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(54) Title: EPHA2 BITE MOLECULES AND USES THEREOF

(57) Abstract: The present invention relates to bispecific single chain antibodies comprising a first binding domain that immunospecifically binds to the T-cell antigen CD3 and a second binding domain that immunospecifically binds to the EphA2 receptor. Such bispecific single chain antibodies are encompassed by the term "EphA2-BiTEs." The present invention further relates to methods and compositions designed for the treatment, prevention and/or management of disorders associated with aberrant expression and/or activity of EphA2. Such disorders include, but are not limited to, cancer, non-cancer hyperproliferative cell disorders, and infections. The invention further relates to vectors comprising polynucleotides encoding the EphA2 -BiTEs of the invention, host cells transformed therewith, and their use in the production of said EphA2-BiTEs. The invention also provides compositions, including pharmaceutical compositions, comprising any of the aforementioned EphA2-BiTEs, polynucleotides or vectors either alone or in combination with one or more prophylactic or therapeutic agents. Also disclosed are methods of screening for said EphA2 -BiTEs and kits comprising any of the aforementioned compositions and diagnostic reagents.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/48995

A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **A61K 39/00(2006.01);C12P 21/08(2006.01)**

 USPC: 424/136.1;530/387.3
 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. : 424/136.1;530/387.3

 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 Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2005/0059592A1 (KIENER et al) 17 March 2005 (17.3.2005)	1-33
Y	US 6,551,592 B2 (LINDHOFER et al) 22 April 2003 (22.4.2003)	1-33

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	"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 11 June 2008 (11.06.2008)	Date of mailing of the international search report 08 JUL 2008
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 Anne M. Gussow Telephone No. (571) 272-1600 <i>Jamie Ford for</i>

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US06/48995

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

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, 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.

PCT/US06/48995

Continuation of B. FIELDS SEARCHED Item 3:

Dialog

search terms: EphA2, CD3, antibody, cancer, tumor, tumour, malignancy, carcinoma