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

(54) Title: **MUTANT AOX 1 PROMOTERS**

(57) **Abstract:** A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter of the wild type *Pichia pastoris* AOX1 promoter (SEQ ID No. 1) comprising at least one mutation selected from the group consisting of : a) a transcription factor binding site (TFBS) , b) nucleotides 170 to 235 (-784 to -719) , nucleotides 170 to 191 (-784 to -763) , nucleotides 192 to 213 (-762 to -741) , nucleotides 192 to 210 (-762 to -744) , nucleotides 207 to 209 (-747 to -745) , nucleotides 214 to 235 (-740 to -719) , nucleotides 304 to 350 (-650 to -604) , nucleotides 364 to 393 (-590 to -561) , nucleotides 434 to 508 (-520 to -446) , nucleotides 509 to 551 (-445 to -403) , nucleotides 552 to 560 (-402 to -394) , nucleotides 585 to 617 (-369 to -337) , nucleotides 621 to 660 (-333 to -294) , nucleotides 625 to 683 (-329 to -271) , nucleotides 736 to 741 (-218 to -213) , nucleotides 737 to 738 (-217 to -216) , nucleotides 726 to 755 (-228 to -199) , nucleotides 784 to 800 (-170 to -154) or nucleotides 823 to 861 (-131 to -93) of Seq ID No. 1, and combinations thereof .

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INTERNATIONAL SEARCH REPORT

International application No

PCT/AT2006/000079

A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N15/00

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)
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 practical, search terms used)

EPO-Internal, BIOSIS, WPI Data, EMBASE, Sequence Search

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/081650 A2 (UNIV NEBRASKA [US]) 17 October 2002 (2002-10-17) the whole document	1-30
X	EP 0 606 917 A2 (GREEN CROSS CORP [JP]) 20 July 1994 (1994-07-20) the whole document	1-30
A	DAI XIU-YU ET AL: "Isolation and characterization of PAOX2 mutant in Pichia pastoris" ACTA GENETICA SINICA, vol. 27, no. 7, 2000, pages 641-646, XP009074520 ISSN: 0379-4172 the whole document	1-30

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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
- *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

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Name and mailing address of the ISA/

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Young, Craig

INTERNATIONAL SEARCH REPORT

International application No

PCT/AT2006/000079

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	ROSENFELD STUART A ET AL: "Use of Pichia pastoris for expression of recombinant proteins" METHODS IN ENZYMOLOGY; EXPRESSION OF RECOMBINANT GENES IN EUKARYOTIC SYSTEMS ACADEMIC PRESS INC., 525 B STREET, SUITE 1900, SAN DIEGO, CA, 92101-4495, USA; ACADEMIC PRESS LTD., 24-28 OVAL ROAD, LONDON, NW1 7DX, UK SERIES : METHODS IN ENZYMOLOGY (ISSN, 1999, pages 154-169, XP009029632 ISSN: 0-12-182207-9 the whole document	1-30
P,X	KERN ALEXANDER ET AL: "Extending life by alternative respiration?" JOURNAL OF BIOTECHNOLOGY, vol. 118, no. Suppl. 1, August 2005 (2005-08), page S50, XP009074529 & 12TH EUROPEAN CONGRESS ON BIOTECHNOLOGY (ECB 12); COPENHAGEN, DENMARK; AUGUST 21-24, 2005 ISSN: 0168-1656 the whole document	1-30

INTERNATIONAL SEARCH REPORT

International application No.
PCT/AT2006/000079

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.:
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 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.:

1-30 (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: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-784 to -719)

2. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-784 to -763)

3. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-762 to -741)

4. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-762 to -744)

5. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-747 to -745)

6. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-740 to -719)

7. claims: 1-30 (partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-650 to -604)

8. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-590 to -561)

9. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-520 to -446)

10. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-445 to -403)

11. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-402 to -394)

12. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-369 to -337)

13. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;

- a) a transcription binding site
- b) nucleotides (-333 to -294)

14. claims: 1-30 (partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-329 to -271)

15. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-218 to -213)

16. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-217 to -216)

17. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-228 to -199)

18. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-170 to -154)

19. claims: 1-30 (partially)

A mutant *Pichia pastoris* alcohol oxidase 1 (AOX1) promoter comprising at least one mutation selected from;
a) a transcription binding site
b) nucleotides (-131 to -93)

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
W0 02081650	A2	17-10-2002	CA 2442935 A1 17-10-2002
		EP 1385866 A2 04-02-2004	
		JP 2005514001 T 19-05-2005	
		MX PA03009059 A 15-10-2004	
EP 0606917	A2	20-07-1994	JP 6209763 A 02-08-1994
		US 5643792 A 01-07-1997	