



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : A61K 48/00	A3	(11) International Publication Number: WO 97/44065 (43) International Publication Date: 27 November 1997 (27.11.97)												
(21) International Application Number: PCT/US97/08463 (22) International Filing Date: 20 May 1997 (20.05.97) (30) Priority Data: 08/650,726 20 May 1996 (20.05.96) US (71) Applicant: CYTOTHERAPEUTICS, INC. [US/US]; Two Richmond Square, Providence, RI 02906 (US). (72) Inventors: HAMMANG, Joseph, P.; 3 Prospect Street, Barrington, RI 02806 (US). AEBISCHER, Patrick; Chemin de Plantaz 65, CH-1095 Lutry (CH). (74) Agents: BALDWIN, Geraldine, F. et al.; Pennie & Edmonds LLP, 1155 Avenue of the Americas, New York, NY 10036 (US).		(81) Designated States: AL, AM, AU, AZ, BA, BB, BG, BR, BY, CA, CN, CU, CZ, EE, GE, GH, HU, IL, IS, JP, KG, KP, KR, KZ, LC, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TR, TT, UA, UZ, VN, YU, ARIPO patent (GH, 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). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 24 December 1997 (24.12.97)												
(54) Title: DEVICE AND METHOD FOR ENCAPSULATED GENE THERAPY														
<table border="1"> <caption>Data from Bar Chart</caption> <thead> <tr> <th>Category</th> <th>Percentage (%)</th> </tr> </thead> <tbody> <tr> <td>Encaps. psi2-Vik</td> <td>~45</td> </tr> <tr> <td>Empty capsule</td> <td>~23</td> </tr> <tr> <td>Unencaps. psi2-VIK</td> <td>~17</td> </tr> <tr> <td>psi2-VIK supernatant</td> <td>~14</td> </tr> <tr> <td>DMEM</td> <td>~17</td> </tr> </tbody> </table>			Category	Percentage (%)	Encaps. psi2-Vik	~45	Empty capsule	~23	Unencaps. psi2-VIK	~17	psi2-VIK supernatant	~14	DMEM	~17
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(57) Abstract <p>Methods and devices are provided for gene therapy using encapsulated packaging cell lines to deliver viral particles carrying at least one heterologous gene encoding at least one biologically active molecule.</p>														

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 97/08463

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 A61K48/00

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 6 A61K

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

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

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 92 19195 A (UNIV BROWN RES FOUND) 12 November 1992 cited in the application see page 4, line 5 - page 11, line 24 ---	1-21
X	WO 95 05452 A (CYTOTHERAPEUTICS INC ;BAETGE E EDWARD (US); HAMMANG JOSEPH P (US);) 23 February 1995 see page 12, line 2 - page 39, line 34 ---	1-21
A	WO 95 26411 A (UAB RESEARCH FOUNDATION) 5 October 1995 cited in the application see page 4, line 19 - page 5, line 18 --- -/--	

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in 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
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- *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
- *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.
- * & * document member of the same patent family

Date of the actual completion of the international search

15 October 1997

Date of mailing of the international search report

10.11.97

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Sitch, W

INTERNATIONAL SEARCH REPORT

Internat Application No

PCT/US 97/08463

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>TAKAMIYA ET AL: "AN EXPERIMENTAL MODEL OF RETROVIRUS GENE THERAPY FOR MALIGNANT BRAIN TUMORS"</p> <p>JOURNAL OF NEUROSURGERY, vol. 79, no. 1, July 1993, pages 104-110, XP002043680 cited in the application see page 104 see abstract</p> <p style="text-align: center;">---</p>	
A	<p>DATABASE MEDLINE FILE SERVER STN KARLSRUHE ABSTRACT 97104002, AEBISCHER ET AL: "GENE THERAPY FOR AMYOTROPHIC LATERAL SCLEROSIS (ALS) USING A POLYMER ENCAPSULATED XENOGENIC CELL LINE ENGINEERED TO SECRETE HCNTF"</p> <p>XP002043681 see abstract & HUMAN GENE THERAPY, vol. 7, no. 7, 1 May 1996, pages 851-860,</p> <p style="text-align: center;">-----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 97/08463

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:
see FURTHER INFORMATION sheet PCT/ISA/210
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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Remark : Although claims 9-20
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.

INTERNATIONAL SEARCH REPORT

Information on patent family members

Internal Application No

PCT/US 97/08463

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9219195 A	12-11-92	AT 156344 T	15-08-97
		AU 666118 B	01-02-96
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