td>37</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 2005/0147652 A1 (ATKINS et al.) 7 July 2005 (07.07.2005) entire document, especially para [0003], [0009], [0010], [0018], [0020], [0022], [0024], [0028], [0032], [0035]	1-46	Y	US 2005/0251242 A1 (BOUSFIELD et al.) 10 November 2005 (10.11.2005) entire document, especially para [0002], [0014], [0048] - [0056], [0078]	1-46	Y	US 6,050,990 A (TANKOVICH et al.) 18 April 2000 (18.04.2000) entire document, especially col 17, ln 60- col 18, ln 5; col 20, ln 40-50; col 23, ln 5-25; col 26, ln 25- 30; col 46, ln 5-20; col 60, ln 60-65; col 62, ln 25-35; col 67, ln 55- col 68, ln 25	1-46	Y	US 2005/0003341 A1 (POLANSKY) 6 January 2005 (06.01.2005) entire document, especially para [1741]	14-17, 43-46	Y	US 5,879,346 A (WALDMAN et al.) 9 March 1999 (09.03.1999) entire document, especially col 1, ln 30-40	22	Y	US 2004/0068284 A1 (BARROWS) 8 April 2004 (08.04.2004) entire document, especially para [0049]	37
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<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"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)</td> <td>"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</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"A" document defining the general state of the art which is not considered to be of particular relevance	"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	"E" earlier application or patent but published on or after the international filing date	"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	"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)	"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	"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												
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<p>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. 571-273-3201</p>		<p>Authorized officer:                  Lee W. Young                  PCT Helpdesk: 571-272-4300                  PCT OSP: 571-272-7774</p>																					