

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶ : C12N 15/31, C07K 14/315, 16/12, C12Q 1/68, C12N 1/21, 5/12, G01N 33/569, 33/68, A61K 39/09		A3	(11) International Publication Number: WO 98/50554 (43) International Publication Date: 12 November 1998 (12.11.98)
(21) International Application Number: PCT/US98/08959 (22) International Filing Date: 4 May 1998 (04.05.98) (30) Priority Data: 60/044,031 6 May 1997 (06.05.97) US 60/046,655 16 May 1997 (16.05.97) US 60/066,009 14 November 1997 (14.11.97) US (71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): KUNSCH, Charles, A. [US/US]; 4083 Spalding Hollow, Norcross, GA 30092 (US). CHOI, Gil, H. [KR/US]; 11429 Potomac Oaks Drive, Rockville, MD 20850 (US). BAILEY, Camella [US/US]; 32 Hickory Avenue, Takoma Park, MD 20912 (US). HROMOCKYJ, Alex [US/US]; 14909 Joshua Tree Road, N. Potomac, MD 20878 (US). (74) Agents: BROOKES, A., Anders et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 1 April 1999 (01.04.99)	
(54) Title: ENTEROCOCCUS FAECALIS POLYNUCLEOTIDES AND POLYPEPTIDES			
(57) Abstract The present invention relates to novel genes from <i>Enterococcus faecalis</i> and the polypeptides they encode. Also provided are vectors, host cells, antibodies and methods for producing the same. The invention additionally relates to diagnostic methods for detecting <i>Enterococcus</i> nucleic acids, polypeptides and antibodies in a biological sample. The present invention further relates to novel vaccines for the prevention or attenuation of infection by <i>Enterococcus</i> .			

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/08959

A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 C12N15/31 C07K14/315 C07K16/12 C12Q1/68 C12N1/21
C12N5/12 G01N33/569 G01N33/68 A61K39/09

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 6 C12N C07K C12Q G01N A61K

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.
A	EVERS S & COURVALIN P: "Regulation of VanB-Type vancomycin resistance gene expression by the VanS(B)-VanR (B) two-component regulatory system in Enterococcus faecalis V583." JOURNAL OF BACTERIOLOGY, vol. 178, 1996, pages 1302-1309, XP002073904 see abstract --- -/--	1-21

☒ 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.
- *Z* document member of the same patent family

Date of the actual completion of the international search

2 September 1998

Date of mailing of the international search report

03.12.98

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INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 98/08959

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	CLARK I M ET AL: "ISOLATION AND SEQUENCE DETERMINATION OF AN IMMUNODOMINANT ANTIGEN FROM ENTEROCOCCUS FAECALIS" SERODIAGNOSIS AND IMMUNOTHERAPY IN INFECTIOUS DISEASE, vol. 5, no. 2, July 1993, pages 85-92, XP002050866 see abstract see figure 3	1-21
A	--- LOWE A M ET AL: "Cloning of an Enterococcus faecalis endocarditis antigen: homology with adhesins from some oral Streptococci." INFECTION AND IMMUNITY, vol. 63, no. 2, February 1995, pages 703-706, XP002073905 see abstract see figure 2	1-21
A	--- BURNIE J P & CLARK I: "Diagnosing endocarditis with the cloned 112 kDa antigen of Enterococcus faecalis." JOURNAL OF IMMUNOLOGICAL METHODS, vol. 123, 1989, pages 217-225, XP002074342 see abstract see page 222, column 1, paragraph 2	1-21
P,A	--- XU Y ET AL: "Enterococcus faecalis antigens in human infections." INFECTION AND IMMUNITY, vol. 65, no. 10, October 1997, pages 4207-4215, XP002073906 see abstract	1-21
X	--- EP 0 652 291 A (FUSO PHARMACEUTICAL IND ;OHNO TSUNEYA (JP)) 10 May 1995 see abstract see page 4, line 27 - line 31 see claim 5 -----	19

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 98/ 08959

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:
Remark: Although claim(s) 17
is(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 compound/composition.
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:
Further defects(s) under article 17(2)(a):
The gene EF078 which is mentioned in Table 4, is not cited in Table 1
and is also absent from the sequence listing.
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.:

See extra sheet, Invention 1.

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

Inventions 7 to 41: Claims: (1-21) partially

Idem as invention 1, but concerning EF008 to EF0042

Inventions 42 to 74: Claims: (1-21) partially

Idem as invention 1, but concerning EF045 to EF077

Inventions 75 to 107: Claims: (1-21) partially

Idem as invention 1, but concerning EF079 to EF111

Inventions 108 to 123: Claims: (1-21) partially

Idem as invention 1, but concerning EF117 to EF132

Invention 124: Claim: 13 partially

An isolated polypeptide antigen comprising an amino acid sequence of an *Enterococcus faecalis* epitope of EF078 shown in Table 4.

For the sake of conciseness, the first subject matter is explicitly defined, the other subject matters are defined by analogy thereto.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 98/08959

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0652291 A	10-05-95	AU 684250 B	11-12-97
		AU 4513593 A	31-01-94
		US 5807673 A	15-09-98
		WO 9401583 A	20-01-94
		JP 2798499 B	17-09-98
		US 5763188 A	09-06-98
		US 5770375 A	23-06-98
		US 5798211 A	25-08-98
