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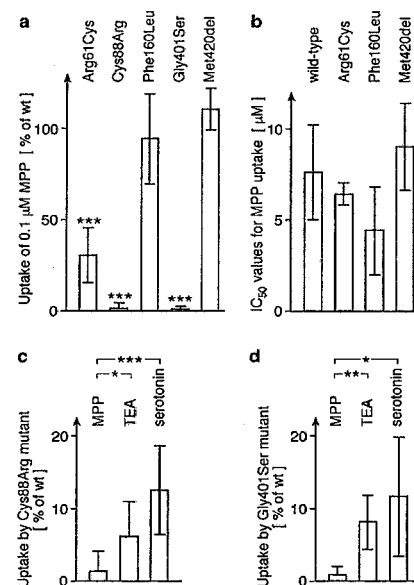
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AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IT LI LU MC NL PT RO SE SI SK TR(30) Priority: **23.08.2002 EP 02018904**(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
03792418.0 / 1 534 747(71) Applicant: **PGXHealth, LLC**
Newton, MA 02458 (US)(72) Inventors:
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80333 München (DE)(54) **Polymorphisms in the human genes for OCT1 and their use in diagnostic and therapeutic applications**

(57) The present invention relates to a polymorphic OCT1 polynucleotide. Moreover, the invention relates to genes or vectors comprising the polynucleotides of the invention and to a host cell genetically engineered with the polynucleotide or gene of the invention. Further, the invention relates to methods for producing molecular variant polypeptides or fragments thereof, methods for producing cells capable of expressing a molecular variant polypeptide and to a polypeptide or fragment thereof encoded by the polynucleotide or the gene of the invention or which is obtainable by the method or from the cells produced by the method of the invention. Furthermore, the invention relates to an antibody which binds specifically the polypeptide of the invention. Moreover, the invention relates to a transgenic non-human animal. The invention also relates to a solid support comprising one or a plurality of the above mentioned polynucleotides, genes, vectors, polypeptides, antibodies or host cells. Furthermore, methods of identifying a polymorphism, identifying and obtaining a pro-drug or drug or an inhibitor are also encompassed by the present invention. In addition, the invention relates to methods for producing of a pharmaceutical composition and to methods of diagnosing a disease. Further, the invention relates to a method of detection of the polynucleotide of the invention. Furthermore, comprised by the present invention are a diagnostic and a pharmaceutical composition. Even

more, the invention relates to uses of the polynucleotides, genes, vectors, polypeptides or antibodies of the invention. Finally, the invention relates to a diagnostic kit.

Figure 1





EUROPEAN SEARCH REPORT

Application Number
EP 10 18 5649

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	SHU Y ET AL: "Identification and functional characterization of hOCT1 polymorphisms in ethnically diverse populations", CLINICAL PHARMACOLOGY AND THERAPEUTICS, NATURE PUBLISHING GROUP, US, vol. 71, no. 2, 1 February 2002 (2002-02-01), page P73, XP009024430, ISSN: 0009-9236 * the whole document *	1-21	INV. C07K14/47 C12Q1/68 G01N33/50 G01N33/53 A61K38/17 C07K16/18 A01K67/027 C12N15/12 A61K48/00 TECHNICAL FIELDS SEARCHED (IPC) C07K
X	SULTON ET AL: "Homo sapiens PAC clone RP-5-844F9 from 7, complete sequence", EMBL, 23 March 1998 (1998-03-23), XP002267877, * The sequence comprises SEQ ID N°4 *	2-6	
X	WATERSON: "Homo sapiens chromosome UNK clone RP11-112b7", EMBL, 10 September 2001 (2001-09-10), XP002267878, * The sequence of the complementary strand comprises SEQ ID N°4 *	2-6	
X	BIRREN ET AL: "Mus musculus chromosome 12 clone RP23-283B7 map 12", EMBL, 6 February 2002 (2002-02-06), XP002267879, * The sequence of the complementary strand comprises SEQ ID N°4 *	2-6	
A	WO 02/059142 A2 (EPIDAUROS BIOTECHNOLOGIES AG [DE]; BRINKMANN ULRICH [DE]; HOFFMEYER SV) 1 August 2002 (2002-08-01) * claims; examples *	1-21	
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The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 July 2012	Examiner Loubradou, Gabriel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EPO FORM 1503 03.02 (P04C01)



