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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DIAGNOSTICS AND THERAPEUTICS FOR DISEASES ASSOCIATED WITH DIPEPTIDYL-PEPTIDASE 1 (DPP1)

(57) Abstract: The invention provides a human DPP1 which is associated with the infections, cardiovascular diseases, respiratory diseases, cancer, endocrinological diseases, metabolic diseases, gastroenterological diseases, inflammation, hematological diseases, muscle skeleton diseases, neurological diseases and urological diseases. The invention also provides assays for the identification of compounds useful in the treatment or prevention of infections, cardiovascular diseases, respiratory diseases, cancer, endocrinological diseases, metabolic diseases, gastroenterological diseases, inflammation, hematological diseases, muscle skeleton diseases, neurological diseases and urological diseases. The invention also features compounds which bind to and/or activate or inhibit the activity of DPP1 as well as pharmaceutical compositions comprising such compounds.

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# INTERNATIONAL SEARCH REPORT

International Application No

PCT/EP2004/004007

**A. CLASSIFICATION OF SUBJECT MATTER**  
 IPC 7 G01N33/573

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 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)

EPO-Internal, Sequence Search, PAJ, WPI Data, BIOSIS, EMBASE, INSPEC, FSTA, COMPENDEX

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01/94597 A (PROZYMEX A/S; DAHL, SOEREN, W; LAURITZEN, CONNIE; PEDERSEN, JOHN; TURK) 13 December 2001 (2001-12-13) page 2, line 8 - line 15 page 4, line 34 - page 5, line 2 page 16, line 12 - page 17, line 9 example 15 claims 24-30 sequence 1	18-25
X	----- EP 1 347 051 A (GENOX RESEARCH, INC) 24 September 2003 (2003-09-24) sequences 28,29 claims 13,14 page 12, paragraphs 90,91 ----- -/--	19-21

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  
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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.
A	LOJDA Z: "THE IMPORTANCE OF PROTEASE HISTOCHEMISTRY IN PATHOLOGY" THE HISTOCHEMICAL JOURNAL, LONDON, GB, vol. 17, no. 10, 1985, pages 1063-1089, XP008042272 abstract page 1082, paragraph 2 page 1084, paragraph 2 -----	1-25
A	GOTTWIK M ET AL: "TOPO BIOCHEMISTRY OF PROTEINASE SPECIFICITY PATTERNS IN NORMAL AND INFARCT DAMAGED HEART MUSCLE TISSUES" JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY, vol. 11, no. SUPPL. 2, 1979, page 18, XP008049629 & BIENNIAL MEETING OF THE EUROPEAN SECTION OF THE INTERNATIONAL SOCIETY FOR HEART RESEARCH, DIJON, FRA ISSN: 0022-2828 abstract -----	1-25
A	WELMAN E ET AL: "ENHANCED LYSOSOME FRAGILITY IN THE ANOXIC PERFUSED GUINEA-PIG HEART EFFECTS OF GLUCOSE AND MANNITOL" JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY, vol. 9, no. 2, 1977, pages 101-120, XP008049636 ISSN: 0022-2828 abstract page 104, paragraph 1 page 108, paragraph 1 tables 4,5 -----	1-25

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2005/004007

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 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.: 26  
because they relate to subject matter not required to be searched by this Authority, namely:  
Rule 39.1(iv) PCT - Method for treatment of the human or animal body by therapy
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 III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional 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.  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.:  
1-25 (all partially)

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/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of infections using DPPI polypeptide. A method of diagnosing infections by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating infections. A method of preparing the composition.

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2. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of cardiovascular diseases using DPPI polypeptide. A method of diagnosing cardiovascular diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating cardiovascular diseases. A method of preparing the composition.

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3. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of respiratory diseases using DPPI polypeptide. A method of diagnosing respiratory diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating respiratory diseases. A method of preparing the composition.

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4. claims: 1-25 (all partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A method of screening for therapeutic agents useful in the treatment of cancer using DPPI polypeptide. A method of diagnosing cancer by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating cancer. A method of preparing the composition.

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## 5. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of endocrinological diseases using DPPI polypeptide. A method of diagnosing endocrinological diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating endocrinological diseases. A method of preparing the composition.

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## 6. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of metabolic diseases using DPPI polypeptide. A method of diagnosing metabolic diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating metabolic diseases. A method of preparing the composition.

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## 7. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of gastroenterological diseases using DPPI polypeptide. A method of diagnosing gastroenterological diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating gastroenterological diseases. A method of preparing the composition.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

## 8. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of inflammation using DPPI polypeptide. A method of diagnosing inflammation by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating inflammation. A method of preparing the composition.

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## 9. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of haematological diseases using DPPI polypeptide. A method of diagnosing haematological diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating haematological diseases. A method of preparing the composition.

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## 10. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of muscle skeleton diseases using DPPI polypeptide. A method of diagnosing muscle skeleton diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating muscle skeleton diseases. A method of preparing the composition.

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## 11. claims: 1-25 (all partially).

A method of screening for therapeutic agents useful in the treatment of neurological diseases using DPPI polypeptide. A method of diagnosing neurological diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating neurological diseases. A method of preparing the composition.

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FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

12. claims: 1-25 (all partially)

A method of screening for therapeutic agents useful in the treatment of urological diseases using DPPI polypeptide. A method of diagnosing urological diseases by using DPPI as a marker. Pharmaceutical compositions comprising agent that binds a DPPI polypeptide or regulates the activity of a DPPI polypeptide. Pharmaceutical compositions comprising a DPPI polypeptide or its encoding polynucleotide. The use of regulators of DPPI for the preparation of the composition for treating urological diseases. A method of preparing the composition.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/EP2005/004007

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 0194597	A	13-12-2001	AU 6378601 A	17-12-2001
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EP 1347051	A	24-09-2003	WO 02052006 A1	04-07-2002
			US 2003152956 A1	14-08-2003
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