



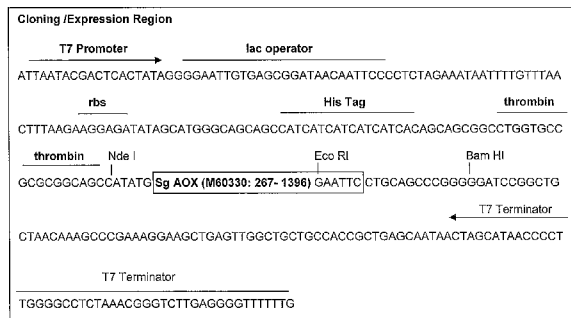
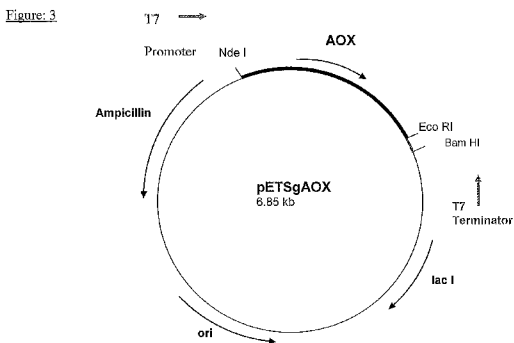
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[Continued on next page]

(54) Title: ALTERNATIVE OXIDASE



(57) Abstract: The invention provides genetic constructs comprising a coding sequence encoding alternative oxidase, and extends to methods of producing highly active and pure recombinant alternative oxidase.

WO 2013/102764 A3



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- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*
 - *with sequence listing part of description (Rule 5.2(a))*

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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2013/050007

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N9/02
ADD.
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)
C12N
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 practicable, search terms used)
EPO-Internal, BIOSIS, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2008/103088 A1 (FREDERIC RUSTIN PIERRE JEAN [FR] ET AL) 1 May 2008 (2008-05-01) examples 2, 3 paragraph [0185] ----- -/--	1-32

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"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
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 16 May 2013	Date of mailing of the international search report 14/08/2013
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Herrmann, Klaus
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INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2013/050007

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>CRICHTON P G ET AL: "Constitutive activity of Sauromatum guttatum alternative oxidase in Schizosaccharomyces pombe implicates residues in addition to conserved cysteines in alpha-keto acid activation", FEBS LETTERS, ELSEVIER, AMSTERDAM, NL, vol. 579, no. 2, 17 January 2005 (2005-01-17), pages 331-336, XP027697163, ISSN: 0014-5793 [retrieved on 2005-01-17] page 332, paragraph 2.2 page 331, right-hand column, paragraph 3 -----</p>	1-32
A	<p>CARRE J E ET AL: "Interaction of purified alternative oxidase from thermogenic Arum maculatum with pyruvate", FEBS LETTERS, ELSEVIER, AMSTERDAM, NL, vol. 585, no. 2, 21 January 2011 (2011-01-21), pages 397-401, XP027596621, ISSN: 0014-5793, DOI: 10.1016/J.FEBSLET.2010.12.026 [retrieved on 2011-01-11] abstract page 398, paragraph 2.2 -----</p>	1-32
A	<p>GREG C. VANLERBERGHE ET AL: "ALTERNATIVE OXIDASE: From Gene to Function", ANNUAL REVIEW OF PLANT PHYSIOLOGY AND PLANT MOLECULAR BIOLOGY, vol. 48, no. 1, 1 June 1997 (1997-06-01), pages 703-734, XP055063174, ISSN: 1040-2519, DOI: 10.1146/annurev.arplant.48.1.703 page 715, lines 8-14 page 717, lines 2-3 page 727, lines 21-22 -----</p>	1-32
A	<p>US 2009/158452 A1 (JOHNSON RICHARD G [US] ET AL) 18 June 2009 (2009-06-18) sequence 6374 -----</p>	1-32

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2013/050007

Box No. 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.:
because they relate to subject matter not required to be searched by this Authority, namely:

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 No. 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 fees, this Authority did not invite payment of additional fees.

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.:

1-32

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- 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: 1-32

A method of preparing recombinant Alternative Oxidase (rAOX), the method comprising culturing a host cell comprising a genetic construct comprising a nucleic acid molecule which encodes an alternative oxidase (AOX) under conditions suitable for the production of rAOX; and contacting the rAOX with a keto acid.

2. claims: 33, 34

A genetic construct substantially as represented in Figure 3.

3. claims: 35-37

Recombinant Alternative Oxidase (rAOX) obtained by, or obtainable from, the method according to any one of claims 1-32.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2013/050007

Patent document cited in search report	Publication date	Patent family member(s)	Publication date	
US 2008103088	A1	01-05-2008	US 2008103088 A1	01-05-2008
			US 2010022628 A1	28-01-2010

US 2009158452	A1	18-06-2009	NONE	