EUROPEAN SEARCH REPORT

Application Number
EP 10 18 5649

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A,D	DRESSER M J LEABMAN M K GIACOMINI K M: "Transporters involved in the elimination of drugs in the kidney: organic anion transporters and organic cation transporters", JOURNAL OF PHARMACEUTICAL SCIENCES, AMERICAN PHARMACEUTICAL ASSOCIATION, WASHINGTON, US, vol. 90, no. 4, 1 April 2001 (2001-04-01), pages 397-421, XP002959943, ISSN: 0022-3549, DOI: 10.1002/1520-6017(200104)90:4<397::AID-JPS1000>3.0.CO;2-D * page 415, left-hand column, last paragraph - right-hand column, paragraph 1 *	1-21	
X,P	----- KERB R ET AL: "Identification of genetic variations of the human organic cation transporter hOCT1 and their functional consequences", PHARMACOGENETICS, CHAPMAN & HALL, LONDON, GB, vol. 12, no. 8, 1 November 2002 (2002-11-01), pages 591-595, XP009024431, ISSN: 0960-314X, DOI: 10.1097/00008571-200211000-00002 * the whole document * ----- -/--	1-21	TECHNICAL FIELDS SEARCHED (IPC)
The present search report has been drawn up for all claims			
Place of search Munich		Date of completion of the search 12 July 2012	Examiner Loubradou, Gabriel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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EUROPEAN SEARCH REPORT

Application Number
EP 10 18 5649

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X,P	SHU YAN ET AL: "Evolutionary conservation predicts function of variants of the human organic cation transporter, OCT1", PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF USA, NATIONAL ACADEMY OF SCIENCE, WASHINGTON, DC; US, vol. 100, no. 10, 13 May 2003 (2003-05-13), pages 5902-5907, XP002267876, ISSN: 0027-8424, DOI: 10.1073/PNAS.0730858100 * the whole document *	1-21	
X	US 6 063 623 A (KOESELL HERMANN [DE] ET AL) 16 May 2000 (2000-05-16) * examples; sequences 2,5 *	20	
A	HAYER M ET AL: "MOLECULAR CLONING, FUNCTIONAL CHARACTERIZATION AND GENOMIC ORGANIZATION OF FOUR ALTERNATIVELY SPLICED ISOFORMS OF THE HUMAN ORGANIC CATION TRANSPORTER 1 (HOCT1/SLC22A1)", ANNALS OF HUMAN GENETICS, PUBLISHED FOR THE GALTON LABORATORY BY CAMBRIDGE UNIVERSITY PRESS, vol. 63, no. PART 06, 1 November 1999 (1999-11-01), pages 473-482, XP009024539, ISSN: 0003-4800, DOI: 10.1046/J.1469-1809.2000.6430267.X * page 476, left-hand column, last paragraph - right-hand column, paragraph 1; figure 2 *	1-21	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
Place of search Munich		Date of completion of the search 12 July 2012	Examiner Loubradou, Gabriel
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document	

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Application Number

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CLAIMS INCURRING FEES
<p>The present European patent application comprised at the time of filing claims for which payment was due.</p> <p><input type="checkbox"/> Only part of the claims have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due and for those claims for which claims fees have been paid, namely claim(s):</p> <p><input type="checkbox"/> No claims fees have been paid within the prescribed time limit. The present European search report has been drawn up for those claims for which no payment was due.</p>
LACK OF UNITY OF INVENTION
<p>The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:</p> <p>see sheet B</p> <p><input type="checkbox"/> All further search fees have been paid within the fixed time limit. The present European search report has been drawn up for all claims.</p> <p><input type="checkbox"/> As all searchable claims could be searched without effort justifying an additional fee, the Search Division did not invite payment of any additional fee.</p> <p><input checked="" type="checkbox"/> Only part of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the inventions in respect of which search fees have been paid, namely claims:</p> <p style="padding-left: 40px;">1(completely); 2-21(partially)</p> <p><input type="checkbox"/> None of the further search fees have been paid within the fixed time limit. The present European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims, namely claims:</p> <p><input type="checkbox"/> The present supplementary European search report has been drawn up for those parts of the European patent application which relate to the invention first mentioned in the claims (Rule 164 (1) EPC).</p>



**LACK OF UNITY OF INVENTION
SHEET B**

Application Number
EP 10 18 5649

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

1. claims: 1(completely); 2-21(partially)

Subject-matter related to SEQ IDs 8 and 30, and to the polymorphism position 126806.

