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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MATERIALS AND METHODS TO INCREASE PEPTIDE CHAIN EXPRESSION

(57) Abstract: DNA sequences that increase peptide chain expression when operably linked to a gene encoding the peptide chain and methods of generating a peptide chain expression host cell using the foregoing are disclosed. Peptide chain expression host cells are also disclosed.



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INTERNATIONAL SEARCH REPORT

International Application No.

PCT/US06/31506

A. CLASSIFICATION OF SUBJECT MATTER IPC: C12P 21/06(2006.01);C12N 1/20(2006.01);C07H 21/02(2006.01) USPC: 435/69.1,252.3;536/23.1 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) U.S. : 435/69.1, 252.3; 536/23.1 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) STN, WEST AND SEQUENCE DATA BASES FOR SEQ ID NO; 1 & 2.		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GenEmbl. database, AC102853, BIRREN et al. Mus musculus, clone RP24-478I22, 21 August 2002. [AC102853 is 66.8% identical to SEQ ID NO: 1].	1, 11, 16, 17, 19.
A	GenEmbl. database, AC132331, McPHERSON et al. The sequence of Mus musculus BAC clone RP24-217D10, , 15 May 2004. [AC132331 is 99.7% identical to SEQ ID NO: 2].	1, 11, 16, 17, 19
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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	"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 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	
Date of the actual completion of the international search 13 August 2007 (13.08.2007)	Date of mailing of the international search report 25 SEP 2007	
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	Authorized officer Tekchand Saidha <i>Tekchand Saidha</i> Telephone No. (571) 272-1600	

INTERNATIONAL SEARCH REPORT

International application No. ...

PCT/US06/31506

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.b of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, the international search was carried out on the basis of:

a. type of material

a sequence listing

table(s) related to the sequence listing

b. format of material

on paper

in electronic form

c. time of filing/furnishing

contained in the international application as filed

filed together with the international application in electronic form

furnished subsequently to this Authority for the purposes of search

2. In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

3. Additional comments:

INTERNATIONAL SEARCH REPORT

International application No.
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Box No. II 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).

Box No. III 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:
Please See Continuation 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 additional fees, this Authority did not invite payment of any additional fees.
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, 11, 16-17 & 19 (SEQ ID NO: 1 & 2)

- 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.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US06/31406¹¹

BOX III. OBSERVATIONS WHERE UNITY OF INVENTION IS LACKING

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, claim(s) 1 & 11 (fully), 16-17 & 19-20 (all in part), drawn to an isolated DNA sequence comprising sequence of SEQ ID NO: 1 and SEQ ID NO: 2.

Group II, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 1, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group III, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 2, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group IV, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 3, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group V, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 4, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group VI, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 5, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group VII, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 6, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group VIII, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 7, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

Group IX, claim(s) 2-10 & 12-20 (all in-part), drawn to drawn to an isolated DNA sequence of SEQ ID NO: 8, host cell comprising the DNA and a method of making the encoded protein or peptide chain.

The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons:

The inventions listed as Groups I-IX 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 has a special technical feature of a nucleotide sequence comprising the sequence of SEQ ID NO: 1 and SEQ ID NO: 2 which groups II-IX do not share; For the same reason, each of the groups II-IX has a distinct special technical feature of a nucleotide sequence - structurally distinct among groups II-IX as well as group I. Thus the various groups discussed show a lack of Unity of Invention.