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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: HUMAN KALLIKREIN-LIKE GENES

(57) Abstract: The invention relates to nucleic acid molecules, kallikrein-like proteins encoded by such nucleic acid molecules; and  
use of the proteins and nucleic acid molecules

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00258

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/57 C12N9/64 C12N15/63 C07K16/40 C12Q1/68  
G01N33/53 A61K39/395 A61K48/00 A61K38/48 A01K67/027

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 C12N C07K C12Q G01N A61K A01K

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          | J.P. SIMMER ET AL.: "Purification, characterization, and cloning of Enamel Matrix Serine Proteinase 1" JOURNAL OF DENTAL RESEARCH, vol. 77, no. 2, February 1998 (1998-02), pages 377-386, XP000910876 page 380, right-hand column, paragraph 2 -page 384, right-hand column, paragraph 1; figure 6       | 1-8,<br>14-31         |
| A          | <div style="text-align: center;">---</div> P.H.J. RIEGMAN ET AL.: "Characterization of the human Kallikrein locus" GENOMICS, vol. 14, 1992, pages 6-11, XP002058183 cited in the application the whole document<br><div style="text-align: center;">---</div> <div style="text-align: center;">-/--</div> | 1-8,<br>14-31         |



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

### \* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"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)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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.

"&" document member of the same patent family

Date of the actual completion of the international search

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00258

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Relevant to claim No. |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| A          | LYNETTE J. SCHEDLICH ET AL.: "Primary structure of a human glandular Kallikrein gene"<br>DNA,<br>vol. 6, no. 5, 1987, pages 429-437,<br>XP002044466<br>cited in the application<br>the whole document<br>---                                                                                                                                                                                                                                                                                                                       | 1-8,<br>14-31         |
| A          | P.H.J. RIEGMAN ET AL.: "Characterization of the prostate-specific gene: A novel human Kallikrein-like gene"<br>BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS,<br>vol. 159, no. 1,<br>28 February 1989 (1989-02-28), pages 95-102, XP002141957<br>ORLANDO, FL US<br>cited in the application<br>the whole document<br>---                                                                                                                                                                                                     | 1-8,<br>14-31         |
| A          | WO 98 20117 A (INCYTE PHARMACEUTICALS, INC.) 14 May 1998 (1998-05-14)<br>page 10, line 25 -page 36, line 18<br>---                                                                                                                                                                                                                                                                                                                                                                                                                 | 1-8,<br>14-31         |
| P,X        | GEORGE M. YOUSEF ET AL.: "Prostase/KLK-L1 is a new member of the human Kallikrein gene family, is expressed in prostate and breast tissues, and is hormonally regulated"<br>CANCER RESEARCH,<br>vol. 59, no. 17,<br>1 September 1999 (1999-09-01), pages 4252-4256, XP002141958<br>MD US<br>the whole document<br>---                                                                                                                                                                                                              | 1-8,<br>14-31         |
| P,X        | PETER S. NELSON ET AL.: "Molecular cloning and characterization of prostase, an androgen-regulated serine protease with prostate-restricted expression"<br>PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA,<br>vol. 96, no. 6,<br>16 March 1999 (1999-03-16), pages 3114-3119, XP002141959<br>WASHINGTON US<br>abstract<br>page 3115, right-hand column, paragraph 3<br>-page 3116, right-hand column, paragraph 3<br>page 3117, right-hand column, paragraph 2<br>-page 3119, left-hand column, paragraph 2<br>---<br>-/-- | 1-8,<br>14-31         |

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00258

## 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        | <p>STEPHENSON S A ET AL.: "Localization of a new prostate-specific antigen-related serine protease gene, KLK4, is evidence for an expanded human kallikrein gene family cluster on chromosome 19q13.3-13.4" JOURNAL OF BIOLOGICAL CHEMISTRY, [Online] vol. 274, no. 33, 13 August 1999 (1999-08-13), pages 23210-23214, XP002141960 MD US</p> <p>Retrieved from the Internet:<br/>           &lt;URL:http://www.ncbi.nlm.nih.gov/htbin-post/Entrez/query_old?uid=10438493&amp;form=6&amp;db=m&amp;Dopt=b&gt; [retrieved on 2000-05-17]<br/>           page 23211, left-hand column, paragraph 1<br/>           page 23211, right-hand column, paragraph 2 - paragraph 3; figure 1<br/>           page 23212, right-hand column, paragraph 2<br/>           -page 23214, left-hand column, last paragraph</p> <p>---</p> | 1-8,<br>14-31         |
| P,X        | <p>DIAMANDIS E.P. ET AL: "The new human kallikrein gene family: Implications in carcinogenesis." TRENDS IN ENDOCRINOLOGY AND METABOLISM, (2000) 11/2 (54-60)., XP000910866<br/>           page 54, middle column, paragraph 2<br/>           -right-hand column, paragraph 2<br/>           page 56, right-hand column, paragraph 2<br/>           page 59, left-hand column, paragraph 2<br/>           -middle column, paragraph 2; figure 1; tables 1-3</p> <p>---</p>                                                                                                                                                                                                                                                                                                                                               | 1-8,<br>14-31         |
| P,X        | <p>GEORGE M. YOUSEF ET AL.: "Identification of novel human kallikrein-like genes on chromosome 19q13.3-q13.4" ANTICANCER RESEARCH, vol. 19, July 1999 (1999-07), pages 2343-2352, XP000911217<br/>           page 2845, right-hand column, paragraph 2<br/>           -page 2851, left-hand column, last paragraph; figure 1; table II</p> <p>---</p> <p>-/--</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 1-8,<br>14-31         |

