



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

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| <p>(51) International Patent Classification ⁶ : C07K 7/06, 7/08, 16/42, A61K 39/395, G01N 33/563, 33/68</p> | <p>A3</p> | <p>(11) International Publication Number: WO 98/24808 (43) International Publication Date: 11 June 1998 (11.06.98)</p> |
| <p>(21) International Application Number: PCT/US97/22348 (22) International Filing Date: 5 December 1997 (05.12.97) (30) Priority Data: 60/031,991 6 December 1996 (06.12.96) US (71) Applicant (for all designated States except US): THE UNITED STATES OF AMERICA represented by THE SECRETARY DEPARTMENT OF HEALTH & HUMAN SERVICES, THE NATIONAL INSTITUTES OF HEALTH [US/US]; Office of Technology Transfer, Suite 325, 6011 Executive Boulevard, Rockville, MD 20852-3804 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): PADLAN, Eduardo, A. [US/US]; 4006 Simms Drive, Kensington, MD 20895 (US). BIRGIT, A., Helm [DE/GB]; 3 Hopton House, 27, Collegiate Crescent, Sheffield S10 2BJ (GB). (74) Agent: EARP, David, J.; Klarquist, Sparkman, Campbell, Leigh & Whinston, LLP, Suite 1600, One World Trade Center, 121 S.W. Salmon Street, Portland, OR 97204 (US).</p> | | <p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>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></p> <p>(88) Date of publication of the international search report: 13 August 1998 (13.08.98)</p> |
| <p>(54) Title: INHIBITION OF IgE-MEDIATED ALLERGIES BY A HUMAN IgE-DERIVED OLIGOPEPTIDE</p> | | |
| <p>(57) Abstract</p> <p>Peptides are disclosed that are capable of effective recognition of the human IgE Fcε receptor. The peptides partially comprises a fragment of human IgE. By addition of constraining amino acid residues at or near the polypeptides' N- and C-termini, these peptides may be forced to assume a loop configuration. These constrained peptides are useful as competitors of human IgE for the Fcε receptor, and may be used to block the development of type I hypersensitivity.</p> | | |

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 97/22348

A. CLASSIFICATION OF SUBJECT MATTER
 IPC 6 C07K7/06 C07K7/08 C07K16/42 A61K39/395 G01N33/68
 G01N33/563

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)
 IPC 6 C07K A61K G01N

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 practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| X | B.A. HELM ET AL: "Identification of the high affinity receptor binding region in human immunoglobulin E" JOURNAL OF BIOLOGICAL CHEMISTRY., vol. 271, no. 13, 29 March 1996, MD US, pages 7494-7500, XP002067058 | 1-11, 20-22 |
| Y | see the whole document see page 7495, paragraph 1 --- -/-- | 16, 18, 19 |

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

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| <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*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)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> | <p>*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</p> <p>*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</p> <p>*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.</p> <p>*Z* document member of the same patent family</p> |
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| Date of the actual completion of the international search 4 June 1998 | Date of mailing of the international search report 24.06.98 |
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| Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016 | Authorized officer Cervigni, S |
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INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 97/22348

| C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT | | |
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| Category ° | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
| X | GHADERI ET AL: "Epitope mapping of the sites of binding of Fc epsilon within human IgE" MOLECULAR IMMUNOLOGY, vol. 30, no. 18, 1993, pages 1655-1663, XP002067059 | 11-15, 17,20-22 |
| Y | see the whole document *peptide F39, Table 1* see page 1657, column 1, last paragraph see page 1657, column 2, paragraph 2 | 16,18,19 |
| X | WO 95 20606 A (PASTEUR MERIEUX SERUMS VACC ;HURPIN CHRISTIAN MARCEL (FR); LATOUR) 3 August 1995 | 1,5-13 |
| Y | see page 5, paragraph 1 see page 7, paragraph 2 see claims 1,3,24,26,29 | 16,18,19 |
| X | WANG Y: "PEPTIDES DERIVED FROM IG HEAVY CHAIN CONSTANT REGION INDUCE PROFOUND IGE ISOTYPE-SPECIFIC TOLERANCE" EUROPEAN JOURNAL OF IMMUNOLOGY, vol. 26, no. 5, May 1996, pages 1043-1049, XP000645198 see the whole document *Peptide E* | 1,6-11 |
| X | WO 89 04834 A (RESEARCH CORP) 1 June 1989 see the whole document | 1,6-11 |
| X | NIO N ET AL: "INHIBITION OF ALLERGIC RESPONSES BY SYNTHETIC IMMUNOGLOBULIN E PEPTIDE FRAGMENTS AND THE DELINEATION OF THE BINDING SITES IN THE IMMUNOGLOBULIN E MOLECULE TO THE FC RECEPTOR" PEPTIDE CHEMISTRY, PROCEEDINGS 29TH SYMPOSIUM ON PEPTIDE CHEMISTRY, TOKYO, OCT. 24-26, 1991, 1987, pages 765-768, XP000654192 *see table 1 - peptide N. 2* see the whole document | 1-6 |
| Y | WO 95 25957 A (MERCK & CO INC ;KONTEATIS ZENON (US); SICILIANO SALVATORE J (US);) 28 September 1995 see claim 1 | 16,18 |
| Y | WO 87 02061 A (BIOTECH RES PARTNERS LTD) 9 April 1987 see claim 1 | 19 |

INTERNATIONAL SEARCH REPORT

ii. national application No.
PCT/US 97/22348

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:

Although claim 19 is directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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

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| International Application No PCT/US 97/22348 |
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| Patent document cited in search report | Publication date | Patent family member(s) | Publication date |
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