Abstract: Peptides, mimetics and antibodies of ErbB, TNF, and IgSF receptors and pharmaceutical compositions comprising the same are described. Methods of using such antibodies, peptides, and mimetics in therapeutic, prophylactic, imaging and diagnostic applications are disclosed.
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC: A61K 38/17 (2007.01); C07K 7/06 (2007.01); 7/08 (2007.01); 7/04 (2007.01); 11/02 (2007.01); 14/71 (2007.01); 16/28 (2007.01); 16/30 (2007.01)

USPC: 530/317, 324, 325, 326, 327, 328, 350, 388.2, 387.9, 391.3, 391.7; 514/2; 424/185.1

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.: 530/317, 324, 325, 326, 327, 328, 350, 388.2, 387.9, 391.3, 391.7; 514/2; 424/185.1;

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 Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>column 5, line 41, Figure 1B, column 52, line 55 - column 60, line 38.</td>
<td></td>
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<tr>
<td></td>
<td>column 54, line 46, column 8, lines 39-49, column 44, line 63 - column 45, line</td>
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<td></td>
<td>30, column 47, line 28-51.</td>
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<td>28-51.</td>
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<tr>
<td>X</td>
<td>PARK et al. Rationally designed anti-HER2/neu peptide mimetic disables P185HER2/neu</td>
<td>25, 29</td>
</tr>
<tr>
<td></td>
<td>18, pages 194-198, especially page 196.</td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>O'ROURKE et al. Inhibition of a naturally occurring EGFR oncoprotein by the P185</td>
<td>1-3, 6, 7, 9-12, 14-16,</td>
</tr>
<tr>
<td></td>
<td>neu ectodomain: implications for subdomain contributions to receptor assembly.</td>
<td>18, 27, 29</td>
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</table>

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

Date of the actual completion of the international search
23 October 2006 (23.10.2006)

Date of mailing of the international search report
13 MAR 2007

Name and mailing address of the ISA/US
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Commissioner of Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (571) 273-3201

Form PCT/ISA/210 (second sheet) (July 1998)
### C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
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<th>Category</th>
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<td>Y</td>
<td>WO 98/17797 A1 (GENETECH, INC.) 30 April 1998 (30.04.1998), see especially Figure 13.</td>
<td>30-40</td>
</tr>
</tbody>
</table>
**INTERNATIONAL SEARCH REPORT**

**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. [ ] Claim Nos.:
   because they relate to subject matter not required to be searched by this Authority, namely:

2. [ ] Claim 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. [x] Claim Nos.: 41 and 42
   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 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 an additional fee, this Authority did not invite payment of any additional fee.

3. [x] 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.: 1-3, 6, 7, 9-12, 14-16, 18-27, 29-40 and 43-47

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**

[x] The additional search fees were accompanied by the applicant’s protest.

[ ] No protest accompanied the payment of additional search fees.
BOX II. 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) 1-29, drawn to peptides and methods of use thereof.

Group II, claim(s) 30-40, drawn to drawn to antibodies.

Group III, claim(s) 43-47, drawn to methods and products for preventing tumor using erbB subdomain IV peptides.

This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In order for more than one species to be examined, the appropriate additional examination fees must be paid. The species are as follows:

With respect to Groups I and II, above, each of SEQ ID NOS: 3-21, 25, 26 and 30-35 constitutes a distinct species.

With respect to Group III above, each of SEQ ID NOS: 39-42 constitutes a distinct species.

The inventions listed as Groups I-III 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: Each of groups I and II is drawn to structurally distinct chemical entities which are not linked by a unifying technical feature. The unifying technical feature of Group I is the sequence of the peptide. Since the technical feature of Group I is not present in Group II or III and the special technical feature of Groups II and III is not present in Group I, unity of invention is lacking.

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: Each specific sequence constitutes the special technical feature of the protein that it represents, and there is no claimed common property or activity. Since each of the species requires a different sequence, and hence a different special technical feature than each of the others, unity of the invention is lacking.

Continuation of B. FIELDS SEARCHED Item 3:
MEDLINE, US PATENTS DATABASE (EAST)
search terms: cystine knot, subdomain, erbB2, her2