



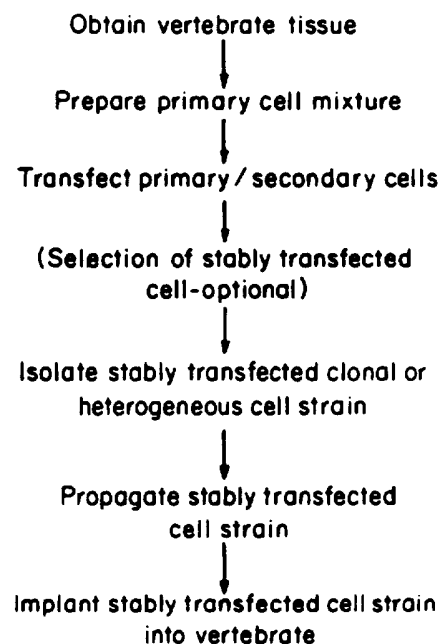
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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(21) International Application Number: PCT/US92/09627 (22) International Filing Date: 5 November 1992 (05.11.92) (30) Priority data: 787,840 5 November 1991 (05.11.91) US 789,188 5 November 1991 (05.11.91) US 911,533 10 July 1992 (10.07.92) US (71) Applicant: TRANSKARYOTIC THERAPIES, INC. [US/US]; 195 Albany Street, Cambridge, MA 02139 (US). (72) Inventors: SELDEN, Richard, F. ; 106 Bristol Road, Wellesley, MA 02181 (US). HEARTLEIN, Michael, W. ; 167 Reed Farm Road, Boxborough, MA 01719 (US). TRECO, Douglas, A. ; 87 Brantwood Road, Arlington, MA 02174 (US).	(74) Agents: GRANAHAN, Patricia et al.; Hamilton, Brook, Smith & Reynolds, Two Militia Drive, Lexington, MA 02173 (US). (81) Designated States: AU, CA, JP, KR, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, SE). Published <i>With international search report. 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: 28 October 1993 (28.10.93)	

(54) Title: TRANSFECTION OF VERTEBRATE CELLS E.G. BY HOMOLOGOUS RECOMBINATION

(57) Abstract

The present invention relates to transfected primary and secondary somatic cells of vertebrate origin, particularly mammalian origin, transfected with exogenous genetic material (DNA) which encodes a desired (e.g., a therapeutic) product or is itself a desired (e.g., therapeutic) product, methods by which primary and secondary cells are transfected to include exogenous genetic material, including DNA targeting by homologous recombination, methods of producing clonal cell strains or heterogeneous cell strains, methods of gene therapy in which the transfected primary or secondary cells are used, and methods of producing antibodies using the transfected primary or secondary cells. The present invention includes primary and secondary somatic cells, such as fibroblasts, keratinocytes, epithelial cells, endothelial cells, glial cells, neural cells, formed elements of the blood, muscle cells, other somatic cells which can be cultured and somatic cell precursors, which have been transfected with exogenous DNA which is stably integrated into their genomes or is expressed in the cells episomally. The exogenous DNA either encodes a product, such as a translational product (e.g., a protein) or a transcriptional product (e.g., a ribozyme or an anti-sense nucleic acid sequence) which is a therapeutic product or is itself a therapeutic product (e.g., DNA which binds to a cellular regulatory protein or alters gene expression).



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INTERNATIONAL SEARCH REPORT

Internauonal application No.

PCT/US 92/09627

A. CLASSIFICATION OF SUBJECT MATTER

IPC5: C12N 5/10, C12N 15/85, A61K 48/00

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)

IPC5: C12N, 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 practicable, search terms used)

MEDLINE, WPIL

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 Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:

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Date of the actual completion of the international search

5 August 1993

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INTERNATIONAL SEARCH REPORT

International application No.

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INTERNATIONAL SEARCH REPORT

International application No.

US 92/09627

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:

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.

INTERNATIONAL SEARCH REPORT
Information on patent family members

29/01/93

International application No.

PCT/US 92/09627

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INTERNATIONAL SEARCH REPORT
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02/07/93

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INTERNATIONAL SEARCH REPORT
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International application No.
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