METHOD FOR ENHANCING ENGRAFTMENT OF THERAPEUTIC CELLS AT A TARGET SITE

Abstract: Engraftment of therapeutic cells and agents to a target site in an organism is enhanced by mechanical, chemical and biological methods and systems.
A. CLASSIFICATION OF SUBJECT MATTER

INV. C12N5/00

According to International Patent Classification (IPC) and both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

C12N

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

Electronic database consulted during the international search (name of data base and, where possible, search terms used)

EPO-Internal, WPI Data, EMBASE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
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<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No</th>
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<td>page 15, line 16 - line 26</td>
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<td>page 28, line 23 - page 39, line 4</td>
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Further documents are listed in the continuation of Box C. See patent family annex.

* 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 document but published on or after the international filing date

'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)

'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

'Y' 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

'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 or in combination with other documents

'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

'S' document member of the same patent family

Date of the actual completion of the International search

20 February 2007

Date of mailing of the international search report

22/05/2007

Name and mailing address of the ISA:

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Authorized officer

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

1. [x] Claims Nos. because they relate to subject matter not required to be searched by this Authority, namely
   Although claims 1-75, 81-104 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)

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

see additional sheet

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.

   1-7 (part), 8-11 (totality), 42-44 (part), 75 (part) ... 

Remark on Protest
   - The additional search fees were accompanied by the applicant's protest
   - No protest accompanied the payment of additional search fees
This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7 (part), 8-11 (totality), 42-44 (part), 75 (part), 88-91 (totality)

A method to enhance engraftment of a therapeutic cell at a target site comprising mechanical conditioning of the cells

2. claims: 1-7 (part), 12-22 (totality), 42-44 (part), 75 (part), 93-104 (totality)

A method to enhance engraftment of a therapeutic cell at a target site comprising biological conditioning of the cells with:

2.1 IL-1 (claim 14)
2.2 TNF-alpha (claim 14)
2.3 IL-4 (claim 14)
2.4 IL-8 (claim 14)
2.5 SDF-1 (claim 14)
2.6 MIP-I (claim 14)
2.7 MCP-1/2/3/4 (claim 14)
2.8 Lymphotactin (claim 14)
2.9 platelet derived cytokine (claim 16)
2.10 G-CSF (claim 16)
2.11 oxidized LDL (claim 16)
2.12 SCF (claim 16)
2.13 VEGF (claim 18)
2.14 FGF (claim 18)
2.15 IGF (claim 18)
2.16 HGF (claim 18)
2.17 epidural growth factor (claim 18)
2.18 PDGF (claim 18)
2.19 PR39 (claim 19)
2.20 HIF 1 alpha (claim 19)
2.21 HIF 2 alpha (claim 19)
2.22 eNOS enhancers (claim 19)
2.23 P38 inhibitors (claim 19)
2.24 statins agonists (claim 19)
2.25 SIP agonists (claim 19)
2.26 biological conjugate and linker (claim 21)
2.27 an expression cassette encoding an adhesion molecule gene product (claim 21)
2.28 hypoxia inducing agent (claim 22)

3. claims: 1-7 (part), 23-27 (totality), 42-44 (part), 75 (part)

A method to enhance engraftment of a therapeutic cell at a target site comprising chemical conditioning of the cells

4. claims: 1-7 (part), 35-38 (totality), 42-44 (part), 75 (part), 92 (totality)
A method to enhance engraftment of a therapeutic cell at a target site comprising conditioning the cells with a magnetically responsive particle

5. claims: 1-7 (part), 28-34 (totality), 39-41, 42-44 (part), 45-74 (totality), 81-87 (totality)

a method of enhancing engraftment of a therapeutic cell at a target site comprising delivering the cells with a composition comprising an engraftment enhancing agent

6. claims: 76-80 (totality)

a catheter
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<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
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<td></td>
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<td>EP 1569717 A2</td>
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