CORRECTED VERSION*

SG 9701571-3

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 :
C12N 1/00, 1/12, 1/20, G01N 33/531

A1

(11) International Publication Number: WO 96/11258

(43) International Publication Date: 18 April 1996 (18.04.96)

(21) International Application Number: PCT/US95/13196

(22) International Filing Date: 4 October 1995 (04.10.95)

(30) Priority Data:

318,409	5 October 1994 (05.10.94)	US
08/538,543	3 October 1995 (03.10.95)	US
08/538,545	3 October 1995 (03.10.95)	US

(81) Designated States: AL, AM, AU, BB, BG, BR, BY, CA, CN, CZ, EE, FI, GE, HU, IS, JP, KG, KP, KR, KZ, LK, LR, LT, LV, MD, MG, MK, MN, MX, NO, NZ, PL, RO, RU, SG, SI, SK, TJ, TM, TT, UA, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, 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), ARIPO patent (KE, MW, SD, SZ, UG).

Published
With international search report.

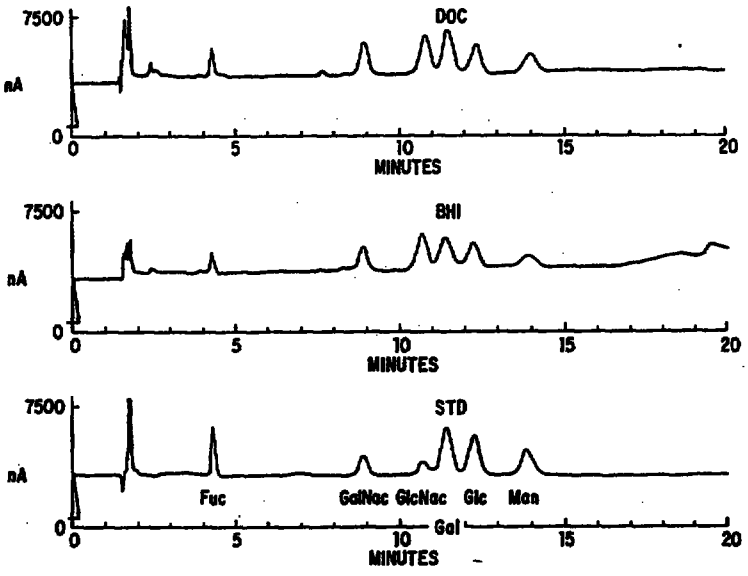
(71) Applicant: MICROCARB, INC. [US/US]; 300 Professional Drive, Gaithersburg, MD 20879 (US).

(72) Inventors: PACE, John, L.; 13117 Thackery Place, Germantown, MD 20874 (US). WALKER, Richard, I.; 120 Briscoe Street, Gaithersburg, MD 20878 (US). FREY, Steven, M.; 12529 Cross Ridge Way, Germantown, MD 20874 (US).

(74) Agents: BALDWIN, Geraldine, F. et al.; Pennie & Edmonds, 1155 Avenue of the Americas, New York, NY 10036 (US).

RTMP copy

(54) Title: METHODS FOR PRODUCING ENHANCED ANTIGENIC ENTERIC BACTERIA AND VACCINES COMPRISING SAME



(57) Abstract

Methods using *in vitro* processes are disclosed for inducing or enhancing expression of enteric bacterial antigens or virulence factors. The methods, therefore, produce antigenically enhanced enteric bacteria. Also methods for using the antigenically enhanced bacteria are also disclosed, as well as vaccines containing the enteric bacteria. Specifically, a whole enteric bacteria or components thereof are provided by Helicobacter species. Also there are other enteric bacteria which are useful for the disclosed invention. One type, Campylobacter jejuni is graphically depicted wherein the results of high-performance liquid chromatography of monosaccharides from surface extract hydrolysates of C. jejuni are shown.