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/CA 00/00258

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

| Category ° | Citation of document, with indication, where appropriate, of the relevant passages                                                                                                                                                                                                                                                                                                                                                                                       | Relevant to claim No. |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| T          | <p>B.R. DUPONT ET AL.: "Assignment of serine protease 17 (PRSS17) to human chromosome bands 19q13.3-q13.4 by in situ hybridization"<br/> CYTOGENETICS AND CELL GENETICS, [Online]<br/> vol. 86, no. 3-4,<br/> 22 April 1999 (1999-04-22), pages 212-213,<br/> XP000911088<br/> Retrieved from the Internet:<br/> &lt;URL:http://www3.ncbi.nlm.nih.gov/htbin-post/0mim/dispim?603767#Reference1&gt;<br/> [retrieved on 2000-05-17]<br/> the whole document<br/> -----</p> |                       |

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/CA 00/00258

## 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 claims 26 and 27 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 compounds.
2. ☒ Claims Nos.: 26-29 partially  
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:  
see FURTHER INFORMATION sheet PCT/ISA/210
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.:  
  
8 and partially claims 1-7 and 14-31

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 206

Continuation of Box 3.

Although claims 26 and 27 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 compounds.

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Further defect(s) under Article 17(2)(a):

Continuation of Box 3.

Claims Nos.: 26-29 partially

Present claims 26-29 relate, partially, to a substance or compound identified according to the method of claim 22 or 23, defined by reference to a desirable characteristic or property, namely associating with, or modulating the biological activity of a protein of claims 8-13. The claims cover all substances or compounds having this characteristic or property, whereas the application does not provide support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT for any specific example of such substances or compounds. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Independent of the above reasoning, the claims also lack clarity (Article 6 PCT). An attempt is made to define the compounds by reference to a result to be achieved or a process for their preparation. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely those parts relating to the compounds other than identified according to the methods of claim 22 or 23.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## 1. Claims: Claim 8 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L1 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L1 protein and antibody against it; KLK-L1 probe; diagnostic and screening tests using KLK-L1 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

## 2. Claims: Claim 9 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L2 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L2 protein and antibody against it; KLK-L2 probe; diagnostic and screening tests using KLK-L2 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

## 3. Claims: Claim 10 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L3 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L3 protein and antibody against it; KLK-L3 probe; diagnostic and screening tests using KLK-L3 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

## 4. Claims: Claim 11 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L4 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L4 protein and antibody against it; KLK-L4 probe; diagnostic and screening tests using KLK-L4 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

## 5. Claims: Claim 12 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L5 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L5 protein and antibody against it; KLK-L5 probe; diagnostic and screening tests using KLK-L5 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

## 6. Claims: Claim 13 and partially claims 1-7 and 14-31

Kallikrein-like nucleic acid KLK-L6 and variants thereof; its regulatory sequence, vector and host cell comprising it and use thereof for preparing a protein; KLK-L6 protein and

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

antibody against it; KLK-L6 probe; diagnostic and screening tests using KLK-L6 protein and nucleic acids; therapeutic uses thereof and their application in transgenic animals.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/CA 00/00258

| Patent document<br>cited in search report | Publication<br>date | Patent family<br>member(s) | Publication<br>date |
|-------------------------------------------|---------------------|----------------------------|---------------------|
| WO 9820117 A                              | 14-05-1998          | US 5786148 A               | 28-07-1998          |
|                                           |                     | AU 5165998 A               | 29-05-1998          |
|                                           |                     | EP 0941313 A               | 15-09-1999          |
|                                           |                     | US 5922321 A               | 13-07-1999          |
| -----                                     |                     |                            |                     |