2. claims: 2-21(partially)

Subject-matter related to SEQ ID 4 and to the polymorphism position 109130

3. claims: 2-21(partially)

Subject-matter related to SEQ ID 5 and to the polymorphism position 109211

4. claims: 2-21(partially)

Subject-matter related to SEQ ID 6 and to the polymorphism position 119220

5. claims: 2-21(partially)

Subject-matter related to SEQ ID 7 and to the polymorphism position 123551

6. claims: 2-21(partially)

Subject-matter related to SEQ ID 9 and to the polymorphism position 126846

7. claims: 2-21(partially)

Subject-matter related to SEQ ID 10 and to the polymorphism position 126865

8. claims: 2-21(partially)

Subject-matter related to SEQ ID 11 and to the polymorphism position 126922

9. claims: 2-21(partially)

Subject-matter related to SEQ ID 12 and to the polymorphism

**LACK OF UNITY OF INVENTION
SHEET B**Application Number
EP 10 18 5649

The Search Division considers that the present European patent application does not comply with the requirements of unity of invention and relates to several inventions or groups of inventions, namely:

position 126915

10. claims: 2-21(partially)

Subject-matter related to SEQ ID 13 and to the polymorphism
position 130672

11. claims: 2-21(partially)

Subject-matter related to SEQ ID 14 and to the polymorphism
position 141819

12. claims: 2-21(partially)

Subject-matter related to SEQ ID 15 and to the polymorphism
position 142951

13. claims: 2-21(partially)

Subject-matter related to SEQ ID 16 and to the polymorphism
position 141961

14. claims: 2-21(partially)

Subject-matter related to SEQ ID 17 and to the polymorphism
position 142993

15. claim: 20(partially)

subject-matter related to SEQ ID 24 and to the polymorphism
position 126827

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 10 18 5649

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

12-07-2012

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
WO 02059142	A2	01-08-2002	AU 2002247655 A1	06-08-2002
			US 2004161768 A1	19-08-2004
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US 6063623	A	16-05-2000	AT 242323 T	15-06-2003
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专利名称(译)	OCT1人类基因的多态性及其在诊断和治疗应用中的应用		
公开(公告)号	EP2319866A3	公开(公告)日	2012-08-29
申请号	EP2010185649	申请日	2003-08-22
[标]申请(专利权)人(译)	PGX健康有限责任公司		
申请(专利权)人(译)	PGXHEALTH, LLC		
当前申请(专利权)人(译)	PGXHEALTH, LLC		
[标]发明人	KERB REINHOLD KOESELL HERMANN BRINKMANN ULRICH		
发明人	KERB, REINHOLD KOESELL, HERMANN BRINKMANN, ULRICH		
IPC分类号	C07K14/47 C12Q1/68 G01N33/50 G01N33/53 A61K38/17 C07K16/18 A01K67/027 C12N15/12 A61K48/00 A61K38/00		
CPC分类号	A01K2217/05 A61K38/00 A61P43/00 C07K14/4702 C12Q1/6883		
优先权	2002018904 2002-08-23 EP		
其他公开文献	EP2319866A2		
外部链接	Espacenet		

摘要(译)

本发明涉及多态性OCT1多核苷酸。此外，本发明涉及包含本发明的多核苷酸的基因或载体，以及用本发明的多核苷酸或基因遗传工程改造的宿主细胞。此外，本发明涉及用于产生分子变体多肽或其片段的方法，用于产生能够表达分子变体多肽的细胞的方法，以及由本发明的多核苷酸或基因编码的或可由其获得的多肽或其片段的多肽或其片段。方法或来自本发明方法产生的细胞。此外，本发明涉及特异性结合本发明多肽的抗体。此外，本发明涉及转基因非人动物。该本发明还涉及包含一种或多种或上述多核苷酸，基因，载体，多肽，抗体或宿主细胞的固体支持物。此外，本发明还包括鉴定多态性，鉴定和获得前药或药物或抑制剂的方法。此外，本发明涉及制备药物组合物的方法和诊断疾病的方法。此外，本发明涉及检测本发明多核苷酸的方法。此外，本发明包括诊断和药物组合物。甚至，本发明涉及本发明的多核苷酸，基因，载体，多肽或抗体的用途。最后，本发明涉及诊断套件。

Figure 1

