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(54) Title: SECRETED PROTEINS AND USES THEREOF

(57) Abstract: The invention provides isolated INTERCEPT 307, MANGO 511, TANGO 351, TANGO 361, TANGO 499 AND TANGO 509, nucleic acid molecules and polypeptide molecules. INTERCEPT 307 encodes a transmembrane polypeptide related to the prostate cancer upregulated PB36 gene product. MANGO 511 encodes transmembrane polypeptides related to the leukocyte Ig-like receptors (LIRs). TANGO 351 encodes a transmembrane polypeptide that is involved in signaling. TANGO 499 variants encode secreted polypeptides related to glial cell line-derived neurotrophic factor (GDNF)-like polypeptides. Human and mouse TANGO 509 encode transmembrane polypeptides that contain immunoglobulin domains. The invention also provides antisense nucleic acid molecules, expression vectors containing the nucleic acid molecules of the invention, host cells into which the expression vectors have been introduced, and non-human transgenic animals in which a nucleic acid molecule of the invention has been introduced or disrupted. The invention still further provides isolated polypeptides, fusion polypeptides, antigenic peptides and antibodies. Diagnostic, screening and therapeutic methods utilizing compositions of the invention are also provided.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US00/25982

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07K 14/705; C07H 21/04; C12N 15/63, 1/21; C12P 21/02

US CL : 530/350; 536/23.5; 435/320.1, 3621, 69.1

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. : 530/350; 536/23.5; 435/320.1, 3621, 69.1

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)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Database EST, The Institute for Genomic Research, (Rockville, MD, USA), AN AQ350855, ZHAO et al. 'Use of BAC End Sequences from Library RPCI-11 for Sequence-Ready Map Building'. 07 May 1999. See attached alignment.	1, 3-5
X	Database EST, The Institute for Genomic Research, (Rockville, MD, USA), AN AQ353657, ZHAO et al. 'Use of BAC End Sequences from CalTech Libraries for Sequence-Ready Map Building'. 24 January 1999. See attached alignment.	1, 3-5
X	Database Medline on EST, AN AA292201, HILLIER et al. 'Generation and Analysis of 280,000 Human Expressed Sequence Tags'. 08 August 1997. Genome Res. 6(9), 807-828 (1996). See attached alignment.	1, 3-5



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier document published on or after the international filing date	"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
"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)	"G" document member of the same patent family
"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

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International application No.

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Database Medline on EST, AN AA399416, HILLIER et al. 'Generation and Analysis of 280,000 Human Expressed Sequence Tags'. 08 August 1997. See attached alignment.	1, 3-5
X	Database EST, The Institute for Genomic Research, (Rockville, MD, USA), AN AQ395363, ZHAO et al. 'Use of BAC End Sequences from CalTech Libraries for Sequence-Ready Map Building'. 06 March 1999. See attached alignment.	1, 3-5
X	Database Medline on EST, The Institute for Genomic Research, (Rockville, MD, USA) AN AA127696, HILLIER et al. 'Generation and Analysis of 280,000 Human Expressed Sequence Tags'. 14 May 1997. See attached alignment.	1, 3-5
A	WO 98/46643 A1 (MILLENNIUM BIOTHERAPEUTICS, INC.) 22 October 1998 (22.10.98), see entire document.	1-10, 13 and 16

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/25982

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international 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:

Please See Extra 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.:
1-10, 13 and 16
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

International application No.
PCT/US00/25982

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

Commercial and Issued Patent Sequence Databases, EAST 1,1, STN/CAS, Medline
search terms: TANGO, 351, 509, inventor name

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

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

Group I, claim(s) 1-10, 13 and 16, in so far as they are drawn to nucleic acids and protein of Tango 351, vector, host cell and method of recombinantly producing the protein.

Groups II-VI, claims 1-10, 13 and 16, in so far as they are drawn to the next five polynucleotides of distinct cDNA clones and encoded proteins identified as Mango 511, Intercept 307, Tango 361, Tango 499 and Tango 509.

Groups VII-XII, claims 11 and 12, in so far as they are drawn to antibodies to the proteins listed in Table 2.

Groups XIII-XVIII, claims 14, 15, 20, 21 and 23, in so far as they are drawn to a method of identifying a polypeptide, or identifying a compound that binds to or modulates the activity of a polypeptide listed in Table 2.

Groups XIX-XXIV, claims 17 and 18, in so far as they are drawn to a method of detecting in a sample one of the nucleic acids listed in Table 1.

Groups XXV-XXX, claim 19, in so far as it is drawn to kit comprising a compound that selectively hybridizes to a nucleic acid of Table 1.

Groups XXXI-XXXVI, claim 22, in so far as it is drawn to a method of modulating a polypeptide listed in Table 2.

The inventions listed as Groups I-XXXVI do not relate to a single 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 corresponds to the first invention wherein the first product is the polynucleotide and the first method of using is the method of making the protein. Note that there is no method of making the polynucleotide. The invention also includes the protein made. Each of Groups II-VI does not share the same or corresponding special technical feature because each group is drawn to a different polynucleotide and encoded protein, and each of groups VII-XXXVI does not share the same or corresponding special technical feature because each group is drawn to different compounds or methods of using the twelve polynucleotides and encoded proteins. This Authority therefore considers that the several inventions do not share a special technical feature within the meaning of PCT Rule 13.2 and thus do not relate to a single general inventive concept within the meaning of PCT Rule 13.1.