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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
C12N 15/12, 15/54, 15/55, C07K 14/47, C12N 9/12, 9/10, C07K 1/113, 7/06, C12Q 1/42, 1/48, G01N 33/68

A3

(11) International Publication Number: **WO 96/16172**

(43) International Publication Date: 30 May 1996 (30.05.96)

(21) International Application Number: PCT/US95/16039

(22) International Filing Date: 22 November 1995 (22.11.95)

(30) Priority Data:

08/344,227	23 November 1994 (23.11.94)	US
08/404,731	15 March 1995 (15.03.95)	US
08/503,226	17 July 1995 (17.07.95)	US

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(81) Designated States: AU, BR, CA, CN, CZ, FI, HU, JP, MX, NO, PL, RU, SK, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).

Published
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.

(88) Date of publication of the international search report:
29 August 1996 (29.08.96)

(54) Title: MODULATORS OF ANCHORING PROTEIN FUNCTION

(57) Abstract

The present invention provides compositions and methods useful for isolating calcineurin as well as inhibiting calcineurin activity. The compositions are peptides that contain regions that are homologous to calcineurin-binding regions of AKAP 79. Also provided are methods for determining if a cell contains a calcineurin-binding and PKA-binding anchoring protein that are useful for identifying additional proteins that bind both calcineurin and PKA. Another aspect of the present invention is methods for enhancing expression of interleukin 2 by T cells.

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INTERNATIONAL SEARCH REPORT

Inter onal Application No
PCT/US 95/16039

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 C12N15/12 C12N15/54 C12N15/55 C07K14/47 C12N9/12
C12N9/10 C07K1/113 C07K7/06 C12Q1/42 C12Q1/48
G01N33/68

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 C12N C12Q 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.
A	JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 267, no. 24, 25 August 1992, MD US, pages 16816-16823, XP002005105 CARR, D. ET AL.: "Localization of the cAMP-dependent protein kinase to the postsynaptic densities by A-Kinase Anchoring Proteins" cited in the application see the whole document ---	9,10,13, 14,18, 19,25-28
A	WO,A,93 03364 (HARVARD COLLEGE ;UNIV LELAND STANFORD JUNIOR (US)) 18 February 1993 see page 5, line 27 - line 34 see page 9, line 27 - line 34 see page 11, line 1 - line 18 see page 20, line 15 - page 22, line 28 --- -/--	9,10,13, 15,18,24

[X] Further documents are listed in the cor . ation of box C.

[X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
10 June 1996	10.07.96
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 Andres, S

Form PCT/ISA/210 (second sheet) (July 1992)

 BAD ORIGINAL

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	JOURNAL OF BIOLOGICAL CHEMISTRY, vol. 267, no. 19, 5 July 1992, MD US, pages 13376-13382, XP002005106 CARR, D. ET AL.: "Association of the type II cAMP-dependent protein kinase with a human thyroid RII-anchoring protein" cited in the application see the whole document ---	9,10,13, 18,21
A	NATURE, vol. 368, 28 April 1994, LONDON GB, pages 853-856, XP002005107 ROSENMUND, C. ET AL.: "Anchoring of protein kinase A is required for modulation of AMPA/kainate receptors on hippocampal neurons" cited in the application see the whole document ---	18,19,21
A	NATURE, vol. 357, 25 June 1992, LONDON GB, pages 695-697, XP002005108 CLIPSTONE, N. & CRABTREE, G.: "Identification of calcineurin as a key signalling enzyme in T-lymphocyte activation" cited in the application see the whole document ---	18,23
..	BIOCHEMISTRY, vol. 31, no. 16, 28 April 1992, pages 3896-3901, XP000310587 LIU J ET AL: "INHIBITION OF T CELL SIGNALING BY IMMUNOPHILIN-LIGAND COMPLEXES CORRELATES WITH LOSS OF CALCINEURIN PHOSPHATASE ACTIVITY" see the whole document ---	18
P	JOURNAL OF EXPERIMENTAL MEDICINE, (1993 NOV 1) 178 (5) 1813-7, XP000572884 PALIOGIANNI, F. ET AL.: "Prostaglandin E2 and other cyclic AMP elevating agents inhibit interleukin 2 gene transcription by counteracting calcineurin -dependent pathways." see the whole document ---	18
P,X	SCIENCE, (1995 JAN 6) 267 (5194) 108-11, XP002005109 COGHLAN, V. ET AL.: "Association of protein kinase A and protein phosphatase 2B with a common anchoring protein." see the whole document --- -/--	25-29

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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.
T	BIOCHEMICAL SOCIETY TRANSACTIONS, (1995 AUG) 23 (3) 592-6, XP000572269 COGHLAN, V. ET AL.: "Subcellular targeting of kinases and phosphatases by association with bifunctional anchoring proteins." see the whole document	1-29

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/16039

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. [X] Claims Nos.: 18-23,25-28
because they relate to subject matter not required to be searched by this Authority, namely:
Remark: Although claims 18-23 and 25-28 as far as it concerns an "in vivo" method, are 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. [X] 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:
Claim 8 is inconsistent in its wording as pACT36 is coded by the polynucleotide of claim 5 and not of claim 7. For the purpose of the search, the ISA has interpreted claim 8 as refering to pACT60 which is indeed encoded by SEQ ID 36.

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 searches 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

Inte ional Application No
PCT/US 95/16039

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO-A-9303364	18-02-93	US-A- 5362629	08-11-94