 discloses herein is cell culture media comprising umbilical cord plasma that is substantially free of serum. The media may be supplemented with one or more growth factors, hrbFGF, hrEGF, hrVEGF65, hrVEGFm, hrSCF, SDFla, hrIL-6, and any combination thereof. The media may be used to expand cells in culture, such as endothelial colony forming cells, prior to implantation into a patient.
**INTERNATIONAL SEARCH REPORT**

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(8) - C12N 5/00, C12N5/02 (201.1.01)

USPC - 435/384, 435/386, 435/405

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)

IPC(8)-C12N 5/00, C12N5/02 (201.1.01)

USPC - 435/384, 435/386, 435/405

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

USPC-435/377, 435/404; 435/325; 435/375

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
PUBWEST (PGWB, USPT, EPAB JPAB) and Google Scholar.

Search Terms: Human endothelial colony forming cells, ECFC, CD34, CD144, CD146, Fhl, Fikl, Flk4, Fln2, antibiotic, human recombinant basic fibroblast growth factor, hrEGF, human recombinant epidermal growth factor, hrEGF, human recombinant vascular

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
<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</td>
<td>US 6,194,207 B1 (BELL et al) 27 February 2001 (27.02.2001); table 3; claim 1-2, col 3, ln 7-21; col 6, ln 7-21; col 9, ln 19-28; col 11, ln 35 to col 13, ln 37; col 14, ln 10-21</td>
<td>1-4</td>
</tr>
<tr>
<td>Y</td>
<td>US 2008/0025956 A1 (YODER et al.) 31 January 2008 (31.01.2008); abstract, para [0009], [0011], [0012], [0015]-[0020], [0033], [0037], [0041], [0050]-[0052], [0098], [0100], [0159], [0161]-[0165]</td>
<td>7-1 1</td>
</tr>
</tbody>
</table>

[ ] Further documents are listed in the continuation of Box C.

* Special categories of cited documents:
  *A* document defining the general state of the art which is not considered to be of particular relevance
  *E* earlier application or patent but published on or after the international filing date
  *L* document which may throw doubts on priority claims(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
  *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

Date of the actual completion of the international search 17 November 201 1 (17.1.201 1)

Date of mailing of the international search report 25 NOV 2011

Name and mailing address of the ISA/US

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Facsimile No. 571-273-3201

[ ] Authorized officer: Lee W. Young

PCT Helpdesk: 571-272-4300
PCT DSP: 571-272-7714

Form PCT/ISA/2 10 (second sheet) (July 2009)
**INTERNATIONAL SEARCH REPORT**  

**International application No.**  
PCT/US 11/38414

**Observations where certain claims were found unsearchable (Continuation of item 2 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:

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).

**Observations where unity of invention is lacking (Continuation of item 3 of first sheet)**

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

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1. In order for all inventions to be examined, the appropriate additional examination fees must be paid.

- **Group I:** Claims 1-4 and 7-11, drawn to cell culture media comprising umbilical cord plasma, wherein the media is substantially free of serum.
- **Group II:** Claims 5-11, drawn to cell culture media substantially free of serum, the media comprising human umbilical cord plasma, human recombinant basic fibroblast growth factor (hrbFGF), human recombinant epidermal grown factor (hrEGF), human recombinant vascular endothelial growth factor 165 (hrVEGF165), human recombinant vascular endothelial growth factor 121 (hrVEGF 121 / human recombinant stem cell factor (hrSCF)), stromal cell derived / alpha (SDFlu), and human recombinant interleukin 6 (hrIL-6).

**Remark on Protest**

- ☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- ☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- ☐ No protest accompanied the payment of additional search fees.

Form PCT/ISA/2 10 (continuation of first sheet (2)) (July 2009)
The inventions listed as Groups I-II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons:

Group I does not include the inventive concept of a media comprising human recombinant basic fibroblast growth factor (hrbFGF), human recombinant epidermal grown factor (hrEGF), human recombinant vascular endothelial growth factor 165 (hrVEGF165), human recombinant vascular endothelial growth factor 121 (hrVEGF 121), human recombinant stem cell factor (hrSCF), stromal cell derived 1 alpha (SDF1a), and human recombinant interleukin 6 (hrIL-6), as required by Group II.

Groups I-II share the technical feature of cell culture media comprising umbilical cord plasma, wherein the media is substantially free of serum. However, this shared technical feature does not represent a contribution over the prior art of US 6,194,207 B 1 to Bell et al. (hereinafter "Bell") that discloses cell culture media comprising human umbilical cord plasma, wherein the media is substantially free of serum (claim 1-2; col 6, in 7-21; col 13, in 11-37—"in serum-free HCBM-2 medium containing 5% CM", "The addition of 5% umbilical cord blood plasma (P) to cultures of umbilical cord blood LDMNC in 5% CM (CM/P) generally increases the longevity of the cultures and can result in a further 10-fold increase in expansion"). As said cell culture media was known at the time of the invention, this cannot be considered a special technical feature that would otherwise unify the groups.

Groups I-II therefore lack unity under PCT Rule 13 because they do not share a same or corresponding special technical feature.