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11 May 2000 (11.05.00)

(54) Title: CONVERSION OF NATURALLY–OCCURRING QUINONES TO QUINONE DERIVATIVES BY MACROPHAGE MIGRATION INHIBITION FACTOR AND USES THEREOF

(57) Abstract

The present invention provides methods of using a protein of the macrophage migration inhibitory factor family to promote conversion of a naturally–occurring toxic quinone to a less toxic quinone derivative, thereby detoxifying the naturally–occurring quinone and preventing cell death. The present invention also provides methods of diagnosis, prevention, and treatment of degenerative disorders characterized by quinone–induced cell death.

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INTERNATIONAL SEARCH REPORT

Inte onal Application No
PCT/US 99/17057

A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 A61K38/19 A61K48/00

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 7 A61K C07K

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	WO 98 09984 A (YEDA RESEARCH AND DVELOPMENT) 12 March 1998 (1998-03-12) page 37 -page 42 ---	1-51
A	SUZUKI M ET AL: "Substrate specificity for isomerase activity of macrophage migration inhibitory factor and its inhibition by indole derivatives." JOURNAL OF BIOCHEMISTRY, (1997 NOV) 122 (5) 1040-5. , XP002127442 the whole document ---	1-51
A	WO 96 15242 A (THE GOVERNMENT OF THE UNITED STATES OF AMERICA) 23 May 1996 (1996-05-23) page 30 -page 33 --- -/--	1-51

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

[X] Patent family members are listed in annex.

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"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

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Date of the actual completion of the international search	Date of mailing of the international search report
13 January 2000	27/01/2000

Name and mailing address of the ISA	Authorized officer
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	Moreau, J

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INTERNATIONAL SEARCH REPORT

Inte ional Application No
PCT/US 99/17057

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication,where appropriate, of the relevant passages	Relevant to claim No.
P,X	MATSUNAGA J ET AL: "Enzyme activity of macrophage migration inhibitory factor toward oxidized catecholamines." JOURNAL OF BIOLOGICAL CHEMISTRY, (1999 FEB 5) 274 (6) 3268-71. , XP002127443 the whole document	1-51

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/ 17057

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.:
because they relate to subject matter not required to be searched by this Authority, namely:

Remark: Although claims 1-51 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. [ ] 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

Inte onal Application No
PCT/US 99/17057

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9809984 A	12-03-1998	AU 4030097 A	26-03-1998
		AU 4030197 A	26-03-1998
		EP 0927190 A	07-07-1999
		EP 0927191 A	07-07-1999
		WO 9809985 A	12-03-1998
WO 9615242 A	23-05-1996	AU 4365796 A	06-06-1996